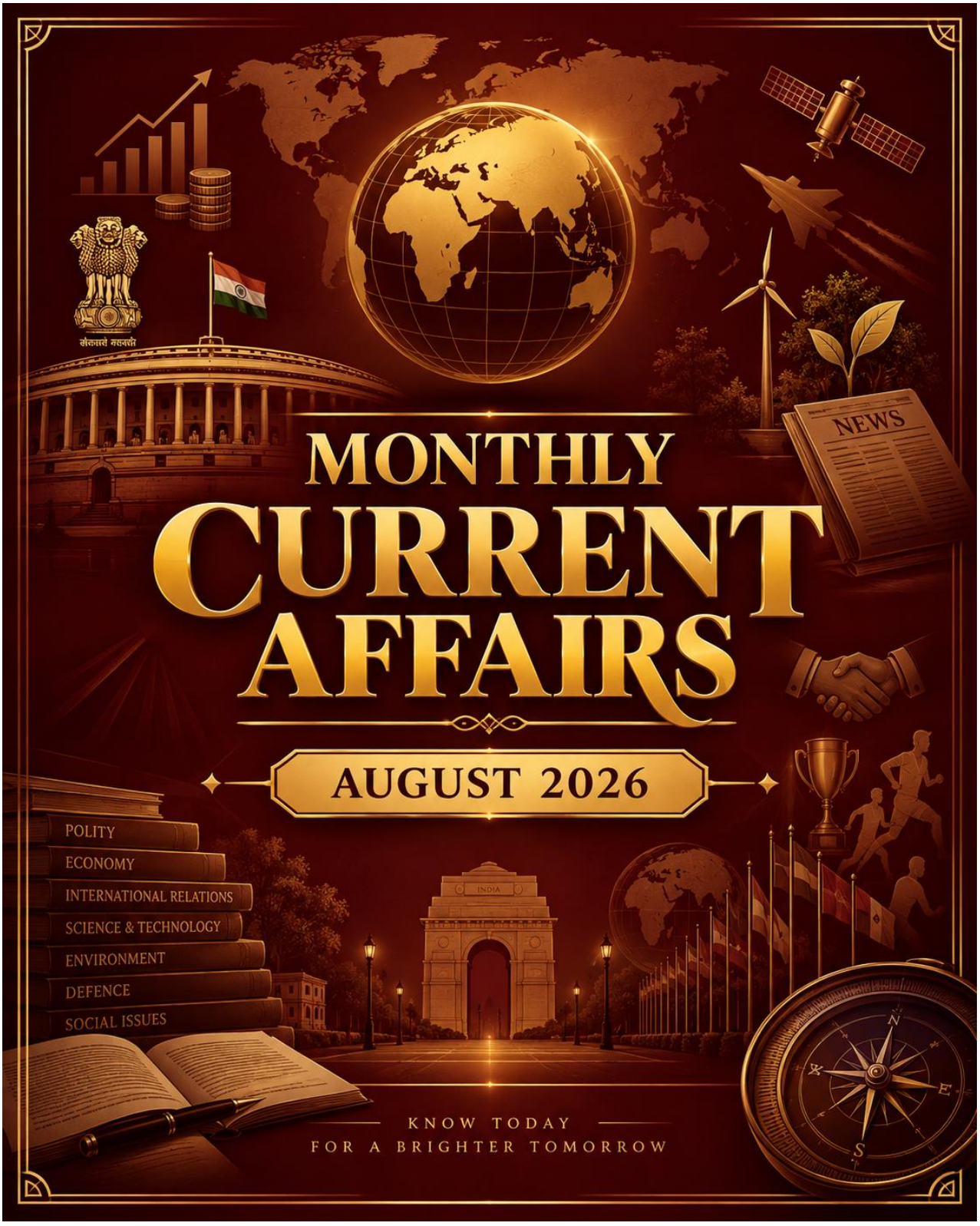
AUGUST 2026


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POLITY AND GOVERNANCE

1.1 ADR in India: From Court-Centric to Multi-Door Justice System

Why in News?

The Department-related Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice presented its report on the ADR ecosystem in India.

Major mechanisms: Arbitration, Mediation, Conciliation, Negotiation, Lok Adalats , Online Dispute Resolution (ODR)

Issues :

- **Judicial backlog:** Over 6 crore pending cases push the justice system toward crisis, making ADR essential rather than optional.
- **Low utilisation of mediation:** PIMS delivered only ~4,000 settlements in five years, showing mediation remains underused despite legal mandates.
- **Excessive judicial intervention in arbitration:** Courts frequently interfere in arbitral awards, defeating arbitration's core promise of speed and finality.
- **Weak ADR professional ecosystem:** A shortage of trained, accredited mediators and arbitrators limits ADR's scale and quality.
- **Limited ODR adoption:** Online Dispute Resolution hasn't scaled up, leaving tech-era disputes without a fast digital redressal option.
- **Funding/manpower constraints:** NALSA faces 16 of 45 posts vacant and a funding gap (₹550 crore vs ₹1,058.87 crore required), crippling ADR delivery.

Recommendations

- **Strengthen institutional ADR capacity:** Build stronger infrastructure and institutional support so ADR mechanisms can function effectively at scale.
- **Make PIMS mandatory:** Require pre-litigation mediation before filing certain civil suits, so parties are compelled to attempt settlement first.
- **Establish minimum digital standards for ODR:** Set uniform technical and procedural benchmarks so Online Dispute Resolution platforms are reliable and accessible.
- **Standardise ADR training and accreditation:** Create uniform certification norms to ensure a consistent pool of qualified mediators and arbitrators.
- **Fast-track operationalisation of MCI:** Speed up the Mediation Council of India's rollout so it can regulate and professionalise mediation nationwide.

Impact

- **Reduce court pendency:** Diverting cases to ADR eases the burden of over 6 crore pending cases in the judiciary.
- **Lower litigation costs:** Faster, out-of-court settlements save litigants time and

money compared to prolonged court battles.

- **Improve ease of doing business:** Quick, reliable dispute resolution builds investor confidence in India's commercial legal environment.
- **Promote faster commercial dispute resolution:** Efficient ADR mechanisms help businesses settle disputes without the delays of traditional litigation.

Conclusion

"Justice delayed is justice denied." India needs to shift from a predominantly court-centric justice system towards a multi-door justice system combining courts, mediation, arbitration and technology-enabled dispute resolution.

1.2 Asymmetric Federalism & the Siliguri Corridor Dilemma (Gorkha Issue)

Why in News?

The Union Home Minister held a stakeholder meeting in Siliguri and announced a high-level committee headed by interlocutor Pankaj Kumar Singh to work towards a Permanent Political Solution (PPS) to the long-standing Gorkha issue.

What is the Gorkha Issue?

The Gorkha issue revolves around demands for:

- Political self-governance.
- Protection of Gorkha/Nepali linguistic and cultural identity.
- Greater administrative autonomy.
- Historically, creation of a separate Gorkhaland State from northern West Bengal.

Aim

The objective is to establish a durable constitutional and administrative arrangement that addresses regional aspirations, provides meaningful self-governance, protects ethnic communities, preserves West Bengal's territorial integrity, and safeguards national security near the Siliguri Corridor.

Historical Evolution

- **1988 -** Darjeeling Gorkha Hill Council (DGHC) established
- **2011 -** Gorkhaland Territorial Administration (GTA) created
- **2017 -** Renewed agitation and prolonged shutdown
- **October 2025 -** Pankaj Kumar Singh appointed interlocutor
- **2026 -** High-level committee announced for PPS

Constitutional Provisions Discussed

- **Union Territory:** Creation of a UT under Article 3.
- **Autonomous State:** Article 244A provides a constitutional mechanism for an autonomous State within Assam;

extending a similar model elsewhere raises constitutional questions.

- **Sixth Schedule:** Possibility of an empowered autonomous council outside current areas requires careful examination.
- **Strengthened Autonomous Administration:** Transfer of greater legislative, financial and administrative powers to the existing arrangement.

Way Forward

Consensus-based federalism consulting all communities; real devolution of financial and administrative powers; protection of minority non-Gorkha interests; and development-led settlement.

1.3 Balancing Foreign-Fund Regulation with Civil-Society Space (FCRA)

Why in News?

The Foreign Contribution (Regulation) Amendment Bill, 2026 has been referred to a Joint Parliamentary Committee (JPC).

Aim

- **Improve Transparency & Accountability :** Strengthen monitoring of foreign contributions received and utilised by NGOs and other registered organisations.
- **Address Asset-Management Gap :** Provides a legal framework for dealing with assets created or acquired through foreign contributions after cessation of FCRA registration.

Key Provisions

- **Designated Authority :** Provides for a Designated Authority to deal with assets associated with foreign-funded organisations after cessation of registration.
- **Provisional Custody :** Assets may be placed under provisional custody after the organisation's FCRA registration ceases, preventing their unauthorised transfer or disposal.
- **Permanent Vesting :** Under specified circumstances, such assets may vest permanently with the government.
- **Appeal Mechanism :** Provides affected organisations with a mechanism to challenge decisions relating to custody or vesting of assets.
- **Automatic Cessation :** FCRA registration may automatically cease in specified circumstances, reducing ambiguity over the legal status of organisations.
- **Reduced Maximum Imprisonment :** The proposed changes seek to reduce the maximum imprisonment for certain FCRA-related offences.

Significance

- **National Security :** Stronger monitoring can help prevent foreign funds from being

diverted towards activities contrary to national security or public interest.

- **Transparency :** Improved tracking of foreign contributions and associated assets can reduce financial opacity and misuse.
- **Accountability :** A defined framework for asset management after cessation of registration reduces legal uncertainty.
- **Regulatory Certainty :** Clear procedures for custody, vesting and appeals can make enforcement more predictable.

Concerns

- **Excessive Executive Discretion :** Broad administrative powers may create concerns regarding arbitrary or disproportionate action.
- **NGO Autonomy:** Excessive regulation could affect the ability of legitimate civil-society organisations to operate independently.
- **Due Process:** Decisions affecting registration and property should follow notice, hearing and reasoned decision-making.
- **Property Rights:** Permanent vesting of assets raises questions regarding ownership and constitutional protection of property.
- **Chilling Effect on Civil Society :** Excessive compliance burdens may discourage legitimate organisations from receiving foreign support or undertaking socially beneficial activities.

Way Forward

- **Prior Notice:** Give organisations adequate notice before adverse action.
- **Right to Hearing:** Ensure affected entities can present their case.
- **Reasoned Orders:** Authorities should clearly explain the basis for decisions.
- **Judicial Review:** Maintain effective avenues for independent judicial scrutiny.
- **Independent Grievance Mechanism:** Provide a neutral mechanism for resolving disputes.
- **Targeted Scrutiny:** Focus intensive monitoring on high-risk organisations and transactions rather than imposing identical burdens on all NGOs.

1.4 Balancing Religious Sentiments with Fundamental Rights

Why in News?

Punjab's stringent legislation concerning acts of sacrilege against the Guru Granth Sahib has renewed debate over religious sentiments, secularism, freedom of expression and social reform.

Significance

- **Freedom of religion :** Article 25 protects freedom of conscience and religion.

- **Freedom of speech :** Article 19(1)(a) protects expression, subject to reasonable restrictions.
- **Public order :** Religious offences may have implications for communal harmony.

Impact

- **Legal protection:** Strengthens protection against deliberate acts targeting sacred religious objects.
- **Constitutional concern:** Excessively broad restrictions may affect legitimate speech, criticism and academic discussion.

Challenges

- **Intent vs perception:** Distinguishing deliberate religious insult from accidental or unintended acts can be difficult.
- **False complaints:** Stringent provisions may be misused to target individuals or settle personal disputes.
- **Constitutional balance:** Laws must balance protection of religious sentiments with Article 19(1)(a) freedom of speech and expression. India's legal framework already places emphasis on deliberate and malicious intent in religious-insult offences.

Way Forward

- **Legal certainty:** Clearly define what constitutes sacrilege or religious insult.
- **Intent requirement:** Punishment should focus on intentional and malicious acts, rather than mere offence caused.
- **Prevent arbitrary action:** Ensure fair investigation, evidence-based prosecution and judicial oversight.
- **Academic freedom:** Laws should not be used against genuine criticism, research, literature or scholarship.

1.5 Central Adoption Resource Authority (CARA) & Regulatory Bottlenecks

Why in News?

The Central Adoption Resource Authority (CARA) is reviewing the Adoption Regulations, 2022 to address legal, procedural and implementationrelated bottlenecks, with particular attention to improving adoption of children with special needs, including those with treatable medical conditions.

What is CARA?

- CARA is the statutory apex body and nodal authority for adoption of Indian children, functioning under the Ministry of Women and Child Development (MWCD).
- It was established in 1990 and received statutory status under Section 68 of the Juvenile Justice (Care and Protection of Children) Act, 2015.

Key Functions

- Regulates incountry and intercountry adoption.
- Frames and updates adoption regulations.
- Coordinates with State Adoption Resource Agencies (SARAs) and Specialised Adoption Agencies (SAAs).
- Operates the CARINGS digital platform for adoptionrelated processes.
- Monitors adoption agencies and promotes ethical adoption.
- Acts as India's Central Authority for intercountry adoption under the 1993 Hague Convention.

Significance

- **Childcentric adoption :** Ensures that the best interests of the child remain central to adoption.
- **Prevention of trafficking :** Regulated procedures reduce the possibility of illegal adoption and child trafficking.
- **Transparency :** Digital systems such as CARINGS provide a structured adoption process.
- **Special needs children :** Greater focus on children with disabilities and medical needs can reduce their prolonged stay in institutional care.

Way Forward

- Simplify procedures without weakening safeguards.
- Strengthen digital monitoring through CARINGS.
- Improve counselling and support for prospective adoptive parents.
- Create greater awareness regarding adoption of older and specialneeds children.
- Strengthen postadoption support and monitoring.

1.6 Central Bureau of Narcotics (CBN) vs NCB Architecture

Why in News?

The Central Bureau of Narcotics (CBN) has intensified action against illicit narcotics trafficking and diversion.

Institutional Framework

- CBN → Department of Revenue → Ministry of Finance
- It is the principal agency associated with the control and supervision of licit opium cultivation in India.

Feature	Central Bureau of Narcotics (CBN)	Narcotics Control Bureau (NCB)
Ministry	Ministry of Finance	Ministry of Home Affairs
Department	Department of Revenue	—
Core role	Regulation of licit opium cultivation and prevention of diversion	Combating illicit drug trafficking and coordinating enforcement
Focus	Legal/regulated narcotic production	Illegal narcotics trafficking
Opium cultivation	Major responsibility	Not its primary role
Enforcement	Enforces provisions relating to regulated narcotic activities	Coordinates and supports anti-drug enforcement
Established	Earlier narcotics-control institution	1986
Key law	NDPS Act, 1985 and related rules	NDPS Act, 1985

1.7 Citizenship in India-US: Electoral Roll Verification

Why in News?

US electoral rules concerning voter identification and citizenship verification have been compared with India's electoral-roll verification process, particularly the Special Intensive Revision (SIR).

What it is?

The two countries have fundamentally different electoral architectures:

- **USA:** Decentralised election administration.
- **India:** Election Commission of India has constitutional superintendence over elections.
- **Aim:** Ensure electoral integrity while maintaining universal and accessible participation.

Significance & Challenges

- **Electoral Integrity :** Accurate electoral rolls are essential for credible elections.
- **Challenges:** Poor and marginalised citizens may lack required documents; administrative burden of verification; balancing electoral purity with legitimate voter participation.

Way Forward

- **Accessible Verification :** Use multiple reliable forms of identification.

- **Due Process :** Provide notice and appeal mechanisms before deletion from electoral rolls.
- **Technology with Safeguard :** Use digital verification while protecting privacy.
- **Independent Oversight:** Ensure transparent electoral-roll revision.

1.8 Cybercrime in India: Parliamentary Committee Report

Why in News?

The Department-related Parliamentary Standing Committee on Home Affairs presented its report titled "Cyber Crime – Ramifications, Protection and Prevention."

Important recommendations:

Grievance Redressal

- Standardised, multilingual grievance system.
- Unique complaint tracking numbers.
- Automatic escalation.
- Periodic publication of anonymised statistics:

OTT & Minors

- Independent Post Release Review Panel.
- Technology-enabled age verification.
- Parental controls.

Fraudulent Online Advertisements

- Digital document verification.
- Live video identification.
- Continuous monitoring based on zero-trust principles.

Mule Accounts

- Operationalise Central Payment Fraud Information Registry (CPFIR).
- Real-time, interoperable fraud database.

CBI Jurisdiction

- Greater Centre-State cooperation.
- Proposed amendment to DSPE Act, 1946.
- **NCRP → FIR :** Time-bound mechanism to convert cybercrime complaints into e-FIRs.

Cyber Education

- Mandatory cyber-safety curriculum.
- Teacher training.
- Multilingual materials.

Legislative Reform

- Periodic review of cyber laws.
- Unified, technology-neutral cybercrime legislation.
- Integrated Cybercrime Task Force.

Challenges

- **Fragmented cybercrime legislation:** Cybercrime provisions are scattered across the IT Act, IPC/BNS, and other laws, causing overlaps and enforcement gaps.
- **Cross-border nature of cybercrime:** Many scams originate abroad (e.g., cyber-fraud hubs in Southeast Asia), making arrest and prosecution difficult under domestic law alone.
- **Mule-account networks:** Fraudsters use bank accounts opened in others' names (often via identity theft or small payments

to poor individuals) to launder stolen money and evade tracing.

- **Slow FIR registration:** Delays in filing First Information Reports let cybercriminals move funds or vanish before action is taken.

Conclusion

India requires a three-layered approach - prevention, rapid response and effective prosecution — supported by technology, institutional coordination and cyber literacy.

1.9 Death Penalty & Execution by Hanging

Why in News?

The Supreme Court upheld the constitutional validity of execution by hanging, rejecting the challenge that hanging constitutes cruel, inhuman or degrading treatment and violates the dignity guaranteed under Article 21.

What is the Issue?

India retains the death penalty for the "rarest of rare" cases. Under the Bharatiya Nagarik Suraksha Sanhita (BNSS), 2023, execution of a death sentence is carried out by hanging.

Aim of Judicial Scrutiny

- Protect human dignity.
- Prevent cruel or excessive punishment.
- Ensure constitutional safeguards.
- Balance individual rights with legitimate punishment.

Significance

- **Article 21 and Human Dignity :** Article 21 does not merely protect physical existence; judicial interpretation has expanded it to include dignity and humane treatment.
- **Judicial Review :** Even after conviction, the State's method of punishment remains subject to constitutional scrutiny.
- **Rarest-of-Rare Doctrine :** The death penalty is not imposed routinely but only in exceptional circumstances.

Important Constitutional Provisions

- **Article 14 - Equality :** Requires that State action should not be arbitrary or discriminatory.
- **Article 21 - Life and Personal Liberty :** Provides the constitutional foundation for:Human dignity, Humane treatment
- **Article 32 :** Provides the right to approach the Supreme Court for enforcement of fundamental rights.
- **Article 72 :** Gives the President power to grant pardon, reprieve, respite, remission or commutation in certain cases.
- **Article 161 :** Provides similar clemency powers to the Governor within the State's constitutional domain.

Landmark Judgments

Bachan Singh v. State of Punjab, 1980

- Whether the death penalty itself violates the Constitution.

- Supreme Court's Position : The Court upheld the constitutional validity of capital punishment but established the: "Rarest of Rare" Doctrine Death penalty should be imposed only when the alternative option of life imprisonment is unquestionably inadequate.

Deena v. Union of India, 1983

- Whether execution by hanging violates Article 21.
- Supreme Court's Position : The Court upheld hanging as the prescribed method of execution, subject to proper and humane implementation.

Shatrughan Chauhan v. Union of India, 2014

- Whether excessive delay in deciding mercy petitions can justify commutation of a death sentence.
- Supreme Court's Position : The Court recognised that undue delay in execution can cause extreme psychological suffering and may violate Article 21.

Law Commission of India, 2015

- The Law Commission's 262nd Report examined the death penalty.
- It recommended abolition of the death penalty for all crimes except terrorism-related offences and waging war against the State, while acknowledging the complexity of the issue.

Impact

- **Human dignity:** Reinforces Article 21 and humane treatment even after conviction.
- **Criminal justice:** Demands stronger safeguards against wrongful convictions.
- **Prison administration:** Requires standardised and humane execution procedures.
- **Victim justice:** Supports proportional punishment while highlighting compensation and speedy justice.
- **Human-rights debate:** Keeps the debate alive between retributive and reformative justice.

Challenges

- **Wrongful execution:** Death is irreversible if the conviction is later found wrong.
- **Pain & dignity:** Questions remain over whether hanging causes avoidable suffering.
- **Scientific uncertainty:** No universal consensus on the most humane execution method.
- **Execution delays:** Prolonged death-row confinement can cause psychological suffering.
- **Unequal legal access:** Poor legal representation can affect capital cases.
- **Deterrence debate:** Evidence on whether death penalty deters crime more than life imprisonment remains contested.

Way Forward

- **Scientific review:** Regularly assess execution methods using medical and forensic evidence.
- **Strong safeguards:** Improve investigation, forensic evidence and legal representation.
- **Standard protocols:** Ensure uniform, humane execution procedures.
- **Faster justice:** Reduce unnecessary delays in appeals and mercy petitions.
- **Victim-centric justice:** Combine punishment with compensation, rehabilitation and speedy justice.
- **Periodic review:** Reassess capital punishment based on constitutional values and evidence.

1.10 Deemed Distribution Licence (DDL) in Power Regulation

Why in News?

The Andhra Pradesh Government proposed a Deemed Distribution Licence (DDL) for large hyperscale AI data centres, including the proposed Google–Adani data-centre project in Visakhapatnam. The proposal has faced legal and civil concerns.

What is DDL?

A DDL allows an entity to be treated as an authorised electricity distributor within a specified area without going through the normal distribution-licensing process.

Aim

- Meet huge electricity demand of AI data centres.
- Allow direct procurement of renewable power.
- Build dedicated electricity infrastructure.
- Attract large technology investments.

About

- **Nodal Ministry:** Ministry of Power, Government of India
- **Regulatory framework:** Electricity Act, 2003
- **Key regulators:** Central Electricity Regulatory Commission (CERC) and State Electricity Regulatory Commissions (SERCs).

Significance

- **AI infrastructure :** Hyperscale data centres require reliable, continuous power.
- **Green transition:** Enables direct renewable-energy procurement through PPAs and exchanges.
- **Investment :** Can make Andhra Pradesh more attractive for large technology projects.

1.11 Digital Panchayats & DAANVEER Initiative

Why in News?

The Ministry of Panchayati Raj has encouraged citizens, CSR entities and

members of the diaspora to contribute computers to eligible Gram Panchayats.

What is DAANVEER?

DAANVEER is an initiative associated with the Ministry of Panchayati Raj that encourages citizens, CSR organisations and the Indian diaspora to donate computers and other digital equipment to verified Gram Panchayats that lack adequate IT infrastructure.

- **Core idea:** Voluntary donation + Digital infrastructure → Stronger Gram Panchayat-level e-governance
- **Meri Panchayat App :** Linked with the Meri Panchayat App to improve citizens' access to local governance information and promote transparency.
- **Ecosystem:** Utilizes the DigiHaat / ONDC ecosystem to facilitate donation and delivery.

1.12 Disaster Management: Parliamentary Committee Report

Why in News?

A Parliamentary Committee highlighted gaps in India's disaster-management architecture and recommended updating policies and institutions.

Area	Key Fact
DM Act -	Disaster Management Act, 2005, with 2025 amendment
National Policy	National Policy on Disaster Management, 2009
NDMP	First issued in 2016; revised in 2019
Fire Services	Only 10 States adopted revised Model Bill
UDMA	Karnataka only State mentioned as having constituted specialised UDMAs
Community preparedness	Aapda Mitra, VDMPs

Major concerns

- **Disaster landscape has changed since 2009:** The 2009 National Policy on Disaster Management is outdated given new-age risks like pandemics, cyclones intensified by climate change, and urban flooding.
- **Climate change and urbanisation are creating new risks:** Rapid unplanned urban growth combined with erratic weather patterns increases vulnerability to floods, heatwaves, and landslides.
- **NDMP predates the 2025 amendment:** The National Disaster Management Plan hasn't been updated to reflect recent legal and institutional changes.

- **Urban fire risks remain inadequately addressed:** Weak enforcement of fire safety norms in high-rises and slums leads to recurring tragedies (e.g., hospital or building fires).

Recommendations

- **Integrate seismic and landslide maps into town planning:** Ensure construction and zoning decisions account for hazard-prone areas.
- **Make Disaster Risk Impact Assessment (DRIA) mandatory:** Require risk assessments before major infrastructure or development projects.
- **Strengthen mitigation financing:** Shift funding focus from relief to disaster prevention and preparedness.
- **Expand Aapda Mitra:** Scale up this community volunteer scheme for faster local disaster response.
- **Integrate VDMPs with district plans:** Ensure village-level disaster plans feed into and align with broader district strategies.

Conclusion

India must move from "managing disasters" to "managing disaster risk."

1.13 Emergency Finance, Public Trust: Understanding the PM CARES Fund

Why in News?

The PM CARES Fund released delayed audited statements for FY 2023–24 and FY 2024–25. The supplied material highlights its large closing balance relative to expenditure during FY25.

What is PM CARES?

Prime Minister's Citizen Assistance and Relief in Emergency Situations Fund .Established in 2020, during the COVID-19 pandemic.

Aim

To provide assistance during:

- Public health emergencies
- Natural calamities
- Man-made disasters
- Healthcare crises
- Emergency relief situations

Institutional Structure

- Prime Minister - Chairperson
- Ministers of Defence, Home Affairs and Finance - ex-officio trustees
- Eminent persons - nominated trustees

Significance

- **Emergency financing :** Provides a flexible corpus during extraordinary crises.
- **Healthcare capacity :** Can support medical infrastructure and emergency preparedness.

- **Citizen participation :** Allows voluntary public contributions.
- **Disaster response :** Can supplement government relief mechanisms.

Key Features

- Voluntary contributions.
- No regular budgetary allocation from Union government.
- Donations eligible for tax benefits.
- CSR contributions permitted.
- Foreign contributions can be received under applicable arrangements.

Challenges

- **Transparency & Disclosure :** Need for greater transparency regarding the fund's receipts, investments and utilisation.
- **Timeliness of Audited Statements :** Delayed publication of audited statements can weaken public oversight.
- **Public Accountability :** As the fund operates for public relief purposes, its functioning requires strong accountability mechanisms.

Way Forward

- **Timely Publication of Audited Statements -** Ensure regular and prompt release of audited financial statements.
- **Greater Proactive Disclosure :** Publish relevant financial and operational information proactively.

1.14 Federalism & Sixth Schedule: Uranium Mining Opposition in Meghalaya

Why in News?

Meghalaya Assembly opposed uranium mining and ore-processing facilities in the state. The issue reflects long-standing concerns of local communities in South West Khasi Hills.

Constitutional Dimension

Autonomous District Councils (ADCs): The Sixth Schedule provides for Autonomous District Councils with powers over specified aspects of local administration, particularly matters concerning customary practices, land and community affairs.

Customary Rights: Tribal communities have historically exercised customary systems governing land and natural resources, making resource extraction a sensitive issue.

Federal Dimension

- **Central Strategic Interest**: Atomic energy and nuclear-related activities fall substantially within the Union's domain, with the Atomic Energy Act, 1962 providing the statutory framework for atomic-energy-related activities.
- **State Concerns:** Mining and associated industrial activities have implications for land, environment, public health and local livelihoods, areas in which State and local institutions have important roles.

- **Tribal Autonomy:** The Sixth Schedule adds another layer by recognising distinctive systems of tribal self-governance.

Governance Issues

- **Environmental Assessment:** Scientific and transparent Environmental Impact Assessment (EIA) is essential for assessing ecological and health risks.
- **Customary Land Rights:** Project decisions should account for the constitutional and customary framework governing tribal land and community resources.
- **Centre–State Coordination**: Strategic energy requirements should be reconciled with State and local concerns through institutional dialogue rather than unilateral decision-making.
- **Benefit Sharing:** Where resource extraction is undertaken, mechanisms for local employment, development benefits and community welfare can improve legitimacy.

1.15 From Parchment to Code: Re-Engineering Indian Jurisprudence for the FinTech Era

Why in News ?

Passed by the Lok Sabha to replace the pre-independence Bankers' Books Evidence Act, 1891, aligning evidence standards with contemporary digital banking.

The Bill recognises banking records maintained in multiple formats, including:

- Physical records
- Electronic and digital records
- Virtual records
- Core Banking Solution (CBS) records
- Cloud-based records

Aim

- **Modernise Banking Evidence:** Replace a 19th-century framework with rules suited to contemporary banking.
- **Digital Compatibility:** Give legal recognition to the diverse ways in which banks create and store records.
- **Ease Judicial Process:** Facilitate the production and verification of banking records in courts.

Significance & Impact

- **Faster Financial Litigation:** Easier production of banking records can support quicker adjudication of fraud and commercial disputes.
- **NPA Resolution:** Reliable access to banking records can assist proceedings involving stressed assets and NPAs.
- **FinTech Alignment:** Brings evidentiary law closer to India's rapidly digitising financial ecosystem.
- **Reduced Administrative Burden:** Greater acceptance of electronic records can reduce dependence on physical copies.

- **Evidence Integrity:** Creates a stronger legal basis for handling digitally stored banking information.

Way Forward

- **Standardised Digital Forensics:** Develop uniform protocols for authentication and verification of electronic banking evidence.
- **Judicial Capacity Building:** Train judges and court staff in assessing electronic records and digital certificates.
- **Cybersecurity:** Strengthen safeguards against alteration, unauthorised access and manipulation of banking records.
- **Interoperability:** Ensure evidence systems can work effectively across banks, investigating agencies and courts.

1.16 Hijab & Essential Religious Practices (ERP) Doctrine

Why in News?

Judicial observations on whether wearing the hijab qualifies as an Essential Religious Practice (ERP) have revived the debate over Article 25 and the limits of judicial scrutiny of religious practices.

Constitutional Framework

- **Article 25 :** Guarantees freedom of conscience and the right to profess, practice and propagate religion (subject to public order, morality, and health).

Essential Religious Practices (ERP) Doctrine

- A judge-made doctrine used to determine which religious practices receive constitutional protection.
- Key question**: Is the practice essential to the religion, or merely associated with it?**
- Courts have historically examined religious texts, traditions and practices to make this determination.

Core Constitutional Tension

Religious Freedom ↔ Equality ↔ Individual Autonomy ↔ Institutional Discipline

Why Controversial?

- **Critics:** Courts should not decide theological questions or determine what is essential to a religion.
- **Supporters:** Constitutional courts must determine whether claimed religious practices are protected by Fundamental Rights.

Way Forward

- Protect genuine religious freedom while respecting constitutional limits
- Minimise theological adjudication where possible; balance religious claims with equality and dignity
- Permit reasonable, proportionate institutional regulations
- Apply constitutional principles consistently.

1.17 Institutionalising Cooperative Federalism: Zonal Councils

Why in News?

The 31st Southern Zonal Council meeting was held under the chairmanship of the Union Home Minister, highlighting the role of Zonal Councils in resolving inter-State issues and strengthening cooperative federalism.

About Zonal Councils

- **Established:** 1956
- **Legal Basis:** States Reorganisation Act, 1956
- **Nature:** Statutory bodies
- **Number:** 5 Zonal Councils
- **Chairman:** Union Home Minister
- **Vice-Chairman:** Chief Minister of one of the member States, by rotation
- **Members:** Chief Ministers and selected Ministers of member States; Union Ministers may also be associated.

Five Zonal Councils

- Northern Zonal Council
- Central Zonal Council
- Eastern Zonal Council
- Western Zonal Council
- Southern Zonal Council

Note

North Eastern Council (NEC) is NOT a Zonal Council.

- **Established:** 1971
- **Legal basis:** North-Eastern Council Act, 1971
- Covers the North-Eastern region.

Aim

- Promote cooperative federalism.
- Resolve inter-State disputes through dialogue.
- Coordinate regional development.
- **Discuss common issues such as:** Water sharing, Infrastructure, Transport, Border issues, Economic development, Internal security

Significance

- **Governance -** Provides an institutional platform for Centre–State and inter-State coordination.
- **Federalism -** Encourages consultation and consensus rather than confrontation.
- **Regional Development-** Helps neighbouring States coordinate on projects and common challenges.

1.18 Inter-State River Water Disputes

Why in News ?

Tamil Nadu's Finance Minister affirmed during the state budget speech that the state would firmly safeguard its rightful share of inter-state river waters (such as the Cauvery).

Constitutional Framework

Provision	Significance

Article 262	Parliament may provide for adjudication of inter-State river-water disputes and may **exclude the jurisdiction of courts**.
Seventh Schedule – Entry 17, State List	Water is primarily a **State subject**, but subject to Entry 56 of the Union List.
Entry 56, Union List	Parliament can regulate and develop **inter-State rivers and river valleys** when declared expedient in the public interest.
Article 131	Provides Supreme Court jurisdiction in certain disputes between States, but Parliament can exclude court jurisdiction for inter-State water disputes under Article 262.

Key Legislations

- **Inter-State River Water Disputes Act, 1956**
  - Provides for ad-hoc water dispute tribunals.
  - Tribunal awards are intended to be binding.
  - Designed to resolve disputes between States over sharing of river waters.
- **River Boards Act, 1956**
  - Provides for establishment of River Boards for regulation and development of inter-State rivers.
  - Boards are primarily advisory in nature.
  - Has seen limited practical implementation.

Major Challenges

- **Delayed adjudication:** Ad-hoc tribunals can take several years or decades.
- **Implementation deficit:** Compliance becomes difficult during drought and low-flow years.
- **Upstream–downstream conflict:** Upstream States control significant water infrastructure, affecting downstream flows.
- **Climate variability:** Erratic monsoons and increasing drought frequency complicate fixed water-sharing arrangements.
- **Political federalism:** River disputes often become politically sensitive State–State conflicts.

