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PRELIMS



POLITY & GOVERNANCE

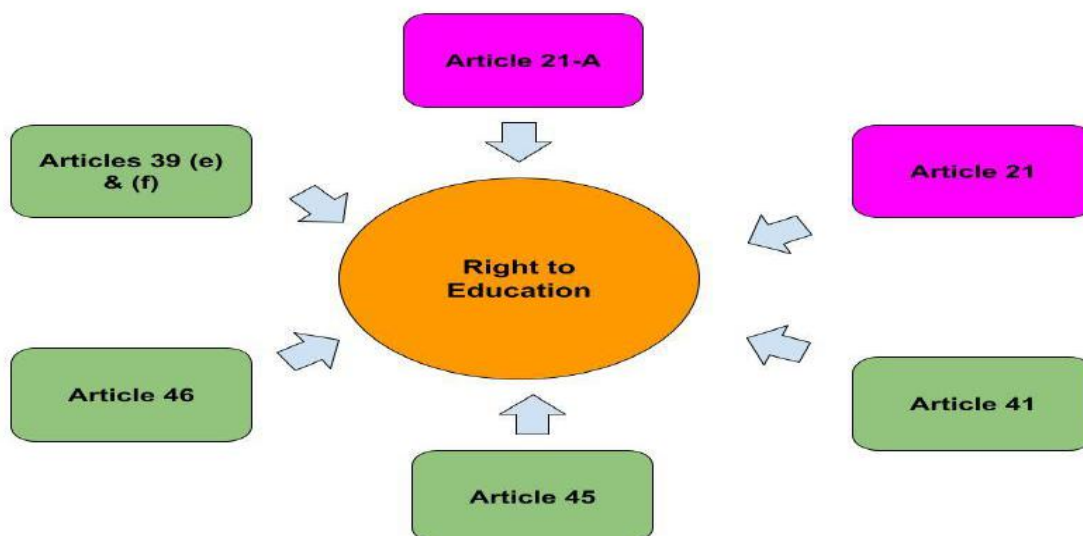


RTE ACT

Context: The Supreme Court of India has called for a revisit of the blanket exemption granted to minority institutions under the RTE Act, 2009, holding that such exemption could undermine education standards.

Right of Children to Free and Compulsory Education (RTE) Act, 2009:

- **Enactment:** Came into force on 1st April 2010, operationalizing Article 21A of the Constitution (Right to Education as a Fundamental Right).
- **Objective:** To provide free and compulsory education to all children in the age group 6–14 years.
- **Key Provisions:**
 - No child shall be denied admission for lack of documents or late admission.
 - Prohibits physical punishment, mental harassment, screening tests, capitation fees, and private tuition by teachers.
 - Mandates minimum infrastructure standards (student-teacher ratio, classroom, drinking water, toilets, etc.).
 - Teacher Qualifications: Only trained and qualified teachers allowed; Teacher Eligibility Test (TET) mandated.
 - 25% Reservation (Section 12(1)(c)): Private unaided schools must reserve 25% seats for disadvantaged and weaker section children.
 - Emphasizes continuous and comprehensive evaluation—no detention till completion of elementary education.
- **Coverage:** Applies to government, local authority, and private unaided schools (except minority institutions, as per earlier court rulings—now under reconsideration).



UAPA

Context: The Delhi High Court denied bail to several accused under UAPA in the 2020 Delhi riots case, citing that the accused had orchestrated a premeditated conspiracy and that there was enough evidence to support the charges at the bail stage.

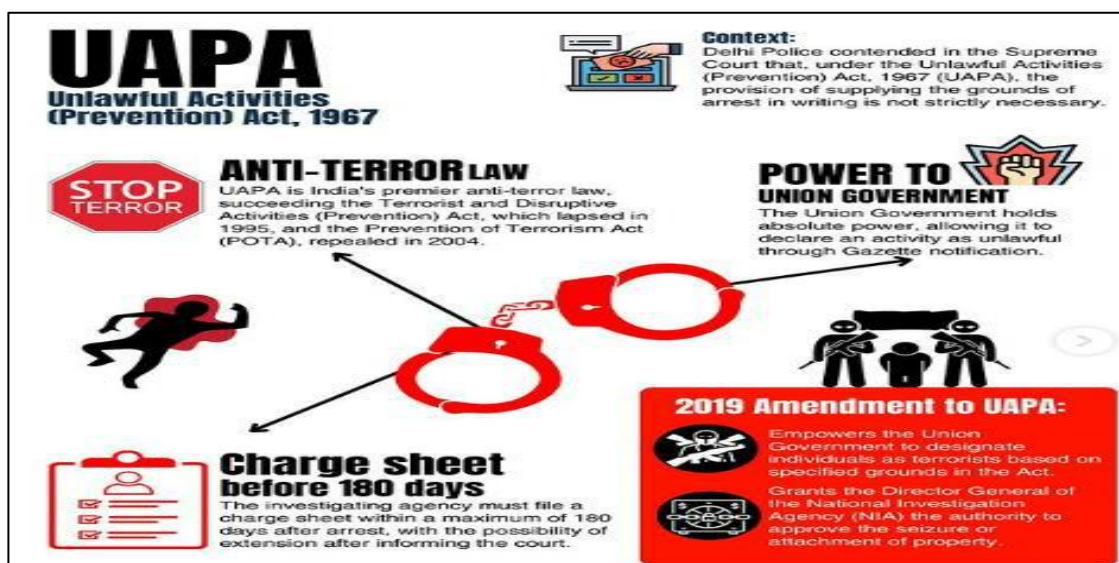
Unlawful Activities (Prevention) Act (UAPA)

Background

- Enacted in 1967 to curb unlawful activities threatening India's sovereignty and integrity.
- Strengthened multiple times, especially post-2004, 2008 (26/11 Mumbai attacks), and 2019 amendments.
- Considered India's primary anti-terror law.

Key Provisions

1. Definition of Terrorist Act (Section 15):
 - Includes acts intended to threaten India's unity, integrity, security, or strike terror in people.
2. Terrorist Organisation (Section 35 & 36):
 - Central Government can designate organisations as "terrorist organisations" and ban them.
3. Individual Terrorist Tag (2019 Amendment):
 - Government can designate individuals as terrorists (without judicial oversight).
4. Extended Detention & Bail Restrictions (Section 43D(5)):
 - Allows detention up to 180 days without filing a charge sheet.
 - Bail can be denied if court believes accusations are prima facie true, setting a low threshold.
5. National Investigation Agency (NIA) Powers:
 - Empowered to investigate UAPA cases across India without state consent.
6. Search, Seizure & Property Attachment:
 - Government can seize property suspected to be linked with terrorism.



Contentious Issues

- Overbreadth & Vagueness: Broad definitions risk misuse against activists, journalists, and dissenters.
- Bail Provisions: Section 43D(5) makes bail extremely difficult, leading to long pre-trial incarceration.
- Designation of Individuals: Lack of judicial checks; government decision can stigmatize without trial.
- Federalism Concerns: NIA powers dilute state police jurisdiction.
- Civil Liberties: Extended detention and restricted bail seen as undermining personal liberty under Article 21.

Judicial Stance

- Courts stress that UAPA must balance national security with constitutional rights.
- SC in *Union of India v. K.A. Najeer (2021)* held that prolonged incarceration and trial delays can justify bail despite Section 43D(5).

NATIONAL GREEN TRIBUNAL (NGT)

Context: The National Green Tribunal (NGT) has directed the Ministry of Environment, Forests & Climate Change (MoEFCC) to review affidavits from Himachal Pradesh and Uttarakhand on declaring the Higher Himalayas as an eco-sensitive zone (ESZ).

About National Green Tribunal (NGT):

- Establishment: Formed in 2010 under the *National Green Tribunal Act, 2010*.
- Objective: Provides speedy and specialized adjudication of cases relating to environmental protection, forest conservation, and enforcement of legal rights connected to the environment.



Key Features

1. Jurisdiction:
 - Handles civil cases under laws such as the Environment Protection Act (1986), Forest Conservation Act (1980), Air Act (1981), Water Act (1974), Biological Diversity Act (2002), etc.
 - Excludes Wildlife (Protection) Act, 1972 and Indian Forest Act, 1927.
2. Composition:
 - Chairperson (a retired Supreme Court judge or Chief Justice of a High Court).
 - Judicial Members and Expert Members (environmental experts/scientists).
3. Powers:
 - Same powers as a Civil Court under CPC.
 - Can grant relief, compensation, and order restoration of damaged ecology.
4. Principles Applied:
 - Polluter Pays Principle.
 - Precautionary Principle.
 - Sustainable Development.
5. Speedy Disposal:

- Mandated to dispose of cases within 6 months of filing.
- 6. Benches:
 - Principal Bench: New Delhi.
 - Regional Benches: Bhopal, Pune, Kolkata, and Chennai.

Significance

- Provides accessible and specialized justice in environmental matters.
- Acts as a check on unsustainable development projects.
- Ensures accountability of both State and private entities in ecological protection.

Challenges

- Limited jurisdiction (cannot take up wildlife/forest rights cases directly).
- Enforcement of its orders sometimes weak.
- Burden of increasing environmental disputes vs limited benches.

PARTICULARLY VULNERABLE TRIBAL GROUPS (PVTGS)

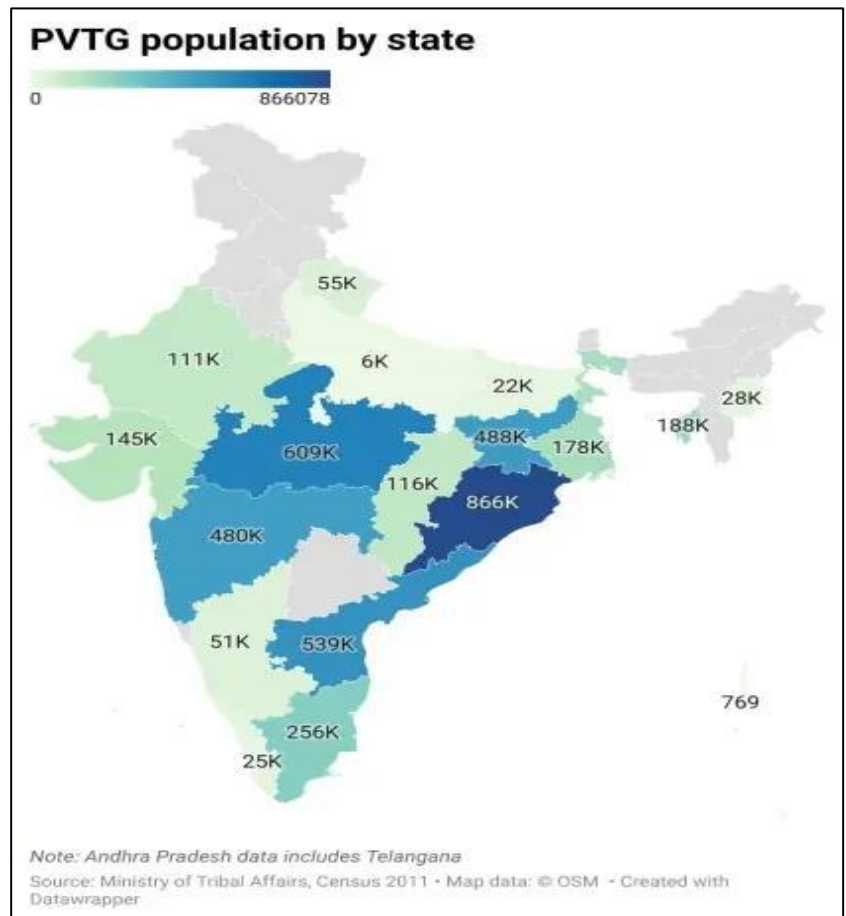
Context : The Ministry of Tribal Affairs has asked Census authorities to enumerate PVTGs separately for the first time to enable accurate data for schemes like PM JANMAN.

Particularly Vulnerable Tribal Groups (PVTGs):

PVTGs are a special category within the Scheduled Tribes, recognized for their extreme vulnerability and backwardness. The concept was introduced following the Dhebar Commission (1960–61) recommendations.

Key Features

- Criteria: Stagnant or declining population, very low literacy, pre-agricultural/ subsistence economy, and social & geographical isolation.
- Status: India identifies 75 PVTGs spread across 18 states and the Andaman & Nicobar Islands.
- Demographics: Total population is about 47.5 lakh, with Madhya Pradesh having the largest share; some groups like the Jarawas, Onges, and Sentinelese have fewer than 1,000 members.
- Policy Support: Covered under targeted schemes such as PM JANMAN, focusing on health, education, livelihoods, and infrastructure.



- Significance: They represent the most marginalized communities, requiring focused interventions beyond general tribal welfare measures.

VICE-PRESIDENTIAL ELECTION

Context : India's Vice-President is being elected today. NDA candidate C.P. Radhakrishnan is strongly favored over Opposition nominee Justice B. Sudershan Reddy due to NDA's numerical strength and YSRCP's support.

Vice-President election in India:

Constitutional Basis

- Provided under Article 63–71 of the Constitution.
- The Vice-President is the ex-officio Chairman of the Rajya Sabha.

Electoral College

- Composed of members of both Houses of Parliament (Lok Sabha + Rajya Sabha).
- Consist both Elected and nominated MPs (in the case of president, only elected members).
- This is different from the President's election, where State Legislatures also participate.

Election Process

- Conducted by the Election Commission of India.
- Held through proportional representation by means of a single transferable vote (STV), and voting is by secret ballot.
- A candidate must secure a quota of votes (more than 50% of valid votes cast).