- **Data disputes:** Lack of universally accepted, real-time hydrological data can fuel disagreements.

Significance for Tamil Nadu

- Cauvery is crucial for Tamil Nadu's delta agriculture.
- Water-sharing disputes involve Karnataka, Tamil Nadu, Kerala and Puducherry.
- Highlights the need to balance equitable utilisation with downstream ecological and livelihood requirements.
- Tests the functioning of cooperative federalism.

Way Forward

- **Permanent adjudicatory mechanism**: Move towards a permanent tribunal structure with defined timelines.
- **Centralised hydro-data system**: Establish transparent, real-time sharing of rainfall, reservoir and river-flow data.
- **River-basin approach:** Manage rivers according to the entire basin, rather than State boundaries.
- **Drought-year protocols:** Develop predetermined mechanisms for water sharing during distress years.
- **Strengthen cooperative federalism:** Regular Centre–State and inter-State consultations.
- **Climate-resilient water management:** Promote groundwater recharge, efficient irrigation and crop diversification

1.19 Jago – AI-Powered Tribal Welfare Assistant

Why in News?

The Ministry of Tribal Affairs launched Jago, an AI-based conversational assistant to improve awareness and access to tribal welfare schemes.

Operational Flow

- **Citizen Query**: The beneficiary asks a question about a welfare scheme.
- **AI Assistance:** Jago understands and processes the query using AI.
- **Scheme Identification:** It identifies the relevant government scheme.
- **Scheme Information:** It provides eligibility, benefits and required details.
- **Application Guidance:** It guides the beneficiary on the application process.

Significance & Challenges

- **Last-mile Governance**: It bridges the information gap between government schemes and tribal beneficiaries.
- **Inclusion:** It improves access to welfare services for remote and underserved tribal communities.

- **Digital Governance**: It uses AI to simplify access to government welfare schemes.
- **Language Accessibility:** It reduces linguistic barriers through local-language support.
- **Empowerment:** It helps beneficiaries understand their rights, entitlements and available welfare benefits.

Challenges

- **Digital Divide**: Limited internet connectivity and digital literacy in remote tribal areas.
- **Algorithmic Errors:** Incorrect AI responses could lead to wrong cheme selection or application guidance.
- **Language Accuracy**: Tribal dialects may have limited digital-language datasets.
- **Data Privacy:** Handling beneficiary information requires strong safeguards.
- **Human Dependency:** AI cannot fully replace local officials and community-level support systems.

Way Forward

- AI as an Assistant, Not a Replacement
- Combine AI platforms with human help desks and frontline workers.
- Undertake regular audits and fact-checking of AI-generated responses.

1.20 Judicial Entry Recast: Civil Judge Recruitment & Judicial Training

Why in News?

The Supreme Court, in Bhumika Trust v. Union of India (21 August 2026), modified its 2025 decision that had restored the requirement of three years of legal practice for direct recruitment as Civil Judge (Junior Division).

Background

In May 2025, the Supreme Court restored the requirement of three years of practice at the Bar for entry-level judicial service.

The Court has now adopted a hybrid model combining:

- Actual legal practice
- Judicial Academy training
- Supervised Law Clerkship

Emphasis shifts from "three years of Bar practice" to "practical judicial exposure through multiple channels."

New Framework

Transitional Period — Till 31 March 2027

- Candidates covered by recruitment notifications issued between 20 May 2025 and 31 March 2027 can apply without completing the three-year practice requirement.
- Selected candidates will initially be appointed as Trainee Judicial Officers.

One-Year Judicial Academy Training

- Trainees undergo one year of intensive training at the concerned State Judicial Academy covering court procedures, judicial reasoning, evidence, case management, and ethics.

One-Year Structured Law Clerkship

- 6 months : Under Principal District Judge / District & Sessions Judge / Higher Judicial Service member
- 6 months : Under a sitting High Court judge

For recruitment notifications issued on or after 1 April 2027

- Candidate must have at least one year of actual legal practice before appearing for the Civil Judge (Junior Division) examination, with certified evidence of effective courtroom participation.

Constitutional Framework

- **Article 233 — District Judges:** Deals with appointment, posting and promotion of District Judges by the Governor in consultation with the High Court.
- **Article 234 — Other Judicial Service:** Deals with recruitment of persons other than District Judges to the judicial service of a State (Governor consultation with SPSC and High Court).
- **Article 235 — Control of Subordinate Judiciary:** Vests control over district courts and courts subordinate thereto in the concerned High Court.

1.21 National Medical Commission (NMC)

About

NMC is India's apex statutory regulatory body for medical education and the medical profession.

Aim

- Improve quality of medical education.
- Regulate medical institutions.
- Establish standards for medical professionals.
- Promote ethical medical practice.

Significance & Impact

- **Greater Standardisation of Medical Education:** Establishes common standards for medical education across institutions. Promotes greater uniformity in curriculum, training and assessment.
- **Stronger Regulatory Oversight:** Strengthens monitoring of medical colleges and medical education standards.

Challenges

- **Doctor Shortages:** Insufficient availability of doctors can affect access to quality healthcare, particularly in underserved areas.
- **Regional Disparities:** Unequal distribution of medical colleges and healthcare professionals creates differences in healthcare access across regions.
- **Infrastructure Differences:** Medical colleges vary in terms of facilities, equipment, hospitals and teaching resources.

Way Forward

- **Strengthen Accreditation :** Ensure medical colleges meet uniform quality and infrastructure standards.
- **Expand Medical Education in Underserved Regions :** Encourage new medical institutions in underserved and remote areas.
- **Improve Faculty and Infrastructure :** Strengthen teaching faculty, laboratories, hospitals and clinical-training facilities.
- **Maintain Transparent Regulation :** Ensure transparent, objective and consistent regulatory processes.

1.21 New Definition of 'Industry' under Labour Code

Why in News?

The Supreme Court ruled that the definition of "industry" under the Industrial Relations Code, 2020 must be interpreted independently and is not automatically governed by the 1978 Bangalore Water Supply judgment.

Background

The Bangalore Water Supply and Sewerage Board v. R. Rajappa (1978) judgment adopted a broad interpretation of "industry" under the Industrial Disputes Act.

The judgment is commonly associatewith the "triple test":

- Systematic activity
- Cooperation between employer and employee
- Production/distribution of goods or services to satisfy human wants or wishes.

Aspect	Earlier Framework	Industrial Relations Code, 2020
Governing law	Industrial Disputes Act, 1947	Industrial Relations Code, 2020
Meaning of industry	Interpreted substantially through judicial precedents	Must be interpreted primarily from the new Code
Role of 1978 judgment	Major precedent under the old Act	Cannot be mechanically applied
Approach	Broad judicial interpretation	Fresh interpretation based on statutory language
Impact	Wider uncertainty over coverage of some establishments	Potentially clearer, but dependent on judicial interpretation

Significance & Impact

- **Labour Rights:** The definition determines which establishments and workers come within the industrial-relations framework.
- **Statutory Interpretation:** A new legislation may require courts to interpret its provisions independently rather than simply transplanting precedents from repealed laws.
- **Coverage of Establishments:** The ruling could influence whether particular service-sector and other establishments qualify as an "industry."
- **Regulatory Certainty:** A clear interpretation can reduce uncertainty for both employers and workers.
- **Balance of Interests:** The challenge is to combine worker protection with ease of doing business.

Challenges

- **Transition from Old Jurisprudence:** Courts and stakeholders must adapt from decades of case law under the Industrial Disputes Act.
- **Coverage Uncertainty:** Establishments may face uncertainty until the contours of the new definition become settled.
- **Worker Protection:** A narrower interpretation should not unintentionally exclude legitimate labour protections.
- **Uniformity:** Different interpretations by courts or authorities could create regulatory inconsistency.

Way Forward

- **Clear Statutory Rules:** Provide greater clarity through rules and authoritative interpretation under the IRC.

- **Consistent Jurisprudence:** Courts should develop a coherent body of precedent based on the new Code.
- **Worker-Centric Transition:** Ensure that changes in coverage do not undermine legitimate labour rights.
- **Ease of Compliance:** Simplify compliance for establishments while retaining effective safeguards for workers.

1.22 NITI Aayog

Why in News?

A new Chief Executive Officer (Shri. Anurag Jain I.A.S) assumed charge of NITI Aayog, bringing attention to the role of the institution in shaping India's development strategy and policy framework.

What is NITI Aayog?

- **Full Form:** National Institution for Transforming India (NITI Aayog)
- **Meaning:** NITI Aayog is India's premier public policy think tank.

Establishment of NITI Aayog

- **Established:** 1 January 2015
- **Replaced:** Planning Commission (1950–2014)

Constitutional Status

NITI Aayog is:

- Non-constitutional body
- Non-statutory body
- Created through an Executive Resolution of the Government of India

Structure of NITI Aayog

- **Chairperson** - Prime Minister of India
- **Governing Council Includes:** Prime Minister, Chief Ministers of all States, Chief Ministers of Union Territories with legislatures , Administrators of other Union Territories
- **Vice-Chairperson** - Appointed by the Prime Minister, Holds the rank of Cabinet Minister.
- **CEO** - Appointed by the Government of India.

1.23 Polygamy and Personal Laws

Why in News?

The Supreme Court examined a challenge concerning the constitutional validity of polygamy, raising questions about the relationship between personal laws, religious freedom and fundamental rights.

What is Polygamy?

Polygamy refers to a marital system in which a person has more than one spouse.

In the Indian context, the debate primarily concerns polygyny — a man having multiple wives.

Constitutional Framework

- **Article 14** -Guarantees equality before law and equal protection of laws.
- **Article 15** -Prohibits discrimination on specified grounds, including sex.
- **Article 21**-Protects life and personal liberty, including dignity.

- **Article 25** -Protects freedom of conscience and the right to profess, practise and propagate religion.

Significance

- **Constitutional Rights :** Raises the question of whether personal-law practices can be tested against equality and dignity.
- **Gender Justice:** The debate focuses on the impact of polygamy on women's equality, autonomy and dignity.
- **Personal Law Reform :** Highlights the broader challenge of balancing religious freedom with constitutional values.
- **Judicial Role:** Raises questions about the extent to which courts can review practices governed by personal laws.

Impact

Positive Possibilities

- Greater focus on gender equality and dignity.
- Could encourage reforms in discriminatory practices.
- Strengthens constitutional debate on personal laws.

Concerns

- May create tensions between religious freedom and equality rights.
- Personal-law reform requires sensitivity to India's religious and cultural diversity.
- Judicial intervention can raise questions about institutional boundaries.

Challenges

- **Personal Law vs Fundamental Rights** Determining when a personal-law practice can be subjected to constitutional scrutiny.
- **Essential Religious Practices :** Courts may need to determine whether a practice is an essential part of religion.
- **Gender Equality :** Balancing religious freedom with women's constitutional rights.
- **Uniformity vs Diversity :** Reform must balance constitutional equality with India's plural legal traditions.

Way Forward

- **Constitutional Approach :** Evaluate personal laws through equality, dignity and non-discrimination.
- **Consultative Reform :** Encourage dialogue with communities, legal experts and women's organisations.
- **Gender-Centred Reform :** Prioritise women's autonomy, dignity and equal legal protection.
- **Legislative Clarity :** Parliament and State legislatures can provide clear, rights-compatible legal frameworks.

Important Case Studies

Sarla Mudgal v. Union of India (1995)

- The Supreme Court held that conversion to Islam cannot be used merely to circumvent an existing monogamous marriage and contract another marriage.

- Significance: Prevented misuse of religious conversion to evade marriage law.

Javed v. State of Haryana (2003)

- The Supreme Court upheld restrictions on persons with more than two children contesting certain local elections and observed that polygamy is not an essential religious practice protected by Article 25.
- Significance: Important case for understanding the relationship between polygamy and religious freedom.

Shayara Bano v. Union of India (2017)

- The Supreme Court invalidated instant triple talaq (talaq-e-biddat).
- Significance: Demonstrated judicial scrutiny of personal-law practices in the context of constitutional rights, though the judgment did not decide the constitutional validity of polygamy.

1.24 Reconciling Demographic Representation with Federal Equity (Lok Sabha Delimitation)

Why in News?

The Constitution (131st Amendment) Bill, 2026 proposes increasing the constitutional ceiling of Lok Sabha seats from 550 to 850.

Significance

- **Correcting representational imbalance :** The present allocation is substantially linked to the 1971 Census, despite major demographic changes.
- **Better MP–citizen ratio :** A larger House can reduce the population burden represented by each MP and improve accessibility.
- **Women's representation :** Expansion could facilitate implementation of the 33% reservation for women without substantially shrinking existing unreserved constituencies.
- **Democratic proportionality :** Population-based representation can improve the principle of "one person, one vote, one value."

Concerns

- **Federal balance :** Southern States fear that population-based delimitation could reduce their relative political influence because of their successful population stabilisation.
- **Political incentive problem :** States that achieved lower fertility rates could perceive delimitation as a penalty for successful demographic management.
- **Parliamentary functioning :** An excessively large House could make debates, questioning and deliberation more difficult.

Impact

The issue creates a fundamental constitutional tension between: Demographic representation ↔ Federal equity

Constitutional Provisions Matrix

Provision	Key Point

Article 81	Provides for the composition of the Lok Sabha.
42nd Constitutional Amendment Act, 1976	Froze inter-State allocation of Lok Sabha seats based on the 1971 Census.
84th Constitutional Amendment Act, 2001	Extended the freeze on State-wise allocation of Lok Sabha seats.
87th Constitutional Amendment Act, 2003	Allowed boundary readjustment using the 2001 Census, without changing State-wise seat allocation.
104th Constitutional Amendment Act, 2019	Ended Anglo-Indian nomination to the Lok Sabha and State Legislative Assemblies.
106th Constitutional Amendment Act, 2023	Provides one-third reservation for women in the Lok Sabha and State Assemblies, to operate after the relevant delimitation.

1.25 Regulating the Bar, Protecting Rights: The Constitutional Limits of BCI

Context

The controversy sparked by the Bar Council of India's (BCI) directive—briefly barring the entire 2026 graduating batch of NALSAR University of Law from enrolling as advocates due to campus protests over an invitation to the Chief Justice of India—brings the institutional limits, statutory boundaries, and regulatory mandate of the BCI under intense scrutiny.

Statutory Architecture: Advocates Act, 1961

The Advocates Act, 1961 establishes a two-tier statutory framework to govern the legal profession in India:

Structure of the BCI (Section 4):

- Members elected from each State Bar Council (5-year term).
- Ex-officio members: Attorney General of India and Solicitor General of India.
- Internal leadership: Chairman and Vice-Chairman elected for 2-year terms.

Core Mandate (Section 7 & Section 49):

- Setting standards of professional conduct, etiquette, and disciplinary procedures.
- Promoting and regulating legal education (prescribing curricula, inspecting law colleges, and recognising degrees qualifying for bar enrolment).
- Supporting law reform, managing advocate welfare funds, and organising legal aid.

The Division of Power: Who Actually Enrols Advocates?

A central legal question highlighted by the row is whether the BCI possesses the unilateral

statutory power to freeze or deny the enrolment of law graduates:

Entry of Foreign Lawyers: Balancing Globalization & Reciprocity

- **Permitted Scope:** Foreign lawyers and law firms registered with the BCI can practice foreign law, international law, and cross-border commercial arbitration in India.
- **Strict Prohibitions:** Cannot practice domestic Indian law or appear before Indian courts, tribunals, or regulatory boards.
- **Underlying Rationale:** Fostering foreign direct investment (FDI), aligning with international trade commitments, and establishing India as an international arbitration hub based strictly on the principle of mutual reciprocity.

Constitutional Takeaways

Regulatory Overreach vs. Campus Autonomy

- **Administrative Law Limits:** Disciplinary jurisdiction of professional regulatory bodies (BCI, NMC, etc.) begins when an individual applies for professional licensing/enrolment or commits misconduct as a practitioner. Attempting to police student speech or campus protests exceeds the BCI's statutory remit under Section 7.
- **Collective Punishment vs. Natural Justice:** Imposing a blanket ban on an entire batch violates the foundational administrative principle of Audi Alteram Partem (hearing the affected party) and Article 14 (protection against arbitrariness).

Constitutional Rights at Stake

- **Article 19(1)(a):** The right of students to dissent or peacefully express views regarding institutional invites is protected expression, distinct from professional misconduct or contempt of court.
- **Article 19(1)(g):** The fundamental right to practice any profession or trade cannot be curtailed via arbitrary administrative circulars lacking statutory backing.

1.26 Section 498A (Indian Penal Code)

Why in News ?

SC held Section 498A IPC applies to women in live-in relationships "in the nature of marriage," permitting prosecution for domestic cruelty.

- **Original:** Section 498A, IPC 1860 — cognizable, non-bailable, non-compoundable.
- **Post-BNS (2023):** now Sections 85 and 86 of the Bharatiya Nyaya Sanhita.

What is Section 498A?

- Section 498A IPC (now Section 85 BNS) punishes: Cruelty by a husband or his relatives against a woman.
- Maximum punishment: Imprisonment up to 3 years and Fine

What is "Cruelty"?

(A) Physical or Mental Cruelty

- Drive a woman to commit suicide
- Cause grave injury
- Affect physical or mental health

(B) Dowry-related Harassment

- Dowry
- Property
- Valuable security

Why is the recent judgment important?

- Earlier understanding: Section 498A mainly protected legally married women.
- Now the Supreme Court says: If a live-in relationship is "in the nature of marriage", the woman can also invoke the anti-cruelty provision.

Landmark Cases to Remember

- **Arnesh Kumar v. State of Bihar (2014) :** No automatic arrest under Section 498A.
- **Sushil Kumar Sharma v. Union of India (2005) :** Misuse of a law is not a reason to strike it down.
- **Social Action Forum v. Union of India (2018):** Protect women while preventing arbitrary arrests.
- **Supreme Court (2026) :** Extended protection to marriage-like live-in relationships.

1.27 Solid Waste & Sewage Management Report (Parliamentary Standing Committee)

Why in News ?

The Parliamentary Standing Committee on Housing and Urban Affairs submitted its report detailing critical gaps in urban solid waste and liquid sewage management.

Core Findings & Deficits

- **Treatment Gap:** India treats only 31% of generated urban sewage, against an installed treatment capacity of 44%.
- **Substandard On-Site Infrastructure:** 2.85 crore urban households rely on septic tanks, 60% of which do not adhere to standard design norms.
- **Low Wastewater Reuse:** Only ~26% of treated wastewater is reused, primarily due to the absence of tertiary distribution pipe networks.
- **AMRUT 2.0 Delays:** Only 17.51% (104 out of 594) of AMRUT 2.0 sewerage projects have reached completion.

Primary Recommendations

- Mandate standardized septic tank engineering designs and GPS-tracked mechanical desludging.
- Establish an Urban Infrastructure Maintenance Fund for Operations & Maintenance (O&M) funding.
- Mandate State-level "Treated Used Water Reuse Policies" with dedicated tertiary supply lines.
- Enforce mechanized cleaning protocols to protect sanitation workers.

Prelims Pointers

- **National Treated Sewage Percentage:** ~31%.

- **Scheme In Focus:** AMRUT 2.0 (Sewerage and Septage Management Component).

1.28 Strengthening India's Consumer Justice System: NCDRC

Why in News?

The National Consumer Disputes Redressal Commission (NCDRC) is India's apex consumer dispute-redressal body, functioning under the Consumer Protection Act, 2019.

About NCDRC

- **Nature :** Statutory body, Quasi-judicial body
- **Legal Basis :** Established under the Consumer Protection Act, 1986. Continues under the Consumer Protection Act, 2019.
- **Headquarters :** New Delhi

Aim

- Provide speedy and accessible consumer justice.
- Protect consumer rights.
- Provide remedies against defective goods and deficient services.

1.29 Supreme Court on Electoral Black Money

Why in News?

The Supreme Court highlighted the responsibility of the Election Commission of India (ECI) in preventing the influence of black money in elections.

What is Electoral Black Money?

- Electoral black money refers to unaccounted, illegal or undisclosed funds used to influence elections.
- It may involve Cash distribution to voters , Illegal campaign financing, Undisclosed political donations, Money laundering through shell entities.

Why is Electoral Black Money a Serious Concern?

- **Threat to Voter Autonomy :** Money power can influence voter choices through Cash inducements, Gifts, Free distribution of goods.
- **Unequal Electoral Competition :** Candidates with access to large illegal funds gain unfair advantages.
- **Reduces Transparency :** Black money hides Source of political funding, Actual campaign expenditure, Influence of donors.
- **Violation of Rule of Law :** Illegal funding creates Unequal application of laws, Weak enforcement of electoral regulations.

Important Committee and Report References

Dinesh Goswami Committee (1990)

- Electoral reforms.
- Improving transparency.
- Strengthening election processes.

Vohra Committee (1993)

- Criminalisation of politics.

- Nexus between criminals, politicians and bureaucrats.

Law Commission Reports

- Need for electoral finance reforms.
- Greater transparency in political funding.

Way Forward:

- **Transparent Political Funding:** Political parties should ensure disclosure of funding sources, strengthen financial reporting mechanisms, and provide greater public access to political finance information.
- **Rational Regulation of Party Expenditure:** A balanced regulatory framework should address both candidate expenditure limits and political party spending to ensure fairness in elections.
- **Strengthening ECI Capacity:** The Election Commission of India should be equipped with better financial investigation capabilities, advanced data analytics tools, and improved election monitoring systems.
- **Digital Traceability:** Promotion of digital payments, auditable financial transactions, and technology-based monitoring can reduce the use of unaccounted money in elections.
- **Fast-Track Electoral Finance Cases:** Establishing speedy legal mechanisms for electoral finance violations can ensure quick justice and create stronger deterrence.

1.30 The Efficiency-Equity Dilemma: Does Performance-Based Devolution Subsidize Regional Disparities ?

Why in News?

The 16th Finance Commission (FC-16) Report (2026–31) has triggered debates on fiscal federalism after recommending:

- Continuation of vertical tax devolution at 41% of the divisible pool.
- Reduction in grants-in-aid share from 19.4% to 8.3%.
- Introduction of State GDP contribution as a performance-based criterion in horizontal devolution.

Recommendation

- Total grants reduced to around ₹9.47 lakh crore.
- Compared with FC-15, grants reduced from approximately ₹10.1 lakh crore.
- Revenue Deficit Grants (RDGs) eliminated.

Concerns

- States dependent on central assistance may face fiscal stress.
- Reduced flexibility for states with structural revenue gaps.

Fiscal Federalism Debate

Efficiency vs Equity

Efficiency Perspective

Performance-based transfers encourage competitive federalism.

Incentivises states to improve:

- Growth rate
- Revenue mobilisation

- Fiscal management

Example: Higher weight for State GDP contribution rewards productive economies.

Equity Perspective

Concerns:

- Removal of Revenue Deficit Grants reduces equalisation support.
- Lower income distance weight affects poorer states.

States with:

- Geographical disadvantages
- Historical underdevelopment
- Higher social sector needs may face resource constraints.

Impact on Indian Federalism

- **Regional Economic Divergence :** Richer states may attract greater fiscal benefits due to higher GDP contribution. Poorer states may struggle to finance development priorities.
- **Reduced Fiscal Autonomy:** Lower grants may increase dependence on: Centrally Sponsored Schemes , Conditional transfers
- **Centre-State Tensions:** States may demand greater transparency regarding: Cesses and surcharges , Transfer mechanisms

Way Forward

- **Strengthen Equalisation Transfers:** Restore need-based grants under Article 275. Ensure minimum public service standards across states.
- **Rationalise Cesses and Surcharges :** Introduce a statutory framework limiting excessive use of non-shareable revenues.
- **Balanced Devolution Formula :** Maintain a balance between: Performance incentives , Population needs , Historical disadvantages
- **Cooperative Federal Approach :** Greater consultation with states through platforms like: GST Council , Inter-State Council.

1.31 The MSME Development (Amendment) Bill, 2026

Why in News

Parliament passed the Bill after Rajya Sabha approval, amending the MSME Development Act, 2006.

About

Removes fixed statutory investment thresholds; registration made voluntary; mandatory TReDS for CPSEs.

- **Mediation:** 90 days
- **arbitration:** commence within 30 days
- **award:** within 90 days
- ≥50% interim relief if court proceedings exceed 6 months.
- **Adjudicating authority:** Development Commissioner (MSME); appeals to MSME Secretary.

Aim

Improve the MSME business environment through faster payments, streamlined dispute

resolution, flexible classification, and decriminalised compliance.

why needed

- **Delayed Payments:** Late payments by larger buyers and CPSEs create severe liquidity problems for MSMEs.
- **Rigid Classification:** Existing thresholds may become outdated with inflation and economic growth.

Significance

- Strengthens the broader Ease of Doing Business and decriminalisation agenda.
- Improves MSME cash flow, a major concern for the sector.
- Faster dispute resolution can reduce prolonged litigation.

Impact

- **Positive:** Better liquidity and potentially faster settlement of disputes.
- **Flexibility:** Executive control over classification thresholds allows quicker updates.
- **Concern:** Greater executive flexibility may involve a trade-off with Parliamentary oversight.

Way Forward

- **Regular Revision:** Update MSME classification thresholds in line with inflation and economic growth.
- **Institutional Capacity:** Strengthen MSME Facilitation Councils to meet time-bound dispute-resolution requirements.
- **Digital Payments:** Expand TReDS adoption to ensure faster realisation of receivables.
- **Monitoring**: Establish mechanisms to track compliance with prescribed timelines.

1.32 Tribal Land Rights & Constitutional Consultation: Lakshadweep Pandaram Land

Why in News?

The Kerala High Court addressed a dispute concerning pandaram land in Lakshadweep and held that traditional cowledars possessing such land before the 1965 Regulation were lawful landowners, quashing arbitrary resumption orders.

What Caused the Dispute?

- **Eviction Notices:** The UT Administration issued notices demanding that islanders vacate Pandaram lands (which make up ~60% of Lakshadweep's land area) for tourism and development projects.
- **Minimal Compensation:** The administration treated residents as temporary occupants, offering compensation only for standing coconut trees, paying nothing for the land itself.
- **Repeal of Protective Clauses (2023):** The Union Government deleted Section 15A of the 1965 Regulation, removing key tenancy protections for islanders.

- **Bypassing the Tribal Commission:** Even though over 94% of islanders are Scheduled Tribes, the administration made these major changes without consulting the National Commission for Scheduled Tribes (NCST) under Article 338A(9).

What Did the Kerala High Court Rule?

In Fathima Holithithige vs. Union Territory of Lakshadweep, the High Court ruled in favor of the islanders:

- **Islanders are Lawful Landowners:** Families settled on Pandaram lands before the 1965 Regulation hold full statutory ownership rights.
- **No Arbitrary Evictions:** The government cannot seize land through executive notices. Any future acquisition must follow the RFCTLARR Act, 2013 (ensuring fair market compensation, Social Impact Assessments, and proper rehabilitation).
- **2023 Amendment Struck Down:** Bypassing mandatory consultation with the NCST under Article 338A(9) was ruled unconstitutional.

1.33 Tribunal System

Why in News?

The Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice presented its 166th Report on the Review of Functioning of Tribunal System in the Country.

- **ITAT (Income Tax Appellate Tribunal):** 27 of 126 Member posts vacant.
- **NGT (National Green Tribunal):** only 5 Judicial + 6 Expert Members against statutory minimum of 10 each.
- **NCLT (National Company Law Tribunal):** more than 95% administrative staff contractual.
- **TDSAT (Telecom Disputes Settlement and Appellate Tribunal):** staff strength frozen at 52 since 2001.
- **ITAT (Income Tax Appellate Tribunal):** 19,275 additional pending cases in five months.
- **NGT (National Green Tribunal):** no dedicated internal IT section.
- **RCT (Railway Claims Tribunal):** legal aid at only 9 of 23 benches.

Major problems

- **Infrastructure deficiencies:** Inadequate physical facilities hamper smooth functioning of tribunal benches.
- **Outdated IT systems:** Absence of dedicated tech support (like NGT's missing IT section) limits digitisation and efficiency.
- **Lack of specialised expertise:** Shortage of trained judicial/technical members affects the quality of complex adjudication.
- **Limited access to legal aid:** Legal aid available at only a fraction of benches (9 of

23 in RCT) restricts access to justice for weaker litigants.

Recommendations

- **Proactive recruitment:** Fill vacancies ahead of time rather than reactively after posts fall empty.
- **Permanent staffing cadres:** Replace contractual staff with dedicated, permanent tribunal cadres for stability.
- **Monthly disposal targets:** Set case-clearance benchmarks to systematically reduce backlogs.
- **Stage-wise case management:** Track cases through defined stages to improve monitoring and speed.
- **Dedicated capital budgets:** Allocate specific funds for tribunal infrastructure upgrades.
- **Permanent IT sections:** Establish in-house tech teams for consistent digital support.
- **Cybersecurity audits:** Regularly assess and strengthen tribunal data/IT security.

Impact

- **Ease of doing business:** Delayed tribunal decisions (e.g., NCLT insolvency cases) discourage investment and business confidence.
- **Tax administration:** ITAT backlogs delay resolution of tax disputes, affecting revenue certainty.
- **Environmental governance:** NGT's member shortages weaken enforcement of environmental laws.
- **Insolvency resolution:** NCLT delays undermine the time-bound resolution goals of the Insolvency and Bankruptcy Code.
- **Telecommunications regulation:** TDSAT's frozen staffing limits effective dispute resolution in the telecom sector.
- **Access to justice:** Overall inefficiencies and limited legal aid reduce citizens' and businesses' ability to seek timely redressal.

Conclusion

India needs independent, adequately staffed, technologically modern and specialised tribunals rather than merely creating more adjudicatory bodies.

1.34 Truth on the Plate: Regulating Food Claims and Consumer Protection (FSSAI)

Why in News?

The Food Safety and Standards (vertising and Claims) Regulations, 2018 have come into focus for regulating misleading food advertisements, labels and health-related claims.

Aim

- **Prevent Misleading Claims:** Ensure that food advertisements and labels do not

make false, exaggerated or deceptive claims.

- **Consumer Awareness**: Enable consumers to make informed choices based on accurate information.
- **Scientific Basis:** Ensure health and nutritional claims are supported by appropriate scientific evidence.

Significance

- **Consumer Protection:** Protects consumers from deceptive claims regarding the nutritional or health benefits of food products.
- **Public Health:** Helps prevent misleading promotion of foods as having exceptional health benefits.
- **Market Accountability:** Promotes transparency and fair competition among food businesses.
- **Informed Choice:** Accurate labelling enables consumers to compare products and understand their nutritional characteristics.

Challenges

- **Digital Advertising:** Food products are increasingly promoted through social media and digital platforms.
- **Influencer Marketing:** Health-related claims by influencers can reach large audiences without adequate scientific scrutiny.
- **Scientific Verification:** Assessing the validity of complex health and nutritional claims can be challenging.
- **Changing Marketing Practices:** Innovative advertising techniques may make misleading claims difficult to identify.

Key Regulations

- **No Misleading Claims:** Food advertisements and labels must not contain false, misleading or deceptive claims.
- **Scientific Substantiation:** Health and nutritional claims must be scientifically valid and adequately substantiated.
- **Nutritional Claims:** Claims such as "low fat", "high fibre", "sugar-free" etc. must satisfy prescribed conditions.
- **Health Claims:** A food product cannot suggest that consuming it will prevent, treat or cure a disease, unless permitted under the regulations.
- **Disease Risk Reduction**: Claims about reducing the risk of a disease must meet specified scientific and regulatory requirements.
- **Implied Claims:** Misleading claims can also arise through pictures, symbols, graphics or presentation, even if the words themselves are technically correct.
- **No Unfair Comparison:** Advertisements should not unfairly compare a food product

with another product or misrepresent its nutritional superiority.

- **Endorsements:** Advertisements and endorsements should not convey misleading health or nutritional benefits.
- **Children:** Advertising should not exploit children's vulnerability or encourage unhealthy food consumption through misleading representations.
- **Overall Presentation:** The overall impression created by the advertisement or label is important; a technically correct statement cannot be used to create a misleading impression.

Way Forward

- **Stronger Monitoring:** Improve surveillance of food advertisements and product labels.
- **Digital Regulation:** Strengthen oversight of online and influencer-based food advertising.
- **Scientific Evidence:** Ensure health and nutritional claims are supported by credible scientific evidence.
- **Consumer Awareness:** Promote awareness about misleading nutritional and health claims.

What is FSSAI?

- FSSAI – Food Safety and Standards Authority of India is the apex statutory authority for food safety regulation and supervision in India.
- **Legal Basis:** Food Safety and Standards Act, 2006
- **Ministry:** Ministry of Health & Family Welfare
- **Headquarters:** New Delhi
- **Role**: Lays down food standards, regulates food businesses and monitors food safety.

1.35 Unlocking Innovation: NITI Aayog's Ease of Doing R&D Report

Why in News?

NITI Aayog released the Ease of Doing Research & Development in India report. It examines the structural and procedural barriers that prevent India's research ecosystem from converting available scientific talent and funding into high-quality research and innovation.

Major Structural Barriers

- **Low R&D Intensity:** India's GERD remains ~0.65% of GDP, limiting high-risk research.
- **Weak Private-Sector Participation:** Ecosystem is heavily government-dependent; low industry share weakens commercialization.
- **Concentration of Research Funding:** Funding disproportionately allocated to top-tier institutes, bypassing State universities.
- **Administrative Delays:** Researchers spend excessive time on approvals,

procurement, fund releases, and compliance.

Unified Project Management System (UPMS)

What is UPMS? A common digital record and project-management framework for publicly funded R&D projects.

Purpose

- **Streamlined Fund Flow**: Improve the movement and monitoring of research funds.
- **Faster Approvals**: Reduce procedural delays.
- **Project Tracking:** Enable better monitoring of publicly funded R&D projects.
- **Transparency:** Create a common digital record of projects.