Eligibility Criteria (Article 66, 67)

- Citizen of India.
- At least 35 years of age.
- Qualified to be elected as a Rajya Sabha member.
- Cannot hold an office of profit.

Term and Removal

- Term: 5 years, but eligible for re-election.
- Can resign to the President.
- Removal: By a resolution of Rajya Sabha, passed by an effective majority, and agreed to by Lok Sabha.

Key Points

- In case of a vacancy in the President's office, the Vice-President acts as President until a new one is elected.
- The office ensures continuity in governance and parliamentary functioning.

EVM BALLOT PAPER

Context: Revised EVM Ballot Paper Guidelines was recently released by Election Commission.

History of Electronic Voting Machines (EVMs) in India

- **Introduction:**
 - The idea of using EVMs was proposed by the Election Commission of India (ECI) in the late 1970s to make the voting process faster, transparent, and less prone to malpractices.
- **First Prototype:**
 - Developed by Electronics Corporation of India Limited (ECIL), Hyderabad in 1977.
 - Later, Bharat Electronics Limited (BEL), Bengaluru also joined in manufacturing.
- **First Use:**
 - EVMs were experimentally used in 50 polling stations of Parur constituency in Kerala in 1982 Assembly elections.
 - However, the Supreme Court struck this down as there was no legal provision for EVM use in the Representation of the People Act, 1951.
- **Legal Backing:**
 - The law was amended in 1989 to allow use of EVMs in elections.
- **Gradual Adoption:**
 - Pilot use in 1998 (Rajasthan, Madhya Pradesh, Delhi, etc.).
 - Widespread use in 2001 Tamil Nadu Assembly elections.
 - By the 2004 General Elections, EVMs were used in all Lok Sabha constituencies for the first time.
- **Later Developments:**
 - VVPAT (Voter Verifiable Paper Audit Trail) introduced in 2013 (Nagaland by-election).
 - From 2019 Lok Sabha elections, EVMs with VVPATs were used in all polling stations across India.



BODOLAND TERRITORIAL COUNCIL (BTC)

Context: Assam held elections for the Bodoland Territorial Council (BTC), which governs five districts in the Bodoland Territorial Region bordering Bhutan.

Bodoland Territorial Council (BTC):

- **Formation:** The BTC was formed in 2003 under the Sixth Schedule of the Indian Constitution after the signing of the *Bodo Accord* between the Government of India, Government of Assam, and Bodo Liberation Tigers.
- **Jurisdiction:** It governs the Bodoland Territorial Region (BTR), comprising four districts initially (Kokrajhar, Baksa, Chirang, Udalguri), later reorganized into five districts. The area is along Assam's border with Bhutan.
- **Structure:**
 - It has 40 elected members and 6 nominated by the Governor of Assam.
 - The BTC enjoys legislative, executive, and administrative powers in 40 subjects, including land, forests, agriculture, education, and culture.
- **Significance:**



- Provides autonomy and self-governance for the Bodo people within Assam.
- Aims to protect and promote the social, cultural, linguistic, and ethnic identity of the Bodos while ensuring development in the region.
- Recent Developments:
 - The 2020 Bodo Accord renamed BTC's area as the *Bodoland Territorial Region (BTR)* and expanded its scope of development initiatives.

Sixth Schedule of the Indian Constitution:

- Context & Purpose:
 - The Sixth Schedule (Articles 244(2) and 275(1)) was incorporated to provide autonomous administration for certain tribal-dominated areas in the North-Eastern states.
 - It seeks to protect the distinct culture, traditions, and administrative practices of tribal communities while ensuring their socio-economic development.
- Applicable States:
 - Assam, Meghalaya, Tripura, and Mizoram.
- Institutions Created:
 - Autonomous District Councils (ADCs): Each district has its own council with 30 members (26 elected, 4 nominated by the Governor).
 - Regional Councils: For smaller tribal groups within the districts.
- Powers & Functions:
 - Legislative powers over subjects like land, forests (other than reserved forests), shifting cultivation, village administration, inheritance of property, marriage and divorce, social customs, etc.
 - Executive powers to run departments like education, health, and local governance.
 - Judicial powers through village and district courts for cases involving tribals.
 - Financial powers include levy of taxes, fees, and receiving grants from the state government.
- Significance:
 - Provides a unique model of self-governance within India's federal structure.
 - Balances tribal autonomy with the unity of the Indian Union.

ARTICLE 304(A)

Context: The Supreme Court struck down Rajasthan's 2007 VAT exemption on locally made goods, ruling that taxation cannot discriminate against goods from other states.

Article 304(a) of the Constitution:

- Provision: Article 304(a) of the Indian Constitution allows State Legislatures to impose taxes on goods imported from other States or Union Territories, but such taxation cannot discriminate between imported goods and similar goods produced within the State.
- Objective: To ensure free trade, commerce, and intercourse throughout India (as guaranteed under Article 301) while permitting States to levy taxes for revenue purposes.
- Key Principle: Taxes must be non-discriminatory—i.e., goods from other States should not be treated unfavorably compared to locally produced goods.
- Judicial Interpretation: The Supreme Court has consistently held that taxation cannot be used as a weapon to create economic barriers or protectionism within a State. Discriminatory tax laws violate the spirit of national economic unity.

NATIONAL SECURITY ACT

Context: Climate activist Sonam Wangchuk was recently detained under the National Security Act (NSA), reigniting debate over its scope and misuse.

National Security Act (NSA), 1980

- The NSA, 1980 is a preventive detention law that empowers the Central and State governments to detain individuals to prevent them from acting in any manner prejudicial to the defence of India, relations with foreign powers, national security, public order, or maintenance of essential supplies and services.
- It continues India's long history of preventive detention laws, tracing back to the colonial era and the Maintenance of Internal Security Act (MISA).

Key Provisions

1. **Authority to Detain:**
 - The Central or State government can issue detention orders.
 - District Magistrates and Police Commissioners can also exercise this power when authorised.
2. **Grounds of Detention:**
 - Defence of India, security of the state, public order, and maintenance of essential supplies.
3. **Duration of Detention:**
 - A person can be detained up to 12 months, though orders can be revoked earlier.
4. **Communication of Grounds:**
 - Detainee must be informed of the grounds of detention within 5–15 days.
5. **Review Mechanism:**
 - An Advisory Board of High Court judges reviews the detention within 3 weeks.
 - If the Board finds “no sufficient cause,” the detainee must be released.
6. **Safeguards and Limitations:**
 - No legal representation before the Advisory Board.
 - Government can withhold facts citing “public interest.”
 - Preventive, not punitive — meant to stop anticipated threats.



INTERNATIONAL RELATIONS



TIANJIN DECLARATION

Context : The Shanghai Cooperation Organisation (SCO) leaders, through the Tianjin Declaration, unanimously condemned terrorism, referencing attacks in Pahalgam.

Shanghai Cooperation Organisation (SCO)

- Formation: Established in 2001 in Shanghai by China, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan (building on the earlier “Shanghai Five” group).
- Membership: Currently 9 members – China, Russia, India, Pakistan, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, and Iran (joined in 2023). Several observer states and dialogue partners also participate.
- Headquarters: Beijing, China.
- Official Languages: Chinese and Russian.

Objectives

- Promote regional peace, security, and stability.
- Combat terrorism, separatism, and extremism (the “three evils”).
- Enhance economic, cultural, and connectivity cooperation.
- Encourage multipolarity and fairness in global governance.

Key Features

- Regional Anti-Terrorist Structure (RATS): Based in Tashkent, focuses on intelligence-sharing and counter-terrorism.
- Annual Summits & Declarations: Used to align on political, security, and economic issues.
- Belt and Road Initiative (BRI): Endorsed by SCO, though India remains opposed.
- Expanding outreach with observer states, dialogue partners, and partner status (e.g., Belarus in process of joining, Laos as partner).



SAMHITA CONFERENCE

Context: External Affairs Minister Dr. S. Jaishankar inaugurated the SAMHITA Conference on South Asia's Manuscript Traditions and Mathematical Contributions.

Objectives

- **Digital Archive:** Digitize and unify manuscripts scattered across global collections for wider access.
- **Mathematical Heritage:** Highlight South Asia's contributions to mathematics and related sciences.
- **Global Collaboration:** Partner with international institutions for preservation and knowledge exchange.

South Asia's Manuscript Traditions and Mathematical Contributions

Manuscript Traditions in South Asia

- **Diversity of Scripts and Languages:**
South Asia has one of the richest manuscript traditions in the world, spanning Sanskrit, Pali, Prakrit, Tamil, Persian, Arabic, and Tibetan among others. These manuscripts cover religion, philosophy, medicine, astronomy, mathematics, grammar, and arts.
- **Materials and Mediums:**
Manuscripts were traditionally inscribed on palm leaves, birch bark, parchment, and handmade paper, often preserved in temples, monasteries, mathas, and royal libraries.
- **Centers of Manuscript Culture:**
 - **Nalanda and Vikramshila Universities:** Major repositories of Buddhist and scientific manuscripts.
 - **Kerala and Tamil Nadu:** Palm-leaf manuscripts in Ayurveda, astronomy, and mathematics.
 - **Kashmir:** Known for Shaiva and Buddhist manuscripts on birch bark.
 - **Persianate Traditions:** Mughal patronage encouraged preservation of texts in astronomy, medicine, and mathematics.
- **Transmission and Global Spread:**
Manuscripts were carried along trade routes and through cultural exchanges to Central Asia, the Middle East, and Europe, influencing global knowledge systems.

Mathematical Contributions of South Asia

South Asia played a foundational role in global mathematical development:

- **Decimal Place Value System & Zero:**
The concept of zero as a number and the place value system emerged in India (e.g., Brahmagupta, 7th century CE). This became the foundation of modern arithmetic.
- **Algebra and Arithmetic:**
 - **Aryabhata (5th century CE):** Introduced place value notation, trigonometric functions (sine, cosine).
 - **Brahmagupta (7th century CE):** Systematic rules for zero and negative numbers; quadratic equations.
 - **Bhaskara II (12th century CE):** Solutions to indeterminate equations; contributions to calculus-like concepts.
- **Geometry and Trigonometry:**

- Sulbasutras (c. 800–500 BCE) contain rules for altar construction, approximations of $\sqrt{2}$, and Pythagorean triples.
- Indian trigonometric methods later influenced Islamic and European mathematics.
- **Astronomical Mathematics:**
Mathematics was closely tied to astronomy for calendar-making and planetary calculations. Works like Surya Siddhanta combined mathematics with cosmology.
- **Transmission to the World:**
Indian numerals were transmitted via the Arabs (“Arabic numerals”) to Europe, revolutionizing commerce and science. Indian trigonometry and algebra shaped Islamic Golden Age mathematics.

GRAND ETHIOPIAN RENAISSANCE DAM (GERD)

Context: Ethiopia has inaugurated the Grand Ethiopian Renaissance Dam (GERD) on the Blue Nile, Africa’s largest hydroelectric project.

Grand Ethiopian Renaissance Dam (GERD)

- GERD is Africa’s largest hydroelectric project, built by Ethiopia on the Blue Nile River, near the Sudanese border.
- Construction began in 2011, and the dam is a symbol of Ethiopia’s modernization and national pride.

Key Features

- Height: 170 meters; Length: nearly 2 km.
- Reservoir Capacity: 74 billion cubic meters of water.
- Power Generation: 5,150 MW, making it the largest dam in Africa by electricity output.
- Purpose: Hydroelectric power generation (not irrigation).



Significance for Ethiopia

- Nearly 45% of Ethiopians lack electricity; GERD aims to expand access, reduce blackouts, and promote industrialization.
- Expected to generate surplus electricity for export to neighboring countries like Sudan, Kenya, and Tanzania.
- Seen as a unifying national project amid Ethiopia’s internal political challenges.

Regional Tensions

- **Egypt’s Concerns:** Relies on the Nile for 97% of its water; fears GERD will reduce water flow, posing an “existential threat.”
- **Sudan’s Position:** Mixed—concerns over water management but potential to benefit from regulated flow and cheap power.

- Diplomatic negotiations led by the US, World Bank, African Union, and others have failed to produce a binding agreement.

FUJIAN

Context : China's newest aircraft carrier, Fujian, sailed through the Taiwan Strait for the first time while heading to the South China Sea for training and trials.

Fujian

- Type: *Type 003* aircraft carrier of the People's Liberation Army Navy (PLAN).
- Launched: June 2022, named after Fujian Province (closest to Taiwan).
- Significance:
 - Third Chinese carrier, after *Liaoning* (Type 001) and *Shandong* (Type 002).
 - First fully indigenously designed and built carrier by China.
 - Represents a major leap in Chinese naval modernization.
- Key Features:
 - Equipped with Electromagnetic Aircraft Launch System (EMALS) → allows launching heavier aircraft (like advanced fighter jets, surveillance planes, drones).
 - Estimated displacement: over 80,000 tonnes.
 - Conventional (not nuclear) powered.
- Strategic Context:
 - Strengthens China's power projection in the Taiwan Strait, South China Sea, and Indo-Pacific.
 - Seen as a counter to U.S. naval dominance in the region.
 - Recently conducted sea trials and sailed through the Taiwan Strait (Sept 2025), heightening regional tensions.

ZAPAD

Context : Russia has conducted "Zapad" joint military drills with Belarus, featuring a successful Zircon hypersonic cruise missile launch in the Barents Sea and strikes by Su-34 fighter-bombers.