Way Forward

- **Increase R&D Investment:** Move towards 2% of GDP in R&D expenditure to support frontier and high-risk research.
- **Crowd-in Private R&D :** Use appropriate incentives and partnerships to increase industry-led research.
- **Time-bound Approvals:** Simplify procurement, approvals and fund-release procedures.
- **Decentralise Research Funding :** Improve access to research funding for State universities and emerging institutions.
- **Triple Helix Model:** Strengthen collaboration among: Government + Universities + Industry

1.36 Withdrawal & Closure Procedures of FIRs

Why in News ?

The Supreme Court clarified that State Governments may close or withdraw First Information Reports (FIRs) registered against student protesters, provided they strictly follow procedures mandated under the Bharatiya Nagarik Suraksha Sanhita (BNSS).

Procedural Mechanics under BNSS

Executive orders passed by ministers cannot unilaterally cancel an FIR once registered. Termination must strictly follow judicial routes:

- **Police Closure Report (Section 193, BNSS):** Submitted to the Magistrate if investigation finds insufficient evidence. The Magistrate holds independent authority to accept or reject the report.
- **Withdrawal from Prosecution (Section 360, BNSS):** Applied for by the Public Prosecutor in public interest. Requires judicial consent and hearing victim objections.
- **Quashing by High Court (Section 528, BNSS):** High Court exercises inherent powers to prevent abuse of legal process.

INTERNATIONAL RELATIONS

2.1 Arunachal Pradesh: Updated Map & Countering Unilateral Cartography

Why in News?

India updated the official map and standardised names for 27 locations/features in Arunachal Pradesh, amid China's attempts to rename places in the region.

Territorial Sovereignty

- Place names and maps can be used to reinforce a state's territorial claims.
- China's unilateral renaming of places in Arunachal Pradesh is viewed by India as an attempt to legitimise territorial claims.

Cartographic Assertion

- Cartography is not merely geographical representation; it can also become an instrument of geopolitics.
- Publishing official maps and standardising names helps a country communicate its territorial position.

India–China Border Dispute

- Arunachal Pradesh is part of the eastern sector of the India–China boundary dispute.
- China claims the region as "Zangnan" / southern Tibet, while India regards Arunachal Pradesh as an integral part of India.
- The broader boundary remains unresolved, with the Line of Actual Control (LAC) serving as the de facto military separation in many sectors.

Administrative Presence

- Territorial claims are strengthened not only through maps but also through effective administration and physical presence.
- Infrastructure, connectivity and delivery of public services in border areas therefore have strategic significance.

Impact

- **Reinforces India's Position :** Officially standardised names and maps provide a consistent administrative and cartographic record of India's territorial position.
- **Counters Unilateral Narratives :** It challenges attempts to establish an

alternative geographical narrative through unilateral renaming or mapping.

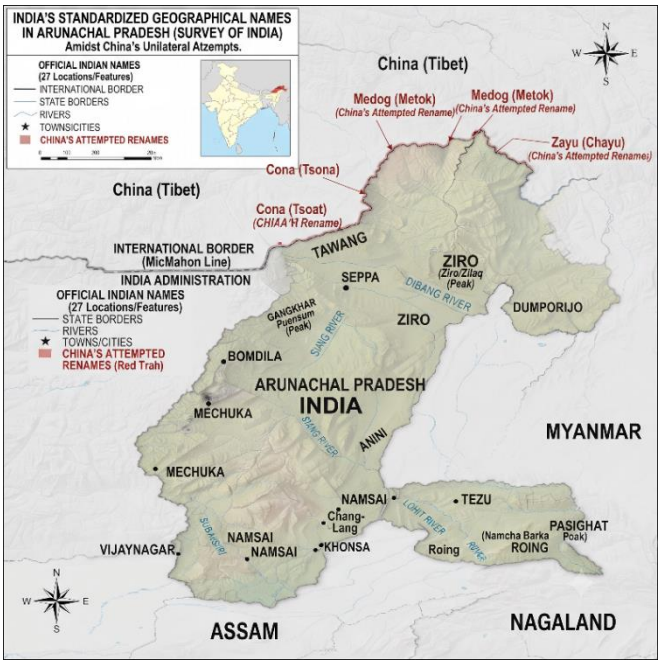
- **Strengthens Border Governance** : Greater administrative and infrastructural presence supports India's ability to effectively govern border regions.

Challenges

- **Unresolved Boundary:** Final settlement of the India–China boundary remains pending.
- **LAC Differences:** India and China have differing perceptions of portions of the LAC.
- **Strategic Competition:** Cartographic actions form part of wider diplomatic and strategic competition.
- **Border Infrastructure:** Difficult terrain makes connectivity and infrastructure development challenging.

Way Forward

- **Diplomatic Engagement :** Continue established mechanisms for dialogue, border management and confidence-building.
- **Border Infrastructure** : Improve roads, bridges, telecommunications and essential services in strategically important border areas.
- **Effective Administration :** Ensure sustained governance and development of border communities.
- **Cartographic Consistency** : Maintain consistent official maps, geographical names and documentation of India's territorial position.
- **Avoid Escalatory Signalling** : Combine cartographic assertion with diplomatic engagement and peaceful boundary negotiations.



2.2 Carbon at the Border: BRICS, CBAM and the Global South's Trade Dilemma

Why in News?

BRICS has raised concerns over the European Union's Carbon Border Adjustment Mechanism (CBAM) and its possible impact on developing economies.

What is CBAM?

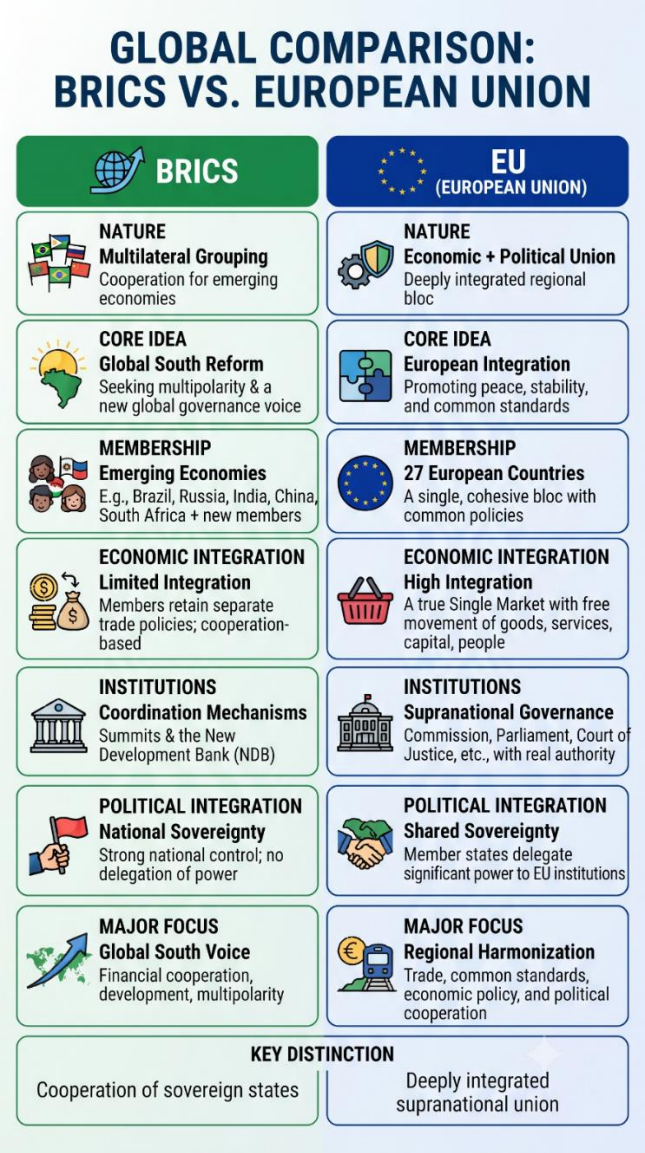
CBAM is the EU's mechanism to impose a carbon cost on certain imported carbon intensive goods, based on their embedded greenhouse-gas emissions.

Core Objective of CBAM

- **Carbon Pricing**: Imports with high embedded carbon emissions face a carbon-related cost at the EU border.
- **Prevent Carbon Leakage:** Discourages companies from shifting carbon-intensive production to countries with weaker climate regulations.
- **Encourage Cleaner Production:** Creates an economic incentive for exporters to adopt low-carbon technologies and cleaner production methods.

Why Does BRICS Object?

- **Higher Export Costs:** Carbon-intensive exports from developing countries may become more expensive in the EU market.
- **Technological Gap:** Developing economies may lack the technology needed to rapidly reduce the carbon intensity of production.
- **Financial Constraints:** Green transition requires substantial investment, which can be more difficult for developing countries.
- **Historical Responsibility:** BRICS countries argue that developed economies have contributed a larger share of historical greenhouse-gas emissions and therefore should bear greater responsibility for climate action.
- **Unequal Capacity:** Applying similar carbon-related trade requirements to economies with very different levels of development and technological capacity may create an unequal burden.



2.3 Ceuta: Spain's Enclave in North Africa (EU–Africa Border)

At least 34 people died trying to cross from Morocco into Spain's Ceuta enclave.

About Ceuta

- **Location:** Located on the northern coast of Africa, bordering Morocco, close to the Strait of Gibraltar.
- **Political Status**: Spanish autonomous city and therefore part of the European Union.
- **Moroccan Claim:** Morocco considers Ceuta and Melilla to be territories that should be under Moroccan sovereignty.
- **Strategic Location:** Its position near the Strait of Gibraltar gives it major geopolitical and maritime significance.

Significance :

- **EU–Africa Border:** Ceuta and Melilla are notable because they constitute the EU's land borders with Africa.
- **Migration:** They are important entry points in the Europe–Africa migration route, making border management a major issue.
- **Geopolitics:** Their status reflects the continuing territorial sensitivities between Spain and Morocco.
- **Strait of Gibraltar:** Proximity to this strategic maritime chokepoint increases their importance for European and Mediterranean security.



2.4 China Tightens Administrative Control in South China Sea Region

Why in News?

China introduced management rules for the Huangyan Dao (Scarborough Shoal) National Nature Reserve, including routine patrols and restrictions on unauthorised fishing/resource extraction, while conducting military drills nearby, raising regional tensions.

South China Sea

- A marginal sea of the Western Pacific Ocean
- **Bordering states:** Brunei, Cambodia, China, Indonesia, Malaysia, Philippines, Singapore, Taiwan, Vietnam
- Connects Pacific and Indian Oceans via the Strait of Malacca

Nine-Dash Line

- China's claim (originating 1947) covers ~90% of the South China Sea
- Declared legally invalid by the 2016 PCA (Permanent Court of Arbitration) ruling under UNCLOS
- China rejected the ruling — does not recognize its validity

Disputed Territories

Territory	Details
Paracel Islands	~130 islands/reefs; controlled by China since 1974; also claimed by Vietnam & Taiwan
Spratly Islands	Claimed by China, Vietnam, Taiwan, Philippines, Malaysia, Brunei; includes Second Thomas Shoal
Scarborough Shoal (Huangyan Island)	Lies within Philippines' EEZ; claimed by China on historical grounds

Significance & Impact

- Tests the durability of the 2016 PCA ruling, which China has never implemented despite its binding nature under UNCLOS
- Heightens tensions with the Philippines, risking naval standoffs and escalation
- Undermines the credibility of UNCLOS dispute-resolution mechanisms when major powers disregard rulings
- Raises concerns for all states dependent on South China Sea shipping lanes, including India

India's Stake & Way Forward

- India supports freedom of navigation and overflight in international waters, and adherence to UNCLOS; has energy interests (ONGC Videsh) in Vietnam's EEZ; aligns with Quad.
- Support ASEAN-led Code of Conduct (CoC) negotiations; deepen Quad coordination on freedom of navigation operations.



2.5 Commonwealth Games 2030: Diplomatic Architecture & Centenary Edition

Why in News?

The 2026 Commonwealth Games (Glasgow) concluded; India will host the 2030 Centenary Games in Ahmedabad, Gujarat.

- not an executive authority over member states.
- **Secretariat:** London, United Kingdom.
- **Membership:** Spans Africa, Asia, Europe, the Caribbean and Pacific.
- **Principle:** Members are sovereign and equal; the Commonwealth is not a supranational union like the EU.

Commonwealth of Nations

- **Nature:** Voluntary association of 56 independent and equal countries.
- **Modern Commonwealth:** Established through the London Declaration, 1949.
- **Significance of 1949**: Enabled India to become a republic while continuing Commonwealth membership
- **Head of the Commonwealth**: King Charles III.

2.6 Cross-Border Legal Practice: Entry of Foreign Lawyers & Reciprocity

Entry of Foreign Lawyers: Balancing Globalization & Reciprocity

- **Permitted Scope:** Foreign lawyers and law firms registered with BCI can practice foreign law, international law, and cross-border commercial arbitration in India.
- **Strict Prohibitions:** Cannot practice domestic Indian law or appear before Indian courts, tribunals, or regulatory boards.

Polity & Legal Framework

- **Article 19(1)(g):** Guarantees the freedom to practise a profession, subject to reasonable restrictions.
- **Advocates Act, 1961**: Provides the statutory framework for regulation of the legal profession.
- **Bar Council of India (BCI):** Regulates the legal profession and lays down conditions for foreign lawyers/law firms.
- **Reciprocity:** Foreign lawyers' access to India is linked to whether Indian advocates receive comparable opportunities abroad.
- **Regulation of Legal Practice:** Entry is permitted without giving foreign lawyers unrestricted access to India's domestic legal system.

Permitted Activities

- **Foreign Law:** May advise on the law of their home/foreign jurisdiction.
- **International Law:** May provide advice on international legal matters.
- **International Commercial Arbitration:** May participate in specified international commercial arbitration proceedings in India.

- **Cross-Border Transactions:** Can undertake permitted non-litigious work involving international commercial matters.

Restrictions

- **Indian Domestic Law**: Cannot practise Indian law.
- **Indian Courts**: Cannot appear before Indian courts.
- **Tribunals:** Cannot appear before Indian tribunals.
- **Regulatory Authorities:** Cannot appear before Indian regulatory bodies.

Constitutional Significance

- **Professional Regulation:** Balances individual professional freedom with regulation of the legal profession.
- **Judicial Independence:** Maintains a regulated framework for representation before Indian courts.
- **Reciprocity:** Promotes equal treatment and opportunities for Indian lawyers internationally.
- **Globalisation:** Enables integration of India's legal services sector with the global economy while protecting the domestic legal domain.

2.7 Eyes at Sea: UKMTO Maritime Operations

Why in News?

A tanker was reportedly boarded by six armed persons in the Gulf of Aden/Somalia region, an incident reported by UKMTO.

What is UKMTO?

- **About:** United Kingdom Maritime Trade Operations (UKMTO) is a British Royal Navy-sponsored maritime security organisation, established in 2001 and based in Portsmouth, UK.
- **Communication Bridge:** Connects commercial vessels with military forces, facilitating rapid information-sharing during maritime security incidents.
- **Voluntary Reporting Scheme (VRS):** Ships voluntarily report their movements and security-related incidents to UKMTO, improving maritime domain awareness.
- **Area of Operations:** Covers around 2.5 million sq. miles across strategically important waters, including the Red Sea, Arabian Sea, north-western Indian Ocean, Gulf of Aden and Persian Gulf.

Significance

- **Maritime Domain Awareness:** Provides early warning about piracy, armed attacks and other maritime threats.
- **Trade Security:** Supports the safety of commercial shipping through critical sea lanes.

- **Military–Commercial Coordination:** Enables faster coordination between merchant vessels and naval forces.
- **Indian Ocean Security:** UKMTO's operating area overlaps with India's wider maritime-security interests, particularly the Arabian Sea and north-western Indian Ocean.

2.9 India–Canada Comprehensive Economic Partnership Agreement (CEPA)

Why in News?

India and Canada reaffirmed their intention to conclude negotiations for a Comprehensive Economic Partnership Agreement (CEPA) by the end of 2026 (Ambition to raise bilateral trade to CAD 70 billion by 2030).

Significance for India

- **Market Access**: Reduces trade barriers and improves access for Indian goods and services in the Canadian market.
- **Investment:** Can facilitate greater flow of Canadian institutional and pension-fund capital into Indian infrastructure, clean energy and other long-term sectors.
- **Critical Minerals:** Canada can help diversify India's sources of critical minerals, important for EV batteries, electronics and clean-energy technologies.
- **Services Exports:** Creates opportunities for Indian professionals and service-sector firms in areas such as IT, finance, education and professional services.
- **Trade Diversification:** Strengthens India's economic engagement with North America and reduces excessive dependence on a limited number of trading partners.
- **Supply-Chain Resilience:** Greater economic integration can support resilient supply chains for minerals, energy and advanced technologies.

Challenges

- **Market Access Issues:** Differences over tariffs, standards and regulatory requirements may complicate negotiations.
- **Agricultural Sensitivities:** Agriculture and dairy remain politically sensitive areas in bilateral trade.
- **Non-Tariff Barriers:** Sanitary, phytosanitary and technical standards can affect Indian exports.
- **Investment Concerns:** Differences over taxation, regulations and investment protection may require careful negotiation.

Way Forward

- **Balanced Agreement:** Ensure reciprocal market access while protecting sensitive domestic sectors.
- **Critical Minerals Partnership:** Build long-term cooperation in exploration, processing and supply of critical minerals.

- **Services Mobility:** Facilitate greater movement of skilled professionals while addressing regulatory concerns.
- **Investment Cooperation:** Create predictable and transparent conditions for long-term Canadian investment in India.

- **Strategic Economic Partnership:** Link trade cooperation with clean energy, technology, critical minerals and resilient supply chains.

2.10 India–Maldives Digital Payment Corridor

Why in news ?

The Maldives Monetary Authority (MMA) launched the Favara–UPI Cross-Border Payment Corridor, enabling real-time remittances from the Maldives to India.

The Favara–UPI Cross-Border Payment Corridor: What It Is?

A real-time cross-border payment corridor integrating the Maldives' Favara Instant Payment System with India's Unified Payments Interface (UPI), enabling seamless person-to-person (P2P) fund transfers.

- **Nations Involved:** India and Maldives.
- **Aim:** To facilitate secure, instant, and low-cost cross-border digital payments, strengthen bilateral financial connectivity, and deepen economic cooperation.

Key Features:

- **Real-Time P2P Transfers:** Enables individuals in the Maldives to send funds instantly from MVR to UPI-enabled INR bank accounts in India.
- **Initial Banking Partners:** Launched with Bank of Maldives Plc and Maldives Islamic Bank Plc through their mobile banking applications.
- **Permitted Remittance Categories:** Supports family-maintenance and gift-related remittances under the Maldives' foreign remittance framework.
- **Institutional Collaboration:** Implemented through cooperation among the MMA, RBI, NPCI International Payments Limited (NIPL), and participating financial institutions.
- **Future Expansion:** Upcoming phases will introduce QR-based merchant payments and additional cross-border digital payment services.
- **UPI Accepted Countries (9):** Cambodia, Singapore, United Arab Emirates, France, Mauritius, Nepal, Bhutan, Qatar and Sri Lanka – enabling Indian travellers to make seamless payments abroad through UPI.

Significance:

- Enhances digital financial integration, remittances, and people-to-people connectivity between the two countries.
- Expands India's Digital Public Infrastructure (DPI) footprint and

reinforces UPI as a leading global cross-border payment system.

2.11 India–US Trade Relations

Why in News?

The Parliamentary Standing Committee on Commerce presented a report on India–US trade relations amid tariff and non-tariff trade concerns.

Mission 500

- **Target**: Achieve USD 500 billion in bilateral trade by 2030.
- **Approach**: Pursued through a proposed Bilateral Trade Agreement (BTA).
- **Broader focus:** Trade cooperation is increasingly linked with technology, supply chains, clean energy and strategic sectors.

Major Challenges

- **Tariff Uncertainty:** Frequent changes in US tariffs create uncertainty for Indian exporters and affect long-term business decisions.
- **Non-Tariff Barriers:** SPS standards, certification requirements and customs procedures can increase the cost of market access.
- **MSME Vulnerability:** Limited access to finance and difficulties in meeting international quality and compliance standards constrain smaller exporters.
- **Market Concentration:** Excessive dependence on the US market exposes Indian exporters to external policy and demand shocks.
- **Low Value Addition**: Weak R&D, technology adoption and product sophistication limit India's competitiveness in high-value exports.
- **High Logistics Costs:** Expensive logistics reduce the price competitiveness of Indian products in global markets.

Recommendations

- **Conclude the BTA:** Provide greater predictability and market access for exporters.
- **Strengthen Manufacturing:** Improve the effectiveness of PLI schemes and expand domestic manufacturing capabilities.
- **Improve Logistics:** Reduce logistics costs and strengthen export infrastructure.
- **Support MSMEs:** Expand access to export finance, quality certification and international markets.
- **Integrate with Global Value Chains:** Encourage Indian firms, particularly MSMEs, to become suppliers in global production networks.
- **Promote Technology & R&D:** Increase innovation and technology adoption to move towards higher-value exports.

Significance for India

- **Export Growth:** Greater market access can expand India's exports and support the Mission 500 target.

- **Manufacturing Push:** US demand can strengthen India's manufacturing and Make in India objectives.
- **Supply-Chain Integration**: Deeper trade ties can help India become a more important node in global value chains.
- **Technology Cooperation**: Trade can facilitate greater access to advanced technologies and strategic sectors.
- **Strategic Partnership:** Economic interdependence can reinforce the broader India–US strategic partnership.

Way Forward

- India should pursue a predictable and mutually beneficial BTA, while simultaneously improving domestic competitiveness through manufacturing, logistics, technology, quality standards and MSME support.
- The objective should be to shift India–US trade from a tariff-centric relationship towards a resilient, technology-driven and supply-chain-oriented economic partnership.

2.12 India–Uzbekistan Bilateral Relations

Why in News ?

Foreign Minister of Uzbekistan Bakhtiyor Saidov met Lok Sabha Speaker Om Birla in Parliament House to advance legislative, trade, and strategic partnerships.

Institutional Framework

- **Connect Central Asia Policy:** Bilateral engagement forms part of India's broader Connect Central Asia approach to deepen political, economic and strategic ties with Central Asian republics.
- **India–Central Asia Summit:** Provides a multilateral platform for India's engagement with the five Central Asian countries.
- **Parliamentary Diplomacy:** The India–Uzbekistan Parliamentary Friendship Group, constituted in March 2026, provides a legislative channel for strengthening bilateral relations.
- **Economic Cooperation:** Uzbekistan is important for India's access to uranium, gold and other mineral resources.
- **Connectivity:** Uzbekistan's location gives strategic importance to India's connectivity plans through the INSTC and Chabahar Port, although Central Asia's landlocked geography creates connectivity challenges.

Feature	Fact
Capital	Tashkent
Region	Central Asia
Landlocked Status	Doubly landlocked
India's Policy	Connect Central Asia
Connectivity Routes	INSTC + Chabahar Port

Central Asia Summit	First India–Central Asia Summit held in January 2022

Significance for India

- **Strategic Outreach:** Strengthens India's presence in the strategically important Central Asian region.
- **Resource Security:** Provides opportunities for cooperation in uranium, gold and critical minerals.
- **Connectivity:** Helps India overcome the geographical barrier posed by Pakistan by developing alternative routes through Iran and Central Asia.
- **Security Cooperation:** Central Asia is important for addressing terrorism, radicalisation and regional security concerns.
- **Economic Diversification:** Expands India's trade and investment opportunities beyond traditional markets.



2.13 Intelligence-Driven Framework for Fugitive Extradition & BHARATPOL

Why in News ?

Between 2019 and 2026, India repatriated 274 fugitive offenders from 36 countries, reflecting greater use of technology, international police cooperation and intelligence-led investigation.

Key Pillars

- **Fugitive Economic Offenders Act, 2018:** Enables action against individuals who evade Indian jurisdiction in cases involving ₹100 crore or more and empowers authorities to pursue confiscation of properties of fugitive economic offenders.
- **BNSS, 2023** – Trial in Absentia: Provides for conducting trials against proclaimed

offenders who deliberately evade proceedings, subject to prescribed safeguards and conditions.

- **BHARATPOL 2025:** A technology-enabled platform connecting Indian law-enforcement agencies with CBI–INTERPOL National Central Bureau (NCB), New Delhi, facilitating faster international police cooperation, information exchange and requests through INTERPOL channels.
- **Operation Trishul 2026:** An intelligence-driven initiative aimed at tracing, locating and bringing back fugitives and proceeds of crime from abroad through coordinated enforcement and international cooperation.

Significance for India

- **Faster Extradition:** Technology improves coordination between domestic agencies and foreign law-enforcement authorities.
- **Financial Crime Control**: Helps pursue economic offenders and recover proceeds of crime.
- **International Cooperation:** Strengthens India's use of INTERPOL mechanisms and bilateral/multilateral cooperation.
- **Rule of Law:** Reduces the ability of offenders to exploit geographical boundaries to evade Indian justice.

2.14 Mecca Joint Defence Agreement (Pakistan–Saudi Arabia–Türkiye)

Why in News?

Pakistan, Saudi Arabia and Türkiye signed a joint defence agreement at the Mecca summit.

Key Principle

Collective Defence: An armed attack against one member is treated as an attack against all, creating a mutual-defence commitment.

Strategic Capabilities of Members

- **Türkiye – Defence Technology:** Possesses a strong defence-industrial base, particularly in drones and military technologies.
- **Saudi Arabia - Financial & Energy Strength:** Brings substantial financial resources and major importance in global energy markets.
- **Pakistan – Military Capability:** Contributes a large military establishment and nuclear capability.

Strategic Implications

- **West Asian Security:** Introduces another layer into the already evolving and complex regional security architecture.
- **Pakistan's Strategic Position:** Gives Islamabad stronger defence and strategic partnerships in West Asia.
- **Türkiye's Regional Role**: Could strengthen Ankara's influence in Middle Eastern security affairs.

- **Saudi Security:** Provides Riyadh with an additional defence partnership alongside its existing security relationships.
- **India's Strategic Challenge:** Requires India to simultaneously manage relations with Saudi Arabia, Türkiye, Israel, Iran and the US.

Significance for India

- **Multi-Alignment**: India should avoid exclusive alignment with any regional bloc and maintain strategic autonomy.
- **Energy Security:** Strong relations with Saudi Arabia and Gulf countries remain essential for India's energy needs.
- **Indian Diaspora**: Stability in West Asia is vital for the large Indian diaspora working across the Gulf region.

Defence Diplomacy: India can deepen defence and strategic cooperation with key partners while maintaining independent relations with competing regional powers.

2.15 OPEC & OPEC+ Production Governance

Why in News?

OPEC+ countries agreed to increase oil production from September 2026, with implications for global crude prices, energy markets and India's import-dependent energy economy.

Feature	OPEC	OPEC+
Nature	Intergovernmental organisation	Cooperation framework
Established	**1960**	**2016**
Origin	Baghdad Conference	OPEC + major non-OPEC producers
HQ of OPEC	Vienna, Austria	No separate headquarters
India	Not a member	Not a member
Key role	Coordinate petroleum policies	Coordinate production policies

How OPEC+ Production Decisions Affect Oil Prices

The price of crude oil is largely influenced by the balance between global oil supply and demand. OPEC+ production decisions are important because its members account for a large share of global oil production.

- **OPEC+ Monitors the Oil Market**: OPEC+ studies global oil demand, economic growth, inventories, production levels and geopolitical conditions before deciding production targets.
- **OPEC+ Decides Production Levels:** Based on market conditions, members may decide

to increase, maintain or reduce oil production.

- **Production Cuts Reduce Supply:** When OPEC+ reduces production, fewer barrels of crude oil are available in the international market. If demand remains strong, buyers compete for the reduced supply.
- **Lower Supply Creates Upward Price Pressure:** When available oil becomes relatively scarce, crude oil prices generally tend to increase.
- **Production Increases Expand Supply:** When OPEC+ increases production, more crude oil becomes available to the global market. If demand does not increase at the same pace, the additional supply can put downward pressure on prices.
- **Demand Determines the Final Impact:** A production increase does not always reduce prices. If global demand is growing strongly, the additional production may simply meet the increased demand.
- **Oil Inventories Influence Prices:** Countries and companies maintain crude oil stocks. When inventories are high, they provide a buffer against supply shortages. When inventories fall, markets become more sensitive to production disruptions.
- **Market Expectations Affect Prices**: Oil traders react to expected future production decisions. Therefore, prices may change even before an announced production cut or increase is fully implemented.
- **Geopolitical Events Can Magnify the Effect**: Wars, sanctions, political instability and disruptions in major oil-producing

Significance for India

- **Import Bill:** Higher global crude prices increase India's expenditure on oil imports, while lower prices can provide relief.
- **Inflation:** Crude prices influence transportation, manufacturing and consumer prices.
- **Energy Security:** India needs diversified energy sources and strategic petroleum reserves to manage global supply shocks.
- **External Balance:** Persistently high oil prices can increase the import bill and put pressure on India's current account balance.
- **Fiscal Impact:** Higher fuel and energy costs can affect government finances through subsidies, taxation and expenditure pressures.

Way forward

- **Diversify Suppliers:** Reduce excessive dependence on any single geographical source.
- **Expand SPR Capacity:** Strengthen Strategic Petroleum Reserves for supply disruptions.
- **Promote Renewables:** Accelerate the transition towards solar, wind, biofuels and other alternatives.

- **Improve Energy Efficiency:** Reduce the economy's vulnerability to global oil-price fluctuations.
- **Strengthen Long-Term Contracts**: Use strategic purchasing and diversified procurement arrangements to improve price and supply stability.

2.16 Rwanda: Bilateral Trade Mechanism & African Outreach

Why in News?

India and Rwanda are deepening economic engagement through a new bilateral trade mechanism, creating opportunities for greater trade, business partnerships and cooperation in strategic mineral resources. About Rwanda

Significance of Rwanda

- **Regional Trade Gateway:** Rwanda can serve as a gateway connecting markets associated with the East African Community (EAC), COMESA and AfCFTA.
- **3T Minerals**: Rwanda is associated with tin, tungsten and tantalum, which are important inputs for electronics and other technology-intensive industries.
- **Emerging Logistics Hub:** Despite being landlocked, Rwanda is developing its transport, logistics and services sectors to improve regional connectivity.
- **African Continental Market:** Its participation in AfCFTA provides access to the wider African market.

India–Rwanda Trade Mechanism

- **Joint Trade Committee:** Provides an institutional platform for India and Rwanda to discuss trade-related issues and identify new areas of cooperation.
- **Business Partnerships:** Can facilitate greater B2B cooperation, investment and market access.
- **Mineral Diversification:** Provides India with opportunities to diversify sourcing of critical minerals used in electronics and technology industries.
- **Trade Expansion:** Creates scope for cooperation beyond traditional merchandise trade into technology, pharmaceuticals, infrastructure and services.

Way Forward

- India should use the new trade mechanism to promote trade facilitation, private-sector partnerships, critical-mineral cooperation, infrastructure connectivity and technology transfer.
- Greater engagement with Rwanda can also serve as a stepping stone for India's wider economic outreach to the African continental market.

2.17 SBSTTA-28: Multilateral Environmental Governance (CBD)

Why in News?

The 28th meeting of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA-28) of the Convention on Biological

Diversity (CBD) was held in Nairobi on 1 August 2026. Its scientific and technical recommendations will support deliberations at CBD COP17.

What is SBSTTA?

- SBSTTA stands for Subsidiary Body on Scientific, Technical and Technological Advice.
- It is the scientific and technical advisory body of the Convention on Biological Diversity (CBD).
- It provides evidence-based scientific, technical and technological advice to the CBD's Conference of the Parties.
- Its recommendations help countries translate biodiversity science into international policies, targets and implementation measures.

Key Areas of SBSTTA-28

- **Kunming–Montreal Global Biodiversity Framework (KMGBF):** Examined scientific and technical aspects of implementing the global biodiversity framework and its targets.
- **Synthetic Biology:** Considered potential implications of synthetic biology for biodiversity and the need for appropriate governance and risk assessment.
- **Biodiversity Finance:** Addressed issues related to mobilising and effectively using financial resources for biodiversity conservation.
- **Scientific Inputs to COP17:** Its recommendations provide technical inputs for decision-making at CBD COP17.

2.18 Strait of Hormuz Energy Geopolitics & LNG Sourcing

Why in News

India's LNG imports from the US, Oman, Nigeria, and Angola rose, offsetting decline from Strait of Hormuz disruptions.

India's LNG Dependence

- **LNG Import Dependence:** Around 50% of India's natural gas demand is met through imported LNG.
- **Hormuz Dependence:** Around 60% of India's imported LNG transits the Strait of Hormuz, particularly supplies originating from Qatar and the UAE.
- **Chokepoint Vulnerability:** Any prolonged disruption in the Strait can affect the availability, cost and reliability of India's LNG supplies.

Why is the Strait of Hormuz Important?

- **Strategic Chokepoint:** The Strait connects the Persian Gulf with the Gulf of Oman and the Arabian Sea.
- **Energy Gateway:** Major energy exporters such as Qatar, UAE and Saudi Arabia depend heavily on maritime routes through or around this region.
- **Indian Vulnerability:** India's geographical proximity to West Asia makes maritime energy routes through the region

particularly important for its energy security.

How India Can Manage an LNG Supply Disruption

- **Supplier Diversification**: Higher imports from the US, Oman, Nigeria and Angola can compensate for reduced supplies from traditional suppliers.
- **Alternative Shipping Routes:** Greater use of LNG originating outside the Persian Gulf reduces dependence on a single maritime chokepoint.
- **Long-Term Contracts**: Diversified long-term LNG contracts can provide greater supply stability during geopolitical disruptions.
- **Strategic Storage:** Expanding gas-storage capabilities can provide a buffer during temporary supply interruptions.
- **Domestic Gas Production:** Increasing domestic production can reduce India's dependence on imported LNG.

Challenges

- **Price Volatility:** Alternative LNG supplies may be more expensive when global demand suddenly increases.
- **Infrastructure Constraints**: Import terminals, pipelines and storage capacity determine how quickly India can shift between suppliers.
- **Shipping Risks:** Geopolitical tensions can increase freight and insurance costs.
- **Long-Term Dependence:** Diversification reduces vulnerability but cannot completely eliminate India's exposure to global LNG markets.