Zircon Hypersonic Cruise Missile

- Type: Hypersonic cruise missile developed by Russia.
- Speed: Claimed to reach Mach 8–9 (8–9 times the speed of sound).
- Range: Estimated 1,000–1,500 km.
- Launch platforms: Can be launched from surface ships, submarines, and coastal launchers.
- Propulsion: Uses a scramjet engine after booster separation, allowing sustained hypersonic flight.
- Warhead: Can carry conventional or nuclear payloads.
- First tests: Reportedly conducted in 2016, with more frequent trials since 2020.
- Deployment: Russia has started integrating Zircon into its naval fleet, particularly on Admiral Gorshkov-class frigates and Yasen-class submarines.

- Strategic significance: Its speed and maneuverability make it difficult for existing air defense and missile defense systems to intercept, giving Russia a potential edge in anti-ship and land-attack roles.

Table of notable hypersonic cruise missiles, their country of origin,

Missile Name	Country	Type	Speed	Range	Warhead	Launch Platform
3M22 Zircon	Russia	Anti-ship / land-attack	Mach 8–9	Up to 1,000 km	300–400 kg	Submarines, surface ships, land-based
Kinzhal (Dagger)	Russia	Air-launched ballistic	Mach 10+	~2,000 km	Nuclear or conventional	MiG-31K aircraft
Oreshnik	Russia	Air-launched cruise	Mach 10	Europe-wide	Conventional or nuclear	Aircraft
CJ-100	China	Air-launched cruise	Mach 5+	300–500 km	Conventional	H-6K bomber
YJ-21	China	Anti-ship cruise	Mach 6+	300–400 km	Conventional	Type 055 destroyer
HACM	USA	Air-launched cruise	Mach 8	1,900 km	Conventional	F-15E, F/A-18F, F-35A
X-51A WaveRider	USA	Experimental scramjet	Mach 6	~200 km	Conventional	B-52 bomber
BrahMos-II	India	Hypersonic cruise	Mach 7	~290 km	Conventional	Air, land, sea
Hycore	South Korea	Hypersonic cruise	Mach 5+	300–500 km	Conventional	Surface ships
Fattah	Iran	Hypersonic cruise	Mach 15	1,400 km	Conventional	Ground-based

SCARBOROUGH SHOAL

Context : Recently, China announced a nature reserve in Scarborough Shoal, fueling fears it may build a militarized island. Tensions are rising as Philippine leaders take a tougher stance, with the U.S.–Philippines Mutual Defence Treaty heightening the risk of wider conflict.

Nine-Dash Line

Definition:

The Nine-Dash Line is a demarcation used by China to claim a large part of the South China Sea. It

appears on Chinese maps as nine dashes or lines that extend far south and east from the Chinese mainland, covering about 90% of the South China Sea.

Origin:

- First appeared in 1947 on a map published by the then Republic of China.
- The People's Republic of China inherited the claim in 1949.

Features:

- The line is not internationally recognized.
- It overlaps with the exclusive economic zones (EEZs) and territorial waters of several countries:
 - Vietnam
 - Philippines
 - Malaysia
 - Brunei
 - Taiwan (also claims the line)

Legal Status:

- In 2016, the Permanent Court of Arbitration (PCA) in The Hague ruled that China's claims based on the Nine-Dash Line have no legal basis under the United Nations Convention on the Law of the Sea (UNCLOS).
- China rejected the ruling.

Strategic Importance:

- South China Sea is a major maritime trade route.
- Rich in fisheries and potential oil and gas reserves.
- Crucial for naval and geopolitical influence in the Indo-Pacific region.

India's Perspective:

- India does not recognize the Nine-Dash Line.
- Supports freedom of navigation and rules-based maritime order.
- Engages in diplomatic and naval presence through QUAD, ASEAN dialogues, and freedom of navigation operations.



1948 GENOCIDE CONVENTION

Context : A UN commission has concluded that Israel is committing genocide in Gaza. Accusing leaders including Prime Minister Benjamin Netanyahu of incitement, the panel, led by Navi Pillay, found Israeli forces guilty of four of the five genocidal acts under the 1948 Genocide Convention.

1948 Genocide Convention

- Full name: Convention on the Prevention and Punishment of the Crime of Genocide (CPPCG).
- Adoption: Adopted by the UN General Assembly on 9 December 1948 (Resolution 260 A (III)); entered into force on 12 January 1951.
- Objective: First human rights treaty of the UN era, aimed at preventing and punishing genocide in times of peace or war.
- Definition of Genocide (Article II): Certain acts committed with intent to destroy, in whole or in part, a national, ethnic, racial, or religious group, including:
 1. Killing members of the group.
 2. Causing serious bodily or mental harm.
 3. Inflicting living conditions to bring about destruction.
 4. Preventing births within the group.
 5. Forcibly transferring children of the group.
- Obligations: States must prevent and punish genocide, whether committed by state actors or individuals.
- Punishment (Article IV): Applies to constitutionally responsible rulers, officials, and private individuals.
- Court jurisdiction: Cases may be tried in national courts or before an international tribunal (like the International Court of Justice, as seen in Bosnia v. Serbia, The Gambia v. Myanmar).

INTERNATIONAL SEABED AUTHORITY (ISA)

Context : India has received a landmark licence from the International Seabed Authority (ISA) to explore polymetallic sulphide deposits in the Carlsberg Ridge.

International Seabed Authority (ISA)

- **Establishment:** Created in 1994 under the United Nations Convention on the Law of the Sea (UNCLOS), following the 1994 Agreement on Part XI of UNCLOS.
- **Headquarters:** Kingston, Jamaica.
- **Mandate:** Regulates exploration and potential exploitation of mineral resources in the international seabed area (the "Area") which lies beyond national jurisdiction, considered the "common heritage of mankind."
- **Functions:**
 - Granting exploration and mining licences for deep-sea minerals such as polymetallic nodules, sulphides, and cobalt-rich crusts.
 - Ensuring equitable sharing of benefits from seabed resources among all member states.
 - Protecting the marine environment through regulations and mandatory environmental impact assessments.
- **Membership:** 167 countries + European Union.
- **Council & Assembly:** Key decision-making bodies; the Legal and Technical Commission provides expert recommendations.
- **Significance for India:**
 - India was among the first countries to receive exploration licences from the ISA.
 - Currently holds contracts for the Central Indian Ocean Basin, Indian Ocean Ridge, and now the Carlsberg Ridge.
 - Supports India's Deep Ocean Mission for critical mineral security.

H-1B VISA

Context : President Donald Trump announced an increase in H-1B visa fees to \$100,000.

Types of U.S. Visas

U.S. visas are broadly classified into **two categories**:

1. Non-Immigrant Visas (temporary stay)

Issued for travel, study, business, or work on a temporary basis. Some major types:

- B-1 / B-2 Visa – For business (B-1) and tourism/medical treatment (B-2).
- F-1 Visa – For students enrolled in U.S. academic institutions.
- J-1 Visa – For exchange visitors, scholars, researchers, and interns.
- H-1B Visa – For skilled workers in specialty occupations (IT, engineering, etc.).
- H-2B Visa – For temporary or seasonal non-agricultural workers.
- L-1 Visa – For intra-company transferees (executives, managers, specialized knowledge staff).
- O Visa – For individuals with extraordinary ability in sciences, arts, education, business, or athletics.
- P Visa – For athletes, artists, and entertainers.
- R-1 Visa – For religious workers.

2. Immigrant Visas (permanent stay – leads to Green Card)

For individuals intending to live permanently in the U.S.

- Family-sponsored visas – For spouses, children, parents, or siblings of U.S. citizens or permanent residents.
- Employment-based visas (EB-1 to EB-5) – For workers with extraordinary abilities, professionals, skilled/unskilled workers, and investors.
- Diversity Visa (DV) Lottery – Known as the "Green Card Lottery," for nationals of countries with low immigration to the U.S.
- Special Immigrant Visas (SIV) – For specific categories like Afghan/Iraqi interpreters who assisted U.S. forces.



Economy



BHARATI INITIATIVE

Context: APEDA has launched the BHARATI initiative (Bharat's Hub for Agri-tech, Resilience, Advancement and Incubation for Export Enablement) to accelerate India's agri-food exports.

About Bharati Initiative:

- Focus: Promoting innovation, incubation, and export opportunities in GI-tagged products, organic foods, superfoods, livestock, and AYUSH items.
- Features: A three-month acceleration programme covering product development, export readiness, market access, regulatory compliance, and solutions for perishability, logistics, and value addition.
- Technology: Integration of AI-based quality control, blockchain traceability, IoT-enabled cold chains, agri-fintech, and sustainable packaging.
- Impact: Nationwide awareness campaigns and a scalable incubation model to boost India's global standing in agri-food exports through technology and entrepreneurship.



ENGINEERING EXPORT PROMOTION COUNCIL

Context : The President of India, Droupadi Murmu, attended the Platinum Jubilee celebrations of EEPC (Engineering Export Promotion Council) India.

Engineering Export Promotion Council (EEPC) India

- Establishment: Set up in 1955 under the Ministry of Commerce & Industry, Government of India.
- Nature: A trade and investment promotion organization focusing on engineering sector exports. Recognized as the apex body of engineering exporters.
- Membership: Represents over 12,000 members, including large companies, SMEs, and trading houses.
- Functions:
 - Acts as a bridge between Indian engineering exporters and global markets.
 - Provides policy inputs to the government on trade and export promotion.
 - Organizes international trade fairs, buyer-seller meets, and delegations abroad.
 - Offers market intelligence, export-related services, and support to its members.
 - Runs the Technology Centres and Common Service Facilities for MSMEs.
- Achievements: Engineering exports have grown significantly under EEPC's guidance, reaching over \$115 billion in recent years.
- Recognition: EEPC is considered a Model Export Promotion Council (EPC) by the Government of India for its consistent performance.

UPI-UPU INTEGRATION

Context: At the 28th Universal Postal Congress in Dubai, Union Minister Jyotiraditya Scindia launched the UPI-UPU Integration project.

UPI–UPU Integration Project

- The initiative links India's Unified Payments Interface (UPI) with the Universal Postal Union's Interconnection Platform (IP), combining the global postal network with UPI's real-time, affordable digital payments ecosystem.
- This integration will enable families across borders to send money faster, more securely, and at lower costs, particularly benefiting migrants and digitally excluded communities.
- India also used the Congress to outline its vision of leveraging digital logistics, AI, and South–South cooperation, positioning itself as a leader in technology-driven financial inclusion and global postal modernization.



Universal Postal Union (UPU)

- Established: 1874, with the Treaty of Bern.
- Headquarters: Bern, Switzerland.
- Specialized UN Agency: Since 1948, UPU has been a specialized agency of the United Nations.
- Members: 192 countries.

Role and Functions

- Acts as the primary forum for international cooperation in the postal sector.
- Frames rules for international mail exchanges and sets standards for cross-border postal services.
- Coordinates policies among member nations to ensure affordable, reliable, and universal postal services.
- Promotes development of digital postal services, e-commerce, and financial inclusion through the global postal network.
- Provides technical assistance to developing countries in modernizing postal systems.

Governance

- Congress: Supreme decision-making body, held every 4 years.
- Council of Administration and Postal Operations Council: Handle governance and operational matters between Congresses.
- International Bureau: The permanent secretariat in Bern.

Significance

- Facilitates global connectivity through affordable postal services.
- Plays a growing role in digital transformation, including logistics, e-payments, and sustainable development.

STABLECOINS

Context : Stablecoins, digital assets pegged to the US dollar, are expanding rapidly with a market capitalization above \$280 billion, projected to reach \$2 trillion within three years.

Different types of cryptocurrencies:

Payment Cryptocurrencies

- Designed as digital money for peer-to-peer transactions.
- Focus on being a medium of exchange and store of value.
- Examples: Bitcoin (BTC), Litecoin (LTC).

Stablecoins

- Cryptocurrencies pegged to stable assets like the US dollar, gold, or government bonds.
- Aim to reduce price volatility and enable fast, low-cost settlements.
- Examples: Tether (USDT), USD Coin (USDC), DAI.



Utility Tokens

- Provide access to specific products or services within a blockchain ecosystem.
- Often used to pay for transaction fees, storage, or smart contract execution.
- Examples: Ethereum (ETH), Binance Coin (BNB).

Security Tokens

- Represent ownership of real-world assets (like shares, bonds, or property).
- Regulated under securities laws, providing dividends or profit-sharing rights.
- Example: Tokenized stocks or real estate platforms.

Central Bank Digital Currencies (CBDCs) (*state-backed*)

- Issued and regulated by central banks, unlike decentralized cryptos.
- Aim to provide digital versions of national currencies.
- Example: Digital Yuan (e-CNY), Digital Rupee (pilot in India).

Privacy Coins

- Focus on enhanced anonymity and untraceable transactions.
- Use advanced cryptography to hide sender, receiver, and amount.
- Examples: Monero (XMR), Zcash (ZEC).

Governance Tokens

- Allow holders to vote on blockchain protocol changes, upgrades, or treasury decisions.
- Enable decentralized governance of networks.
- Examples: Uniswap (UNI), Maker (MKR).

PRODUCTION-LINKED INCENTIVE (PLI) SCHEME

Context : The government has reopened applications for the Production-Linked Incentive (PLI) scheme for white goods—air conditioners and LED lights—from September 15 to October 14.