Way Forward

India should adopt a multi-layered energy-security strategy combining supplier diversification, expanded LNG infrastructure, strategic storage, domestic gas production, renewable energy and energy efficiency.

2.19 The Blue Helmet Shield: UNMISS in South Sudan

Why in News?

India condemned an attack on UNMISS peacekeepers near Pajut in Jonglei State, South Sudan, in which an Ethiopian peacekeeper was killed.

What is UNMISS?

UNMISS stands for United Nations Mission in South Sudan.

- **Established:** 9 July 2011 through UN Security Council Resolution 1996.
- **Headquarters:** Juba, South Sudan.
- **Nature:** UN peacekeeping mission established following South Sudan's independence.
- **Mandate:** Operates under a Chapter VII mandate of the UN Charter.
- **Core Objective:** Protect civilians, support peace and stability, and facilitate humanitarian assistance.

Major Functions of UNMISS

- **Protection of Civilians:** Protects civilians facing threats of physical violence.
- **Peace Support**: Supports implementation of peace agreements and the broader peace process.
- **Humanitarian Assistance:** Helps create conditions for humanitarian organisations to provide assistance.
- **Human Rights:** Monitors and reports human-rights violations.
- **Institution Building:** Supports South Sudanese institutions and efforts towards durable peace.

India and UNMISS

- India has made significant contributions to UNMISS through military personnel, leadership and community-oriented activities.
- **Troop Contribution:** India is among the major contributors, with more than 1,700 military personnel deployed in the Indian Battalion (INDBATT).
- **Military Leadership:** Indian officers have also held senior leadership positions, including Force Commander, with Lt. Gen. Mohan Subramanian serving in the role.
- **Women in Peacekeeping:** India has promoted greater participation of women in UN peacekeeping. Major Suman Gawani received the UN Military Gender Advocate of the Year Award in 2019.
- **Community Outreach**: Indian peacekeepers have conducted medical, veterinary and civic assistance camps in areas including Jonglei, Upper Nile and Unity states.

Challenges

- **Security Risks:** Peacekeepers themselves can become targets of armed groups.
- **Complex Conflicts:** Ethnic tensions, political instability and localised violence complicate peacekeeping.
- **Humanitarian Crisis:** Displacement and food insecurity increase the burden on UN missions.
- **Mandate–Resource Gap:** Peacekeepers may face limitations when the security environment exceeds available resources and capabilities.

2.20 UNCCD COP17: Global Multilateral Framework for Land & Drought

Why in News?

COP17 of UNCCD in Ulaanbaatar, Mongolia ("Restoring Land, Restoring Hope") focused on legally binding agreements combating desertification, land degradation, and achieving Land Degradation Neutrality (LDN) by 2030.

What is UNCCD?

- **UNCCD:** United Nations Convention to Combat Desertification.

- It is one of the three Rio Conventions, alongside the UNFCCC and Convention on Biological Diversity (CBD).
- **Adopted**: 1994.
- **Entered into force:** 1996.
- **Headquarters:** Bonn, Germany.
- **Focus:** Sustainable land management, combating desertification, mitigating drought and addressing land degradation.

Key Focus of COP17

- **Combating Desertification:** Strengthening measures to prevent and reverse degradation of drylands.
- **Land Degradation Neutrality:** Promoting the goal of ensuring that the amount and quality of land resources remain stable or improve.
- **Drought Resilience:** Developing measures to reduce vulnerability to drought and improve preparedness.
- **Land Restoration:** Promoting restoration of degraded ecosystems and sustainable land management.
- **International Cooperation:** Strengthening financial, technological and institutional support for countries vulnerable to land degradation.

Land Degradation Neutrality (LDN)

- LDN means maintaining or improving the amount and quality of land resources required to support ecosystem functions, food security and livelihoods.
- It does not necessarily mean that no land can ever be degraded. Instead, degradation in one area should be balanced by avoidance, reduction or restoration elsewhere.

Significance

- **Food Security:** Healthy soils and productive land are essential for agricultural production.
- **Water Security:** Land degradation can reduce water retention and increase vulnerability to drought.
- **Climate Resilience:** Restored ecosystems can improve resilience to climate change.
- **Biodiversity:** Land restoration helps protect habitats and ecosystem services.
- **Livelihood Security:** Rural and dryland communities depend heavily on healthy land resources.

India can strengthen:

- Watershed management
- Soil conservation
- Afforestation and ecosystem restoration
- Sustainable agriculture
- Drought-resilient farming
- Community-based land management

2.21 South China Sea & Disputed Insular Territories

Why in News?

China introduced management measures for the Huangyan Dao National Nature Reserve,

established around Scarborough Shoal, including routine patrols and restrictions on unauthorised fishing and resource extraction.

South China Sea

- A marginal sea of the Western Pacific Ocean
- **Bordering states:** Brunei, Cambodia, China, Indonesia, Malaysia, Philippines, Singapore, Taiwan, Vietnam
- Connects Pacific and Indian Oceans via the Strait of Malacca

Nine-Dash Line

- Historical origin: The claim traces to a 1947 map of the Republic of China, subsequently inherited and maintained by the People's Republic of China.
- China's claim has often been described as covering approximately 90% of the South China Sea.

2016 PCA Arbitration

- In the Philippines v. China arbitration, the Permanent Court of Arbitration (PCA) tribunal, constituted under UNCLOS, rejected China's claims to historic rights over resources within the relevant areas of the South China Sea where those claims exceeded the maritime entitlements permitted under UNCLOS.

Disputed Territories

Territory	Details
Paracel Islands	~130 islands/reefs; controlled by China since 1974; also claimed by Vietnam & Taiwan
Spratly Islands	Claimed by China, Vietnam, Taiwan, Philippines, Malaysia, Brunei; includes Second Thomas Shoal
Scarborough Shoal (Huangyan Island)	Lies within Philippines' EEZ; claimed by China on historical grounds

INDIAN ECONOMY

3.1 Basel Pillar 3 Disclosure Framework

Why is news ?

RBI issues revised Basel Pillar 3 disclosure framework for commercial, small finance and payments banks.

What is Basel Framework?

The Basel Framework is a set of international banking standards developed by the Basel Committee on Banking Supervision (BCBS).

Pillar	Focus	What it does
Pillar 1	**Minimum Capital Requirements**	Prescribes minimum capital requirements against **credit, market and**

		operational risks.
Pillar 2	**Supervisory Review**	Enables banking supervisors to assess a bank's internal risk-management and capital adequacy and require additional capital where necessary.
Pillar 3	**Market Discipline**	Requires public disclosure of relevant information so that **investors, depositors and other market participants** can assess a bank's risk profile.

Pillar 1 – Minimum Capital Requirements

- **Credit Risk:** Risk of losses arising when borrowers fail to meet their obligations.
- **Market Risk:** Risk arising from changes in factors such as interest rates, exchange rates and security prices.
- **Operational Risk:** Risk arising from inadequate or failed internal processes, people, systems or external events.
- **Capital Adequacy:** Banks are required to maintain sufficient regulatory capital to absorb potential losses.

Pillar 2 – Supervisory Review

- **Internal Risk Assessment**: Banks are expected to assess their own risks and determine appropriate capital levels.
- **Regulatory Oversight:** Supervisors examine whether banks have adequate risk-management systems and capital.
- **Additional Capital:** Supervisors can require a bank to maintain additional capital if its risk profile warrants it.

Pillar 3 – Market Discipline

- **Transparency:** Banks publicly disclose standardised information about their capital, risks and risk-management practices.
- **Informed Stakeholders:** Investors and depositors can better evaluate the financial strength and risk profile of banks.
- **Market Discipline:** Better information allows market participants to reward

financially sound banks and put pressure on banks taking excessive risks.

- **Accountability:** Regular disclosure encourages banks to maintain stronger risk-management practices.

Why is Pillar 3 Important?

Pillar 3 works through information rather than direct regulatory control.

For example, if a bank discloses a high level of credit risk or weak capital adequacy, investors and depositors become more aware of its vulnerability. This creates market pressure for better risk management, complementing RBI supervision.

Significance of the Revised Framework

- **Greater Transparency:** Standardised disclosures make it easier to compare banks.
- **Stronger Market Discipline:** Better information enables stakeholders to assess banking risks.
- **Financial Stability:** Greater transparency can help identify vulnerabilities before they become systemic problems.
- **Better Risk Management:** Disclosure requirements encourage banks to strengthen internal controls and risk assessment.
- **Regulatory Alignment:** Brings India's banking disclosure practices in line with evolving Basel standards.

3.2 Bringing Retail Investors into Debt Markets: OBPP Regulations

Why in News?

SEBI proposed norms governing advertisements by Online Bond Platform Providers (OBPPs) to ensure greater transparency and prevent misleading promotion of bond investments.

What is an OBPP?

- Online Bond Platform Providers (OBPPs) are SEBI-regulated online platforms that facilitate retail investors' access to listed debt securities and other eligible bonds.
- They provide a digital interface through which investors can discover and compare eligible debt-market instruments.

How OBPPs Work

- **Listing of Eligible Securities:** Platforms make eligible bonds and debt securities available to investors.
- **Investor Comparison:** Investors can compare instruments using parameters such as yield, credit rating, maturity and cash flows.
- **Investment Decision:** Investors can select securities based on their risk-return preferences.
- **Regulatory Oversight:** SEBI's regulatory framework seeks to ensure that information provided by such platforms is transparent and not misleading.

Why Advertisement Regulations Matter

- **Prevent Mis-selling:** Advertisements should not create the impression that bonds are risk-free or guaranteed-return products.
- **Risk Disclosure**: Investors need clear information about credit risk, liquidity risk and other relevant risks.
- **Transparency:** Standardised and accurate information enables investors to make informed decisions.
- **Investor Protection:** Regulation can reduce the possibility of exaggerated return claims or incomplete information.

Benefits & Significance

- **Retail Access:** Provides individual investors with easier access to corporate bonds and other debt securities.
- **Better Comparison:** Digital platforms allow investors to compare yield, credit rating, maturity and cash flows.
- **Financial Inclusion:** Expands investment choices beyond bank deposits and equities.
- **Corporate Financing:** A deeper retail bond market can provide companies with an additional source of financing.
- **Market Development:** Greater participation can contribute to the deepening and diversification of India's corporate bond market.
- **Liquidity:** A broader investor base can potentially improve trading activity and liquidity in debt markets.

Challenges

- **Credit Risk:** A bond issuer may fail to repay interest or principal.
- **Liquidity Risk:** Some bonds may be difficult to sell quickly at a desirable price.
- **Interest-Rate Risk:** Changes in market interest rates can affect the value of existing bonds.
- **Financial Literacy:** Retail investors may not fully understand the risks associated with different debt instruments.
- **Misleading Promotion:** Attractive yield advertisements without adequate risk disclosure can encourage inappropriate investment decisions.

Way Forward

SEBI should combine transparent advertising, standardised risk disclosures, investor education and strong intermediary oversight to expand retail participation without compromising investor protection.

3.3 Closing Auction Session (CAS) in Indian Equity Markets

Why in News?

Securities and Exchange Board of India (SEBI) mandated the implementation of a 20-minute daily Closing Auction Session (CAS) for equity cash market stocks with derivative contracts, effective August 3, 2026.

What is Closing Auction Session (CAS)?

- **Separate Closing Mechanism:** CAS is a dedicated 20-minute auction from 3:15 PM to 3:35 PM for eligible stocks.

- **Order Aggregation:** Instead of relying on trades executed throughout the final 30 minutes, buy and sell orders are collected and matched during the auction.
- **Equilibrium Price:** The closing price is determined at the price where the maximum executable volume can be matched.
- **Reference Price:** The VWAP of trades between 3:00 PM and 3:15 PM is used as the reference price during the transition into CAS.

Why was CAS Introduced?

- **Better Price Discovery:** It allows the closing price to emerge from concentrated buying and selling interest rather than simply averaging the final 30 minutes of trades.
- **Reduction of Closing-Time Manipulation**: A structured auction makes it more difficult to influence the closing price through isolated trades near market close.
- **Improved Benchmarking:** A reliable closing price is important for index tracking, portfolio valuation, fund valuation and derivatives-related calculations.
- **Global Market Practice:** Closing auctions are widely used in major international equity markets and facilitate execution closer to the official closing price.

Feature	Earlier Method	CAS
Basis	VWAP of last 30 minutes	Call-auction mechanism
Price Discovery	Based on executed trades	Based on aggregated buy/sell orders
Closing Price	Volume-weighted average	Single equilibrium price
Trading Period	Continuous trading	Dedicated auction
Main Objective	Fair average closing price	Efficient and transparent closing-price discovery

Significance

- **Market Integrity:** Strengthens the reliability of the official closing price.
- **Passive Investment:** Helps index funds and ETFs track benchmark indices more accurately.
- **Investor Protection:** Reduces the scope for artificial price movements around the closing period.
- **Financial Stability:** Provides a more systematic benchmark for valuation and settlement-related processes.

3.4 Expansion of India's Social Security Coverage

Why in news ?

The Union Minister of Labour & Employment announced that India's social protection systems now cover over 68% of the population (~101 crore citizens), up from 19% in 2015, as recognized by the International Labour Organization (ILO).

Significance:

- **Poverty Reduction & Economic Stability:** Acts as a safety net against health crises, sudden job losses, and economic shocks.
- **Formalisation of Workforce:** Extends institutional support across unorganised, organized, gig, and platform workers.
- **SDG Targets:** Accelerates progress towards SDG 1 (No Poverty), SDG 3 (Good Health and Well-being), SDG 8 (Decent Work & Economic Growth), and SDG 10 (Reduced Inequalities).

Key Government Initiatives:

- **e-Shram Portal & DPI:** Digital Public Infrastructure facilitating registration and delivery of benefits to unorganized workers.
- **Labour Codes:** Aims to universalise social security coverage and simplify labor law compliance.
- **Ayushman Bharat PM-JAY:** World's largest health assurance scheme providing coverage to vulnerable families.
- **Atal Pension Yojana (APY) & PM-SYM:** Contributory pension schemes targeting unorganized sector workers for post-retirement income security.

3.5 FCNR(B) Deposits

Why in News?

The Reserve Bank of India (RBI) advanced the deadline for fresh FCNR(B) deposits to become eligible under a special USD-INR foreign exchange swap window.

What are FCNR(B) Deposits?

FCNR(B) stands for Foreign Currency Non-Resident (Bank) Deposits.

Who can hold them?

NRIs and eligible persons of Indian origin can place these deposits with authorised Indian banks.

- **Currency denomination:** The deposit is maintained in a foreign currency, rather than Indian rupees.
- **Nature:** FCNR(B) deposits are term deposits with a specified maturity period.
- **Repatriability:** Both the principal and interest are fully repatriable outside India.
- **Exchange-rate protection:** Since the deposit is denominated in foreign currency, the depositor is generally protected from rupee depreciation on the principal amount.

Permitted Currencies

FCNR(B) deposits can be maintained in specified foreign currencies, including:

- US Dollar (USD)
- Euro (EUR)

- Pound Sterling (GBP)
- Japanese Yen (JPY)
- Other currencies permitted under RBI regulations.

How FCNR(B) Deposits Support India's External Sector

- **Foreign Currency Mobilisation:** NRIs bring foreign currency into Indian banks through these deposits, increasing the availability of foreign-currency resources.
- **Forex Liquidity:** Banks can use these foreign-currency resources to meet legitimate foreign-exchange requirements and manage their external funding needs.
- **Reduced Exchange-Rate Risk for Depositors:** Because the deposit remains denominated in foreign currency, the NRI does not face the same currency-conversion risk as with a rupee-denominated NRI deposit.
- **Support during External-Sector Stress:** Higher FCNR(B) inflows can strengthen the banking system's foreign-currency liquidity when global financial conditions or capital flows create pressure on the rupee.

3.6 Financial Fraud Trends in India

Why in News?

The Ministry of Finance submitted state-wise data on financial fraud cases in Parliament, highlighting the rising challenge of digital financial crimes.

- Maharashtra recorded the highest fraud amount – ₹1.20 lakh crore.
- Haryana ranked 3rd in the number of fraud cases -₹1,336 crore.

Major Types of Financial Frauds

- **Digital Payment Frauds :** UPI scams, QR code frauds, Fake payment links
- **Banking Frauds :** Internet banking fraud , Card cloning , Account takeover
- **Social Engineering Frauds:** Phishing (fake emails/messages), Vishing (fraudulent calls) Smishing (SMS-based scams)
- **Investment Frauds :** Fake trading platforms ,Ponzi schemes, Cryptocurrency scams
- **Identity-based Frauds :** Misuse of personal and financial data

Government Initiatives

Indian Cyber Crime Coordination Centre (I4C)

- **Nodal Ministry:** Ministry of Home AffairsEstablished: 2018
- Objectives
- Strengthen coordination among law enforcement agencies.
- Develop cybercrime intelligence.
- Improve cyber investigation capabilities.

I4C Money Restoration Module

- **Purpose:** Enables real-time coordination between: Banks, Police, Financial institutions

- **Benefits**: Freezing of fraudulent transactions.Recovery of stolen funds.

- **Performance:** Haryana achieved 38% fund restoration rate compared to the 8% national average.

Samanvaya Portal

- **Role :** A coordination platform for: Police departments, Banks, Telecom operators

Functions

- Identification of cybercrime patterns.
- Detection of mule accounts.
- Faster disposal of complaints.

Achievement:

- Recorded 97% disposal rate.
- National Cyber Crime Reporting Portal

Features

- Online reporting of cyber crimes.
- Financial fraud complaints.
- Tracking of complaints.
- **Helpline:** 1930 – Immediate reporting of financial cyber frauds.

3.7 Financing the Global South: The Rise of the BRICS New Development Bank

Why in News?

Iran is advancing toward official membership in the New Development Bank (NDB) associated with BRICS.

What is NDB?

The New Development Bank is a multilateral development bank established by the founding BRICS countries.

- **Headquarters:** Shanghai, China.

Aim

- Finance infrastructure.
- Support sustainable development.
- Provide development finance to emerging economies.
- Promote greater use of local currencies.
- Reduce dependence on traditional development-finance institutions.

Evolution

- **2012 :** Idea discussed at BRICS Summit in New Delhi.
- **2014 :** Agreement signed at Fortaleza, Brazil.
- **2015:** NDB became operational.

Significance for India

- **Global South cooperation:** Strengthens South-South development financing.
- **Alternative financing:** Provides another source of infrastructure finance beyond traditional MDBs.
- **Local currency financing:** Can reduce exposure to foreign-exchange volatility.
- **Climate finance:** Supports green infrastructure and sustainable development.

Key Functions

Infrastructure Financing

- Provides long-term financing for infrastructure projects.
- Supports sectors such as transport, energy, water and digital infrastructure.

Equity Participation

- Invests equity in development projects.
- Helps strengthen the capital base of infrastructure and development initiatives.

Credit Guarantees

- Provides guarantees to reduce financing risks.
- Helps mobilise additional private and institutional investment.

Technical Assistance

- Provides project-preparation support.
- Assists developing countries with feasibility studies, institutional capacity-building and project management.

Green Financing

- Supports renewable energy and climate-resilient infrastructure.
- Promotes sustainable and environmentally responsible development.

Local-Currency Financing

- Provides financing in members' domestic currencies.
- Helps reduce exposure to exchange-rate volatility and foreign-currency risks.

Challenges

Financial Credibility

- Expansion of membership must not compromise the bank's financial strength.
- Maintaining strong credit ratings is essential for low-cost borrowing.

Geopolitical Differences

- Members may have different strategic and economic interests.
- Geopolitical tensions can complicate collective decision-making.

Development vs Creditworthiness

- The NDB must balance: Developmental needs ↔ Financial sustainability
- Excessively concessional lending could affect financial viability.

Way Forward

Strengthen Governance & Transparency

- Improve institutional accountability.
- Ensure transparent project selection and lending practices.

Expand Local-Currency Financing Prudently

- Gradually increase domestic-currency lending.
- Develop deeper local financial markets to manage associated risks.

3.8 Fiscal Outlook & Capital Expenditure Trends

Why in News?

The Centre's fiscal position is facing geopolitical and revenue pressures, while strong non-tax receipts and front-loaded capital expenditure are providing some cushion.

Aim

- **Fiscal Stability:** Maintain sustainable government finances and control the accumulation of public debt.

- **Economic Growth:** Use public expenditure to support aggregate demand and economic activity.
- **Public Investment:** Sustain infrastructure creation and expand the productive capacity of the economy.

Key Concepts

- **Fiscal Deficit:** It is the excess of the government's total expenditure over its total receipts excluding borrowings.

Formula:

Fiscal Deficit = Total Expenditure − Total Receipts excluding Borrowings

- **Capital Expenditure:** It refers to government spending that creates physical assets, improves productive capacity, or generates long-term economic benefits, such as roads, railways, defence infrastructure and other capital assets.
- **Recent Trend**: Central government capital expenditure increased by 23.7% in Q1 FY2026–27, indicating a strong push for public investment.

Why Capital Expenditure Matters

- **Crowding-in of Private Investment**: Government infrastructure spending can improve connectivity and reduce business costs, encouraging private investment.
- **Productive Capacity:** Better infrastructure raises the economy's ability to produce goods and services over the long term.
- **Employment Generation:** Infrastructure projects create direct employment and generate indirect demand across construction, manufacturing and services.
- **Multiplier Effect:** Capital expenditure can generate wider economic activity because infrastructure spending creates demand for multiple sectors.

Fiscal Outlook: Major Pressures

- **Tax Revenue Pressure:** Tax rationalisation and changes in tax rates can affect the pace of revenue growth, making fiscal management more challenging.
- **Cesses and Surcharges:** Cesses and surcharges are not part of the divisible pool of central taxes, thereby reducing the share of tax revenue that is automatically distributed to States.
- **Geopolitical Risks:** External conflicts and geopolitical disruptions can increase government expenditure while affecting trade and revenue conditions.
  - **Energy-Price Volatility:** Higher global crude-oil prices can increase inflationary pressures and affect the fiscal position through their wider economic effects.

Way Forward

- **Broaden the Tax Base:** Improve tax compliance, formalisation and the

coverage of the tax system rather than relying primarily on higher tax rates.

- **Protect Productive Capex:** Prioritise infrastructure and other expenditure that creates long-term productive assets.
- **Strengthen Cooperative Fiscal Federalism:** Ensure greater predictability and transparency in transfers to States.
- **Manage External Risks:** Use appropriate commodity and currency-risk management mechanisms to reduce exposure to global volatility.
- **Maintain Fiscal Credibility:** Fiscal consolidation should remain gradual and credible so that expenditure control does not undermine economic growth.

3.9 Greenium & Sovereign Green Bonds

Why in News?

India's Sovereign Green Bonds (SGrBs) have attracted strong investor interest, with reports indicating the presence of a greenium over comparable conventional government securities.

What is Greenium?

Greenium (Green Premium) refers to the situation where investors accept a slightly lower yield/return on green bonds compared to similar conventional bonds.

Why does it happen?

Because investors value: Environmental benefits, Sustainable investment goals, Climate-friendly projects.

Example: Conventional Government Bond - Yield: 7% ; Green Bond - Yield: 6.8%

If investors still prefer the green bond despite lower returns: The 0.2% difference represents the greenium.

Why Do Investors Accept Lower Returns?

- **Environmental Preferences :** Many investors are increasingly preferring green assets that support renewable energy, clean transportation and climate adaptation projects.
- **ESG Investing :** Green bonds attract investors who consider Environmental, Social and Governance (ESG) factors while making investment decisions.
- **Long-Term Sustainability Goals :** Institutional investors often prioritise sustainable investment portfolios and seek to reduce exposure to climate-related risks.

What are Sovereign Green Bonds?

- Sovereign Green Bonds are government-issued debt securities through which funds are raised specifically for financing eligible environmental and climate-related projects.
- The Government of India issues sovereign green bonds as part of its borrowing programme.

- They are a debt instrument through which the government mobilises funds while committing them to green projects.

How Sovereign Green Bonds Work?

- The government issues green bonds to raise funds from investors.
- Investors purchase these securities and provide funds to the government.
- The government allocates the collected funds to approved green and sustainable projects.
- Investors receive periodic interest payments and repayment of the principal amount after maturity.

Feature	Green Bond	Carbon Credit
Nature	A debt instrument issued to raise funds	A unit representing verified emission reduction or removal
Purpose	To finance environmentally sustainable projects	To reduce, offset or compensate greenhouse gas emissions
Holder Receives	Interest payments and repayment of principal amount	Environmental credit representing a reduction in emissions
Issued By	Governments, companies, financial institutions	Carbon markets, regulatory mechanisms or authorised agencies
Main Focus	Mobilising finance for green projects	Managing and reducing carbon emissions
Examples	Renewable energy, clean transport, climate-resilient infrastructure projects	One carbon credit generally represents one tonne of CO_2 equivalent reduced or removed

3.10 NaBFID–NABARD: Infrastructure Finance for Rural India

Why in News?

NABARD and NaBFID signed an MoU to facilitate financing for infrastructure projects having significant rural impact.

NaBFID and NABARD

Feature	NaBFID	NABARD
Full Form	National Bank for Financing Infrastructure and Development	National Bank for Agriculture and Rural Development
Established	2021	1982
Legal Basis	NaBFID Act, 2021	NABARD Act, 1981
Primary Focus	Infrastructure financing	Agriculture & rural development

Key Role	Long-term infrastructure finance	Rural credit & development
Regulatory Position	RBI-regulated AIFI	Apex rural development financial institution

Why is the NaBFID–NABARD Partnership Important?

- **Combining Complementary Expertise:** NABARD brings knowledge of rural development and local infrastructure requirements, while NaBFID provides specialised expertise in long-term infrastructure finance.
- **Addressing Rural Infrastructure Gaps:** The partnership can facilitate financing for projects such as rural connectivity, irrigation, warehousing, logistics, renewable energy and other infrastructure with substantial rural benefits.
- **Long-Term Financing:** Infrastructure projects generally require large investments and long repayment periods. NaBFID's DFI structure is designed to address this financing gap.
- **Crowding-In Private Investment:** Better availability of long-term financing can improve the viability of infrastructure projects and encourage greater participation by private investors.
- **Balanced Regional Development**: Improved infrastructure in rural areas can reduce regional disparities and connect rural producers with larger markets.

Potential Rural Impact

- **Agricultural Infrastructure:** Better storage, irrigation, processing and logistics can reduce post-harvest losses and improve farmers' market access.
- **Connectivity:** Rural roads, transport and digital infrastructure can improve access to markets, education, healthcare and financial services.
- **Employment:** Infrastructure creation can generate construction employment and support economic activity in surrounding areas.
- **Rural Industrialisation**: Better infrastructure can encourage agro-processing, small industries and rural enterprises.

Way Forward

- **Project Prioritisation:** Give priority to infrastructure with strong economic and social returns in underserved rural regions.
- **Blended Financing:** Combine public funding, institutional finance and private investment wherever appropriate.
- **Risk Management:** Strengthen project appraisal and monitoring to minimise risks

associated with long-gestation infrastructure projects.

- **Last-Mile Focus:** Ensure that infrastructure financing translates into actual improvements in rural connectivity, productivity and livelihoods.

3.11 National Urban Co-operative Finance and Development Corporation (NUCFDC)

Why in News?

The Union Minister inaugurated the new NUCFDC office in Mumbai, along with a cybersecurity-focused Security Operations Centre.

What is NUCFDC?

- NUCFDC is the National Urban Co-operative Finance and Development Corporation, established as an umbrella institution to support the Urban Cooperative Banking sector.
- **Regulatory status**: Registered as a Non-Banking Financial Company (NBFC) with the RBI.
- **Role:** Acts as an apex umbrella organisation for Urban Cooperative Banks (UCBs).
- **Launch:** Formally launched in 2024.
- **Coverage:** Intended to support more than 1,400 UCBs, according to the supplied material.
- **Core objective:** Strengthen the technological, financial, operational and governance capabilities of smaller UCBs.

Major Functions

- **Shared Digital Infrastructure:** NUCFDC can enable UCBs to access common technology platforms and digital banking infrastructure, reducing the cost of developing systems individually.
- **Liquidity Support:** It can provide financial support and facilitate better liquidity management for UCBs during periods of stress.
- **Capacity Building:** It can improve the professional capabilities of UCB management and staff through training and technical assistance.
- **Cybersecurity:** Common cybersecurity infrastructure, including the Security Operations Centre, can help smaller UCBs detect and respond to cyber threats.
- **Regulatory Compliance:** NUCFDC can assist UCBs in adopting common standards and meeting regulatory requirements.

Why Do UCBs Need Such Support?

- **Small Scale:** Many UCBs operate with limited financial and technological resources, making it difficult to invest in sophisticated banking infrastructure.
- **High Technology Costs:** Developing and maintaining digital banking platforms

individually can be expensive for smaller institutions.

- **Cybersecurity Vulnerability:** Limited investment in cybersecurity can expose smaller UCBs to cyber fraud, data breaches and operational disruptions.
- **Governance Concerns:** Weak internal controls, inadequate board oversight and poor management practices have contributed to financial stress in some UCBs in the past.
- **Liquidity Constraints:** Smaller deposit bases and limited access to diversified sources of funding can make liquidity management difficult during periods of financial stress.

Proposed SRO Pathway

- NUCFDC has also been associated with a proposed pathway towards becoming a Self-Regulatory Organisation (SRO) for UCBs, subject to fulfilling the prescribed requirements, including achieving the required ₹300 crore paid-up capital threshold mentioned in the supplied material.
- An SRO framework could help establish common standards, professional discipline and sector-wide best practices, while remaining subject to RBI's regulatory oversight.

Way Forward

- **Strengthen Governance:** Ensure professional management, effective board oversight and strong internal controls across UCBs.
- **Build Cyber Capacity:** Expand shared cybersecurity infrastructure and regular cyber-risk assessments.
- **Promote Digital Transformation**: Make modern banking technology accessible to smaller UCBs at affordable costs.
- **Improve Risk Management:** Strengthen liquidity, credit, operational and technology-risk management.
- **Maintain RBI Oversight:** NUCFDC's development as an umbrella institution should complement, rather than replace, the RBI's regulatory and supervisory role.

3.12 On-Tap Licensing of Urban Cooperative Banks (UCBs)

Why in News?

RBI Governor announced upcoming draft guidelines to resume on-tap licensing for Urban Cooperative Banks (UCBs) after a 22-year hiatus imposed in 2004.

What are Urban Cooperative Banks?

Urban Cooperative Banks (UCBs) are cooperative banks that primarily operate in urban and semi-urban areas.

- **Registration:** They are registered under the relevant State Cooperative Societies Acts or the Multi-State Cooperative Societies Act, 2002.

- **Banking Regulation:** Their banking business is regulated under the Banking Regulation Act, 1949.
- **Licensing:** RBI plays the key role in granting banking licences and exercising banking supervision.
- **Statutory Basis:** Section 22 read with Section 56 of the Banking Regulation Act, 1949 provides the legal framework for licensing cooperative banks for banking business.

What is On-Tap Licensing?

On-tap licensing means that eligible institutions can apply for a banking licence on an ongoing basis, rather than waiting for RBI to open a licensing window at fixed intervals. This can make the licensing framework more continuous, transparent and responsive to the needs of the banking sector.

Proposed Eligibility Conditions

Parameter	Proposed Requirement
Minimum Net Worth	₹300 crore
Operational History	At least 10 years
Profitability	5 consecutive profitable years
CRAR	At least 12%
Net NPA	Not more than 3%

Why is the Reform Important?

- **Strengthening Community Banking:** UCBs have traditionally served local communities by using their understanding of local economic conditions.
- **MSME Credit:** UCBs can improve access to institutional credit for MSMEs, micro-enterprises and small businesses that may face difficulties obtaining credit from larger banks.
- **Urban Informal Sector:** Local cooperative institutions can provide financial services to small traders, self-employed persons and other sections of the urban informal economy.
- **Competition in Banking:** New, financially sound UCBs can increase competition and improve the range of banking services available to customers.
- **Formalisation of Cooperative Credit**: Eligible cooperative credit societies can transition into regulated banking institutions if they satisfy RBI's prudential requirements.

Banking Regulation (Amendment) Act, 2020

- **Greater RBI Oversight:** It strengthened RBI's regulatory and supervisory powers over cooperative banks in relation to banking functions.
- **Governance Improvements:** The amendments sought to strengthen

governance and improve the financial soundness of cooperative banks.

- **Reducing Regulatory Frictions:** The reforms addressed some problems arising from the earlier system in which cooperative banks were subject to different regulatory authorities for different aspects of their functioning.

Challenges

- **Governance Weaknesses:** Cooperative banks can face problems related to board oversight, professional management and accountability.
- **Asset Quality:** Rapid expansion without adequate risk management can lead to higher NPAs.
- **Capital Constraints:** Smaller cooperative institutions may struggle to maintain adequate capital while expanding their operations.
- **Technology and Cyber Risks:** Digital banking creates a need for greater investment in cybersecurity and IT infrastructure.
- **Political and Local Influence:** Excessive local influence can weaken professional credit decisions and governance.

Way Forward

- **Strict Licensing:** RBI should ensure that only financially sound and professionally managed institutions receive licences.
- **Strengthen Governance:** Greater professionalism, accountability and fit-and-proper standards for boards and management are essential.
- **Technology Upgradation:** Smaller UCBs should leverage shared infrastructure and technology support through institutions such as NUCFDC.
- **Risk-Based Supervision:** RBI should continuously monitor capital adequacy, asset quality, liquidity and governance risks.
- **Balance Inclusion with Prudence:** Expansion of cooperative banking should not compromise depositor protection and financial stability.

3.13 RBI Monetary Policy Committee (MPC) Meeting

Why in News?

The Reserve Bank of India (RBI) Monetary Policy Committee (MPC) kept the Repo Rate unchanged at 5.25% and retained a 'Neutral' policy stance.

What is the Monetary Policy Committee (MPC)?

- The MPC is a statutory committee constituted under the RBI Act, 1934, following amendments made in 2016.
- Its primary responsibility is to determine the policy interest rate required to achieve the inflation target.

Composition of MPC

The MPC has 6 members:

RBI Representatives: Three members are from the RBI, including:

- RBI Governor – Chairperson
- RBI Deputy Governor in charge of Monetary Policy
- One officer nominated by the RBI

Government-Nominated Members: Three external members are appointed by the Central Government.

Important Features

- **Term:** External MPC members have a 4-year term and are not eligible for reappointment.
- **Decision-Making:** Decisions are taken by majority vote.
- **Casting Vote:** The RBI Governor has a casting vote in case of a tie.
- **Meetings:** The MPC must meet at least four times a year.

Policy Rate	Current Rate
Repo Rate	5.25%
SDF	5.00%
MSF	5.50%
Bank Rate	5.50%

Understanding the Policy Rates

- **Repo Rate:** The rate at which RBI lends short-term funds to banks against eligible securities. A change in the repo rate influences borrowing costs across the economy.
- **Standing Deposit Facility (SDF):** Allows banks to deposit surplus funds with RBI without providing collateral.
- **Marginal Standing Facility (MSF)**: Allows eligible banks to borrow overnight funds from RBI against eligible securities, generally at a rate above the repo rate.
- **Bank Rate:** A rate used as a reference for certain RBI facilities and regulatory purposes; it is generally aligned with the MSF rate.

Key Economic Projections

- **FY27 GDP Growth:** Projected at 6.7%, revised upward from 6.6%.
- **FY27 CPI Inflation:** Projected at 5.0%, revised downward from 5.1%.

Inflation Target

Under the flexible inflation-targeting framework:

- **Target:** 4% CPI inflation
- **Tolerance band:** 2% to 6%
- **Target-setting authority:** Central Government, in consultation with RBI.
- **Review:** The inflation target is reviewed periodically as provided under the RBI Act.

What Does a Neutral Stance Mean?

- **Neutral Stance:** RBI does not commit itself to either further monetary tightening or monetary easing. Future policy decisions can move in either direction, depending on

inflation, growth, liquidity and other economic conditions.

- **Data Dependence:** The RBI can respond to changing economic conditions rather than following a predetermined path of rate increases or cuts.
- **Policy Flexibility:** A neutral stance gives the MPC room to reduce rates if growth weakens or raise rates if inflationary pressures intensify.

Significance

- **Growth Support:** Keeping the repo rate unchanged avoids an additional increase in borrowing costs for households and businesses.
- **Inflation Management:** Maintaining a sufficiently restrictive policy environment helps prevent renewed inflationary pressures.
- **Policy Credibility:** Continued focus on the inflation target strengthens confidence in India's monetary policy framework.
- **Investment Climate:** Greater stability in interest rates can provide businesses with a more predictable borrowing environment.

3.14 RBI – 17 NBFCs in Upper Layer

Why in News?

The RBI identified 17 large NBFCs under the Upper Layer (NBFC-UL) of its Scale-Based Regulation framework.

Scale- Based Regulation - 4 Layers

Layer	Key Feature
Base Layer (NBFC-BL)	Lower-risk NBFCs
Middle Layer (NBFC-ML)	Deposit-taking NBFCs + large non-deposit-taking NBFCs
Upper Layer (NBFC-UL)	NBFCs with higher systemic importance
Top Layer (NBFC-TL)	Exceptional cases with substantial systemic risk

Base Layer – NBFC-BL

- **Lower-risk institutions:** This layer mainly consists of smaller non-deposit-taking NBFCs.
- **Other entities:** Peer-to-Peer (P2P) lending platforms, Account Aggregators and Non-Operative Financial Holding Companies are also placed here.

Middle Layer – NBFC-ML

- **Deposit-taking NBFCs**: All deposit-taking NBFCs fall under this layer, irrespective of their asset size.
- **Large non-deposit-taking NBFCs:** Non-deposit-taking NBFCs with assets of ₹1,000 crore or more are included.
- **Specialised entities:** Housing Finance Companies, Infrastructure Finance Companies, Infrastructure Debt Fund-NBFCs and Core Investment Companies are also covered.

Upper Layer – NBFC-UL

- **Systemic importance**: RBI identifies NBFCs in this layer annually based on their size, complexity, interconnectedness and systemic importance.
- **Stronger regulation:** These NBFCs face enhanced prudential and governance requirements because their failure can have wider financial-system implications.
- **Mandatory listing:** An NBFC identified in the Upper Layer is required to be listed within three years of identification.
- **Regulatory duration:** Once identified, the enhanced regulatory framework generally applies for at least five years, even if the NBFC subsequently falls below the qualifying threshold.

Top Layer – NBFC-TL

- **Exceptional category:** This layer is normally expected to remain empty.
- **Systemic-risk trigger:** It is activated when an NBFC in the Upper Layer develops substantial systemic risk, requiring additional regulatory intervention.

Why is the SBR Framework Important?

- **Risk-Based Regulation**: Regulation is proportionate to the size and systemic importance of an NBFC rather than applying identical rules to every institution.
- **Financial Stability:** Large NBFCs are deeply connected with banks, capital markets and other financial institutions. Stronger regulation reduces the possibility of their problems spreading across the financial system.
- **Prevention of Systemic Risk:** The framework seeks to prevent a large NBFC from becoming a source of financial instability or contagion.
- **Better Governance:** Higher-layer NBFCs face stronger requirements relating to governance, capital, risk management and supervision.

3.15 Windfall Tax

Why in News

India hiked the windfall tax on petrol, diesel, and (Aviation Turbine Fuel) ATF exports

What is a Windfall Tax?

- **Tax on Abnormal Profits:** A windfall tax is a special tax imposed on unexpectedly high profits earned by companies because of favourable external conditions rather than their normal business performance.
- **Commodity-Specific:** It is generally imposed on selected sectors such as oil and gas when global prices or market conditions generate unusually high margins.
- **Periodic Revision:** The government can revise the rate depending on global crude prices, refining margins and domestic market conditions.

Why Does India Impose It?

- **Global Price Shocks:** A sharp rise in international crude prices can increase

refining margins and export earnings of domestic refiners.

- **Domestic Supply Concerns:** When exporting refined fuel becomes highly profitable, refiners may have greater incentive to export rather than supply the domestic market.
- **Public Revenue**: The tax allows the government to capture a portion of extraordinary profits and use the revenue for broader fiscal needs.

Significance

- **Fiscal Resource Mobilisation**: It provides additional government revenue during periods of exceptional profitability.
- **Energy Security:** By reducing the attractiveness of excessive exports during global price spikes, it can support adequate domestic fuel availability.
- **Redistribution of Windfall Gains:** It enables the government to capture part of the gains arising from external market shocks rather than allowing all abnormal gains to accrue to producers.

Impact

- **Positive Impact**: Higher government revenue can strengthen fiscal resources, while appropriate taxation can discourage excessive exports when domestic fuel security is under pressure.
- **Investment Concern:** Frequent or very high tax rates may reduce the incentive for investment in refining capacity and related infrastructure.
- **Export Competitiveness:** Excessive taxation can make Indian refiners less competitive in international markets.

Way Forward

- **Rule-Based Mechanism:** Adopt a transparent formula linked to international crude prices and refining margins rather than relying on unpredictable revisions.
- **Balanced Taxation:** The rate should capture genuinely exceptional profits without undermining the long-term competitiveness of Indian refiners.
- **Energy-Security Trigger:** Changes in the tax should consider domestic fuel availability and strategic energy requirements.
- **Predictable Policy:** Greater policy certainty can maintain investor confidence while allowing the government to respond to extraordinary market conditions.

GEOGRAPHY

4.1 Makhana wetland

Makhana Wetland Cultivation Belt – Bihar

- **Scientific Name:** Euryale ferox belongs to the Nymphaeaceae family and is an important aquatic food crop.
- **Natural Habitat:** Makhana grows in shallow freshwater wetlands, oxbow lakes

(beels), perennial ponds and flood-prone lowlands.

- **Water Requirement**: It thrives in permanently or seasonally waterlogged environments, making freshwater wetlands particularly suitable for its cultivation.
- **Soil Conditions:** Makhana prefers organic-rich, clayey and water-retentive beds, which support its growth in shallow water bodies.
- **Major Production Belt:** Major producing districts of Bihar include Darbhanga, Madhubani, Purnia, Katihar, Saharsa, Supaul, Araria and Sitamarhi.
- **Mithila Makhana:** Mithila Makhana received a GI tag in 2022, recognising its geographical association with the Mithila region of Bihar.
- **Geographical Significance:** The wetlands, ponds, beels and flood-prone lowlands of North Bihar provide favourable ecological conditions for makhana cultivation.
- **Economic Significance:** Makhana provides livelihood opportunities through cultivation, harvesting, processing and value addition, particularly in rural areas.



4.2 Arunachal Pradesh: Updated Map & Geographic Nomenclature

Why in News?

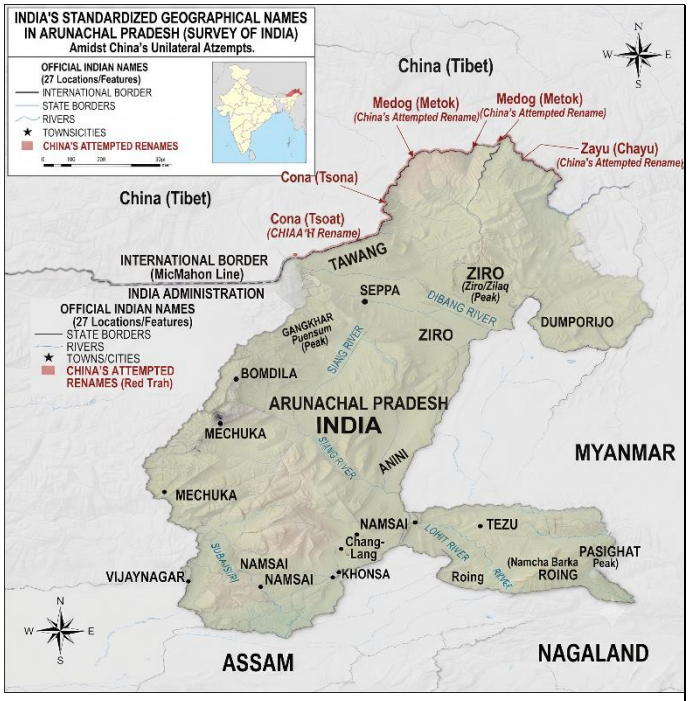
India updated the official map and standardised names for 27 locations/features in Arunachal Pradesh, amid China's attempts to rename places in the region.

The 27 sites include:

- 21 land areas/villages.
- 4 mountain passes: Thag La, Dzo La, Riza La, Pukur La
- 1 lake - Sambho Sarovar.
- 1 war memorial - Sher-e-Thapa Memorial.

Important Geography

- **Capital:** Itanagar
- **Borders:** Bhutan , Myanmar, China
- **Major rivers:** Siang, Kameng, Subansiri,Dibang, Lohit
- **Statehood:** 1987



4.3 Banni Grassland (Arid & Semi-Arid Ecosystem)

Why in News?

The Banni Grassland of Gujarat is important in discussions on grassland conservation, pastoral livelihoods and the spread of invasive Prosopis juliflora.

Ecosystem Profile

- **Location:** Situated in Kutch district, Gujarat, in northern Kutch near the Great Rann of Kutch.
- **Ecosystem Type:** An arid to semi-arid grassland ecosystem.
- **Area:** Covers approximately 2,600 sq km.
- **Vegetation:** Dominated by grasses, shrubs and scattered trees adapted to dry and drought-prone conditions.
- **Climate:** Characterised by low and highly variable rainfall, frequent drought conditions and increasing climatic stress.

Pastoral Livelihoods

- **Maldharis:** Traditional pastoral communities depend heavily on Banni for grazing and livestock-based livelihoods.
- **Banni Buffalo:** The region is associated with the Banni buffalo, an indigenous breed well adapted to the harsh local environment.
- **Grazing Economy**: Seasonal availability of grasses supports livestock rearing and sustains pastoral communities.

Ecological Importance

- **Biodiversity:** Provides habitat for grassland-dependent flora and fauna.
- **Carbon Storage:** Grassland vegetation contributes to soil and biomass carbon storage.
- **Livestock Support:** Acts as an extensive natural grazing landscape.
- **Climate Resilience:** Native grassland species are adapted to water scarcity and rainfall variability.
- **Landscape Connectivity:** Forms part of the wider Rann of Kutch desert–grassland ecosystem.

Major Threats

- **Invasive Prosopis juliflora:** Its expansion can replace native grasses and alter the structure of the grassland.

- **Rainfall Variability:** Changing rainfall patterns affect grass productivity and livestock availability.
- **Salinity:** Increasing soil salinity can reduce the suitability of land for native vegetation.
- **Overgrazing:** Excessive grazing pressure may contribute to degradation when grass regeneration is inadequate.
- **Grassland Degradation:** Conversion and ecological changes can reduce the capacity of the ecosystem to support both biodiversity and pastoral livelihoods.

4.4 Barrier Lakes (Landslide-Dammed Lakes) in Tibet & Himalayas

Why in News?

A barrier lake in Tibet, containing an estimated 2–5 million cubic metres of water, began overflowing/breaching, raising concerns about flash flooding in Nepal and downstream areas.

What is a Barrier Lake?

A barrier lake is a temporary lake formed when a natural obstruction blocks the flow of a river or stream, causing water to accumulate upstream. Commonly called a Landslide lake, Landslide-dammed lake, or Quake lake.

Triggers of Natural Barriers:

- Landslides (debris entering river channel)
- Earthquakes (slope failure and rock blockages)
- Rock avalanches in narrow valleys
- Glacial collapse and moraine destabilisation
- Cloudbursts and torrential slope wash

Feature	Barrier Lake	Glacial Lake
Main Cause	Natural blockage of a river	Water accumulation in a glacial basin
Typical Dam	Landslide, rock or debris mass	Moraine, ice or glacial bedrock
Major Hazard	Sudden barrier failure and flash flooding	Glacial Lake Outburst Flood (GLOF)
Key Trigger	Overtopping, piping, further slope collapse	Ice/rock avalanche, moraine failure

4.5 Broad Peak in the Karakoram Range

why in news ?

A massive avalanche struck a 10-member international climbing expedition on the slopes of Broad Peak in the Karakoram range. Broad Peak (historically called Falchan Kangri in the local Balti language) is the 12th-highest

mountain in the world, standing at an elevation of 8,051 meters (26,414 feet) above sea level.

- **Location:** Situated in the Karakoram mountain range on the border between Gilgit-Baltistan (Pakistan) and Xinjiang (China).
- **Proximity:** Lies in the Gasherbrum massif, approximately 8 kilometers (5 miles) southeast of K2.

History & Climbing Milestones:

- **Origin of Name:** Named in 1892 by British explorer Sir Martin Conway, who likened its broad, 1.5-kilometer-long summit ridge to the Breithorn in the Swiss Alps.
- **First Ascent (1957):** First summitted between June 8–9, 1957, by a four-man Austrian expedition (Fritz Wintersteller, Marcus Schmuck, Kurt Diemberger, and Hermann Buhl) without supplementary oxygen or high-altitude porters.

Key Features:

- **Elongated 1.5-km Summit Ridge:** Unlike sharp pyramidal peaks like K2, Broad Peak features a broad, nearly flat crest extending over 1.5 km in length, making its exact summit difficult to discern from afar.
- **Multiple 8,000-Meter Sub-Summits:** The mountain features five distinct peaks, three of which exceed 8,000 meters—Main Summit (8,051 m), Rocky Summit (8,028 m), and Broad Peak Central (8,011 m).
- **Plutonic Granite & Tectonic Uplift:** Formed by the active collision of the Indo-Australian and Eurasian tectonic plates, the mountain consists of massive plutonic granite blocks and metamorphic rock layers.
- **Glacial Feeder Systems:** Flanked by massive ice rivers, its snowpack directly feeds into the Godwin-Austen Glacier and the broader Baltoro Glacier.
- **High Avalanche & Wind Risk:** Due to its exposed, wide ridge structure, the upper slopes between Camp 2 and Camp 3 are prone to sudden slab avalanches and high-velocity wind funnels.

4.6 Chagos-Laccadive Geography & Channel Geopolitics

Why in News?

The Kerala High Court addressed a dispute concerning pandaram land in Lakshadweep and held that traditional cowledars possessing such land before the 1965 Regulation were lawful landowners, quashing arbitrary resumption orders. Geographical Profile

- **Location:** Lakshadweep is a group of coral islands in the Arabian Sea, off the southwestern coast of India.
- Geological Setting: The islands are predominantly coral atolls and reefs associated with the Chagos–Laccadive Ridge, a submarine volcanic ridge.

- **Capital:** Kavaratti.
- **Only airport:** Agatti Airport.
- **Largest island**: Androtт by land area.
- **Southernmost island:** Minicoy.
- **Northernmost island:** Chetlat.
- **Bird sanctuary:** Pitti Island (Pakshipitti) — an uninhabited coral islet important as a breeding ground for seabirds, particularly terns.

Chagos–Laccadive Ridge

- The Chagos–Laccadive Ridge is a major submarine ridge extending through the Indian Ocean.
- Lakshadweep's coral islands developed over parts of this geological foundation.

Important Channels – North to South

Channel	Separates
11° Channel	Amindivi Group from the Laccadive/Central Group
9° Channel	Main Lakshadweep group from Minicoy
8° Channel	Minicoy (India) from the Maldives

Strategic Significance

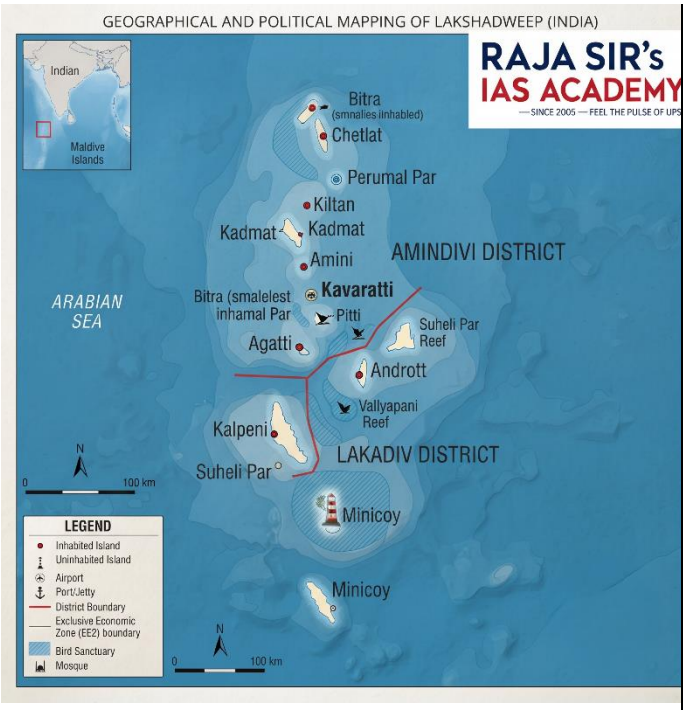
- **Maritime Location**: Lakshadweep lies close to major sea routes connecting the Middle East, Africa and South Asia with the Indian Ocean.
- **Indian Ocean Security:** Its location provides strategic value for maritime surveillance and security.
- **India–Maldives Geography:** Minicoy's proximity to the Maldives makes the 8° Channel particularly important in Indian Ocean geography.
- **Blue Economy:** Coral reefs, fisheries and tourism provide significant economic potential.

Environmental Concerns

- **Sea-Level Rise:** Extremely low elevation makes the islands vulnerable to climate change.
- **Coral Bleaching:** Rising sea temperatures threaten coral ecosystems.
- **Coastal Erosion:** Wave action and extreme weather can accelerate shoreline loss.
- **Freshwater Stress:** Limited land area and dependence on groundwater make freshwater resources vulnerable to salinisation.

Sub-Group Island Breakdown

- **Amindivi Group (North):** Amini, Kadmat, Kiltan, Chetlat, Bitra.
- **Laccadive Group (Central):** Androtт, Kavaratti, Agatti, Kalpeni, Bangaram, Suheli Par.
- **Southern Isolated Atoll:** Minicoy (Maliku).



4.7 Christmas Island (Eastern Indian Ocean)

Why in News?

Christmas Island came into focus in connection with space-related activity in the Indian Ocean, highlighting its strategic location and Australia's presence in the eastern Indian Ocean.

Location & Political Status

- **Location**: Situated in the eastern Indian Ocean, south of Indonesia, relatively close to the Indonesian islands of Java and Sumatra.
- **Political Status:** An external territory of Australia, geographically separate from mainland Australia.
- **Capital/Administrative Centre:** Flying Fish Cove.
- **Geographical Significance:** Its position places Australia in the eastern Indian Ocean, close to Southeast Asia and important maritime routes.

Geographical & Economic Significance

- **Strategic Location:** Located near sea routes linking the Indian Ocean and Pacific Ocean regions.
- **Space Activities:** Its location and Australian territorial status give it relevance for space-related and satellite activities in the region.
- **Phosphate Deposits:** Historically important for phosphate mining.
- **Biodiversity:** A substantial part of the island is protected as Christmas Island National Park.
- **Red Crab Migration:** Famous for the spectacular annual migration of its Christmas Island red crabs, an important ecological phenomenon.

Location & Political Status

- **Location:** Located in the eastern Indian Ocean, south of Indonesia, relatively close to Java and Sumatra.
- **Political Status:** External territory of Australia; not part of mainland Australia.
- **Capital:** Flying Fish Cove
- **Significance:** Located near major maritime routes connecting the Indian and Pacific Oceans; famous for red crab migration; significant phosphate deposits;

large part protected as Christmas Island National Park.

4.8 Climatological & Meteorological Disasters: Heatwaves & Lightning

Why in News?

Based on the 16th Finance Commission's recommendations, the Union Government added Heatwaves and Lightning to the official list of notified natural disasters under the Disaster Management Act, 2005.

Heatwave

- A heatwave is a prolonged period of abnormally high temperatures compared with the normal maximum temperature of a region.
- In India, heatwaves are officially assessed and declared based on criteria prescribed by the India Meteorological Department (IMD).

Major Causes

- **Climate change**: Rising average temperatures increase the frequency and intensity of extreme heat.
- **Urban Heat Island Effect:** Concrete surfaces, limited vegetation and waste heat raise temperatures in cities.
- **El Niño and other climate variability:** Can influence temperature and rainfall patterns over India.
- **Dry conditions:** Reduced soil moisture can intensify surface heating.

Impacts

- **Human health:** Heat exhaustion, heatstroke and increased mortality risk.
- **Agriculture:** Crop stress and reduced yields.
- **Water security:** Higher evaporation and water demand.
- **Labour productivity:** Outdoor workers are particularly vulnerable.
- **Energy demand:** Increased cooling requirements can stress electricity systems.

Lightning

Lightning is a sudden electrostatic discharge associated with thunderstorms, caused by the separation and accumulation of electrical charges within cumulonimbus clouds.

Types

- **Cloud-to-Cloud (CC):** Discharge between clouds or regions within clouds.
- **Cloud-to-Air (CA):** Discharge from a cloud into the surrounding atmosphere.
- **Cloud-to-Ground (CG):** Discharge between a cloud and the Earth's surface.

Why India is Vulnerable

- **Pre-monsoon thunderstorms:** Strong convective activity produces frequent lightning.
- **Monsoon convection:** Moisture and atmospheric instability favour thunderstorm development.
- **Open exposure:** Farmers, livestock and outdoor workers face greater exposure.

- **Large rural population:** Limited access to early-warning systems can increase vulnerability.

4.9 Cloudburst Triggers Flash Floods in Jammu & Kashmir & Lolab Valley

Why in News ?

A cloudburst caused flash floods in J&K, distinct from typical steady, widespread monsoon rainfall.

What is a Cloudburst?

A cloudburst is an extremely intense rainfall event in a small geographical area, generally involving more than 100 mm of rain in about one hour.

- **Nature:** Unlike widespread monsoon rainfall, it is highly localised and short-lived.
- **Major Causes**: Strong convective activity, rapid uplift of moist air and favourable topographic conditions.
- **Impact:** Can trigger flash floods, landslides, debris flows and soil erosion, particularly in mountainous regions.

Lolab Valley - Location

- Lolab Valley, also known as Wadi-e-Lolab, is a Himalayan valley in Kupwara district of North Kashmir.
- Located about 90 km north of Srinagar.
- It forms a sub-valley of the broader Kashmir Valley and extends northwestwards.

Physical Features

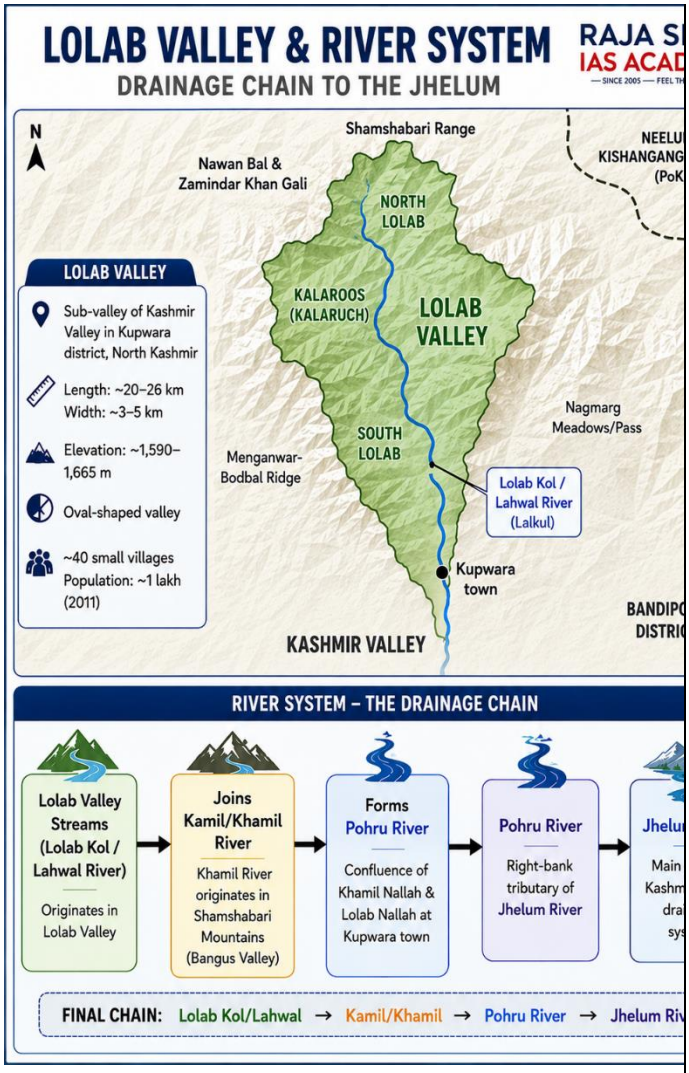
- **Shape:** Broadly oval-shaped.
- **Dimensions:** Approximately 20–26 km long and 3–5 km wide.
- **Three principal sub-valleys:** Kalaroos, North Lolab (Potnai), South Lolab (Brunai)

Surrounding Relief

- **North/Northwest:** Shamshabari Range.
- **Northwest:** Nawan Bal and Zamindar Khan Gali.
- **West:** Menganwar–Bodbal ridge.
- **East:** Nagmarg Meadows/Pass towards Bandipora.
- **North:** Neelum/Kishanganga Valley on the Pakistan-administered side.

Kupwara District

- **Nickname:** Walnut District.
- Major horticultural products include walnut and apple.
- Important rivers/watercourses include: Pohru, Mawar, Batmooji, Talri, Kishanganga
- The Kishanganga River is an important transboundary Himalayan river and is known as the Neelum River in Pakistan-administered Kashmir.
- A significant portion of Kupwara's geographical area is under forest cover. Northwestern Kupwara lies along the Line of Control (LoC).



4.10 Danube River Record-Low Water Levels

Why in News?

Severe European heatwaves and prolonged droughts caused water levels in the Danube River to drop to record lows .

About the Danube River

- **Length:** Approximately 2,850 km.
- **Origin:** Black Forest (Schwarzwald), Germany.
- **Direction:** Generally flows eastwards across Central and Southeastern Europe.
- **Mouth:** Empties into the Black Sea through the Danube Delta.
- **Status:** Europe's second-longest river, after the Volga.

Countries Traversed / Bordered

- The Danube flows through or forms part of the boundary of 10 countries:
- Germany → Austria → Slovakia → Hungary → Croatia → Serbia → Bulgaria → Romania → Moldova → Ukraine

Four National Capitals on the Danube

The river flows directly through:

- Vienna – Austria
- Bratislava – Slovakia
- Budapest – Hungary
- Belgrade – Serbia

Danube Delta

- Located mainly in Romania, with a small part in Ukraine.
- The river divides into several distributaries before entering the Black Sea.
- It is one of Europe's important wetland and biodiversity regions.

Why Low Water Levels Matter

- **Inland Navigation:** Reduced water depth limits the movement of cargo vessels.
- **Agriculture:** Lower river levels can increase water stress in surrounding agricultural regions.

- **Hydropower:** Reduced river discharge can affect hydropower generation.
- **Ecosystems:** Wetlands, aquatic habitats and fish populations can face additional stress.
- **Regional Economy:** The Danube is an important transport corridor connecting Central and Southeastern Europe.

4.11 Democratic Republic of the Congo (DRC) & Congo Basin

Why in News?

The Democratic Republic of the Congo (DRC) is in focus due to a severe Ebola outbreak, with the supplied material highlighting transmission involving the rare Bundibugyo strain.

About

- **Capital:** Kinshasa
- **Region:** Central Africa
- **Former name**: Zaire
- **Equator:** Passes through the DRC. Largest country in sub-Saharan Africa by area.
- **Borders 9 countries:** Angola, Burundi, Central African Republic, Republic of the Congo, Rwanda, South Sudan, Tanzania, Uganda and Zambia.

Congo Basin

- The Congo Basin is one of the world's major tropical rainforest regions.
- It covers a large area of Central Africa, with the DRC forming its geographical core.
- The rainforest is an important carbon sink and supports exceptional biodiversity.
- The Congo River drains a vast basin and ultimately flows into the Atlantic Ocean.

Great Lakes Region – Eastern DRC

Eastern DRC forms part of the African Great Lakes region.

Important lakes associated with the region include:

- **Lake Albert** – along the DRC–Uganda region.
- **Lake Edward** – on the DRC–Uganda border.
- **Lake Kivu** – between DRC and Rwanda.
- **Lake Tanganyika** – forms part of DRC's eastern/southeastern boundary.

Virunga Volcanic Region

- Eastern DRC contains the Virunga volcanic region.
- Mount Nyiragongo is an active volcano near Goma.
- The region is part of the East African Rift System, where tectonic activity has produced volcanic and deep-lake landscapes.

Mineral Wealth

DRC possesses major deposits of:

- Cobalt
- Copper
- Industrial diamonds

- Other important minerals include gold, tin and coltan-related minerals.

4.12 Earth's Silent Seismic Signals: Earthquake Swarms in Maharashtra

Why in News?

Maharashtra recently witnessed a cluster of shallow, low-magnitude earthquakes occurring repeatedly in a limited region.

What is an Earthquake Swarm?

An earthquake swarm is a sequence of multiple earthquakes occurring in a particular region over a short or extended period without a clearly identifiable mainshock.

Key Characteristics

- **Multiple Events:** Numerous small-to-moderate earthquakes occur in the same region.
- **No Dominant Mainshock:** No single earthquake clearly stands out as the main event.
- **Localised:** Events are concentrated within a relatively small geographical area.
- **Long Duration:** Swarms may continue for days, months or even longer.
- **Prediction:** An earthquake swarm does not necessarily mean that a major earthquake will follow.

Feature	Earthquake Swarm	Mainshock–Aftershock Sequence
Main event	No clear mainshock	One dominant mainshock
Earthquake size	Several events may have similar magnitudes	Mainshock is generally largest
Pattern	Repeated activity	Mainshock followed by aftershocks
Duration	May persist for long periods	Usually declines with time
Interpretation	Does not necessarily indicate a future major earthquake	Commonly follows a major earthquake

Causes of Earthquake Swarms

- **Intraplate Stress :** Earthquakes occurring within a tectonic plate rather than at plate boundaries.
- **Ancient Fractures and Fault Zones :** Old faults may remain inactive for thousands of years Stress changes can reactivate these fractures.
- **Fluid Migration :** Fluids enter rock fractures and reduce friction between rock surfaces, triggering earthquakes.
- **Reservoir-Induced Seismicity:** Large dams can trigger earthquakes due to

increased crustal load, water infiltration into faults, and rising pore pressure.

- **Rainfall-Triggered Seismicity:** Heavy rainfall may increase groundwater pressure and lubricate fractures, causing minor seismic events.

4.13 Europe Wildfires: Climate Whiplash & PyroCb

Why in News?

Intense wildfires swept across Greece, Spain, France, Portugal, and Italy, destroying hundreds of thousands of hectares of forest and triggering record peacetime evacuations, reviving debate on climate whiplash and fire-generated thunderstorms (PyroCb). Europe Wildfires: Climate Whiplash & Pyrocumulonimbus (PyroCb)

Climate Whiplash

Climate whiplash refers to a rapid shift between opposing weather extremes, particularly from a wet phase to extreme heat and drought.

Mechanism

- **Wet Phase:** Higher rainfall promotes rapid growth of grasses, shrubs and other vegetation.
- **Sudden Dry Phase:** Heatwaves and drought rapidly remove moisture from this vegetation.
- **Fuel Accumulation:** Dry vegetation becomes a continuous and highly combustible fuel bed.
- **Outcome:** Fires can spread more rapidly and burn with greater intensity.

Pyrocumulonimbus (PyroCb)

Pyrocumulonimbus (PyroCb) is a fire-induced thunderstorm cloud that develops above or near an extremely intense wildfire.

Formation Mechanism

1. Intense Updrafts

Extreme heat from the wildfire causes powerful upward movement of hot air, smoke and ash.