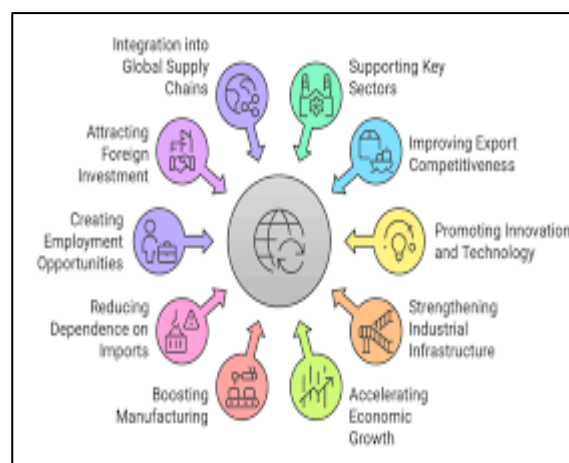
Production-Linked Incentive (PLI) Scheme

- Launched by the Government of India in March 2020, initially for large-scale electronics manufacturing (mobile phones & components).
- Later expanded to 14 key sectors to promote *Atmanirbhar Bharat* (self-reliant India).
- Objective: Make India a global manufacturing hub, reduce import dependency, create jobs, strengthen supply chains, and boost exports.

Coverage

The scheme now covers 14 sectors:

1. Large-scale electronics (mobiles, components)
2. Pharmaceuticals & drug intermediaries
3. Medical devices
4. Telecom & networking products
5. Food processing
6. White goods (air conditioners, LED lights)
7. High efficiency solar PV modules
8. Advanced chemistry cell (ACC) batteries
9. Automobiles & auto components
10. Specialty steel
11. Textile & man-made fibers
12. IT hardware (laptops, tablets, servers)
13. Drones & drone components
14. Semiconductors & display manufacturing



Budget & Duration

- Total Outlay: ~₹1.97 lakh crore (over 7 years).
- Duration: Generally from 2020-21 to 2028-29, depending on the sector.
- Each sector has separate guidelines on eligibility, base year, and incentive slabs.

How It Works

- Incentives (usually 4%–6%) are given on incremental sales of goods manufactured in India, compared to a base year.
- Incentives decrease gradually over the years.
- Both domestic and foreign companies are eligible if they commit to minimum investment and sales targets.

FOREIGN PORTFOLIO INVESTORS

Context : SEBI is considering allowing Foreign Portfolio Investors (FPIs) to trade in non-agricultural commodity derivatives to deepen India's market.

Foreign Portfolio Investment (FPI):

- Definition: Investment by foreign investors in a country's financial assets such as stocks, bonds, mutual funds, and derivatives, without taking direct control of business entities.
- Nature:
 - Short-term, volatile, and often speculative ("hot money").
 - Easier entry and exit compared to FDI.
- Regulator in India: SEBI (Securities and Exchange Board of India).
- Example: A foreign institutional investor buying shares in Infosys or Reliance.

Foreign Direct Investment (FDI):

- Definition: Investment by a foreign entity in a business in another country with ownership, control, or management participation.
- Nature:
 - Long-term and relatively stable.
 - Involves setting up factories, offices, or acquiring stakes in companies.
- Regulator in India: DPIIT (Department for Promotion of Industry and Internal Trade) and RBI.
- Example: Walmart acquiring majority stake in Flipkart; Hyundai setting up manufacturing plants in India.

Differences Between FDI and FPI

Parameters	FDI	FPI
Definition	FDI refers to the investment made by foreign investors to obtain a substantial interest in the enterprise located in a different country.	FPI refers to investing in the financial assets of a foreign country, such as stocks or bonds available on an exchange.
Role of investors	Active Investor	Passive Investor
Type	Direct Investment	Indirect Investment
Degree of control	High Control	Very low control
Term	Long term investment	Short term investment
Management of Projects	Efficient	Comparatively less efficient
Investment has done on	Physical assets of the foreign country	Financial assets of the foreign country
Entry and exit	Difficult	Relatively easy
Leads to	Transfer of funds, technology, and other resources to the foreign country	Capital inflows to the foreign country
Risks Involved	Stable	Volatile

GOODS AND SERVICES TAX APPELLATE TRIBUNAL

Context : Goods and Services Tax Appellate Tribunal (GSTAT) was launched on 24 September 2025.

Goods and Services Tax Appellate Tribunal (GSTAT)

The GSTAT is a statutory appellate body established under the GST laws to provide an independent forum for resolving disputes arising under India's indirect tax regime.

- Purpose: To hear appeals against orders passed by GST Appellate Authorities and ensure quicker, consistent, and fair resolution of tax disputes.
- Structure:
 - Principal Bench in New Delhi and 31 State Benches across 45 locations.
 - Each Bench consists of two Judicial Members, one Technical Member (Centre), and one Technical Member (State).
- Functioning:
 - Will begin hearings from December 2025, prioritising pending ("legacy") appeals.
 - From April 2026, the Principal Bench will also act as the National Appellate Authority for Advance Ruling (NAAAR).
- Digital Interface: Taxpayers can file appeals, track progress, and attend hearings online, enhancing transparency and ease of compliance.
- Significance:
 - Reduces backlog of appeals (over 4.8 lakh cases pending).
 - Promotes certainty, fairness, and cooperative federalism in GST administration.
 - Strengthens India's institutional framework for tax dispute resolution.

INDIAN RUPEE STEADILY WEAKENING

Context : The Indian Rupee has been steadily weakening against the US Dollar in 2025, driven by external factors like exchange rate dependencies and falling foreign investments.

Impact of Rupee Sliding on Indian Economy

1. On Trade Balance

- Imports: Costlier imports as payments are in USD. For example, India imports crude oil (~85% of its requirement). If rupee slides from ₹83/\$ to ₹88/\$, the oil bill rises sharply, worsening Current Account Deficit (CAD).
- Exports: Becomes more competitive globally since Indian goods priced in USD become cheaper for foreign buyers. For instance, Indian IT services or pharmaceutical exports may gain demand.
- Net Effect: If exports don't rise enough to offset higher import bill, trade deficit widens.

2. On Inflation

- Imported inflation rises as global commodities (oil, fertilizers, edible oils, electronics) get costlier in rupee terms.
- Higher fuel cost → raises transport and logistics cost, feeding into retail inflation (CPI).
- Example: If crude rises to \$80/barrel, a weaker rupee amplifies the domestic petrol/diesel price hike.

3. On Other Macro Variables

- Foreign Capital Flows: Investors pull out due to currency instability → FPI outflows increase.
- Corporate Sector: Companies with foreign currency borrowings (ECBs) face higher repayment burden.
- Growth: Rising input costs and investment slowdown → dampens GDP growth.
- External Debt: India's external debt servicing cost rises in rupee terms.
- Exchange Reserves: RBI may need to intervene, depleting forex reserves.

RBI Tools to Handle Impact

1. Direct Intervention

- Spot and Forward Market Operations: RBI sells USD from its forex reserves to reduce volatility and stabilize rupee.
- Example: In 2013 "Taper Tantrum," RBI sold dollars heavily to contain rupee fall.

2. Monetary Policy Tools

- Repo Rate Hike: To control inflationary pressure and make rupee assets attractive for foreign investors.
- CRR/SLR Adjustments: Manage liquidity in banking system.

3. Market Measures

- Open Market Operations (OMO): Buying/selling government securities to manage rupee liquidity.
- Special Swap Windows: Offered to oil companies or banks to ease USD demand.

4. Macprudential / Administrative Measures

- Easing FPI/FDI norms: To attract foreign inflows.
- External Borrowing Norms: Adjusting limits for corporates to borrow abroad.
- Import Controls: Temporary measures to curb non-essential imports (e.g., gold curbs in 2013).



GEOGRAPHY



MULTITHREAD AND SINGLE THREAD RIVERS

Context : Geographers at the University of California Santa Barbara have uncovered why some rivers split into multiple channels (multi-threaded) while others remain single-threaded.

Difference between Multi-threaded Rivers and Meandering Rivers:

Feature	Multi-threaded Rivers	Meandering Rivers
Definition	A river that splits into two or more interconnected channels separated by bars or islands.	A river with a single channel that develops sinuous, snake-like bends.
Cause/Mechanism	Caused when bank erosion > deposition → channels widen and split into multiple threads.	Caused by lateral erosion and deposition balance → bends form due to helicoidal flow.
Appearance	Network-like, with several active water channels (braided/multi-thread pattern).	Winding or serpentine single channel with distinct loops.
Sediment Load	Usually associated with high sediment load (gravel, sand) and variable water flow.	Occurs in rivers with fine sediments (silt, clay) and steady flow.
Gradient	Typically, steeper gradients, unstable beds.	Typically, gentle gradients, low slope areas.
Examples	Brahmaputra in Assam (braided, multi-threaded).	Ganga in Bihar–UP plains, Mississippi River (USA).
Landforms Produced	Mid-channel bars, islands, multiple shifting channels.	Point bars, river cliffs, oxbow lakes, floodplains.

AFGHANISTAN EARTHQUAKE

Context: A powerful 6.0-magnitude earthquake struck a remote mountainous region in Afghanistan, killing over 800 people and injuring at least 2,800. The quake flattened homes while families slept, particularly in eastern Kunar and nearby provinces.

Earthquake

An earthquake is the sudden release of energy in the Earth's lithosphere that generates seismic waves, leading to ground shaking and surface displacement.

Causes:

- Tectonic activity – movement along faults, plate collisions, subduction, or rifting.
- Volcanic activity – magma movement causing ground fracturing.
- Collapse earthquakes – due to subsurface cave-ins.
- Artificial/induced – reservoir filling, mining, nuclear tests.

Key Concepts:

- Focus (Hypocenter): Point within Earth where energy is released.
- Epicenter: Point on the Earth's surface directly above the focus.
- Seismic Waves:
 - P-waves (Primary): Fastest, compressional.
 - S-waves (Secondary): Slower, shear.
 - Surface waves: Cause most destruction.

Measurement:

- Magnitude: Measured by Richter Scale or Moment Magnitude Scale (Mw).
- Intensity: Measured by Modified Mercalli Scale (effects felt).

Geographical Distribution:

- Concentrated along plate boundaries – Pacific Ring of Fire, Himalayan belt, Mid-Atlantic Ridge.

Impacts:

- Landform changes (faults, uplift, subsidence).
- Secondary hazards – landslides, tsunamis, soil liquefaction.
- Human loss, infrastructure damage, economic disrupt



MALACCA STRAITS

Context: Singapore has officially backed India's interest in joining joint patrols of the Malacca Straits, marking a new phase in bilateral maritime security cooperation and regional collaboration.

About Malacca Strait:

- Geography:

The Malacca Strait is a narrow stretch of water between the Malay Peninsula (Malaysia & Singapore) and the Indonesian island of Sumatra. It connects the Andaman Sea (Indian Ocean) with the South China Sea (Pacific Ocean). Its narrowest point, the Phillip Channel near Singapore, is only about 2.7 km wide, making it one of the world's most significant maritime chokepoints.
- Strategic Importance:
 - Handles about 40–50% of global trade and nearly 70% of Asia's oil imports.
 - Vital for energy flows from the Middle East and Africa to East Asia.

- For India, around 60% of its maritime trade and almost all LNG imports pass through this corridor.
- Security Concerns:
 - Vulnerable to piracy, trafficking, smuggling, and potential blockades.
 - The presence of multiple stakeholders (Indonesia, Malaysia, Singapore, and Thailand) makes cooperative security essential.
- India's Significance:
 - India's Andaman & Nicobar Islands lie just 600 km away, giving India strategic proximity.
 - Participation in the Malacca Straits Patrol (MSP) enhances India's Act East Policy and Indo-Pacific strategy.
- Global Relevance:

Securing the Malacca Strait is critical for global energy security, freedom of navigation, and Indo-Pacific stability.



BLOOD MOON

Context: On the night of September 7–8, 2025, a spectacular total lunar eclipse, popularly called a Blood Moon, was visible across Asia.

Blood Moon (Total Lunar Eclipse)

- A Blood Moon occurs during a total lunar eclipse, when the Earth comes directly between the Sun and the Moon, blocking sunlight from reaching the Moon.
- Instead of going completely dark, the Moon appears red or reddish-orange.
- This happens because of Rayleigh scattering: Earth's atmosphere scatters shorter blue wavelengths of sunlight while the longer red wavelengths bend around Earth and illuminate the Moon.
- The intensity of the red color depends on the amount of dust, pollution, or volcanic particles in Earth's atmosphere.
- Unlike a solar eclipse, a lunar eclipse (and hence a Blood Moon) is visible from anywhere on Earth where the Moon is above the horizon at the time.
- Blood Moons are rare but predictable astronomical events, often lasting longer than solar eclipses.

Partial Lunar Eclipse

- Occurs when only a part of the Moon enters Earth's umbra (central shadow).
- The rest of the Moon remains illuminated by direct sunlight.

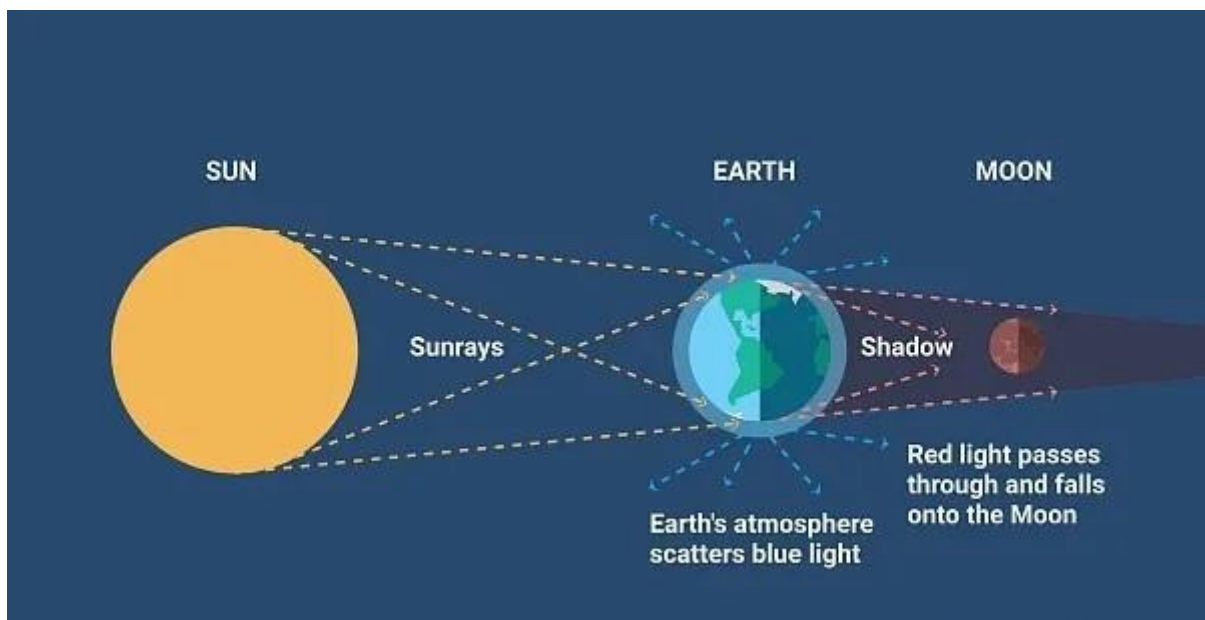
- The Moon appears as if a dark "bite" has been taken out of it.
- More frequent than total lunar eclipses.

Total Lunar Eclipse

- Occurs when the entire Moon enters Earth's umbra.
- The Moon appears reddish-orange (Blood Moon) due to Rayleigh scattering and refraction of sunlight through Earth's atmosphere.
- Can last up to 1 hour or more, depending on Earth-Moon-Sun alignment.
- Less frequent compared to partial eclipses but more spectacular.

Key Difference:

- Partial eclipse → only part of Moon darkens.
- Total eclipse → whole Moon darkens and turns red.





Environment and Ecology



BLUE DRAGONS

Context: Several beaches in Spain were closed after the arrival of blue dragons.

About Blue Dragon (*Glaucus atlanticus*):

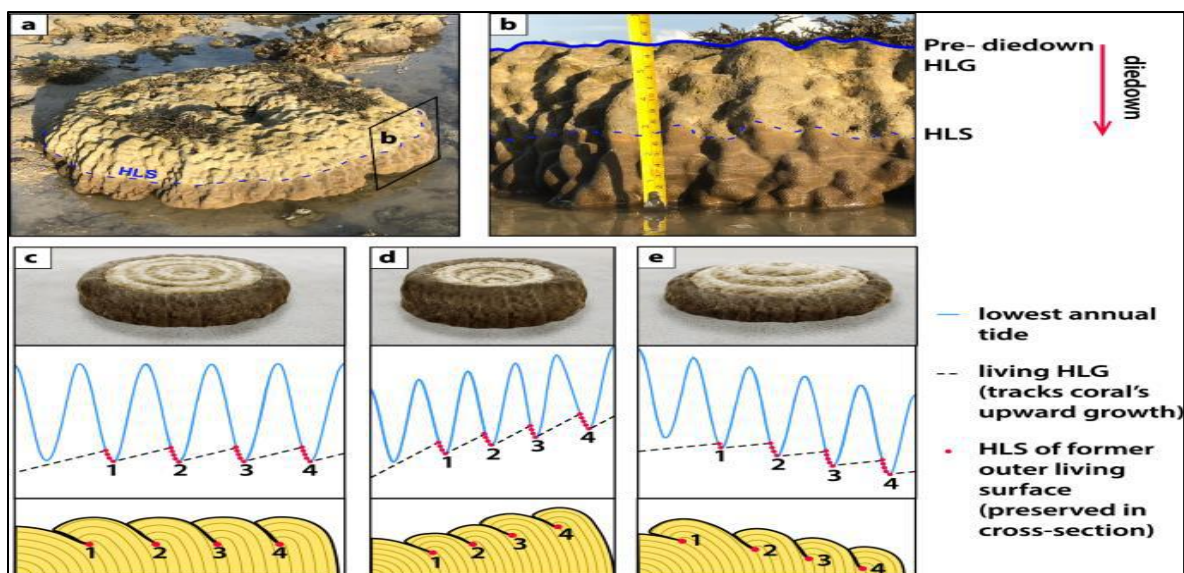
- A small but strikingly blue sea slug (nudibranch) found in warm ocean waters.
- Floats upside down on the water surface using a gas-filled sac in its stomach.
- Feeds mainly on venomous organisms like Portuguese man o' war and jellyfish, storing their stinging cells (nematocysts) in its own tissues.
- This ability makes its sting extremely painful, causing swelling, nausea, and vomiting, though not usually fatal.
- Rarely seen in the Mediterranean; presence there is linked to shifting water currents and climate change.
- Considered an indicator of marine ecological anomalies.

CORAL MICROATOLLS

Context: Research on coral microatolls provides a continuous record of sea-level changes since 1959, refining projections and highlighting the urgent need for local monitoring and adaptation strategies.

About Coral Microatolls:

- **Definition:** Coral microatolls are disk-shaped coral formations that grow outward rather than upward, as their vertical growth is restricted by the lowest tide levels.
- **Unique Feature:** Their flat, saucer-like tops record sea-level changes over time because they grow only within a narrow vertical range controlled by tidal variations.
- **Scientific Importance:** They act as natural tide gauges, providing long-term, continuous records of sea-level fluctuations spanning decades to centuries.
- **Climate Studies:** Used to reconstruct past sea levels and refine projections of future rise, especially critical for vulnerable low-lying islands.
- **Conservation Relevance:** Help monitor the impacts of climate change on marine ecosystems, coral reef health, and coastal communities.



VULTURE CONSERVATION PORTAL

Context: An Assam-based foundation has developed India's first portal for vulture conservation, called The Vulture Network.

About Vulture Conservation Portal

- Purpose: Build a nationwide network of conservationists, researchers, and communities for vulture protection and awareness.
- Features: Knowledge hub with scientific updates, population monitoring, campaign materials, and conservation practices.
- Local Focus: Initially disseminated in Assamese to engage grassroots communities, linking vulture survival with livelihoods and public health.
- Conservation Significance: India has nine vulture species, most critically endangered due to diclofenac poisoning and habitat loss.
- Partnerships: Supported by Assam Bird Monitoring Network, LASA Foundation, Suraksha Samitee, and independent conservationists.

Vulture Species in India

India hosts 9 species of vultures (of the 23 found worldwide).

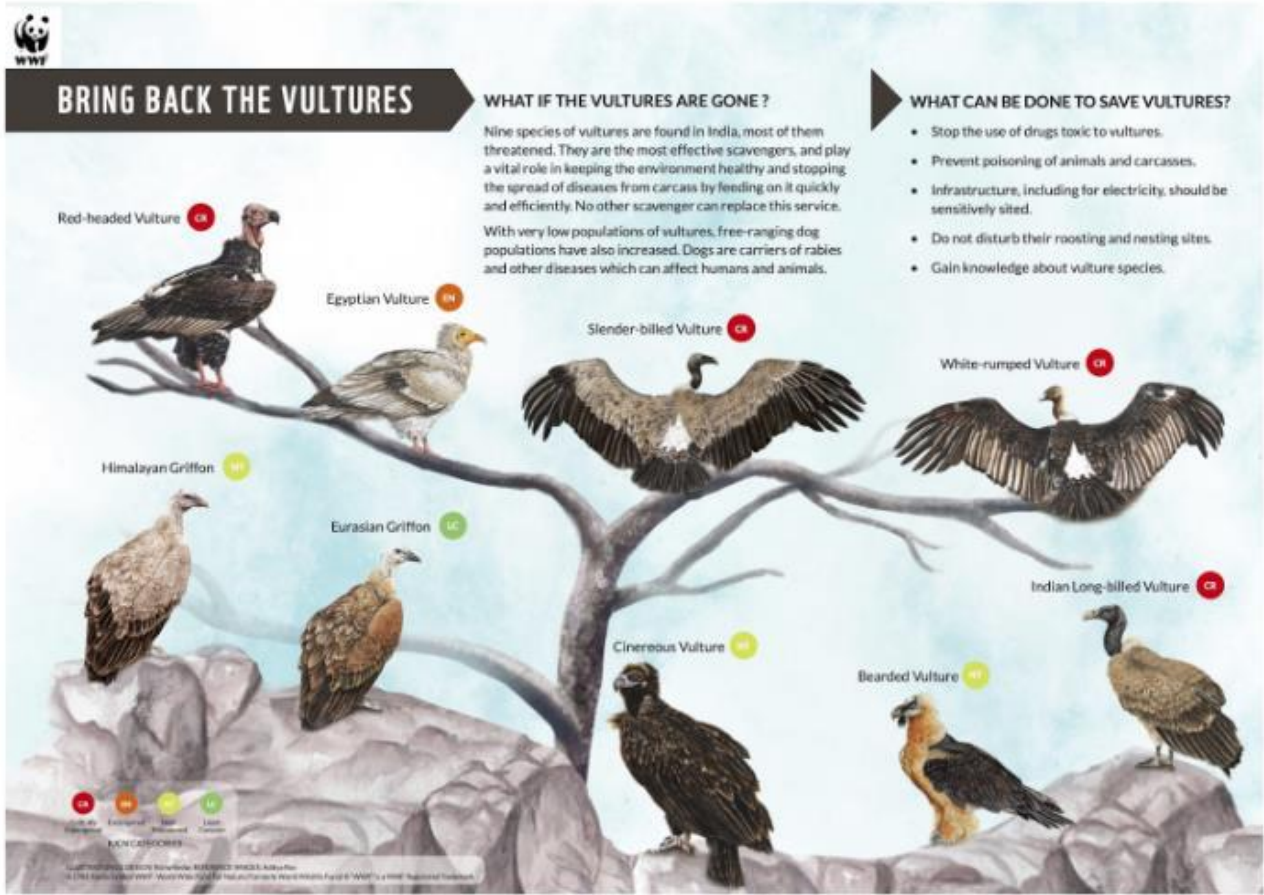
1. Critically Endangered (IUCN Red List):
 - White-rumped Vulture (*Gyps bengalensis*)
 - Indian Vulture (*Gyps indicus*)
 - Slender-billed Vulture (*Gyps tenuirostris*)
 - Red-headed Vulture (*Sarcogyps calvus*)
2. Endangered:
 - Egyptian Vulture (*Neophron percnopterus*)
3. Near Threatened:
 - Himalayan Griffon (*Gyps himalayensis*)
4. Least Concern (but declining locally):
 - Griffon Vulture (*Gyps fulvus*)
 - Cinereous Vulture (*Aegypius monachus*)

Major Threats

- Diclofenac poisoning (NSAID used in cattle, lethal to vultures).
- Habitat loss and food scarcity.
- Electrocution and collision with power lines.
- Hunting in some regions.

Conservation Measures

- Ban on veterinary diclofenac (2006); promotion of safe alternatives (meloxicam, tolfenamic acid).
- Vulture Safe Zones (around 8 established across India).
- Captive Breeding Centres: Pinjore (Haryana), Rajabhatkhawa (West Bengal), Rani (Assam), Junagadh (Gujarat), etc.
- Action Plan for Vulture Conservation 2020–2025 by MoEFCC.
- First Vulture Conservation Portal (2025) launched in Assam to network researchers and communities.



RED IVY PLANT

Context : Researchers at the Jawaharlal Nehru Tropical Botanic Garden & Research Institute (JNTBGRI), Thiruvananthapuram, have developed a wound-healing pad using the red ivy plant (*Strobilanthes alternata*), locally called murikooti pacha.

Red Ivy Plant (*Strobilanthes alternata*)

- A medicinal plant commonly found in Kerala and other tropical regions.
- Locally known as murikooti pacha.
- Traditionally used in folk medicine for treating cuts, wounds, and skin ailments.
- Leaves are reddish-purple, giving the plant its “red ivy” name.
- Rich in bioactive compounds such as acteoside, known for antimicrobial, anti-inflammatory, and wound-healing properties.
- Recently studied by JNTBGRI scientists for developing advanced biodegradable wound-healing pads.