2. Cooling & Condensation

As the rising air reaches higher altitudes, it cools and expands. Water vapour condenses around smoke and ash particles, helping form a towering cloud.

3. Thunderstorm Generation

The developing cloud can become a thunderstorm, producing: Lightning, Strong and erratic winds Sometimes rainfall

4. Self-Amplification

PyroCb-related lightning can potentially ignite new fires, while strong and unpredictable winds can rapidly alter fire behaviour and create dangerous conditions for firefighters.

4.14 Flood Dynamics in the Ganga Basin: Narayani–Gandak System

Why in News?

Recent flash floods in Nepal raised water levels in the Narayani–Gandak river system, creating flood concerns in downstream areas of Bihar and Uttar Pradesh.

What is the Gandak?

- The Gandak is a major Himalayan river and an important tributary of the Ganga.
- It is known by different names across its course: Gandaki/Narayani in Nepal → Gandak in India

Course & Confluence

- **Origin:** Himalayan region of Nepal/Tibet.
- **Entry:** Enters the Indian plains near Valmikinagar in Bihar.
- **Course:** Flows mainly through Bihar, with parts of its basin extending into Uttar Pradesh; joins the Ganga near Sonpur/Hajipur in Bihar.
- **Tributary Classification:** The Gandak is a left-bank tributary of the Ganga.



4.15 Glaw Lake (Glow Lake) & Kamlang River Basin

Why in News?

Union Environment Minister announced Glaw Lake, Arunachal Pradesh, as India's 101st Ramsar Site — the state's first.

About

- **Location:** Lohit district, Arunachal Pradesh; inside Kamlang Tiger Reserve.
- **Area:** ~8 sq km; elevation ~1,168 m; source of the Kamlang River.
- **Hosts all four Himalayan big cats:** Bengal Tiger (EN), Indian Leopard (VU), Clouded Leopard (VU), Snow Leopar (VU).
- 150+ tree species, 49 wild orchid species.

Kamlang Tiger Reserve

- **Location:** south-eastern Lohit district, Arunachal Pradesh, near the Myanmar border; headquartered at Wakro.
- Named after the Kamlang River, which flows through it and eventually joins the Brahmaputra.
- Part of the Eastern Himalayan Biodiversity Hotspot
- Declared a Wildlife Sanctuary in 1989.
- Notified as India's 50th Tiger Reserve.
- In 2024, declared an Eco-Sensitive Zone.

Boundaries

- Bounded by the Lang River to the north and Namdapha Tiger Reserve/National Park to the south — shares a contiguous forest landscape with Namdapha,

extending connectivity to the Hukawng Wildlife Sanctuary in Myanmar.

- **Western border:** Lati River; eastern side: Tawe River (per one source) — the reserve is the catchment area of the Kamlang, Lang, and Lati rivers, all tributaries of the Lohit River.



4.16 Gulf of Aden & Bab-el-Mandeb Chokepoint

Location

The Gulf of Aden is a strategic gulf of the western Indian Ocean located between:

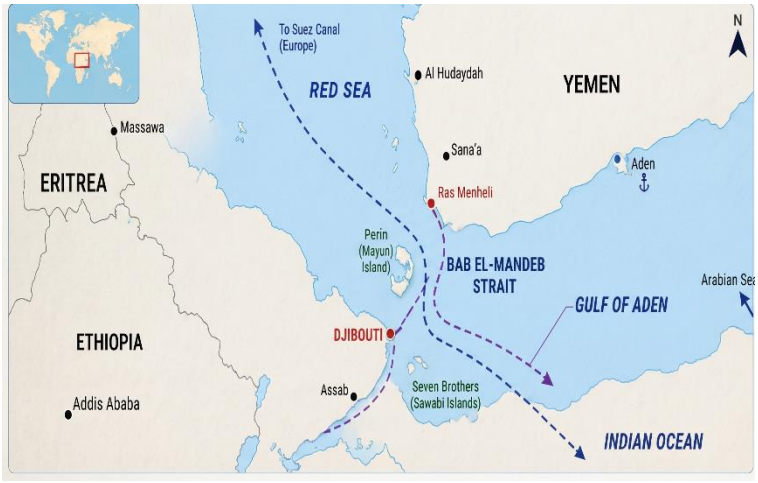
- **North:** Yemen – Arabian Peninsula
- **South:** Somalia – Horn of Africa
- **West**: Bab-el-Mandeb Strait, connecting it with the Red Sea
- **East:** Opens into the Arabian Sea

Bab-el-Mandeb Strait

- A narrow maritime passage connecting the Red Sea with the Gulf of Aden.
- It lies between Yemen in Asia and Djibouti and Eritrea in Africa.
- It serves as the southern gateway to the Red Sea.

Significance

- **Maritime Trade:** Connects the Arabian Sea with the Red Sea through the Bab-el-Mandeb Strait, forming an essential route for global shipping.
- **Strategic Importance:** Links the Indian Ocean with the Mediterranean Sea through the Red Sea and Suez Canal, vital for energy and commercial shipping.
- **Maritime Security:** Vulnerable to piracy, armed attacks and maritime insecurity, making security critical for uninterrupted trade.



4.17 Kuwait: Desert Geomorphology & Persian Gulf Strategic Geography

Location & Boundaries

- **Location:** Located at the northwestern tip of the Persian Gulf in Western Asia (northeastern Arabian Peninsula).
- **Borders:** North & West: Iraq; South: Saudi Arabia; East: Persian Gulf.
- **Capital:** Kuwait City.

Physical Geography

- **Terrain:** Predominantly flat Arabian Desert plain with undulating sand dunes.
- **Climate:** Hot, hyper-arid desert climate with high summer extremes.
- **Hydrology:** Has no perennial rivers or natural freshwater lakes; depends critically on seawater desalination and groundwater.

4.18 Lake Ontario: Great Lakes Hydrology & Welland Canal

Why in News?

Lake Ontario came into focus in a geopolitical naming dispute involving the United States and Canada.

Feature	Fact
Great Lakes Position	5th and easternmost of the Five Great Lakes
Surface Area	Smallest of the Five Great Lakes
Northern Shore	Ontario, Canada
Southern Shore	New York, USA
Major Inflow	Niagara River
Receives Water From	Lake Erie
Outflow	St. Lawrence River
Final Drainage	Atlantic Ocean
Canal Connection	Welland Canal
Important Function	Welland Canal bypasses Niagara Falls, providing a navigable deep-draft route between Lake Erie and Lake Ontario

The Five Great Lakes chain (West to East): Superior → Michigan → Huron → Erie → Ontario → St. Lawrence River → Atlantic Ocean.

4.19 Lakshadweep Island Demography, Matriliny & Land Tenure

Over 94% of the indigenous population is classified as Scheduled Tribes (ST).

Linguistic Geography

Jeseri (Dweep Bhasha)

- A variety/dialect of Malayalam.
- Contains influences from Arabic and Tamil.
- Predominantly spoken across the northern and central islands, including Amini, Kavaratti and Andrott.

Mahl

- A variety of Dhivehi, the language associated with the Maldives.
- Written in the Thaana script.
- Spoken exclusively on Minicoy (Maliku) Island.

Matriliny & Traditional Social Organisation

Marumakkathayam

- A traditional matrilineal system of descent and inheritance.
- Family lineage is traced through the female line.

Taravad

- Refers to the traditional undivided joint-family household/property arrangement associated with the matrilineal system.
- Property and family interests were historically organised collectively rather than as individually divided holdings.

Traditional Land Tenure – Pandaram Lands

Pandaram Lands

- Traditionally constituted a substantial share of Lakshadweep's land.
- These lands were associated with the government/ruler's ownership and were traditionally cultivated through leasing arrangements.

Cowledars

- Cowledars were traditional cultivators/lessees who held land under agrarian contracts.
- Coconut cultivation was a major activity associated with these arrangements.

4.20 Land Subsidence in Bageshwar, Uttarakhand

Why in News?

Unregulated soapstone mining in Bageshwar, Uttarakhand has been linked to land subsidence and ground fissures.

What is Land Subsidence?

Land subsidence is the gradual sinking or settling of the Earth's surface when underground materials compact, are removed, or lose structural support.

Natural Causes

- **Sediment Compaction:** Natural compression of loose sediments over time.
- **Geological Processes:** Movement and deformation of Earth's crust.
- **Earthquakes:** Ground deformation can destabilise and lower the land surface.

Human-Induced Causes

- **Mining:** Removal of underground rock/minerals creates voids and weakens geological support.
- **Groundwater Extraction:** Excessive pumping lowers groundwater pressure and causes aquifer/soil compaction.

- **Heavy Construction:** Buildings, roads and other infrastructure increase stress on unstable ground.
- **Poor Land Management:** Unregulated excavation and slope modification can aggravate instability in mountainous areas.

Why is Bageshwar Vulnerable?

- **Fragile Himalayan Geology:** Bageshwar lies in the young, tectonically active Himalayas, where rocks and slopes are comparatively vulnerable to disturbance.
- **Soapstone Mining:** Extraction of soapstone/talc can create underground voids and disturb the natural stability of the terrain.
- **Cumulative Risk:** Mining-induced weakening, steep slopes, intense rainfall and seismic activity can together increase the probability of ground fissuring and subsidence.

Impacts

- **Infrastructure Damage:** Cracks and deformation can affect houses, roads, pipelines and other infrastructure.
- **Ground Fissures:** Differential sinking can produce cracks on the land surface.
- **Slope Instability:** Subsidence may aggravate landslides and other mass-movement processes.
- **Flood Risk:** Lowering of the land surface can increase local water accumulation and flood vulnerability.
- **Livelihood Impact:** Damage to agricultural land and infrastructure can affect mountain communities.

Way Forward

- **Regulated Mining:** Strictly regulate or prohibit mining in highly fragile zones.
- **Geotechnical Assessment:** Make detailed geological and slope-stability studies mandatory before mining and major construction.
- **InSAR Monitoring:** Use satellite-based Interferometric Synthetic Aperture Radar (InSAR) to detect millimetre-scale ground deformation.
- **Groundwater Management:** Control excessive groundwater extraction in vulnerable areas.
- **Carrying-Capacity Approach:** Development in the Himalayas should respect the ecological and geological carrying capacity of mountain regions.

4.21 Nepal: Himalayan Drainage & Flash Floods

Why in News?

On 26 August 2026, a catastrophic flash flood struck Nepal's Rasuwa district near the

Nepal–Tibet border, affecting the Lhende Khola–Bhote Koshi river system and raising flood levels downstream in India.

Why is Nepal Highly Vulnerable?

- **Fragile Himalayan Geology:** The Himalayas are young fold mountains and remain tectonically active. Unstable slopes are highly susceptible to landslides and erosion.
- **Steep Topography:** Steep gradients and narrow valleys allow water to move rapidly downstream, producing high flood velocity.
- **Monsoon Rainfall:** Intense and concentrated rainfall during the Southwest Monsoon (June–September) can generate sudden runoff and flash floods.
- **Landslide-Dammed Lakes**: Landslides can temporarily block rivers, creating lakes that may suddenly breach and release large volumes of water downstream.
- **Glacial Hazards:** Rapid melting and the failure of glacial lakes can trigger Glacial Lake Outburst Floods (GLOFs), adding another dimension to Himalayan flood risk.

Transboundary Himalayan River Systems

Nepal	India	Major Indian River System	Key Point
Narayani	**Gandak**	Ganga	Major left-bank tributary of Ganga
Sapta Kosi	**Kosi**	Ganga	**"Sorrow of Bihar"**; high sediment load and channel shifts
Karnali	**Ghaghara**	Ganga	Major Himalayan tributary
Mahakali	**Sharda**	Ganga	Forms parts of the **India–Nepal boundary**

4.22 Retreating Shores of Odisha: Coastal Vulnerability & Geomorphology

Why in News?

A recent assessment found that around 28.3% of Odisha's 564 km coastline experienced erosion during 1990–2022.

What is Coastal Erosion?

Coastal erosion is the removal and landward retreat of coastal material due to waves, tides, currents, storms and human activities.

Why is Odisha Vulnerable?

- **Bay of Bengal Location:** Odisha faces the Bay of Bengal, making its coastline exposed to strong waves, storm surges and tropical cyclones.
- **Low-Lying Coastal Plains:** Much of the Odisha coast consists of relatively flat and low-elevation coastal terrain, increasing vulnerability to erosion and inundation.

- **Deltaic Environment:** Major rivers such as the Mahanadi, Brahmani and Baitarani contribute sediments to the coast. Any reduction or redistribution of sediment supply can influence shoreline stability.
- **High Cyclone Exposure:** Odisha is among India's most cyclone-prone coastal regions. Events such as Fani, Amphan and Yaas can cause intense wave action, storm surges and beach erosion.

Major Causes of Coastal Erosion

Sea-Level Rise

- Global warming contributes to sea-level rise through: Thermal expansion of seawater. Melting of glaciers and ice sheets.
- Higher sea levels allow waves to reach further inland and increase long-term shoreline retreat.

Disruption of Longshore Sediment Transport

- Longshore drift is the movement of sediment parallel to the coastline due to wave action.
- Construction of ports, groynes, seawalls and other coastal structures can interrupt this natural sediment movement, causing sediment accumulation in one location and erosion elsewhere.

Sand Mining

- Excessive extraction of beach sand reduces the natural sediment reserve of beaches and can accelerate shoreline instability.

Loss of Mangroves

- Mangroves act as natural coastal buffers by reducing wave energy and trapping sediments. Their degradation increases coastal vulnerability.

Loss of Sand Dunes

- Sand dunes function as natural barriers against waves, storm surges and wind. Their removal for construction or other activities weakens coastal protection.

Ecological Impact

Threat to Olive Ridley Turtles

- Odisha's coastline is globally important for Olive Ridley sea turtles, particularly at Gahirmatha Marine Sanctuary and other nesting beaches.

Coastal erosion can:

- Reduce suitable nesting beaches.
- Alter beach width and morphology.
- Increase vulnerability of nesting sites to inundation.
- Complicate long-term turtle conservation.

Other Impacts

- **Human Settlements:** Coastal villages and infrastructure face increasing exposure to shoreline retreat and storm surges.
- **Agriculture:** Saltwater intrusion and loss of coastal land can affect agricultural productivity.
- **Wetlands & Mangroves:** Erosion can alter coastal wetlands and estuarine ecosystems.

- **Tourism & Fisheries**: Loss of beaches and degradation of coastal ecosystems can affect tourism and fishing-dependent communities.

Way Forward

- **Integrated Coastal Zone Management (ICZM):** Manage the coastline as an interconnected system rather than treating individual erosion sites separately.
- **Nature-Based Solutions:** Restore mangroves, sand dunes, wetlands and coastal vegetation as natural protective barriers.
- **Regulate Sand Mining:** Prevent unsustainable extraction of coastal sediments.
- **Sediment Management:** Assess the impact of dams, ports and coastal structures on river-to-coast sediment flow and longshore drift.
- **Remote Sensing & GIS:** Regular satellite monitoring can identify hotspots of shoreline retreat and guide coastal planning.
- **Climate-Resilient Planning:** Restrict inappropriate construction in highly vulnerable coastal zones and incorporate projected sea-level rise into infrastructure planning.

4.23 Singhbhum Craton: Ancient Geological Formation

Why in News?

Evidence suggesting microbial life around 3.5 billion years ago has been identified in rocks of the Singhbhum Craton in eastern India.

What is a Craton?

A craton is a relatively stable and ancient part of Earth's continental crust that has remained tectonically stable for very long geological periods.

Singhbhum Craton

- **Location:** Extends across parts of Jharkhand and Odisha.
- **Geological Importance:** It contains some of the oldest preserved rocks in India, making it valuable for reconstructing the early history of the Earth's crust.
- **Bhitardari:** The reported evidence of ancient microbial activity was identified here within the Singhbhum Craton.

Carbon-Bearing Chert

- Chert is a hard, fine-grained silica-rich sedimentary rock.
- The significance lies in the presence of carbon-bearing structures preserved within chert.
- Such structures can potentially indicate ancient biological activity, although distinguishing biological signatures from purely geological processes requires detailed analysis.

Zircon Dating

- Zircon is an extremely durable mineral capable of preserving information about the age and geological history of rocks.
- Its resistance to weathering and alteration makes it particularly useful for radiometric dating.

4.24 Tribal Demography, Customary Settlements & Forest Communities

Western Ghats Settlement Context:

- Karnataka includes 10 Western Ghats districts with 23.4% of its regional population residing there.
- Conservation models risk excluding indigenous communities who naturally live sustainably within forests as biocultural custodians.
- Demands recognition under the Forest Rights Act (FRA) to secure community tenure over minor forest produce.

Satpura–Melghat Tribal Demography:

- Tribal population accounts for ~54% of the corridor area, predominantly Korku and Gond tribes.
- Linear infrastructure development (railway expansion in the Jujharpur-Chichonda section) displaces wildlife conflict pressure onto Korku and Gond farmlands and settlements.

Lolab & Kamlang Tribal Pockets:

- **Lolab Valley**: Comprises ~40 small villages with a population of ~1 lakh (2011 census).
- **Kamlang Tiger Reserve:** Inhabited by Mishmi indigenous groups, specifically Digaro Mishmi and Miju Mishmi tribes.

Maldharis of Banni & Gir:

- Traditional pastoralists residing inside Banni grasslands and Saurashtra lion landscapes, coexisting with wildlife through traditional cattle/buffalo rearing.

4.25 Trishuli River System

Course & Confluences

- **Origin:** Originates in the Langtang Himal region of southern Tibet; Kyirong Tsangpo and Lende Khola contribute near the Nepal-China border.
- **Course:** Enters Nepal from Tibet border, flowing through Rasuwa → Nuwakot → Dhading.
- **Important Confluence:** At Devghat, the Trishuli meets the Kali Gandaki to form the Narayani River.
- **Drainage Continuum:** Tibet → Nepal → Trishuli → Narayani → India → Gandak → Ganga (enters India near Valmikinagar, Bihar).

4.26 Waterspout Phenomenon over Brahmaputra River

Why in News?

A rare rotating column of air and water was observed over the Brahmaputra River in Assam.

What is a Waterspout?

A rotating column of air extending from a cloud toward the surface of a water body. It often appears as a funnel-shaped cloud connecting the water surface with the cloud base. It is broadly similar to a tornado occurring over water.

Types

- **Fair-Weather Waterspout:** Usually develops in relatively less severe atmospheric conditions; generally weaker and shorter-lived.
- **Tornadic Waterspout:** Associated with severe rotating thunderstorms; can be stronger and more destructive.

Formation of Waterspout

- **Warm Water Surface:** Warm water heats the air immediately above it.
- **Moist Air:** Evaporation adds moisture to the lower atmosphere.
- **Atmospheric Instability:** Warm, moist air becomes buoyant and rises rapidly.
- **Convection:** Rising air creates strong upward convection beneath a cloud.
- **Rotation:** Changes in wind speed/direction with height help develop rotation.
- **Funnel Formation:** Air pressure falls and moisture condenses, forming a visible funnel-shaped cloud extending to water surface.

4.27 Western Ghats Ecologically Sensitive Areas (ESAs)

- **Context:** The MoEF&CC extended the Sanjay Kumar-led expert panel by one year to resolve the Centre–State deadlock over notifying Ecologically Sensitive Areas (ESAs) in the Western Ghats.

What it is?

The Western Ghats span six coastal Indian states (Gujarat, Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu) and house 39 UNESCO World Heritage Sites (WHS). The debate over declaring Ecologically Sensitive Areas (ESAs) under the Environment Protection Act, 1986 seeks to restrict destructive human activities like mining, quarrying, and heavy infrastructure to preserve fragile biodiversity.

Timeline & Evolution of the ESA Framework:

- **2010 (Gadgil Committee / WGEEP):** The Western Ghats Ecology Expert Panel recommended designating 142 talukas across 44 districts into three levels of Ecologically Sensitive Zones (ESZs) with strict regulation on developmental activities.
- **2012 (Kasturirangan High-Level Working Group):** Following opposition to Gadgil's report, a new panel restricted ESA limits strictly to natural landscapes, reducing the proposed protected area to

37% (~56,800 sq. km) of the Western Ghats.

- **2014–2026 (Draft Notifications & Deadlock):** Between 2015 and 2026, the Centre issued five draft notifications, none of which achieved full consensus across all six states.
- **2022–2026 (Sanjay Kumar Expert Committee):** Formed to review state-specific grievances, leading to tentative agreements by Gujarat and Goa, requests for fresh reviews by Maharashtra, and ongoing discussions for a phased rollout with Karnataka, Kerala, and Tamil Nadu.

Key Arguments Made by Opposing States (The Karnataka Case Study):

- **Impact on Livelihoods & Infrastructure:** States like Karnataka (with 10 Western Ghats districts and 23.4% of its population living there) argue that ESA bans will stall agriculture, shade-grown plantations, and critical regional infrastructure.
- **Inaccuracies of Remote Sensing Data:** Local communities and officials criticize the reliance on satellite imagery to demarcate ESAs, claiming remote sensing cannot accurately distinguish commercial plantation crops from natural forest cover.
- **Lack of Ground-Level Verification:** Stakeholders express frustration that expert panels and mapping agencies rely on desktop studies without physically visiting impacted villages.
- **Fear of Eviction and Buffer-Zone Misconceptions:** Widespread panic exists among residents that 10-kilometer buffer zones will lead to forced relocations, land rights rejections, and loss of access to minor forest produce.

Way Forward:

- **Conducting Ground-Truthing & Physical Ground Verification:** Replace satellite-only mapping with detailed physical surveys to accurately separate agricultural/plantation land from pristine natural forests.
- **Institutionalizing Inclusive Indigenous Co-Management:** Recognize indigenous and local forest-dwelling communities as active conservation partners under the Forest Rights Act (FRA), protecting both land rights and ecological integrity.

ENVIRONMENT

5.1 Alpine Ecology: Long-Tailed Marmot in Himalayan Grasslands

Why in News?

The Amarnath Yatra brings large numbers of pilgrims into the fragile Himalayan landscape, drawing attention to wildlife such as the Longtailed Marmot, a characteristic highaltitude mammal of the region.

- **Ecological Role:** Forms an important link in the Himalayan alpine food web;

burrowing activity influences soil structure and nutrient cycling; serves as prey for high-altitude predators.

- **Habitat:** Alpine meadows, rocky slopes & mountain grasslands.
- **Distribution:** Central & South Asia (India: Jammu & Kashmir and Ladakh).
- **Behaviour & Diet:** Herbivorous, burrowing, social and seasonal hibernator (mainly during cold winter months).



5.2 Asan Wetland Conservation Reserve

Why in News ?

The Supreme Court clarified that the directive prohibiting mining within a 10 km radius of the Asan Wetland Conservation Reserve applies uniformly to all wetland conservation reserves nationwide.

Ecosystem Profile

- **Location:** Situated at the confluence of the Asan and Yamuna Rivers in Uttarakhand.
- **Ramsar Status:** It is Uttarakhand's first Ramsar Site.
- **Avian Habitat:** Lies along the Central Asian Flyway (CAF) and serves as an important staging and wintering site for trans-Himalayan migratory birds.
- **Ecological Role:** Supports wetland biodiversity and provides feeding, breeding and resting habitats for migratory and resident birds.

Regulatory Significance

- **10 km Ecological Buffer**: - Mining within the prescribed 10-km zone around a wetland conservation reserve requires the stipulated wildlife/environmental clearances.
- **National Baseline:** The Court's clarification seeks to ensure that protection is not weakened through state-wise variations or regulatory arbitrage.
- **Precautionary Principle:** Restricting potentially damaging activities around sensitive wetlands reflects the principle of preventing ecological damage before it becomes irreversible.

Why It Matters for India

- **Wetland Protection:** Strengthens safeguards around ecologically sensitive wetland ecosystems.

- **Migratory Bird Conservation:** Protects habitats located along international migratory routes such as the Central Asian Flyway.
- **Ecological Connectivity:** Buffer protection can reduce habitat fragmentation and disturbance around wetlands.
- **Uniform Governance:** Establishes a common regulatory baseline rather than allowing different levels of protection across regions.

5.3 Asiatic Lion Conservation Journey

Why in News ?

A proposed diversion of 75 hectares of reserved forest for limestone mining in Babarkot corridor (Jafrabad Taluka, Gujarat) sparked ecological concerns over disrupting vital lion dispersal routes.

About Asiatic Lion

- **Scientific name:** Panthera leo persica
- **IUCN Status:** Endangered
- **Wildlife Protection Act, 1972:** Schedule I
- **Natural range:** Today, the wild population is restricted to the Saurashtra landscape of Gujarat, centred on Gir.

Population & Recovery

- The lion population increased from 674 in 2020 to 891 in 2025, a 32.2% increase.
- The recovery demonstrates the success of long-term conservation efforts in the Gir landscape.
- However, conservation is no longer limited to the Gir protected area because more than 56% of lions are found outside the protected core areas.

Why the Babarkot Corridor Matters?

- **Lion Dispersal:** Lions naturally move from core habitats into surrounding forests, grasslands and coastal landscapes. Corridors such as Babarkot facilitate this movement.
- **Habitat Connectivity:** Mining and other infrastructure can fragment habitats, restricting movement and increasing human–wildlife interactions.
- **Landscape-Level Conservation:** Since a large proportion of the population now occurs outside protected areas, revenue forests, reserved forests, agricultural landscapes and coastal habitats have become part of the effective lion habitat.

Major Conservation Challenges

Disease Risk: The 2018 Canine Distemper Virus (CDV) outbreak highlighted the vulnerability of concentrating a large proportion of a species in one geographical region.

Single-Population Risk: Because the wild Asiatic lion population is geographically concentrated in Gujarat, a major epidemic, natural disaster or ecological disturbance could have landscape-wide consequences.

Habitat Fragmentation: Mining, roads, railways and other infrastructure can interrupt dispersal routes.

Human–Lion Interface: Expansion of lion populations into human-dominated landscapes increases the need for rapid-response teams, compensation and community participation.

Delayed Second Population: The proposed establishment of a second free-ranging lion population at Kuno National Park, Madhya Pradesh, has remained a major conservation issue.

Conservation Approach

- **Protect the Gir Core:** Strengthen protection of Gir National Park and surrounding sanctuaries.
- **Secure Corridors:** Identify and legally/administratively protect important dispersal corridors such as Babarkot.
- **Disease Surveillance:** Maintain vaccination, veterinary surveillance and disease-response systems for lions and domestic animals.
- **Diversify the Population:** Establish a viable second free-ranging population to reduce the risks associated with geographical concentration.
- **Community-Based Conservation:** Since many lions occur outside protected areas, local communities must become partners in conservation.
- **Cumulative Impact Assessment:** Mining and infrastructure projects in lion landscapes should be assessed for their combined impact on habitat connectivity rather than evaluated only project-by-project.

5.4 Balancing Energy Security, Green Mobility and Consumer Concerns (E20 Fuel)

Why in News?

India has achieved a nationwide transition towards E20 petrol (20% ethanol blended with 80% petrol).

What is E20 Fuel?

- **E20:** 20% ethanol + 80% petrol by volume.
- Ethanol is a renewable biofuel that can be produced from sugarcane, maize and other biomass feedstocks.
- The programme seeks to reduce India's dependence on imported crude oil while promoting domestic biofuel production.

Significance

- **Energy Security:** Reduces the quantity of petrol derived from imported crude oil, lowering India's exposure to global oil-price volatility.
- **Lower Carbon Footprint:** Ethanol can provide lower lifecycle greenhouse-gas emissions than fossil petrol, depending on the feedstock and production process.
- **Agricultural Support:** Creates additional demand for sugarcane, maize and other

feedstocks, providing farmers with an alternative market.

- **Rural Industrialisation:** Encourages investment in distilleries, biomass supply chains, storage and transportation.

Key Challenges

- **Water Stress:** Sugarcane is relatively water-intensive. Large-scale dependence on sugarcane ethanol can aggravate groundwater stress in water-scarce regions.
- **Food vs Fuel:** Diversion of crops such as maize towards ethanol can create competition between food, feed and fuel requirements.
- **Lower Energy Density:** Ethanol has lower energy content per litre than petrol, which can translate into some reduction in fuel efficiency.
- **Vehicle Compatibility:** Higher ethanol blends may create compatibility concerns for certain older vehicles and fuel-system components such as seals and gaskets.
- **Hygroscopic Nature:** Ethanol readily absorbs moisture, making proper fuel storage and handling important.
- **Regional Imbalance:** Concentration of particular feedstocks in certain states can increase transportation costs and intensify regional ecological pressures.

Way Forward

- Promote 2G ethanol from agricultural residues and cellulosic biomass.
- Encourage water-efficient feedstocks according to regional agro-climatic conditions.
- Maintain a balance between food security and biofuel production.
- Strengthen vehicle compatibility and consumer awareness.
- Assess ethanol using lifecycle sustainability indicators, including water consumption, land use and emissions.
- Diversify India's biofuel basket rather than relying excessively on sugarcane.

5.5 Satpura–Melghat Physical Landscape & Wildlife Corridor

Why in News ?

The Standing Committee of the National Board for Wildlife (SC-NBWL) gave in-principle clearance to a Central Railway third-line project requiring 200+ hectares of forest land within the Satpura–Melghat wildlife corridor.

About Satpura–Melghat Corridor

- **Location:** The corridor connects Satpura Tiger Reserve in Madhya Pradesh with Melghat Tiger Reserve in Maharashtra.
- **Geographical Spread:** Approximately 7,325 sq km across parts of:
- **Madhya Pradesh:** Betul and Narmadapuram : **Maharashtra:** Amravati

Protected Areas Connected

Madhya Pradesh

- Satpura National Park

- Bori Wildlife Sanctuary
- Pachmarhi Wildlife Sanctuary

Maharashtra

- Gugamal National Park
- Wan Wildlife Sanctuary
- Narnala Wildlife Sanctuary
- Ambabarwa Wildlife Sanctuary

Why is the Corridor Important?

- **Wildlife Movement:** It provides a landscape-scale route for movement of tigers, leopards, sloth bears and other wildlife between protected areas.
- **Genetic Connectivity:** Movement between fragmented populations facilitates gene flow, reducing risks associated with isolated wildlife populations.
- **Landscape Connectivity:** The corridor links individual protected areas into a broader Central Indian wildlife landscape.
- **Forest Owlet:** The landscape is also significant for the endangered Forest Owlet, a species associated with central Indian forests.

Major Threats

- **Railway Expansion:** The proposed Jujharpur–Chichonda railway section and associated forest diversion could disturb animal movement.
- **Road Expansion:** Roads can fragment habitats and increase wildlife mortality and disturbance.
- **Habitat Fragmentation:** Infrastructure divides continuous forests into smaller, isolated patches.
- **Human–Wildlife Conflict:** Increasing interaction between wildlife and settlements can intensify conflict.

Infrastructure vs Conservation

The key issue is not simply whether infrastructure should be built, but how it can be designed without destroying ecological connectivity.

Possible measures

- Wildlife underpasses and overpasses at critical crossing points.
- Speed restrictions for trains in wildlife-sensitive stretches.
- Habitat restoration around fragmented patches.
- Scientific identification of wildlife movement routes using camera traps, GPS and GIS.
- Cumulative environmental-impact assessment rather than project-by-project assessment.
- Continuous monitoring of animal movement after construction.

5.6 Clouded Leopard Conservation Action Plan (CAP)

Why in News ?

On International Clouded Leopard Day (4 August), MoEFCC launched the national

Clouded Leopard Conservation Action Plan (CAP).

About Clouded Leopard

- Scientific name: Neofelis nebulosa
- It is a medium-sized wild cat found primarily in forested landscapes of South and Southeast Asia.
- It is evolutionarily distinct among living cats and is known for its very large canine teeth relative to skull size.
- Its long tail and strong limbs make it highly adapted to arboreal movement.

Framework	Status
IUCN Red List	Vulnerable
Wildlife Protection Act, 1972	Schedule I
CITES	Appendix I
Habitat in India	Primarily Northeast India

Conservation Action Plan

- **14 Priority Landscapes:** The CAP covers 14 priority landscapes across Northeast India, focusing on entire ecological landscapes rather than isolated protected areas.
- **Protected Area Corridors:** Conservation aims to maintain forest connectivity and wildlife corridors, allowing clouded leopards to move between suitable habitats and protected areas.

Monitoring & Technology

- **Camera Trapping:** Enables detection of clouded leopards, assessment of their distribution and monitoring of population trends without capturing the animals.
- **Environmental DNA (eDNA):** Detects species through DNA traces present in environmental samples such as water, soil or other collected material, making it useful for elusive species.
- **M-STrIPES:** A digital platform that supports wildlife monitoring, patrolling and spatial data collection, improving field-level conservation management.

Major Conservation Challenges

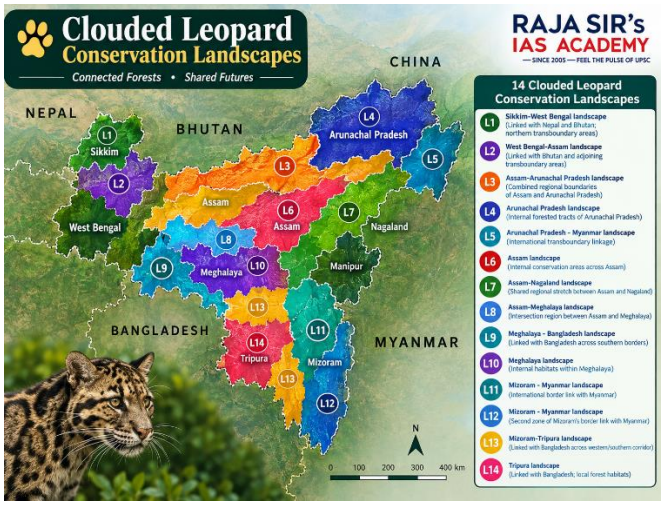
- **Habitat Fragmentation:** Roads, settlements and infrastructure can divide continuous forests into smaller patches, restricting animal movement.
- **Forest Degradation:** Loss and degradation of mature forests can reduce both suitable habitat and prey availability.
- **Human–Wildlife Interface:** Expansion of human activities into forest landscapes can increase encounters and conservation conflicts.
- **Limited Population Data:** Its elusive and largely arboreal behaviour makes conventional population estimation difficult.