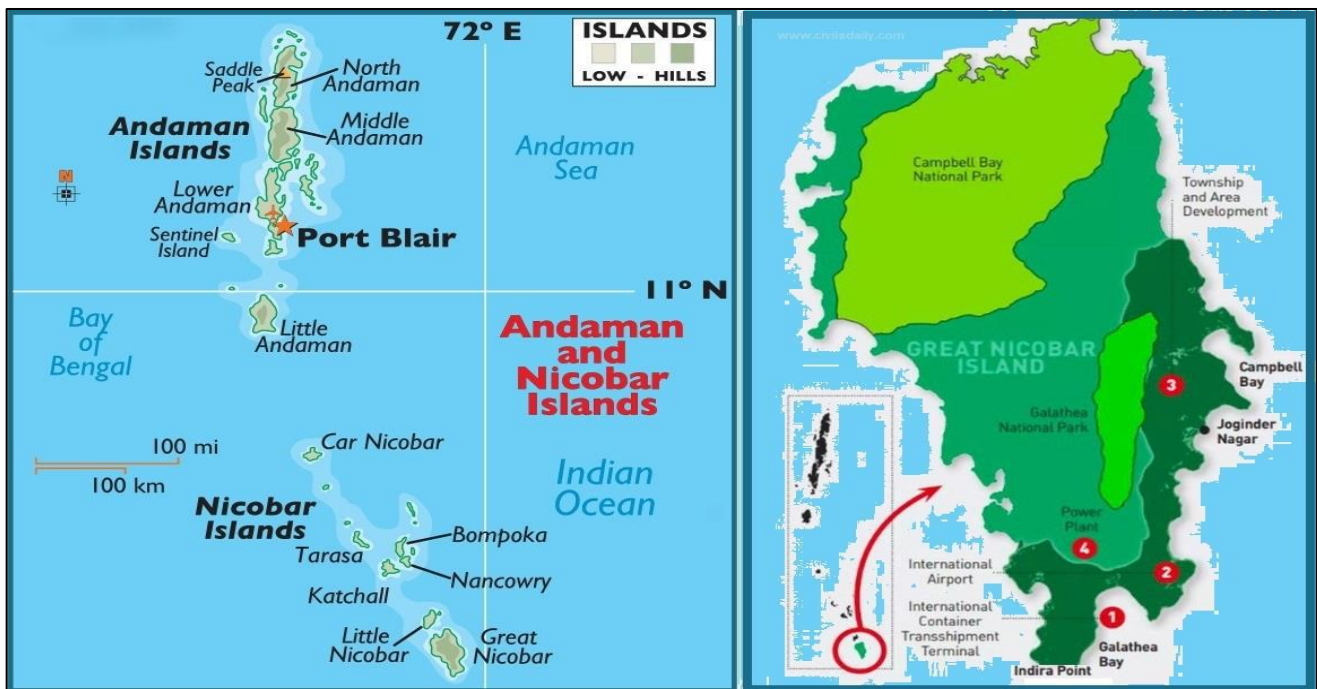
GREAT NICOBAR ISLAND DEVELOPMENT PROJECT

Context: Congress General Secretary Jairam Ramesh criticized the government’s Great Nicobar Island Development Project, calling it an “ecological disaster” being pushed through despite legal challenges.

Great Nicobar Island Development Project

- Location: Southernmost island of Andaman & Nicobar group, strategically close to the Malacca Strait.
- Components:
 - ₹72,000 crore integrated project led by NITI Aayog.

- Mega transshipment port (Galathea Bay).
- International airport.
- Township & tourism infrastructure.
- Power plant for energy needs.
- Strategic Importance:
 - Enhances India's position in Indo-Pacific maritime trade.
 - Counters China's presence in the region (String of Pearls).
- Ecological Concerns:
 - Loss of tropical rainforest and mangroves.
 - Threat to endangered species (Leatherback turtles, Nicobar megapode, saltwater crocodiles).
 - Potential displacement of Shompens, a Particularly Vulnerable Tribal Group (PVTG).
- Legal & Social Issues:
 - Environmental and forest clearances challenged in NGT and Calcutta High Court.
 - Concerns over violation of Forest Rights Act, 2006.
 - Criticism for inadequate consultation with local tribal communities.



ASIATIC CHEETAH

Context : Madhya Pradesh is planning to establish a second population of cheetahs by introducing a female into Gandhi Sagar Sanctuary.

Asiatic Cheetah:

- The Asiatic cheetah (*Acinonyx jubatus venaticus*), once widespread in India, became extinct in the country by 1952 due to excessive hunting, habitat loss, and decline of prey species.
- Historically, cheetahs were found across Rajasthan, Gujarat, Madhya Pradesh, Uttar Pradesh, and Deccan Plateau regions.
- The Asiatic cheetah now survives only in Iran, with less than 20 individuals remaining, making it one of the most endangered big cats in the world.
- India launched Project Cheetah in 2020, aiming to reintroduce cheetahs through translocation from Namibia and South Africa.
- In September 2022, eight cheetahs from Namibia were released into Kuno National Park (Madhya Pradesh), followed by twelve more from South Africa in 2023.

- The reintroduction marks the world's first intercontinental wild carnivore translocation project.
- Current efforts focus on creating multiple viable populations, ensuring prey availability, tackling threats from leopards, and close monitoring of breeding success.

KOALA CHLAMYDIA VACCINE

Context: Australia has approved the world's first vaccine to protect koalas from chlamydia, a disease causing infertility, blindness, pain, and death.

Koala Chlamydia Vaccine

Developed by the University of the Sunshine Coast after over a decade of research, it is a single-dose vaccine requiring no booster and shown to reduce mortality in wild koalas by at least 65%.

- **Threat:** Chlamydia infects up to 70% of some colonies in eastern Australia, making it a major cause of population decline.
- **Benefits:** Effective during breeding years; some studies show it may even reverse early symptoms.
- **Rollout:** From January, wildlife hospitals, veterinary clinics, and wild populations will be targeted, with priority to vulnerable areas. Funding challenges remain due to the labor-intensive process of vaccinating wild koalas.
- **Significance:** A landmark in wildlife disease control and conservation, replacing antibiotics that previously harmed koalas' digestion and survival.

Koalas and Chlamydia

- Koalas (*Phascolarctos cinereus*) are marsupials native to eastern Australia, classified as endangered due to habitat loss, climate change, bushfires, and disease.
- Chlamydia infection (caused by *Chlamydia pecorum*) is one of the biggest threats to their survival.
- The disease spreads through sexual contact, from mother to joey during birth or nursing, and via social interaction.
- **Symptoms:** infertility, blindness (due to conjunctivitis), urinary tract infections, and severe pain. In advanced stages, it can cause death.
- **Impact:** In some colonies, infection rates reach up to 70%, significantly reducing breeding success and population growth.
- **Treatment challenges:** Antibiotics disrupt koalas' gut flora, which is essential for digesting eucalyptus leaves, leading to starvation risk.
- **Conservation response:** Australia approved the world's first single-dose vaccine in 2025, aiming to curb mortality and aid population recovery.

Koala (*Phascolarctos cinereus*)

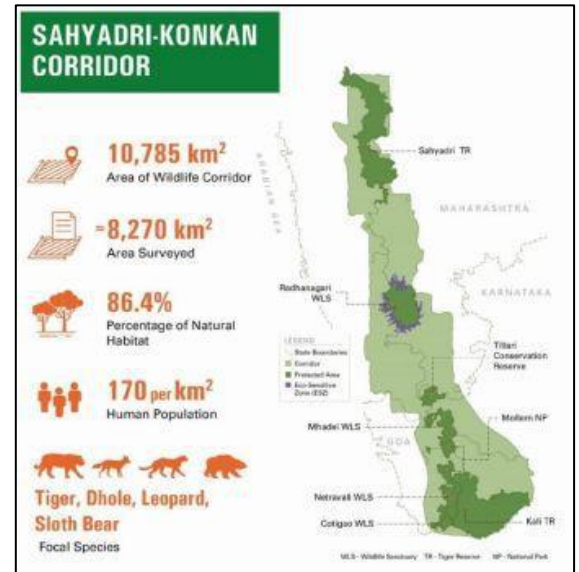
- **Classification:** Marsupial native to eastern and southeastern Australia.
- **Habitat:** Prefers eucalyptus forests and woodlands, feeding almost exclusively on eucalyptus leaves.
- **Physical Features:** Grey fur, large nose, sharp claws for climbing trees, and a pouch for carrying joeys.
- **Diet:** Specialist folivore; highly dependent on eucalyptus leaves, which are toxic to most other animals.
- **Reproduction:** Breed once a year; gestation lasts about 35 days; joeys stay in the pouch for 6–7 months.
- **Conservation Status:** Classified as Vulnerable due to habitat loss, bushfires, disease (especially chlamydia), and climate change.
- **Threats:** Deforestation, vehicle collisions, dog attacks, and infectious diseases like chlamydia, which cause infertility and blindness.
- **Conservation Measures:** Wildlife sanctuaries, disease management, habitat restoration, and now a recently approved vaccine against chlamydia.

SAHYADRI TIGER RESERVE

Context: The Union Environment Ministry has approved the translocation of eight tigers from Maharashtra's Tadoba-Andhari and Pench Tiger Reserves to the Sahyadri Tiger Reserve (STR) in the northern Western Ghats.

Sahyadri Tiger Reserve (STR)

- Location: Western Maharashtra, in the northern Western Ghats. Spread across Kolhapur, Sangli, Satara, and Ratnagiri districts.
- Formation: Established in 2010 by combining Chandoli National Park (317 sq km) and Koyna Wildlife Sanctuary (423 sq km).
- Total Area: About 1,165 sq km.
- Habitat: Dense evergreen and moist deciduous forests, part of the Western Ghats biodiversity hotspot.
- Fauna: Tigers (currently very few, mostly transient), leopards, wild dogs, sloth bears, sambar, gaur, and endemic reptiles/amphibians.
- Importance:
 - Secures the watersheds of Koyna and Warna rivers, vital for hydroelectric projects and irrigation.
 - Provides a crucial ecological corridor linking tiger habitats across Maharashtra, Goa, and Karnataka.



NATIONAL POLICY ON GEOTHERMAL ENERGY

Context : Recently, National Policy on Geothermal Energy was unveiled.

National Policy on Geothermal Energy

- First-ever national framework for geothermal exploration, development, and utilization.
- Grants renewables-like incentives: must-run status, open access charge waivers, and grid access.
- Identifies 10 geothermal provinces and 381 hot springs with ~10 GW potential (Himalayas, Cambay, Aravalli, Godavari, Mahanadi etc.).
- Covers high-enthalpy (electricity), low/medium enthalpy (heating, cooling, agriculture, aquaculture, GSHPs), hybrid systems, and reuse of abandoned oil/gas wells.
- Streamlined regulatory setup: single-window clearances, long-term leases, centralized geothermal data.

Incentives & Financial Support

- 100% FDI permitted; concessional loans, risk-sharing for drilling, tax/GST relief, accelerated depreciation, viability gap funding.
- Participation in Indian Carbon Credit Trading Program encouraged.

Pilot Projects & Collaborations

- Five pilot projects sanctioned, incl. 450 kW plant in Rajasthan using abandoned oil wells.
- Partnerships with Iceland, Norway, and the U.S. for technology transfer.

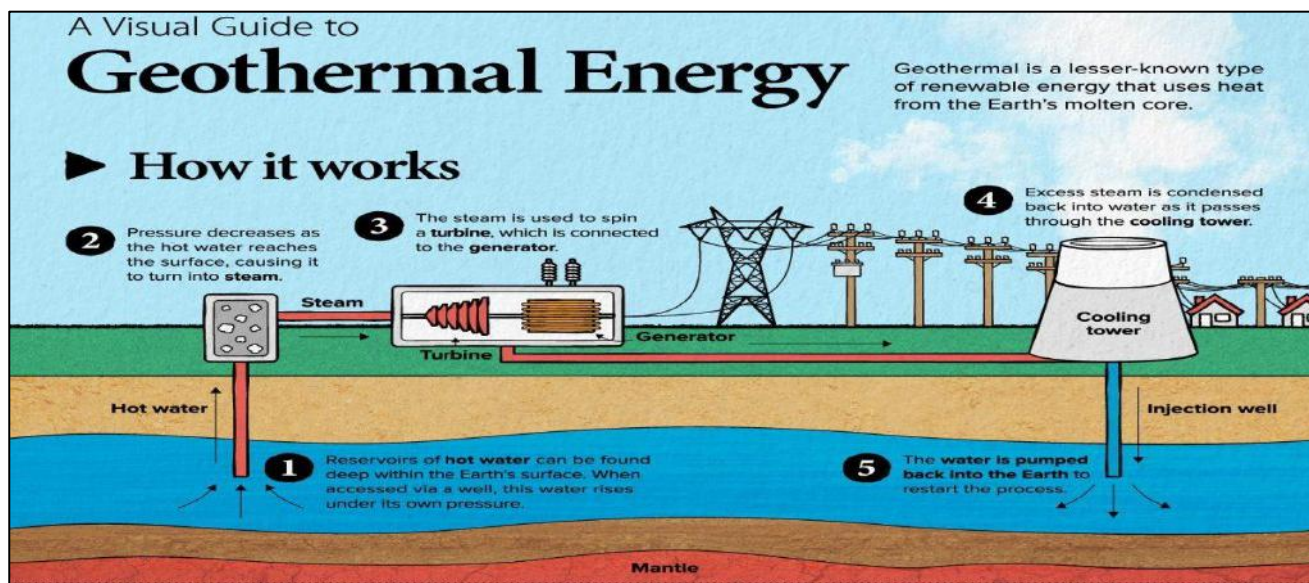
- Push for local innovation, PPPs, and oil-gas repurposing.

Relevance to Net Zero 2070

- Reliable 24×7 clean power, critical for diversified renewable mix.
- Supports decarbonization in buildings, agriculture, tourism, and rural development.

Implementation

- Led by MNRE; states act as nodal agencies for clearances, project facilitation, and capacity building.



OJU HYDROELECTRIC PROJECT

Context: Union Environment Ministry's expert committee has given clearance to the 2,200 MW Oju Hydroelectric Project on the Subansiri river in Arunachal Pradesh, near the China border.

Oju Hydroelectric Project:

- Location & Project Details
 - Proposed on the Subansiri river in Upper Subansiri district, Arunachal Pradesh.
 - Close to the China border; part of India's border infrastructure push.
 - To be developed by Oju Subansiri Hydro Power Corporation Pvt. Ltd.



- Technical Features
 - Installed capacity: 2,200 MW.
 - Dam type & height: Gravity dam, 120 m high.
 - Reservoir: Submergence area of 434 hectares forest land (total diversion of ~750 hectares forest).
 - Annual design energy: ~7,934 million units.
 - Displacement: Only nine families affected.
- Strategic & Development Significance
 - One of India's largest hydroelectric projects.
 - Strengthens infrastructure in Northeast, especially near the China border.
 - Boosts India's renewable energy capacity.
- Concerns & Criticism
 - The Cumulative Impact Assessment (CIA) and Carrying Capacity Study (CCS) of the Subansiri basin were done in 2014, now considered outdated.
 - Critics warn of landslides, dam-break scenarios, flash floods, and ecological impacts in the fragile Himalayan terrain.
 - Environmentalists argue that the approval process did not sufficiently update scientific studies before clearance.

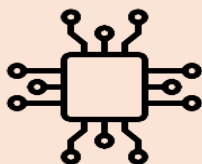
NATIONAL BIODIVERSITY AUTHORITY

Context: The National Biodiversity Authority (NBA) has sanctioned ₹82 lakh to the Andhra Pradesh Biodiversity Board for conserving the endangered Red Sanders tree under the Access and Benefit Sharing (ABS) mechanism.

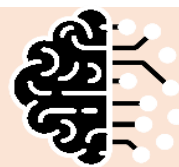
National Biodiversity Authority (NBA)

- Establishment:
 - Set up in 2003 under the Biological Diversity Act, 2002.
- Headquarters:
 - Located in Chennai, Tamil Nadu.
- Nature:
 - A statutory autonomous body under the Ministry of Environment, Forest and Climate Change (MoEFCC).
- Functions:
 - Regulates access to biological resources and associated traditional knowledge.

- Ensures fair and equitable benefit-sharing (ABS) arising from the use of biological resources.
- Issues approvals for research, commercial use, IPRs, and technology transfer involving India's biodiversity.
- Advises the Central and State Governments on matters related to biodiversity conservation and sustainable use.
- Supports State Biodiversity Boards (SBBs) and Biodiversity Management Committees (BMCs) at local levels.
- Key Role in Conservation:
 - Implements provisions of the Convention on Biological Diversity (CBD) at the national level.
 - Promotes People's Biodiversity Registers (PBRs) to document local biological resources and knowledge.
 - Facilitates community participation in conservation and livelihood generation



SCIENCE & TECHNOLOGY



APK SCAMS

Context : APK scams are a fast-growing cybercrime in India where fraudsters spread fake Android Package Kit (.APK) files disguised as official apps to steal sensitive personal and financial data.

Different types of cybercrime:

1. Phishing & Smishing – Fraudulent emails or SMS messages trick users into revealing personal/banking details.
2. Malware Attacks – Malicious software (viruses, trojans, ransomware, spyware) used to steal data, disrupt systems, or extort money.
3. Ransomware – Encrypts a victim's files and demands ransom for decryption.
4. Financial Frauds – Online banking frauds, UPI scams, fake investment schemes, and APK-based fraud apps.
5. Cyberstalking & Online Harassment – Using digital platforms to stalk, threaten, or harass individuals.
6. Hacking & Data Breaches – Unauthorized access to systems or databases to steal sensitive data.
7. Denial of Service (DoS/DDoS) Attacks – Overloading a network/server to make it unavailable.
8. Intellectual Property Theft – Piracy, software cracking, or stealing trade secrets.
9. Cyber Terrorism – Attacks on critical infrastructure, government systems, or spreading extremist propaganda online.
10. Cryptocurrency & Dark Web Crimes – Illegal trading, money laundering, and transactions through untraceable crypto wallets.

VIKRAM 32

Context: Prime Minister Narendra Modi received the first Made in India Vikram 32-bit chip at Semicon India 2025, marking a milestone in the country's semiconductor industry.

About Vikram 32:

- The Vikram 32-bit chip is India's first indigenously developed 32-bit microprocessor for space applications. It is an advanced version of the earlier VIKRAM1601 (16-bit) processor and has been developed by ISRO's Vikram Sarabhai Space Centre in collaboration with the Semiconductor Laboratory, Chandigarh.
- The chip is specifically designed for space flight and avionics systems in ISRO's launch vehicles and has been in operational use since 2009. Its development marks a major step in India's semiconductor self-reliance, showcasing the country's ability to design and manufacture high-end processors for critical sectors like space technology.



- The presentation of this chip at Semicon India 2025 highlights India's growing semiconductor ecosystem and its strategic push to become a global manufacturing hub.

ADI VAANI

Context: India's first AI-powered translator for tribal languages was launched by the Ministry of Tribal Affairs as part of *Janjatiya Gaurav Varsh* celebrations.

About Adi Vaani:

- Developed by a consortium led by IIT Delhi with BITS Pilani, IIIT Hyderabad, IIIT Nava Raipur, and Tribal Research Institutes.
- Beta version supports Santali, Bhili, Mundari, and Gondi, with Kui and Garo under development.
- Provides real-time text and speech translation with Hindi/English, interactive learning modules, digitization of folklore, and subtitled advisories.

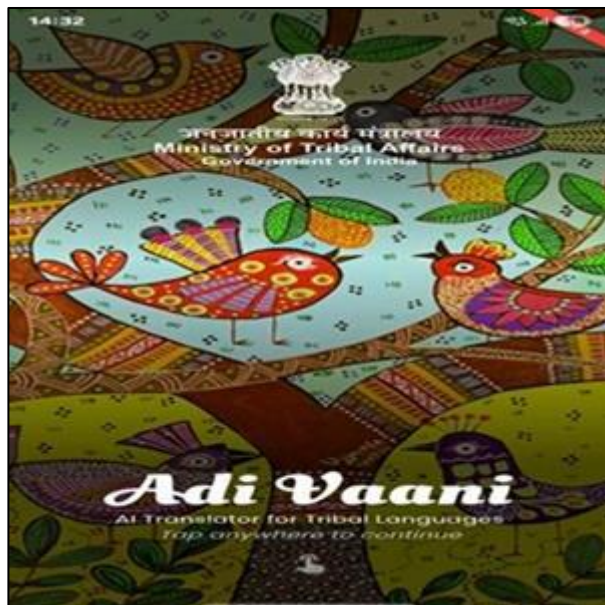
Objectives & Impact:

- Preserves and revitalizes endangered tribal languages.
- Bridges communication gaps between tribal and non-tribal communities.
- Enhances digital literacy, access to education, healthcare, and governance.
- Strengthens cultural diversity and inclusion through technology.

Tribal Languages in the Eighth Schedule

The Eighth Schedule of the Constitution lists 22 official languages. Among them, some are tribal in origin or largely spoken by Scheduled Tribe communities:

- Santali – Added by the 92nd Constitutional Amendment (2003); spoken mainly in Jharkhand, Odisha, West Bengal, Bihar; uses Ol Chiki script.
- Bodo – Added by the 92nd Amendment (2003); spoken in Assam, linked to Bodo-Kachari tribal groups.
- Manipuri (Meitei) – Added by the 71st Amendment (1992); spoken in Manipur, predominantly by Meitei but also linked with tribal sub-groups in the region.



MAJORANA PARTICLES

Context: Majoranas are quantum entities that act as their own antiparticles. In certain superconductors, electrons can split into two Majorana modes that store information across separated locations.

How Majoranas Protect Quantum Information

- Conventional quantum computers fight errors by combining many physical qubits into one logical qubit.
- Majorana qubits can store information non-locally, making them inherently resistant to noise.

- When Majoranas are “braided,” their quantum state changes in a way that depends on the entire sequence of swaps, providing fault-tolerance.

Promise and Challenges

- Quantum operations could be performed by braiding Majoranas, making robustness a feature of physics rather than engineering.
- Challenges remain: environmental errors and the difficulty of demonstrating scalable Majorana braiding.

Why This Matters

- Majorana-based quantum computers may need fewer physical qubits, making them more practical and error-resistant.
- Early experiments suggest Majoranas exist, but large-scale implementation is still an open goal.

Quantum Computing

- **Definition:** Quantum computing is an advanced form of computation that uses the principles of quantum mechanics—mainly *superposition* and *entanglement*—to process information.
- **Qubits vs. Classical Bits:**
 - Classical computers use bits (0 or 1).
 - Quantum computers use *qubits*, which can exist in a superposition of 0 and 1 simultaneously, enabling parallel computations.
- **Key Features:**
 - **Superposition:** A qubit can represent multiple states at once, allowing massive computational power.
 - **Entanglement:** Qubits can be correlated in such a way that the state of one instantly influences another, enabling powerful information processing.
 - **Quantum Interference:** Ensures the correct probability amplitudes are amplified while wrong answers cancel out.
- **Applications:**
 - Cryptography (breaking or creating secure codes)
 - Drug discovery and materials science
 - Optimization problems (logistics, finance, AI training)
 - Simulation of complex systems (climate, physics, chemistry).
- **Challenges:**
 - Qubits are fragile and prone to *decoherence* (loss of quantum state).
 - Requires *error correction* and highly stable environments (extreme cooling, shielding).
 - Scaling up to practical, large systems remains an experimental frontier.

ADFALCIVAX

Context: The Union government has licensed five companies to manufacture and commercialise India’s first indigenous multi-stage malaria vaccine.

AdFALCIVax – India’s Indigenous Malaria Vaccine

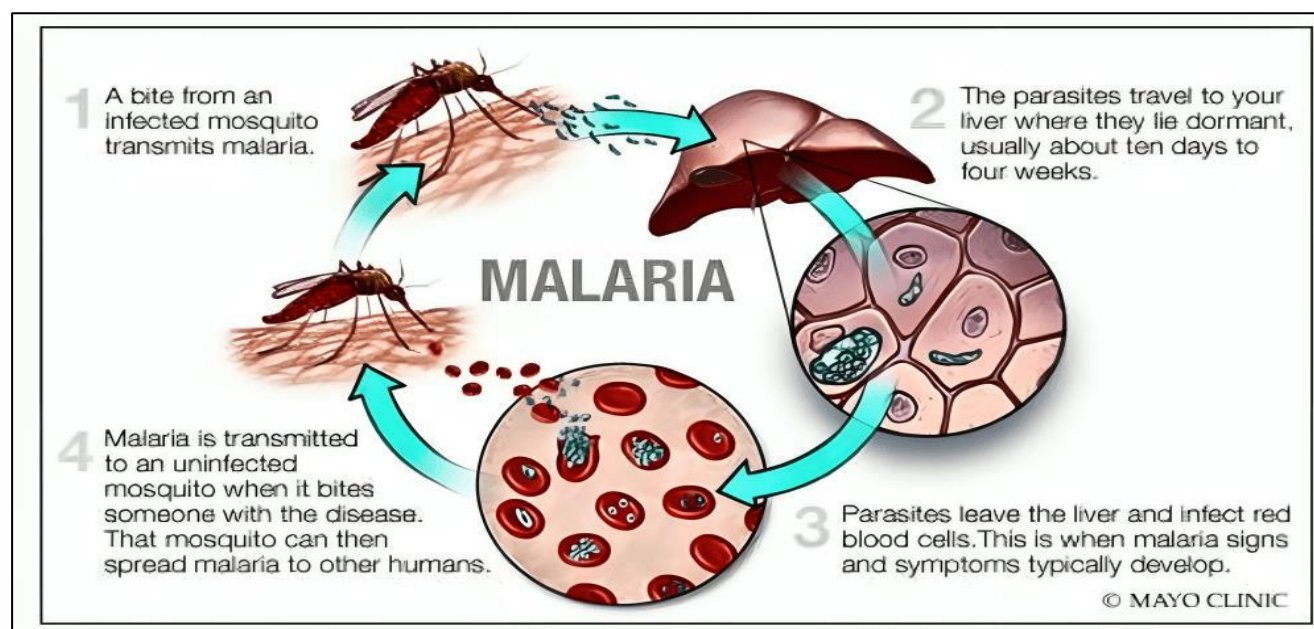
Overview:

AdFALCIVax is India’s first indigenous recombinant chimeric malaria vaccine, developed by the Indian Council of Medical Research (ICMR) in collaboration with its research institutes. It targets *Plasmodium*

falciparum, the deadliest malaria parasite, and is designed to prevent both individual infections and transmission in the community.

Key Features:

- Dual-Stage Protection:
 - Pre-erythrocytic stage: Prevents liver infection using the circumsporozoite protein.
 - Transmission-blocking stage: Inhibits parasite development in mosquitoes using a fusion protein.
- Production Platform: Uses *Lactococcus lactis*, a safe, food-grade bacterium, ensuring scalable and cost-effective vaccine production.
- Thermal Stability: Maintains efficacy for over nine months at room temperature, making it suitable for distribution in tropical regions with limited cold-chain infrastructure.
- Immunogenicity: Induces robust and long-lasting immunity, with protection lasting several months post-booster dose.



SMALL SATELLITE LAUNCH VEHICLE (SSLV)

Context : ISRO has formally agreed to transfer its Small Satellite Launch Vehicle (SSLV) technology to Hindustan Aeronautics Ltd (HAL), marking a major step in India's space sector privatization.

Small Satellite Launch Vehicle (SSLV)

- Payload Capacity: Can carry about 500 kg to Low Earth Orbit (LEO) and 300 kg to Sun-Synchronous Polar Orbit (SSPO).
- Configuration: A three-stage solid propulsion rocket with a liquid propulsion-based Velocity Trimming Module (VTM) for precise orbital insertion.
- Cost-Effective: Designed for low-cost launches, with a quick turnaround time and minimum ground infrastructure requirements.
- Flexibility: Allows on-demand launch services and the ability to place multiple satellites in different orbits.

Advantages

- Meets the needs of the booming small satellite market, both domestic and international.
- Reduces dependence on foreign launchers for small satellites.
- Strengthens India's position in the global commercial launch market.