Way Forward

- **Strengthen Corridors:** Protect and restore forest corridors connecting

fragmented habitats across Northeast India.

- **Expand Scientific Monitoring:** Combine camera traps, eDNA, GIS and other non-invasive techniques to improve population and distribution data.
- **Wildlife-Sensitive Infrastructure:** Integrate ecological corridors into road and infrastructure planning to minimise habitat fragmentation.
- **Community Participation:** Involve local and indigenous communities in habitat protection and wildlife monitoring.
- **Transboundary Cooperation**: Strengthen coordination with neighbouring countries because clouded leopard habitats extend beyond India's borders.



5.7 Disaster Management: Parliamentary Committee Report

Why in News?

The Parliamentary Standing Committee on Home Affairs submitted its 261st Report on Disaster Management on 7 August 2026, highlighting gaps in India's disaster-management architecture amid changing risks from climate change, rapid urbanisation and emerging hazards.

Key Concerns

- **Outdated National Policy:** The Committee noted that the National Policy on Disaster Management, 2009 needs updating because India's disaster-risk landscape has changed considerably.
- **Urban Fire Risk:** Rapid and unplanned urbanisation has increased exposure to urban fires, requiring stronger prevention, building safety and emergency-response mechanisms.
- **Weak Risk Assessment:** Disaster risks are not always adequately incorporated into development and infrastructure planning.

Major Recommendations

- **Mandatory Disaster Risk Impact Assessment (DRIA):** Major development projects should assess their potential contribution to disaster risk before implementation, integrating disaster resilience into development planning.
- **Expand Aapda Mitra:** The Committee recommended strengthening and expanding the Aapda Mitra volunteer network to create trained community-level disaster-response capacity.

- **Update Disaster Policy:** Revise the 2009 National Policy to reflect climate-induced hazards, urban risks and emerging technological/industrial disasters.
- **Strengthen Prevention:** Shift from a predominantly relief-and-response approach towards prevention, mitigation and preparedness.

Feature	Aapda Mitra	NDRF
Nature	Community-based volunteer network	Professional specialised disaster-response force
Full form	Aapda Mitra = Disaster Friend	National Disaster Response Force
Institutional level	Local/community	National
Nodal body	NDMA	Ministry of Home Affairs
Legal basis	Programme under NDMA	Created under Disaster Management Act, 2005
Personnel	Trained community volunteers	Specially trained personnel
Main activities	First aid, evacuation, basic search & rescue, awareness	Search & rescue, evacuation, flood rescue, collapsed-structure rescue, CBRN response, etc.
Local knowledge	Very high	Depends on deployed team
Deployment	Primarily within local communities	Can be deployed across states during major disasters

5.8 Living with Giants: Building Coexistence with India's Elephants

Why in News?

The Ministry of Environment, Forest and Climate Change (MoEFCC) released a Regional Action Plan for Comprehensive Understanding and Management of Human-Elephant Conflict during the 23rd Steering Committee Meeting of Project Elephant

What is Human–Elephant Conflict?

HEC occurs when interactions between elephants and people cause loss of life, crop and property damage, livelihood disruption or harm to elephants.

It is intensified by:

- Habitat fragmentation and degradation.
- Expansion of agriculture and settlements.
- Loss of natural food and water sources.
- Roads, railways and other infrastructure blocking elephant movement.

Key Recommendations

- **Invasive Species Control :** Invasive plants can replace native vegetation and reduce natural elephant forage.

Measures:

- Remove invasive vegetation from critical habitats.
- Restore native plant communities.
- Improve natural fodder availability.

➢ **Elephant Corridor Protection :** Elephant corridors connect feeding, watering and breeding habitats, requiringcontinuous ecological connectivity, prevention of fragmentation, and integration of wildlife corridors into infrastructure planning.

➢ **Conflict-Based Zoning :** The Action Plan proposes three management zones:

Zone	Broad Approach
Elephant Conservation Zone	Prioritise elephant habitat, movement and conservation
Human–Elephant Coexistence Zone	Promote measures allowing people and elephants to coexist
Human–Elephant Management Zone	Focus on managing high-conflict areas and reducing risks to people and elephants

Why is the Landscape Approach Important?

➢ **Beyond Protected Areas :** Elephants have large home ranges and frequently move outside protected areas. Conservation must therefore cover forests, corridors, agricultural landscapes and settlements.

➢ **Addressing Root Causes :** The approach targets ecological drivers such as habitat degradation, invasive species and corridor fragmentation, rather than treating each conflict as an isolated event.

➢ **Infrastructure Pressure :** Roads, railways and mining can fragment habitats and obstruct traditional elephant movement routes.

Project Elephant

➢ **Launched:** 1992

➢ **Type:** Centrally Sponsored Scheme

➢ **Ministry:** MoEFCC

➢ **Focus:** Elephant conservation, habitat and corridor protection, and Human–Elephant Conflict management.

Feature	Fact
Scientific Name	Elephas maximus
IUCN Status	Endangered
CITES	Appendix I
WPA, 1972	Schedule I
Indian Distribution	Northeast, Central, Eastern & Southern India
Major Conservation Need	Habitat and corridor connectivity

5.9 National Circular Bioenergy Scheme (GOBARdhan Scheme)

Why in News?

The Union Cabinet approved GOBARdhan (National Circular Bioenergy Scheme) with a

total outlay of ₹23,731 crore for FY 2026–27 to FY 2035–36.

Aim

- **Waste-to-Wealth:** Convert organic waste into commercially valuable CBG and organic manure.
- **Energy Security:** Reduce dependence on imported natural gas.
- **Circular Economy**: Recycle biomass and nutrients back into productive use.
- **Rural Prosperity:** Create additional income opportunities for farmers, entrepreneurs and local communities.
- **CBG Expansion:** Enable nearly ten-fold growth in domestic CBG production.

Key Features

- **Integrated CBG Framework**: Brings demand creation, pricing support, capital assistance, pipeline connectivity and financing support under a unified framework.
- **CBG Blending Obligation**: City Gas Distribution (CGD) entities will progressively blend CBG into the gas supply:
  - 3% – FY 2026–27
  - 4% – FY 2027–28
  - 5% – from FY 2028–29 onwards.
- **Stable Pricing:** The scheme provides an administered pricing framework for CBG to improve investment certainty.
- **Feedstock Diversification**: Uses cattle dung, crop residues, press mud, municipal organic waste and other biomass as feedstock.
- **Organic Manure:** The digestion process also produces nutrient-rich organic manure, supporting sustainable agriculture.
- **Infrastructure Support:** Emphasis on pipeline connectivity, financing and project development to overcome bottlenecks in the CBG ecosystem.

Way Forward

- **Decentralised Plants:** Promote CBG plants close to major biomass-producing regions to reduce transportation costs.
- **Biomass Supply Chains:** Develop organised systems for collection, aggregation, storage and transportation of agricultural residues.
- **Farmer Participation**: Build cooperative and FPO-based models so farmers can earn from biomass rather than burning or discarding it.
- **Market Assurance:** Maintain predictable pricing and assured offtake to attract long-term private investment.
- **Integrated Waste Management:** Link GOBARdhan with municipal solid-waste management, sanitation and agricultural policies.

5.10 Phoenix Species Project ($200 Million Global Recovery Initiatives)

Why in News?

Re:wild and the Bezos Earth Fund, in collaboration with the IUCN Species Survival Commission (SSC), launched the Phoenix Species Project, with an initial US$200 million commitment to support the recovery of 100 of the world's most threatened species across 30 countries.

The initiative focuses on species classified as Critically Endangered (CR) and Extinct in the Wild (EW) on the IUCN Red List.

Aim

- **Prevent Extinction:** Recover species facing imminent extinction.
- **Species Recovery:** Move beyond merely preventing decline towards rebuilding viable populations.
- **Ecosystem Restoration:** Protect species along with the habitats and ecosystems on which they depend.
- **Long-term Conservation:** Provide sustained financial and scientific support rather than short-term interventions.

Key Features

- **US$200 Million Commitment:** The initial funding consists of US$100 million each from the Bezos Earth Fund and Re:wild.
- **100 Target Species:** The project covers mammals, birds, amphibians, reptiles, fish, invertebrates and plants across 30 countries.
- **IUCN SSC as Knowledge Partner:** The IUCN Species Survival Commission provides scientific expertise and conservation knowledge.
- **Locally Led Conservation:** Indigenous Peoples, local communities, governments, scientists and conservation organisations will participate in species-recovery efforts.

Link with Kunming–Montreal Global Biodiversity Framework

- **Target 4 – Species Recovery:** Calls for urgent management actions to halt human-induced extinction of known threatened species and for the recovery and conservation of threatened species, particularly by 2030.

5.11 Pygmy Hog

Why in news?

The Standing Committee of the National Board for Wildlife (SC-NBWL) has recommended elevating the Pygmy Hog (Porcula salvinia) to the list of critically endangered species covered under a Centrally Sponsored Scheme, highlighting the vulnerability of its small and fragmented population in Assam's grasslands.

Key Features

- **Smallest Wild Pig**: The Pygmy Hog is regarded as the world's smallest and

rarest wild pig and is the only living species of the genus Porcula.

- **Conservation Status**
  - IUCN: Endangered (EN)
  - Wildlife Protection Act, 1972: Schedule I
  - CITES: Appendix I
- **Habitat:** Primarily inhabits tall, wet alluvial grasslands of the Terai–Duar region along the Himalayan foothills.
- **Distribution in India**: Its surviving wild population is largely restricted to Assam, particularly Manas National Park.
- **Reintroduction Sites:** Conservation programmes have reintroduced pygmy hogs into Orang National Park, Barnad Wildlife Sanctuary and Sonai-Rupai Wildlife Sanctuary.
- **Social Behaviour**: Generally lives in small family groups.
- **Nest Building:** It constructs distinctive grass-lined nests on the ground, particularly for resting and breeding.

Major Threats

- **Grassland Loss:** Conversion of natural grasslands for agriculture and other land uses.
- **Invasive Species:** Invasive plants can alter the structure and composition of its grassland habitat.
- **Uncontrolled Burning:** Changes in the timing and intensity of grassland fires can affect habitat quality.
- **Fragmentation:** Fragmented grasslands restrict movement and reduce viable populations.

Conservation Significance

- **Grassland Indicator:** Conservation of the pygmy hog also helps protect the highly threatened Terai–Duar grassland ecosystem.
- **Flagship for Grasslands:** Its recovery can benefit several other grassland-dependent species.
- **Reintroduction:** Captive breeding and reintroduction programmes have been important tools for rebuilding populations in suitable habitats.

5.12 Raichur Miyawaki Forest

Why in News?

Raichur, Karnataka, has transformed reclaimed dumpsite land from a legacy-waste remediation project into a Miyawaki urban forest.

What is the Miyawaki Method?

A Japanese afforestation technique developed by botanist Akira Miyawaki, which creates dense, multi-layered native forests in relatively small areas.

- **Dense Plantation:** Multiple native species are planted closely together to accelerate vegetation growth.
- **Native Species:** Emphasis is placed on species naturally suited to the local ecosystem.

- **Rapid Ecological Development:** Dense planting and soil improvement can help create a forest-like ecosystem faster than conventional urban plantations.

Significance

- **Legacy-Waste Reclamation:** Converts previously unusable dumpsite land into productive green space.
- **Biodiversity Enhancement:** Provides habitat and food resources for urban birds, insects and other organisms.
- **Carbon Sequestration:** Growing vegetation absorbs atmospheric CO_2 and stores carbon in biomass and soil.
- **Urban Heat Reduction:** Vegetation provides shade and evapotranspiration, helping moderate local temperatures.
- **Land Recycling:** Demonstrates how contaminated or degraded urban land can be repurposed rather than requiring additional land.
- **Public Health:** Urban green spaces can improve air quality, recreational opportunities and overall urban liveability.

Challenges

- **Species Selection**: Planting unsuitable species can reduce ecological effectiveness.
- **Water Requirement:** Young plantations may require considerable watering, particularly in dry regions.
- **Long-Term Maintenance:** A Miyawaki plantation needs protection and monitoring until the ecosystem becomes self-sustaining.
- **Legacy-Waste Risks:** Remediated dumpsites require proper management of residual contaminants and landfill gases.

5.13 Slender-Billed & White-Rumped Vultures

Why in News?

Captive-bred Slender-billed Vultures and White-rumped Vultures were released into the wild in Assam using the "soft-release" method, marking an important milestone in vulture conservation.

Feature	Slender-billed Vulture	White-rumped Vulture
Scientific Name	Gyps tenuirostris	Gyps bengalensis
IUCN Status	Critically Endangered	Critically Endangered
Family	Accipitridae	Accipitridae
Distribution	South Asia & parts of Southeast Asia	South Asia & Southeast Asia
Major Threat	Veterinary NSAIDs	Veterinary NSAIDs

Veterinary NSAIDs

Diclofenac: Historically the most important cause of the catastrophic decline of Gyps vultures in South Asia. Vultures feeding on carcasses of treated livestock can suffer fatal kidney failure.

Other veterinary NSAIDs of conservation concern include:

- Aceclofenac
- Ketoprofen
- Ketoprofen
- Nimesulide

Key Point: Meloxicam is considered a relatively vulture-safe alternative and has been promoted for veterinary use.

Why are Vultures Important?

- **Rapid Carcass Disposal:** Vultures quickly consume animal carcasses, preventing their accumulation.
- **Nutrient Recycling:** They return nutrients to ecosystems through decomposition and waste.
- **Disease Control:** Rapid carcass removal reduces opportunities for pathogens to multiply and spread.
- **Ecosystem Health**: As obligate scavengers, vultures perform an important ecosystem-cleaning function.

Conservation Approach

- **Captive Breeding:** Critically endangered vultures are bred under controlled conditions to increase their numbers.
- **Soft Release:** Captive-bred birds are gradually acclimatised to natural conditions before complete release, improving their chances of survival.
- **Jatayu Conservation Breeding Centres**: Such facilities contribute to the captive breeding and recovery of threatened vulture species in India.
- **Safe Food Landscape:** Conservation also requires ensuring that livestock carcasses available to vultures are free from harmful veterinary drugs.

Impact & Significance

- **Population Recovery:** Combines captive breeding with reintroduction to rebuild populations affected by severe historical declines.
- **Ecosystem Restoration:** Recovery of vultures restores an important scavenging function in natural ecosystems.
- **One Health:** Vulture conservation has implications for wildlife health, livestock practices and human public health because healthy scavenger populations can reduce disease risks associated with carcass accumulation.

5.14 South Korea's Plastic Waste Management Model

Why in News?

South Korea's robust Extended Producer Responsibility (EPR) system (introduced in 2003) and material recycling framework were highlighted as a global benchmark for packaging waste recovery.

What is Extended Producer Responsibility (EPR)?

EPR: A policy approach under which producers are given significant responsibility—financial and/or physical—for the management of products after they become waste.

Key Features of South Korea's Model

- **Producer Responsibility:** Producers and importers are responsible for meeting recycling obligations for specified products and packaging.
- **Material Recycling:** Greater emphasis is placed on recovering materials from waste rather than relying primarily on disposal.
- **Separate Collection:** Segregation and systematic collection of recyclable materials improve the quality of recovered materials.
- **Recycling Targets:** Producers face obligations linked to the amount and type of products placed on the market.
- **Economic Incentives:** The system uses financial mechanisms to encourage recycling and discourage wasteful product design.

Why is it Significant?

- **Circular Economy:** Waste materials are returned to production rather than being treated merely as waste.
- **Reduced Plastic Pollution:** Higher recovery rates can reduce plastic leakage into landfills and the environment.
- **Eco-design:** EPR can encourage producers to develop recyclable, reusable and resource-efficient packaging.
- **Shared Responsibility:** Waste management becomes a responsibility shared among producers, consumers, recyclers and government.

Relevance for India

- India introduced EPR provisions for plastic packaging under the Plastic Waste Management Rules, with detailed EPR guidelines notified in 2022.

Lesson for India: South Korea demonstrates that EPR works best when supported by:

- Strong source segregation
- Reliable collection systems
- Traceable recycling chains
- Effective enforcement
- Formal integration of recyclers
- Incentives for eco-design and reuse

Challenges

- **Recycling Quality:** Mixed or contaminated plastics reduce the value and usability of recycled material.
- **Producer Compliance:** Weak monitoring can lead to inaccurate reporting or ineffective fulfilment of EPR obligations.
- **Packaging Complexity**: Multi-layered and composite packaging is difficult to recycle economically.

- **Consumer Participation:** Effective segregation at source remains essential for high-quality material recovery.

5.15 Toxic Legacy: Hexavalent Chromium Groundwater Pollution

Why in News?

Decades of improper disposal of industrial waste have resulted in groundwater contamination by hexavalent chromium [Cr(VI)] in Uttar Pradesh, raising concerns over its serious health and environmental impacts.

What is Chromium?

Chromium is a naturally occurring metal that exists primarily in different oxidation states.

Cr(III) – Trivalent Chromium

- Relatively less toxic and less mobile.
- Occurs naturally in soils and rocks.
- At low levels, chromium(III) is an essential micronutrient for some biological processes.

Cr(VI) – Hexavalent Chromium

- Highly toxic, mobile and carcinogenic.
- Commonly associated with industrial activities such as leather tanning, electroplating, metal processing and pigment production.
- Can readily migrate through groundwater.

Why is Cr(VI) More Dangerous?

- **High Mobility:** Cr(VI) commonly occurs as soluble chromate or dichromate ions, allowing it to move readily through groundwater.
- **Carcinogenicity:** Long-term exposure is associated with an increased risk of lung cancer and other adverse health effects, particularly through inhalation; contaminated drinking water is also a major exposure concern.
- **Persistence:** Improperly managed industrial waste can create long-lasting contamination of soil and groundwater.

Feature	Cr(III)	Cr(VI)
Oxidation state	+3	+6
Toxicity	Relatively lower	High
Carcinogenicity	Much lower	Carcinogenic
Mobility	Relatively low	High
Groundwater risk	Lower	High
Common forms	Chromium hydroxides/oxides	Chromate/dichromate

Major Sources

- **Leather Tanning:** Chromium compounds are widely used in tanning processes.

- **Electroplating:** Used to provide corrosion-resistant and decorative coatings.
- **Metal Industries:** Industrial processing can generate chromium-containing waste.
- **Pigments & Chemicals:** Chromium compounds are used in certain pigments and chemical processes.
- **Improper Waste Disposal:** Unlined disposal sites and untreated industrial effluents can allow chromium to enter soil and groundwater.

Environmental & Health Impacts

- **Groundwater Contamination:** Cr(VI) can migrate through aquifers and contaminate drinking-water sources.
- **Soil Pollution:** Chromium accumulation can alter soil quality and affect microorganisms and plants.
- **Human Health:** Chronic exposure to Cr(VI) can cause serious health effects, including cancer and organ toxicity.
- **Intergenerational Risk:** Persistent groundwater contamination can remain a problem long after the original industrial activity has ceased.

Remediation

- **Source Control:** Prevent further release through proper treatment and safe disposal of chromium-containing industrial waste.
- **Pump-and-Treat:** Contaminated groundwater can be extracted, treated and returned or safely disposed of.
- **Chemical Reduction:** Cr(VI) can be chemically reduced to Cr(III), which is generally less mobile and less toxic.
- **Permeable Reactive Barriers:** Reactive materials can be placed in groundwater-flow paths to reduce Cr(VI).
- **Bioremediation:** Microorganisms can facilitate the reduction of Cr(VI) to Cr(III) under suitable conditions.

SCIENCE AND TECHNOLOGY

6.1 African Swine Fever (ASF) Indigenous Vaccine

Why in News ?

The Union Minister for Agriculture dedicated India's first indigenous vaccine against African Swine Fever (ASF) to the nation on ICAR Foundation Day.

What is African Swine Fever?

A highly contagious viral disease affecting domestic and wild pigs.

- **Causative Agent:** African Swine Fever Virus (ASFV) — a large, double-stranded DNA virus belonging to the Asfarviridae family.
- **Disease Nature:** Severe haemorrhagic disease that can cause very high mortality in affected pig populations.

- **Zoonotic Status:** Non-zoonotic — ASF does not infect humans.

Indigenous Vaccine

- **Developer:** ICAR–NIHSAD, Bhopal
- **Vaccine Type:** Live-attenuated vaccine
- **Target:** ASFV Genotype II
- **Cell Line:** Developed using the MA-104 cell line, which is non-patented.
- **Significance:** Indigenous vaccine development can reduce dependence on imported technologies and strengthen India's domestic animal-health preparedness.

Why is ASF Important for India?

- **Pig Population:** ASF poses a major threat to pig farming, particularly in regions where pig rearing is an important livelihood.
- **Economic Losses**: High mortality can cause substantial losses to farmers and the livestock sector.
- **Food & Livelihood Security:** Outbreaks can affect household incomes and local pork supply chains.

6.2 Agni-4 Ballistic Missile Test

Why in News?

India successfully conducted a test-firing of the Agni-4 ballistic missile, demonstrating operational readiness and validating key systems.

Key Features

- **Type:** Nuclear-capable, intermediate-range ballistic missile (IRBM).
- **Range:** Approximately 4,000 km.
- Propulsion: Two-stage solid-fuel propulsion system.
- **Launch Platform:** Can be launched from a road-mobile launcher, enhancing survivability and operational flexibility.
- **Guidance:** Equipped with advanced navigation and guidance systems for improved accuracy.
- **Strategic Command:** Associated with the Strategic Forces Command (SFC), which is responsible for managing India's strategic nuclear assets.

Strategic Significance

- **Credible Deterrence:** Provides India with a longer-range land-based missile capability as part of its nuclear deterrence architecture.
- **Survivability:** Road mobility makes the missile more difficult to locate and target.
- **Technological Capability:** Demonstrates advances in solid-fuel propulsion, navigation, guidance and missile systems integration.
- **Strategic Reach:** Its range provides coverage extending well beyond India's immediate neighbourhood.

- tactics and operational leadership.

6.3 Building India's Indigenous Artificial Intelligence Ecosystem (Gnani Artha)

Why in News?

The Vice President of India launched Gnani Artha, an indigenous sovereign AI stack designed to strengthen India's capabilities in AI, particularly for Indic-language applications, public services and enterprise workflows.

Key Components

- **Evon 3.3:** A 30-billion-parameter open-weights Indic-language Large Language Model (LLM) designed to support India's multilingual AI ecosystem.
- **Plexus:** An agentic AI orchestration platform designed to coordinate AI agents and integrate them into public-sector and enterprise workflows.
- **Sovereign AI Stack:** The initiative seeks to provide greater domestic control over AI models, infrastructure, data and deployment, reducing dependence on foreign AI platforms.

What is Sovereign AI?

Sovereign AI refers to a country's ability to develop, control and deploy AI technologies using domestic capabilities, while ensuring that critical data, infrastructure and AI systems remain subject to national laws and strategic interests.

Significance for India

- **Digital Sovereignty:** Reduces excessive dependence on foreign AI models and platforms.
- **Indic Languages:** Indigenous LLMs can improve AI accessibility across India's linguistically diverse population.
- **Public-Governance Applications:** Agentic AI can potentially support government workflows, citizen services and administrative processes.
- **Enterprise Adoption:** AI orchestration platforms can help businesses integrate AI agents into existing workflows.
- **Data Governance:** Greater domestic control can support India's objectives relating to data security and responsible AI.
- **Innovation Ecosystem:** Open-weights models can allow researchers and developers to experiment, adapt and build applications on top of foundational models.

Challenges

- **Compute Requirements:** Training and deploying large AI models requires substantial computational resources.
- **Data Quality**: Indian-language AI requires large, diverse and high-quality multilingual datasets.
- **Hallucinations & Reliability:** AI-generated outputs may contain inaccurate information and therefore require validation.
- **Cybersecurity:** AI systems themselves can become targets for manipulation, attacks and data breaches.

- **Responsible AI:** Deployment in government and critical sectors requires safeguards for privacy, bias, transparency and accountability.

6.4 Digital Arrests, VoIP Exploitation & Cyber-Forensic Architectures

Why in News ?

The Supreme Court directed the Union Government, RBI, and State Governments to formulate binding Standard Operating Procedures (SOPs) to counter "Digital Arrest" extortion networks.

What is a "Digital Arrest"?

- Digital Arrest is a cyber-fraud technique, not a legally recognised form of arrest.
- Fraudsters impersonate police officers, CBI/ED officials, judges or other authorities through video calls and falsely accuse victims of involvement in crimes.

What are Mule Accounts?

- **Mule Account:** A bank account used to receive, hold or transfer illegally obtained funds on behalf of cybercriminals.

Key Directives

- **Mule Account Protection:** The RBI was directed to formulate mechanisms for automated temporary debit holds on suspected mule accounts within the specified framework.
- **e-Zero FIR + I4C**: States were directed to integrate e-Zero FIR mechanisms with the Indian Cyber Crime Coordination Centre (I4C) to improve rapid registration and investigation of cyber-fraud cases.
- **Telecom "Kill Switch":** MeitY and DoT were directed to examine mechanisms for rapidly disabling malicious VoIP-based communication infrastructure used by fraud networks.

Key Institutions & Tools

- **I4C – Indian Cyber Crime Coordination Centre:** A central framework under the Ministry of Home Affairs (MHA) for coordinating India's response to cybercrime.
- **1930 Helpline:** National helpline for reporting financial cyber fraud and enabling rapid intervention.
- **MuleHunter.ai:** An AI-based system designed to help identify and analyse mule bank accounts used to receive and move proceeds of cybercrime.

6.5 DSC A24 (Yard 329) — Indian Navy's Diving Support Craft

Why in news ?

DSC A24 is a twin-hulled naval support vessel designed to assist underwater diving operations, salvage missions, and coastal deployments.

Key Features

- **Builder:** Titagarh Rail Systems Ltd, Kolkata.

- **Hull Design:** Catamaran/twin-hull configuration, providing greater stability during diving operations.
- **Displacement:** Approximately 300–400 tonnes.
- **Indigenous Content:** Around 70% indigenous machinery content, contributing to Atmanirbhar Bharat in defence shipbuilding.
- **Primary Role:** Provides a dedicated platform for specialised underwater operations.

Aim

- Support underwater inspection and maintenance.
- Facilitate salvage and recovery operations.
- Support rescue missions.
- Provide a stable platform for Command Clearance Diving Teams.
- Strengthen the Navy's capability for coastal and harbour underwater operations.

Why Catamaran Hull?

- **Greater Stability:** Two parallel hulls provide a wider and more stable platform than a conventional single-hull vessel.
- **Operational Advantage**: Improved stability is particularly useful when divers are entering or exiting the water and when conducting underwater operations.
- **Shallow-Water Utility**: Such craft can be designed for operations in harbours, coastal waters and confined areas.

Strategic Significance

- **Underwater Operational Capability:** Strengthens the Navy's ability to inspect, maintain and recover underwater assets.
- **Maritime Safety:** Supports rescue and salvage operations following maritime accidents.
- **Indigenisation:** High indigenous content contributes to reducing dependence on foreign defence equipment.
- **Specialised Naval Support:** Demonstrates that naval capability extends beyond frontline combat vessels to include diving, salvage, logistics and support platforms.

6.6 Gene-Edited Rice: Precision Agriculture for Climate Resilience

Why in News?

India developed two genome-edited rice varieties: Pusa DST Rice 1 and DRR Dhan 100 (Kamala).

Genome-Edited Rice Varieties

Pusa DST Rice 1

- **Developer:** ICAR–Indian Agricultural Research Institute (ICAR-IARI), New Delhi.
- **Parent variety:** MTU 1010.
- **Target:** DST (Drought and Salt Tolerance) gene.
- **Key benefit:** Improved tolerance to drought and salinity.
- **Significance:** Particularly relevant for water-stressed and saline-prone rice-

growing regions, including parts of southern India.

- **Cropping advantage:** Suitable for rabi-season cultivation in southern India.

DRR Dhan 100 (Kamala)

- **Developer:** ICAR–Indian Institute of Rice Research (ICAR-IIRR), Hyderabad.
- **Parent variety:** Samba Mahsuri.
- **Target:** Genes involved in cytokinin metabolism.
- **Key benefit:** Produces more grains per panicle.
- **Duration:** Matures approximately 20 days earlier than the parent variety.

- **Significance:** Higher productivity with a shorter crop duration can improve resource-use efficiency and cropping intensity.

6.7 Javelin Missile System & Foreign Military Sales (FMS)

Why in News?

India and the United States have signed an agreement for the procurement of the FGM-148 Javelin Anti-Tank Guided Missile (ATGM) system through the Foreign Military Sales (FMS) route.

What is the Javelin Missile?

The FGM-148 Javelin is a third-generation, man-portable anti-tank guided missile developed in the United States to engage armoured targets, particularly tanks.

Key Features

- **Fire-and-Forget:** The operator can launch the missile and move or take cover without continuously guiding it to the target.
- **Imaging Infrared (IIR) Seeker:** The missile uses an infrared imaging seeker to identify and track the target.
- **Top-Attack Capability:** The missile can attack the relatively vulnerable upper surface of armoured vehicles, in addition to direct-attack modes.
- **Man-Portable**: Its launcher system can be carried and operated by infantry personnel.

What is Foreign Military Sales (FMS)?

- FMS is a US Government-to-government mechanism through which eligible foreign countries procure US defence articles, services and training.
- **Government-to-Government:** The purchasing country deals with the US Government rather than negotiating a normal commercial sale directly with the manufacturer.
- **US Oversight:** The US Government remains involved in the contracting, procurement and transfer process.

6.8 Light-Activated Nano-Robots for Targeted Breast Cancer Therapy

Why in News ?

Scientists from the Institute of Nano Science and Technology (INST), Mohali, and Bhabha Atomic Research Centre (BARC), Mumbai, have developed light-driven multifunctional nanorobots designed for active navigation and targeted phototherapy against breast cancer.

What are Light-Activated Nanorobots?

Nanorobots are nanoscale engineered systems capable of performing specific functions such as movement, drug delivery or interaction with biological targets.

In this research, light acts as an external stimulus to control the nanorobots and facilitate their movement towards the target site.

Key Features

- **Light-Driven Navigation:** External light stimulation enables controlled movement of the nanorobots, potentially improving localisation at the tumour site.
- **Active Targeting:** Unlike passive drug delivery, active navigation allows the nanorobots to move towards the desired biological location.
- **Phototherapy:** The nanorobots can use light-triggered therapeutic mechanisms to damage cancer cells at the targeted site.
- **Multifunctionality:** Integration of navigation and therapeutic functions in a single nanosystem can potentially improve treatment precision.

Significance

- **Targeted Treatment:** Localised therapy could reduce exposure of healthy tissues compared with less-targeted approaches.
- **Reduced Systemic Effects:** Precise delivery may help minimise unwanted effects associated with conventional cancer therapies.
- **Precision Medicine**: Such systems represent a shift towards site-specific and stimulus-responsive cancer treatment.
- **Indian Nanobiotechnology:** The research demonstrates India's growing capabilities in advanced nanomedicine and biomedical engineering.

Challenges

- **Biocompatibility**: Nanomaterials must be safe for use inside the human body.
- **Controlled Navigation:** Precisely directing nanorobots through complex biological environments remains difficult.
- **Light Penetration:** Effective light delivery can be challenging for tumours located deep inside tissues.
- **Clinical Translation:** Extensive toxicity, pharmacokinetic and clinical studies are required before widespread human application.

6.9 Pigeonpea (Arhar) T2T Reference Genome

Why in News ?

The ICAR–National Institute for Plant Biotechnology (ICAR-NIPB), New Delhi has successfully assembled a Telomere-to-Telomere (T2T) reference genome of pigeonpea (Arhar), using the variety 'Asha'.

What is a Telomere-to-Telomere (T2T) Genome?

T2T genome assembly aims to reconstruct a chromosome from one telomere to the other, with minimal or no gaps.

Conventional Genome Assemblies: Earlier genome sequences often contained gaps, particularly in repetitive regions such as centromeres and telomeres.

T2T Approach: Advanced sequencing and computational methods help resolve these previously difficult regions, providing a more complete picture of genome structure.

Key Features of Pigeonpea T2T Genome

- **Crop:** Pigeonpea (Cajanus cajan), commonly known as Arhar/Tur.
- **Variety:** Asha.
- **Complete Genome Architecture:** The genome has been assembled end-to-end, including previously difficult telomeric and centromeric regions.
- **Gene Annotation:** Around 36,557 genes have been annotated.
- **Read Alignment:** Reported 99.9% read-alignment precision, indicating high-quality genome assembly.

Agricultural Significance

- **Precision Breeding:** A complete reference genome can help identify genes associated with desirable traits and accelerate targeted crop improvement.
- **Climate Resilience:** Genetic information can aid breeding for drought tolerance, heat tolerance and other stress-resilient traits.
- **Disease Resistance:** Identification of resistance-associated genes can support development of disease-resistant varieties.
- **Yield Improvement**: Genome-level information can help breeders target genes linked to productivity and other agronomic traits.
- **Pulse Security:** Pigeonpea is an important source of plant protein and a major pulse crop in India.

6.10 Samarthak: Indigenous Multi-Purpose Vessel (MPV)

Why in News?

Samarthak, an indigenous Multi-Purpose Vessel (MPV), has been formally delivered to the Indian Navy, strengthening India's indigenous naval support and testing capabilities under Aatmanirbhar Bharat.

What is Samarthak?

Samarthak is an Indian-designed and Indian-built Multi-Purpose Vessel designed to perform diverse naval support, testing, training and maritime-security functions.

Key Features & Roles

- **Weapons & Sensor Trials:** Provides a platform for testing and validating naval weapons, sensors and associated systems.
- **ASW & Gunnery Training:** Supports Anti-Submarine Warfare (ASW) and gunnery training activities.
- **Unmanned Systems Mothership:** Can serve as a mother platform for UAVs, USVs and UUVs.
  - UAV: Unmanned Aerial Vehicle
  - USV: Unmanned Surface Vehicle
  - UUV: Unmanned Underwater Vehicle
- Heavy-Lift & Towing: Can support transportation and towing of heavy equipment and maritime assets.
- Maritime Surveillance: Can contribute to surveillance and monitoring activities at sea.
- Pollution Control: Can support maritime pollution-response operations.
- HADR: Can be deployed for Humanitarian Assistance and Disaster Relief, particularly during maritime emergencies.

Builder & Shipyard

- Designed & built in: India
- Builder: Larsen & Toubro (L&T)
- Shipyard: Kattupalli Shipyard, Tamil Nadu
- User: Indian Navy

6.11 Vehicle-to-Vehicle (V2V) Wireless Communication

Why in News?

The Ministry of Road Transport and Highways (MoRTH) has proposed introducing Vehicle-to-Vehicle (V2V) wireless communication in new vehicles in a phased manner, beginning from October 2027.

What is V2V Communication?

Vehicle-to-Vehicle (V2V) communication is a wireless technology that enables nearby vehicles to exchange information directly in real time.

Vehicles can share data such as:

- Location and position
- Speed and direction
- Braking status
- Acceleration/deceleration
- Steering or manoeuvring information

Unlike conventional connected-vehicle systems, V2V can facilitate direct vehicle-to-vehicle communication without depending on cellular networks or the internet.

How Does V2V Improve Road Safety?

- **Collision Warning:** A vehicle can alert another vehicle about sudden braking or an imminent collision.

- **Blind-Spot Awareness:** Information from nearby vehicles can improve awareness where the driver's direct visibility is limited.
- **Cooperative Driving:** Vehicles can coordinate movements by sharing real-time information about speed and position.
- **Faster Response:** Direct communication can reduce dependence on distant network infrastructure for safety-critical alerts.

Technology	Communication
V2V	Vehicle ↔ Vehicle
V2I	Vehicle ↔ Infrastructure
V2P	Vehicle ↔ Pedestrian
V2X	Vehicle ↔ Everything

Challenges

- **Interoperability:** Different vehicle manufacturers must follow common communication standards.
- **Cybersecurity:** Connected vehicles can create new attack surfaces.
- **Privacy:** Location and movement-related data require appropriate safeguards.
- **Mass Adoption:** Safety benefits increase when a large proportion of vehicles are equipped with compatible systems.
- **Infrastructure & Cost:** Vehicle manufacturers may face additional hardware and compliance costs.

6.12 Non-GMO Breeding & India's Niche Agritech Shift (Popcorn Maize)

Why in News?

India's first non-GMO high-expansion popcorn maize hybrid seed was launched at Musunuru in Eluru district, Andhra Pradesh.

What is it?

- **Indigenously Developed:** A domestically developed hybrid maize seed specifically bred for popcorn production.
- **Non-GMO:** Developed through conventional/modern breeding approaches without genetic modification.
- **High-Expansion:** Designed to achieve better kernel popping and expansion, which are important quality parameters for commercial popcorn.
- **Specialised Hybrid:** Unlike maize primarily cultivated for feed, starch or grain, it targets a specific food-processing market.

Significance

- **Crop Diversification:** Encourages farmers to move towards high-value niche crops rather than depending only on conventional maize markets.
- **Import Substitution:** Indigenous seed technology can reduce dependence on imported specialised popcorn varieties and seed.
- **Farmer–Processor Linkages**: Creates stronger connections between farmers, processors and organised food markets.

- **Value Addition:** Shifts maize production from commodity-oriented cultivation towards processed food value chains.
- **Agritech Innovation:** Demonstrates how specialised breeding can create crops suited to emerging consumer and food-processing markets.
- **Non-GMO Opportunity:** Provides a non-GM breeding pathway for developing commercially valuable crop varieties.

ART & CULTURE AND HISTORY

7.1 Dhimsa Dance: Preserving the Tribal Cultural Heritage of Araku Valley

Why in News?

More than 13,000 tribal women and girl students performed Dhimsa, a traditional tribal folk dance, at Alluri Sitarama Raju International Airport, Bhogapuram, marking a Guinness World Records recognition for the largest Dhimsa dance performance.

About Dhimsa Dance

- **Origin:** Dhimsa is a traditional folk dance associated with the tribal communities of the Araku Valley and adjoining hill regions of northern Andhra Pradesh.
- **Performers:** Traditionally performed predominantly by tribal women, often in groups of around 15–20 dancers.
- **Formation:** Dancers perform in a circular formation, moving rhythmically in synchronisation.
- **Attire:** Performers wear traditional tribal costumes and ornaments, reflecting the cultural identity of the communities.



Musical Instruments

- **Mori:** A traditional wind instrument accompanying the dance.
- **Thudum:** A traditional drum/percussion instrument providing rhythm.
- **Dappu:** A traditional frame/percussion drum commonly used in folk performances.

When is Dhimsa Performed?

- **Weddings:** Celebrates important social and family occasions.
- **Harvest Festivals:** Associated with agricultural and seasonal celebrations.
- **Community Gatherings:** Strengthens social bonding and collective cultural expression.

Cultural Significance

- **Community Identity**: Dhimsa serves as an important expression of the cultural identity of tribal communities in the Araku region.

- **Oral Cultural Tradition:** Its songs, movements and performance practices help transmit traditions across generations.
- **Women's Participation:** The collective participation of tribal women highlights their role in preserving and transmitting indigenous cultural practices.
- **Cultural Tourism:** Dhimsa contributes to the cultural appeal of Araku Valley, promoting awareness of tribal heritage.

7.2 Hero Stone (Veeragallu) & Hoysala Epigraphy

Why in News ?

12th-century hero stone found in Neeragunda village, Arsikere taluk, Karnataka.

Its Kannada inscription fixes Hoysala king Vishnuvardhana''s death to 11 December 1141.

What is a Hero Stone?

A hero stone, known as Veeragallu in Kannada, is a commemorative stone erected in honour of a person who died performing a heroic act, particularly in battle or while protecting the community.

- **Historical Development:** Hero-stone traditions have roots in early historic South India and became particularly prominent during the early medieval period.
- **Major Dynasties:** The tradition flourished under several South Indian dynasties, including the Chalukyas, Rashtrakutas, Gangas, Kadambas and Hoysalas.

Three-Tier Structure

- **Bottom Panel –** Heroic Act: Depicts the battle, cattle raid or other event in which the hero met his death.
- **Middle Panel –** Journey to Heaven: Often depicts apsaras escorting the deceased hero towards heaven.
- **Top Panel –** Divine Association: Shows the hero worshipping a deity, frequently Shiva or Vishnu.

Local social and administrative information

- **Scripts:** Depending on the region and period, inscriptions may occur in Old Kannada and Vatteluttu.
- **Sun and Moon Symbol:** The depiction of the Sun and Moon (Achandrarkam) symbolises the aspiration for eternal remembrance/fame.

Special Types

- **Gograhana:** Associated with defending or protecting cattle.
- **Turugol:** Associated with recovering stolen livestock.
- **Penbuyyal:** Associated with protecting village women.

7.3 National Handloom Day & The Swadeshi Movement (1905)

Why in News?

India observed the 12th National Handloom Day on 7 August 2026, commemorating the launch of the Swadeshi Movement in 1905.

The day highlights the role of handloom in promoting indigenous production, economic self-reliance, cultural heritage and rural livelihoods.

Historical Link: Swadeshi Movement, 1905

The Swadeshi Movement emerged in response to the Partition of Bengal (1905).

- **Indigenous Production:** Indians were encouraged to use and promote domestically produced goods.
- **Boycott of Foreign Goods:** Foreign goods, particularly imported textiles, were boycotted.
- **Economic Nationalism:** Swadeshi linked political freedom with economic self-reliance and indigenous industrial development.
- **Handloom Connection:** Indian handloom became both an economic activity and a symbol of national identity and resistance to colonial economic policies.

Government Initiatives :

- **NHDP:** Supports weavers with infrastructure, skills and market access.
- **Small Cluster Development Programme:** Provides basic facilities and support to small handloom clusters.
- **Mega Cluster Development Programme:** Provides large-scale infrastructure and modernization support to major clusters.
- **Handloom Marketing Assistance:** Helps weavers promote and sell their products in wider markets.
- **Weaver MUDRA Scheme:** Provides easy and affordable loans to handloom weavers.
- **Handloom Mark:** Identifies and certifies genuine handloom products.
- **India Handloom Brand:** Promotes quality Indian handloom products under a common brand.
- **GI Protection:** Protects region-specific handloom products from misuse and imitation.
- **GeM / Indiahandmade Portal:** Enables online sale and procurement of handloom products.

Insurance schemes such as:

- **PMJJBY (Pradhan Mantri Jeevan Jyoti Bima Yojana):** Provides low-cost life insurance cover to eligible subscribers.
- **PMSBY (Pradhan Mantri Suraksha Bima Yojana):** Provides low-cost accident insurance cover for accidental death or disability.

Union Budget 2026-27 Initiatives

- **National Fibre Scheme:** Supports the availability and development of quality fibres for the textile sector.

- **Textile Expansion & Employment Scheme:** Promotes textile-sector expansion and employment generation.
- **National Handloom & Handicraft Programme:** Supports weavers and artisans through skills, infrastructure, technology and market access.
- **Mahatma Gandhi Gram Swaraj Initiative:** Promotes rural self-reliance, traditional industries and village-based livelihoods.

7.4 Pixelated Heritage: Digital Dissemination & Cultural Sovereignty

Why in News?

Union Minister Gajendra Singh Shekhawat launched the 'As Seen on Netflix' section on the Incredible India portal to commemorate 10 years of Netflix in India.

- **Nodal Ministries:** Ministry of Culture and Ministry of Tourism in collaboration with Netflix India.
- **Platform:** Integrated directly into the official Incredible India portal.
- **Key Event:** Joint fireside chat held at the National Gallery of Modern Art (NGMA), New Delhi, featuring Netflix Co-CEO Ted Sarandos.

7.5 Sri Aurobindo (1872–1950) — Revolutionary & Extremist Phase

Why in News?

The Prime Minister paid tribute to Sri Aurobindo on his birth anniversary (15 August 2026), highlighting his contributions to India's freedom struggle, philosophical thought and spiritual vision.

Early Life of Sri Aurobindo

- **Birth Date:** 15 August 1872
- **Place:** Calcutta (present-day Kolkata)
- **Education:** Studied in England. Cleared the Indian Civil Service (ICS) examination but did not join the service.
- **Influences :** Western education, Indian philosophical traditions, Nationalist ideas.

Role in Indian National Movement

Revolutionary Nationalism : Sri Aurobindo was one of the important leaders of the early revolutionary nationalist movement.

His Ideas:

- India's freedom was not merely a political objective but a national mission.
- Supported the idea of complete independence (Purna Swaraj).
- Encouraged self-reliance and resistance against colonial rule.

Contribution through Journalism

Sri Aurobindo wrote a series of articles titled "New Lamps for Old". (1893–1894)

Significance:

He criticised

- Moderate methods of early Congress leaders.
- Excessive dependence on British reforms.

He promoted

- Stronger nationalist action.
- Self-confidence among Indians.

Role in Extremist Nationalism

Sri Aurobindo supported:

- Swadeshi movement.
- Boycott of foreign goods.
- National education.

Alipore Bomb Case (1908)

The British government arrested Sri Aurobindo in connection with revolutionary activities during the Alipore Bomb Case.

- Case Related to revolutionary activities in Bengal.
- He was accused of involvement in a conspiracy against British rule.
- Defended by Chittaranjan Das.

Shift from Politics to Spiritual Philosophy

After the Alipore trial, Sri Aurobindo gradually withdrew from active politics.

Move to Pondicherry

- Settled in Pondicherry in 1910.
- Focused on spiritual development, philosophy and writings.

Sri Aurobindo Ashram

- **Location:** Pondicherry (Puducherry)
- **Associated With:** Mirra Alfassa ("The Mother")
- **Activities:** Spiritual education, Philosophical research, Community living.

7.6 The Pulaya Vanguard: Mahatma Ayyankali (1863–1941) & Social Justice in Kerala

Why in News?

Prime Minister paid homage to Mahatma Ayyankali (1863–1941) on his birth anniversary, highlighting his contribution to social justice and the upliftment of oppressed communities in Kerala.

Movements:

- **First Agricultural Labor Strike (1907–1908):** Led the first recorded agricultural strike in Kerala with the rallying cry: "If our children are denied education, weeds will grow in your fields." It successfully forced upper-caste landowners to accept the admission of Dalit children into schools.
- **Kallumala Samaram / Perinad Mutiny (1915):** Agitation against the caste restriction requiring lower-caste women to wear beaded stone necklaces (Kallumala) and stay bare-chested. Women discarded the necklaces en masse at the Kollam gathering, asserting their right to dignified attire.
- **Interaction with Mahatma Gandhi (1937):** Met Gandhi at Venganoor. Impressed by his grassroots mobilization,

Gandhi affectionately referred to him as "Pulayaraja" (King of the Pulayas).

- **Inspiration from Sree Narayana Guru:** Inspired by Guru's 1888 Aruvippuram installation and the SNDP Yogam (1903), Ayyankali modeled the Sadhu Jana Paripalana Sangham (SJPS) in 1907 to organize Dalit agricultural communities.

Chronological Milestones

- **Villuvandi Samaram (Chariot Agitation) - 1893:** Defied caste bans by riding a decorated bullock cart on public roads from Venganoor to Aralumoodu, asserting freedom of movement.
- **First School Initiative at Venganoor - 1904:** Built a community school for Pulaya children, which was subsequently set on fire by upper-caste reactionaries.
- **Formation of Sadhu Jana Paripalana Sangham (SJPS) - 1907:** Established the organization to advance education, financial independence, and social welfare among oppressed castes.
- **First Agricultural Strike - 1907–1908:** Mobilized farm workers to withhold labor from fields until schools were opened to Pulaya children.
- **Nomination to Sree Moolam Popular Assembly - 1910:** Became the first Dalit member nominated to the Travancore legislature, advocating for land distribution and educational access.
- **Kallumala Samaram (Stone Necklace Movement) - 1915:** Led the cultural rebellion where Dalit women broke their symbolic subjugation ornaments and adopted dignified clothing. a broader movement for education, labour rights, social dignity and political representation.

7.7 UNESCO Representative List Tag Proposal: Puri Rath Yatra

Why in News

Odisha CM urged the Centre to nominate the Puri Rath Yatra for UNESCO's Representative List of Intangible Cultural Heritage.

About Puri Rath Yatra

- **Location:** Puri, Odisha, associated with the Shree Jagannath Temple.
- **Nodal Institution for Proposal:** Shree Jagannath Temple Administration (SJTA).
- **Core Tradition:** The annual chariot festival involves the ceremonial journey of Lord Jagannath, Lord Balabhadra and Devi Subhadra from the main temple towards the Gundicha Temple.

Three Sacred Chariots

- **Nandighosha:** Chariot of Lord Jagannath.
- **Taladhwaja:** Chariot of Lord Balabhadra.
- **Darpadalana:** Chariot of Devi Subhadra.

Traditional Craftsmanship

- **Maharanas:** Hereditary traditional artisans associated with the construction of the chariots.

- The chariots are constructed annually, making the associated craftsmanship an important example of living intangible heritage.

Rath Yatra Process

- **Pahandi Bije:** The ceremonial procession in which the deities are brought out from the temple.
- **Bada Danda:** The principal avenue of Puri along which the chariots proceed.
- **Gundicha Temple:** The chariots travel towards the Gundicha Temple.
- **Bahuda Rath Yatra:** The return journey of the deities from the Gundicha Temple towards the Shree Jagannath Temple.

GOVERNMENT SCHEMES

8.1 Atal Bhujal Yojana (Atal Jal)

Why in News ?

Ministry of Jal Shakti reported progress across nationwide groundwater management interventions, including the pilot phase of the Atal Bhujal Yojana across 8,203 water-stressed Gram Panchayats.

About Atal Bhujal Yojana

- **Nature:** Centrally Sponsored Scheme focused on sustainable groundwater management.
- **Core Approach:** Community-led, demand-side groundwater management.
- **Coverage:** 8,203 Gram Panchayats in 80 districts across 7 states.
- **States:** Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh.
- **Focus:** Improving groundwater-use efficiency, strengthening local water governance and encouraging participatory groundwater management.

NAQUIM 2.0: Aquifer-Level Mapping

The National Aquifer Mapping and Management Programme (NAQUIM) provides the scientific foundation for groundwater planning.

- **Coverage:** Around 25 lakh sq. km mapped under the programme.
- **Technology:** Uses GIS and 3D aquifer modelling.
- **Purpose:** Identify aquifer characteristics, groundwater availability and suitable recharge zones.

- **Importance:** Enables groundwater management based on aquifer-level data rather than administrative boundaries alone.

Digital Infrastructure Supporting Groundwater Governance

- **IN-GRES:** India-Groundwater Resource Estimation System - supports groundwater-resource assessment and estimation.
- **WIMS:** Water Information Management System - supports management and dissemination of water-related information.

8.2 Employment Guarantee in Transition: From MGNREGA to VB-G RAM G

Why in News?

Economist Jean Drèze highlighted a sharp contraction in rural employment generation during the transition from MGNREGA, 2005 to the VB-G RAM G Act, 2025. The supplied material reports only 70 crore person-days during April–July 2026, substantially lower than the recent annual averages.

What is VB-G RAM G?

The Viksit Bharat–Guarantee for Rozgar and Ajeevika Mission (Gramin) Act seeks to restructure India's rural employment guarantee framework while increasing the statutory employment guarantee from 100 to 125 days.

Aim

- Expand guaranteed rural employment.
- Create durable rural infrastructure.
- Integrate employment with Gram Panchayat planning.
- Improve digital monitoring and implementation.
- Strengthen rural livelihoods.

MGNREGA	VB-G RAM G
100 days	125 days
Demand-driven funding	Normative/pre-fixed allocations
Centre bore 100% unskilled wage component	60:40 Centre-State in general states
Gram Sabha-led works	Integrated Viksit Gram Panchayat Plans
No statutory seasonal pause	Provision for pause during peak agricultural season

Potential positive impact

- Higher employment guarantee.
- Better rural infrastructure.
- Greater planning integration.
- Improved accountability through digital systems.

Potential negative impact

- Pre-fixed allocations may weaken the demand-driven character.
- State cost-sharing may burden fiscally constrained states.

- Digital authentication may exclude vulnerable workers.
- Transition delays can disrupt employment precisely when demand is highest.

Implementation Challenges

- **Rule-making delays:** Administrative uncertainty during transition.
- **Fiscal burden on States:** 40% contribution may discourage work creation in poorer states.
- **Digital exclusion:** Facial recognition, biometric systems and digital muster rolls can face connectivity and authentication problems.
- **Allocation ceilings:** Districts may hesitate to open works if allocations are exhausted.
- **Seasonal vulnerability:** Agricultural slack periods are precisely when rural workers require employment support.

Way Forward

- Ensure timely Centre-State fund releases.
- Maintain flexibility beyond normative allocations during employment distress.
- Provide offline authentication alternatives.
- Strengthen Gram Panchayat administrative capacity.
- Ensure unemployment allowance where legally applicable.

8.3 India Semiconductor Mission (ISM 1.0 & ISM 2.0)

About India Semiconductor Mission (ISM)

The India Semiconductor Mission (ISM) was established in 2021 under the Ministry of Electronics and Information Technology (MeitY) to develop a sustainable semiconductor and display ecosystem in India.

Scheme	Focus	Government Support
Semiconductor Fab Scheme	Establishment of semiconductor fabrication units	Up to 50% of project cost
Display Fab Scheme	Manufacturing of display fabrication units	Up to 50% of project cost
Compound Semiconductor & ATMP/OSAT Scheme	Compound semiconductors and semiconductor packaging/testing	Up to 50% of capital expenditure
Design Linked Incentive (DLI) Scheme	Support for semiconductor chip design	Design infrastructure support, expenditure reimbursement and sales-linked incentives

What is ATMP / OSAT?

- ATMP – Assembly, Testing, Marking and Packaging
- OSAT – Outsourced Semiconductor Assembly and Test

Aspect	ISM 1.0	ISM 2.0

Nature	Initial semiconductor ecosystem-building phase	Next-generation expansion of semiconductor ecosystem
Primary focus	Establish basic semiconductor manufacturing and design capabilities	Build a complete and resilient semiconductor value chain
Major approach	Project-based financial incentives	Greater emphasis on ecosystem development and strategic capabilities
Key areas	Fabs, display fabs, compound semiconductors, ATMP/OSAT and chip design	Fabs, packaging, materials, equipment, design, talent and broader supply chain
Manufacturing	Incentivises semiconductor and display fabs	Seeks to deepen and scale domestic manufacturing capabilities
Packaging	Supports ATMP/OSAT	Further strengthens advanced packaging and related ecosystem
Design	Dedicated Design Linked Incentive (DLI) scheme	Continued emphasis on indigenous chip-design capabilities
Supply-chain objective	Begin reducing import dependence	Develop a globally competitive and resilient domestic supply chain
Strategic goal	Create the foundation	Scale, deepen and integrate the semiconductor ecosystem

Significance for India

- **Strategic Autonomy:** Reduces dependence on imported semiconductor supply chains.
- **Digital Economy:** Chips are fundamental to AI, smartphones, automobiles, telecommunications, defence and space systems.
- **Supply-Chain Resilience:** Diversifies India's sources of critical electronic components.
- **Economic Growth:** Can attract high-value investment and create skilled employment.
- **Technological Capability**: Strengthens India's domestic capabilities in chip design, fabrication and packaging.
- **National Security:** Semiconductor availability is increasingly important for strategic and defence technologies.

Key Challenges

- **High Capital Intensity:** Semiconductor fabs require enormous upfront investment.
- **Technology Complexity:** Advanced fabrication requires sophisticated equipment, materials and expertise.
- **Water & Power Requirements:** Fabs require highly reliable electricity and ultra-pure water.

- **Global Competition:** India competes with established semiconductor ecosystems in East Asia, the US and Europe.
- **Talent Gap:** Expansion requires specialised semiconductor engineers and technicians.

8.4Kisan Credit Card–Modified Interest Subvention Scheme (KCC-MISS)

Why in News ?

A third-party assessment found KCC-MISS improved agricultural productivity, income diversification, and credit access.

About KCC-MISS

- **Ministry:** Ministry of Agriculture & Farmers Welfare.
- **Core mechanism:** Provides interest subvention to banks on eligible short-term agricultural loans.
- **Loan coverage:** Loans up to ₹3 lakh.
- **Allied activities:** Also supports eligible credit requirements of dairy, fisheries and animal husbandry.

How the Interest Benefit Works

Normal interest rate: 7%

↓

1.5% Interest Subvention: Reduces the effective interest burden on eligible lending

↓

3% Prompt Repayment Incentive (PRI): Available to eligible farmers making timely repayment

↓

Effective interest rate for prompt repayers: 4%

Key Features

- **Bank-Level Support**: Government provides interest subvention to eligible lending institutions.
- **Repayment Incentive:** Farmers who repay promptly receive an additional benefit.
- **Working Capital:** Helps meet recurring agricultural production expenses.
- **Allied-Sector Coverage:** Supports credit requirements beyond crop cultivation, including specified allied activities.
- **Institutional Credit:** Strengthens formal agricultural lending and reduces reliance on high-cost informal credit.

8.5 National Offshore Exploration Scheme (Samudra Manthan)

Why in News?

The Government has introduced the National Offshore Exploration Scheme (Samudra Manthan) to accelerate domestic exploration of offshore oil and gas resources and reduce India's dependence on imported hydrocarbons.

About the Scheme

- **Ministry:** Ministry of Petroleum & Natural Gas.

- **Nature**: Central Sector Scheme — fully funded by the Union Government.
- **Duration:** Up to FY 2030–31.
- **Total Outlay:** ₹84,084 crore.
- **Core objective:** De-risk offshore exploration, particularly in deepwater and ultra-deepwater areas, and unlock an estimated 600 MMTOE of hydrocarbon reserves.

Drilling Subsidy

- The scheme seeks to reduce the high geological and financial risk associated with offshore exploration.
- Subsidy can cover up to 50% of exploratory drilling costs.
- Indicative support is around ₹650–₹675 crore per well.
- This is intended to encourage exploration in technically challenging deepwater and ultra-deepwater blocks.

Why 3D Seismic Data Matters

3D seismic surveys use reflected seismic waves to create a three-dimensional picture of underground geological structures.

This helps companies:

- Identify potential hydrocarbon-bearing formations.
- Improve exploration accuracy.
- Reduce the probability of unsuccessful drilling.
- Generate better geological information for frontier basins.

8.6 PARIVARTAN Scheme for Clean Commercial Mobility

Why in News?

The PARIVARTAN Scheme has crossed 1,300 beneficiaries, with 42 banks/NBFCs and 15 automobile OEMs participating.

What is PARIVARTAN?

PARIVARTAN stands for Programme for Accelerated Renewal and Incentivization of Vehicle Assets for Reducing Transport Air Pollution and Network Emissions.

Key Features

- **Target:** Old and highly polluting commercial trucks and buses.
- **Cleaner Alternatives:** BS-VI vehicles and EVs.
- **Geographical Focus**: Delhi-NCR.
- **Implementing Ministry**: Ministry of Road Transport & Highways (MoRTH).
- **Funding:** Supported by the National Capital Region Planning Board (NCRPB).
- **Stakeholders:** Banks, NBFCs and automobile manufacturers participate in facilitating vehicle replacement.

Incentive Architecture

The scheme combines multiple financial and regulatory incentives:

- **Motor Vehicle Tax Concession:** Reduces the tax burden associated with replacement vehicles.
- **Registration-Fee Waiver:** Reduces upfront registration costs.

- **Interest Subvention:** Lowers the cost of vehicle financing.
- **OEM Discounts:** Participating manufacturers provide discounts.
- **Fuel Vouchers:** Provides additional support for eligible vehicle users.
- **EV Financial Assistance:** Encourages transition towards electric commercial mobility.
- **Certificate of Deposit (CoD) Trading:** Provides a financial incentive associated with vehicle scrappage.

Significance

- **Air Pollution Reduction:** Removes older, more polluting commercial vehicles from the Delhi-NCR fleet.
- **Fleet Modernisation:** Accelerates replacement of ageing trucks and buses.
- **EV Transition:** Creates financial support for electrification of commercial transport.
- **Scrappage Ecosystem:** Connects vehicle scrappage with new-vehicle purchase incentives.
- **Public–Private Participation:** Banks, NBFCs and OEMs supplement government support.
- **Climate Benefits:** Cleaner vehicles can reduce greenhouse-gas emissions alongside conventional air pollutants.

8.7 Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) Scheme

The Union Cabinet gives nod to continuation of the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) Scheme from 2026-27 to 2030-31.

- **Launch:** Launched in 2019, to provide assured income support to landholding farmer families.
- **Type:** Central Sector Scheme (100% funded by the Government of India).

Financial Assistance:

- ₹6,000 per year per eligible farmer family.
- Paid in three equal installments through Direct Benefit Transfer (DBT).
- **Beneficiaries:** All eligible landholding farmer families (comprising husband, wife, and minor children), identified by State/UT administrations.
- **Exclusion Categories:** Institutional landholders, government officials/employees, higher pensioners, income tax payers, and specified professionals are not eligible.

Key Achievements:

- ₹4.47 lakh crore transferred directly into farmers' bank accounts.
- 1 out of every 4 beneficiaries is a woman farmer.
- 92% of beneficiaries reported using the assistance for agricultural activities and investment.

- 85% confirmed improvement in agricultural income and reduced dependence on informal credit.

8.8 PM Surya Sarovar Yojana (Floating Solar & Water Conservation)

Why in News?

The Union Government has proposed the PM Surya Sarovar Yojana with an outlay of ₹5,070 crore to promote floating solar power plants and Battery Energy Storage Systems (BESS) on water reservoirs.

Key Features

- **Floating Solar:** Solar photovoltaic panels are installed on floating structures over reservoirs and other suitable water bodies.
- **5,000 MW Capacity:** The scheme targets 5 GW of floating solar power generation.
- **10,000 MWh BESS:** Battery storage will help manage the intermittent nature of solar power and support electricity supply during periods of low solar generation.
- **Dual Resource Benefit**: The same reservoir surface is utilised for clean-energy generation and water conservation.
- **Emission Reduction:** The programme is expected to reduce around 10 million tonnes of CO_2 annually.

Environmental Significance

- **Reduced Evaporation:** Floating panels can shade portions of the water surface and reduce evaporation, particularly in hot and dry regions.
- **Land-Sparing Renewable Energy:** Solar generation over reservoirs reduces competition for agricultural and other land uses.
- **Lower Carbon Footprint**: Increased renewable electricity can reduce dependence on coal-based power generation.
- **Water–Energy Nexus:** The scheme demonstrates an integrated approach where renewable-energy generation can contribute to water conservation.

Challenges

- **Aquatic Ecosystems:** Large-scale surface coverage may affect light penetration, dissolved oxygen and aquatic biodiversity.
- **High Initial Cost:** Floating solar requires specialised anchoring, electrical infrastructure and maintenance.
- **Water-Level Fluctuation:** Changing reservoir levels can complicate the design and operation of floating structures.
- **BESS Sustainability:** Battery manufacturing, mineral requirements and eventual battery recycling need proper environmental management.

8.9 Continuation of PM-KISAN Scheme

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8.10 The Ayur-Maternal Bridge: Traditional Health Regimens (Garbhini Paricharya)

Why in News?

The All India Institute of Ayurveda (AIIA), New Delhi, under the Ministry of Ayush, launched the Garbhini Mitra six-month course for the 2026–27 academic session.

Ayurvedic Maternal Health Framework

- **Garbhadhana Vidhi:** Refers to pre-conceptional care, focusing on preparation and wellbeing before conception.
- **Garbhini Paricharya:** A month-wise and trimester-specific antenatal regimen addressing diet, lifestyle and maternal wellbeing during pregnancy.
- **Sutika Paricharya:** Refers to postnatal care and maternal recovery, along with traditional practices associated with newborn care.

Feature	Garbhini Mitra	Garbhini-GA2
What it is	Six-month maternal-	AI/ML-based

	wellness training course	diagnostic algorithm
Developed by	AIIA, Ministry of Ayush	IIT Madras & THSTI under DBT
Primary focus	Training frontline maternal-wellness support personnel	Estimation of fetal gestational age
Core function	Supportive prenatal/postnatal care, nutrition, yoga and newborn-care practices	Improved gestational-age estimation during the 2nd & 3rd trimesters
Technology	Training + traditional and basic modern healthcare practices	Artificial intelligence / machine learning
Key users	Trained healthcare assistants and community wellness personnel	Obstetricians, radiologists and sonographers

DEFENCE EXERCISE

9.1 Exercise MAITREE-XV (India–Thailand Relations & Act East Policy)

Why in News?

The Indian Army contingent departed for Surat Thani, Thailand, to participate in the 15th edition of Exercise MAITREE-XV, a joint military exercise between India and Thailand.

What is Exercise MAITREE?

MAITREE is a bilateral military exercise between the Indian Army and Royal Thai Army.

Evolution of MAITREE

- **2006** - Started as Thai-Indian Cooperation Field Exercise (TICAFE).
- **2013** - Renamed as Exercise MAITREE. Hosted alternately by India and Thailand.

Significance for India

- **Act East Policy** - Thailand is an important partner in India's Act East Policy.
- **Indo-Pacific Engagement** - Military cooperation with Thailand supports India's broader strategic engagement in the Indo-Pacific.
- **Counter-Terrorism** - Provides both countries an opportunity to exchange experience in: Counter-insurgency, Counter-terrorism, Jungle warfare
- **Regional Security :** Stronger India–Thailand defence ties contribute to regional stability and security.

9.2 Exercise Udara Shakti 2026

Why in News?

The Indian Air Force (IAF) participated in Exercise Udara Shakti 2026 with the Royal Malaysian Air Force (RMAF) in Malaysia.

Aim & Key Features

- **Air Combat Capability**: Enhances operational skills through realistic air-combat scenarios.
- **Interoperability:** Improves coordination and tactical interoperability between IAF and RMAF.
- **Joint Mission Planning:** Promotes coordinated planning and execution of air operations.
- **Dissimilar Air Combat Training:** Enables forces operating different aircraft/platforms to train against each other.
- **Air-to-Air Refuelling**: Enhances long-range operational capability and aerial refuelling skills.
- **Combat Readiness:** Strengthens preparedness for complex air operations

India–Malaysia Defence Exercises Matrix

Exercise	Service	Partner
Udara Shakti	Air Force	Malaysia
Harimau Shakti	Army	Malaysia
Samudra Laksamana	Navy	Malaysia

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POLITY AND GOVERNANCE 6

Why in News?

The Indian Air Force (IAF) conducted the third edition of Exercise ROTOR CLAP III at the Pokhran Field Firing Range, Jaisalmer, Rajasthan, focusing on helicopter-based responses to emerging low-flying drone threats in desert conditions.

About Exercise ROTOR CLAP III

- **Edition**: 3rd
- **Location:** Pokhran Field Firing Range, Jaisalmer, Rajasthan
- **Conducted by:** Indian Air Force (IAF)
- **Focus:** Rotary-wing counter-drone tactics

Participating Helicopters:

- AH-64E Apache
- HAL Prachand
- Mi-25/35
- CH-47F Chinook

Aim

- **Counter-Drone Readiness:** To validate and refine tactics for detecting, tracking and responding to low-flying unmanned aerial threats.
- **Operational Preparedness:** To enhance the readiness of the IAF's rotary-wing fleet for emerging battlefield threats.
- **Realistic Combat Simulation:** Desert terrain and field-firing conditions help replicate challenging operational environments.

Why Helicopter-Based Counter-Drone Capability Matters?

- **Low-Altitude Threats:** Drones can operate at low altitudes and exploit terrain masking, making them difficult to detect and engage.
- **Protection of High-Value Assets:** Counter-drone capabilities can help protect helicopters, forward operating bases and other military assets.
- **Integrated Air Defence:** Rotary-wing platforms can complement ground-based air-defence and electronic-warfare systems against unmanned threats.