First Flight

- The maiden flight of SSLV was conducted on 7 August 2022 from Sriharikota but faced anomalies.
- The first successful flight was achieved on 10 February 2023, placing EOS-07 and two customer satellites into orbit.



NASA'S PERSEVERANCE ROVER

Context : NASA's Perseverance rover may have found its strongest evidence yet of potential past life on Mars.

Mars rovers sent till date (up to 2025):

Sojourner (1997) – NASA

- First successful Mars rover, part of Mars Pathfinder mission.
- Tested mobility and technology; studied rocks and soil.

Spirit (2004–2010) – NASA

- Landed under Mars Exploration Rover mission.
- Explored Gusev Crater; discovered evidence of past water.
- Got stuck in sand in 2009; last contact in 2010.

Opportunity (2004–2018) – NASA

- Twin of Spirit, landed on Meridiani Planum.
- Found strong evidence of ancient water activity.
- Operated for nearly 15 years (planned for 90 days).

Curiosity (2012–present) – NASA

- Part of Mars Science Laboratory mission.
- Nuclear-powered rover in Gale Crater.
- Studied geology, climate, and conditions for microbial life.
- Still operational.

Perseverance (2021–present) – NASA

- Landed in Jezero Crater.
- Focused on astrobiology, searching for signs of ancient life.
- Collecting samples for future return to Earth.

- Also deployed **Ingenuity helicopter**, the first aircraft to fly on another planet.

Zhurong (2021–2023) – China, CNSA

- First non-NASA rover to operate successfully on Mars.
- Part of Tianwen-1 mission.
- Explored Utopia Planitia; confirmed presence of water-bearing minerals.



XENOPARITY

Context : Scientists have discovered that the Mediterranean harvester ant, *Messor ibericus*, can give birth to two different species—its own and pure males of *Messor structor*.

Xenoparity

- Meaning:** Xenoparity refers to the phenomenon where an organism gives birth to offspring of a *different species*.
- Discovery:** First documented in the Mediterranean harvester ant *Messor ibericus*, which can produce not only its own offspring but also pure males of another species, *Messor structor*.
- Mechanism:**
 - Queens produce their own species' queens using sperm from *M. ibericus* males.
 - They produce hybrid workers and even pure *M. structor* males using sperm from *M. structor* males.
- Significance:**
 - First known natural case in animals challenging the biological rule that offspring belong to the same species as the parent.
 - Redefines concepts of reproduction, heredity, and species boundaries.
- Evolutionary Context:** Despite diverging over 5 million years ago, *M. ibericus* and *M. structor* maintain this rare reproductive adaptation, enhancing colony survival.

SUPERCOMPUTERS

Context : Can be directly asked in Prelims.

India's Supercomputing Journey

- Background (1980s)

- In the late 1980s, Western countries, especially the U.S., refused to export high-end supercomputers to India due to technology embargoes.
- This triggered India's indigenous supercomputing programme.
- C-DAC Establishment (1988)
 - The Centre for Development of Advanced Computing (C-DAC) was set up in 1988 by the Government of India to build domestic supercomputing capabilities.
- PARAM Series
 - India's first supercomputer PARAM 8000 was launched in 1991.
 - It marked India's entry into the global supercomputing community.
 - The PARAM series evolved with improved speed and capacity over the years.
- Expansion (2000s onwards)
 - Supercomputers were installed across IITs, IISc, IISERs, and national laboratories.
 - Used for weather forecasting, climate modelling, molecular biology, drug discovery, space research, AI, and defence applications.
- National Supercomputing Mission (NSM)
 - Launched in 2015 as a joint initiative of the Department of Science and Technology (DST) and the Ministry of Electronics and IT (MeitY), implemented by C-DAC and IISc.
 - Aims to build 70+ high-performance computing (HPC) facilities across India, with indigenous hardware and software development.
- Recent Progress
 - Supercomputers like Pratyush and Mihir have been deployed for weather and climate research.
 - India is moving towards petascale and exascale computing capabilities.

OPTICAL COMPUTING

Context: Scientists are exploring light-based (optical) computing to overcome the speed and energy limitations of conventional electronics, especially for AI. Recent research found that nonlinear interactions of light in optical fibres can perform AI tasks faster and more efficiently.

Optical Fibres:

- Definition: Optical fibres are thin, flexible strands of glass or plastic that transmit data as pulses of light.
- Working Principle: They function on the principle of total internal reflection, where light signals bounce within the core of the fibre without escaping, allowing data to travel long distances with minimal loss.
- Structure:
 - Core: The innermost part where light travels.
 - Cladding: Surrounds the core and reflects light back into it.
 - Buffer Coating: Provides protection and strength.
- Types:
 1. Single-mode fibres: Narrow core, transmit light directly, used for long-distance communication.
 2. Multi-mode fibres: Larger core, multiple light paths, used for short distances.
- Applications:
 - High-speed internet and telecommunication networks.
 - Medical imaging (endoscopy).
 - Defense and aerospace communication.
 - Emerging uses in optical computing and AI.
- Advantages:
 - High bandwidth and faster data transfer.
 - Low signal loss and immune to electromagnetic interference.
 - Lightweight and durable.

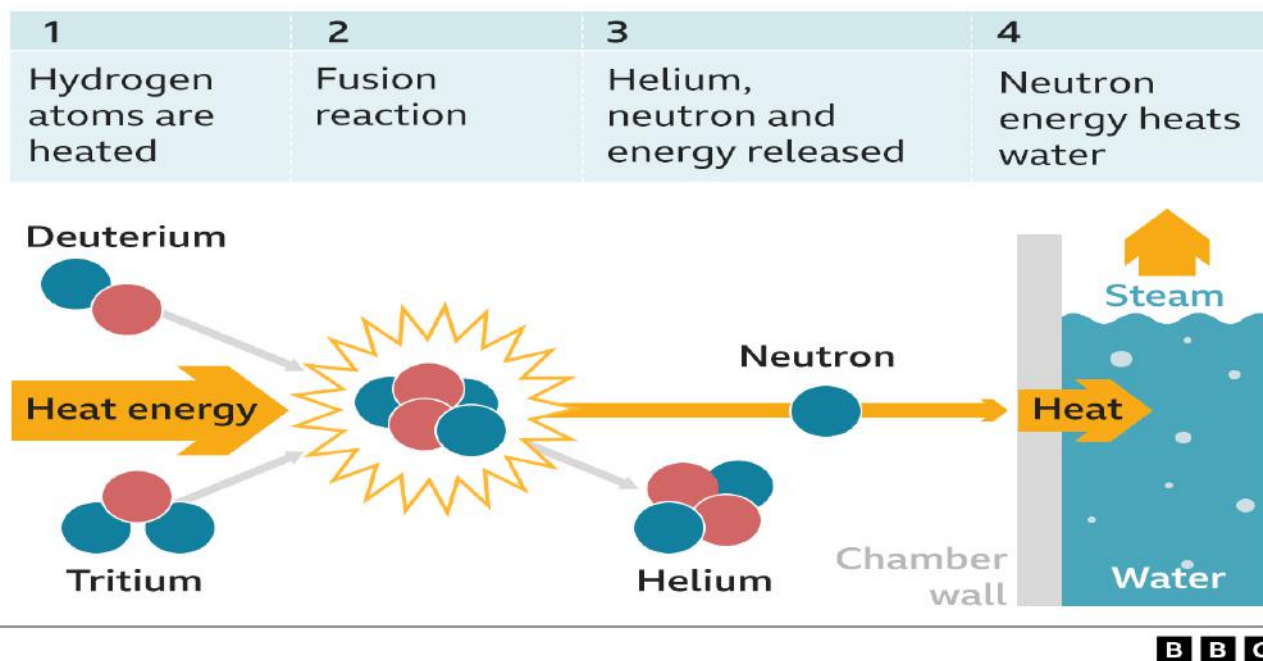
FUSION POWER PLANTS

Context: IPR Gandhinagar has outlined a roadmap to build SST-Bharat, a steady-state superconducting tokamak, aiming for fusion and fusion–fission hybrid power demonstration by mid-century.

ITER (International Thermonuclear Experimental Reactor):

- Overview: ITER is the world's largest international collaborative project in nuclear fusion research, under construction at Cadarache, France.
- Members: It involves 35 countries, including India, EU, USA, Russia, China, Japan, and South Korea.
- Objective: To demonstrate the feasibility of fusion power as a large-scale, carbon-free energy source by producing self-sustaining plasma.
- Technology: ITER is a tokamak (doughnut-shaped magnetic confinement device) designed to confine plasma at over 150 million °C, using powerful superconducting magnets.
- Power Goal: ITER aims for a $Q \geq 10$, meaning it will generate 10 times more fusion power (500 MW) than the external heating power required (50 MW).
- Timeline: First plasma is targeted for the 2030s (delayed from original 2025).
- India's Role: India, through the Institute for Plasma Research (IPR), Gandhinagar, contributes critical components like cryostat, cooling systems, in-wall shielding, and diagnostic tools.
- Significance: ITER is not a power plant but a demonstration facility — a stepping stone toward future demonstration and commercial fusion reactors (DEMO stage).

How nuclear fusion works



H3N2

Context: Delhi and nearby cities are witnessing a surge in H3N2 influenza cases, with doctors urging precautions due to rising infections, especially among vulnerable groups.

About H3N2:

- Disease: H3N2 is an Influenza A subtype virus causing respiratory illness.
- Current trend: Hospitals report rise in cases; August saw ~80, September ~100 cases.
- Symptoms: Fever, body ache, cough, sore throat, congestion; symptoms more intense this year.
- Spread: Transmitted through coughing, close contact, and contaminated surfaces.
- Vulnerable groups: Elderly, children, pregnant women, people with diabetes, asthma, heart/kidney disease, or low immunity.

- Illness duration: Typically lasts 5–7 days; cough and weakness may persist for weeks.
- Complications: Risk of secondary bacterial infection in those with comorbidities.
- Precaution: Avoid close contact, wear masks, maintain hygiene, get vaccinated.
- Challenge: Difficult to confirm if H3N2 cases are rising due to inadequate surveillance.
- Doctors' advice: Urgent need for vaccination, especially for high-risk groups.

WHAT IS H3N2 INFLUENZA

H3N2 influenza, also known as the **"Hong Kong flu,"** is a subtype of the influenza A virus that can cause respiratory illness in humans.

This subtype has caused **several influenza outbreaks in the past.**



HOW IT SPREADS

H3N2 influenza is highly contagious.

IT CAN SPREAD FROM **PERSON TO PERSON** WHEN AN INFECTED PERSON

Talks



Coughs



Sneezes



THROUGH CONTAMINATED SURFACES



Behind the sudden outbreak

Recently, the IMA's Standing Committee for Anti-Microbial Resistance said air pollution may be one of the reasons behind the viral surge.



The change in weather may also be causing the surge. The cases are expected to go down by April when the temperature increases.



People who are at high risk of complications



Pregnant women



Young children



Older adults



People with underlying conditions

Avian Influenza (Avian Flu)

- A zoonotic viral infection caused by Influenza A viruses that primarily affect birds but can infect humans and other animals.
- Classified into Low Pathogenic Avian Influenza (LPAI) and Highly Pathogenic Avian Influenza (HPAI) depending on severity in poultry.

Major Types / Strains

1. H5N1
 - First detected in humans in 1997 (Hong Kong).
 - Highly pathogenic; causes severe respiratory illness with high fatality rate.
 - Endemic in parts of Asia and Africa.
 - Limited human-to-human transmission.
2. H7N9
 - First reported in humans in China (2013).
 - Usually low pathogenic in birds but can cause severe illness in humans.
 - High mortality among reported human cases.
3. H5N6
 - Reported in poultry outbreaks in Asia.
 - Sporadic human infections (mostly in China).
 - Causes severe respiratory disease in humans.
4. H9N2
 - Low pathogenic in birds.
 - Human infections are usually mild.

- Important because it can mix with other influenza viruses, acting as a “gene donor” for new strains.
- 5. H10N3 / H10N8
 - Rare human cases reported in China.
 - H10N8 caused fatal cases in 2013.
 - Still considered sporadic but monitored for pandemic potential.
- 6. H3N2 (variant of concern for humans, not birds alone)
 - Causes seasonal influenza in humans, but also linked with zoonotic spillover.
 - Not classified as a classic “avian flu,” but shares cross-species transmission risks.

ASTROSAT

Context : India’s first space-based observatory AstroSat has completed 10 years since its launch in 2015, continuing to provide valuable astronomical data.

AstroSat:

- **Launch:** AstroSat launched on September 28, 2015, by PSLV-C30 (XL) rocket from Satish Dhawan Space Centre, Sriharikota.
- **Mission life:** Originally designed for 5 years, but continues to function effectively after a decade.
- **Significance:** India’s first dedicated multi-wavelength space observatory, comparable to NASA’s Hubble.
- **Discoveries:**
 - Observed FUV photons from galaxies 9.3 billion light years away.
 - Enabled studies on black holes, neutron stars, and Proxima Centauri.
 - Provided insights across the electromagnetic spectrum (UV to X-rays).
- **Payloads (5 instruments):**
 - Ultra Violet Imaging Telescope (UVIT)
 - Large Area X-ray Proportional Counter (LAXPC)
 - Cadmium-Zinc-Telluride Imager (CZTI)
 - Soft X-ray Telescope (SXT)
 - Scanning Sky Monitor (SSM)
- **Collaborative effort:** Developed by ISRO in partnership with major Indian institutions (IUCAA, TIFR, IIA, RRI, several universities) and international partners (Canada & U.K.).

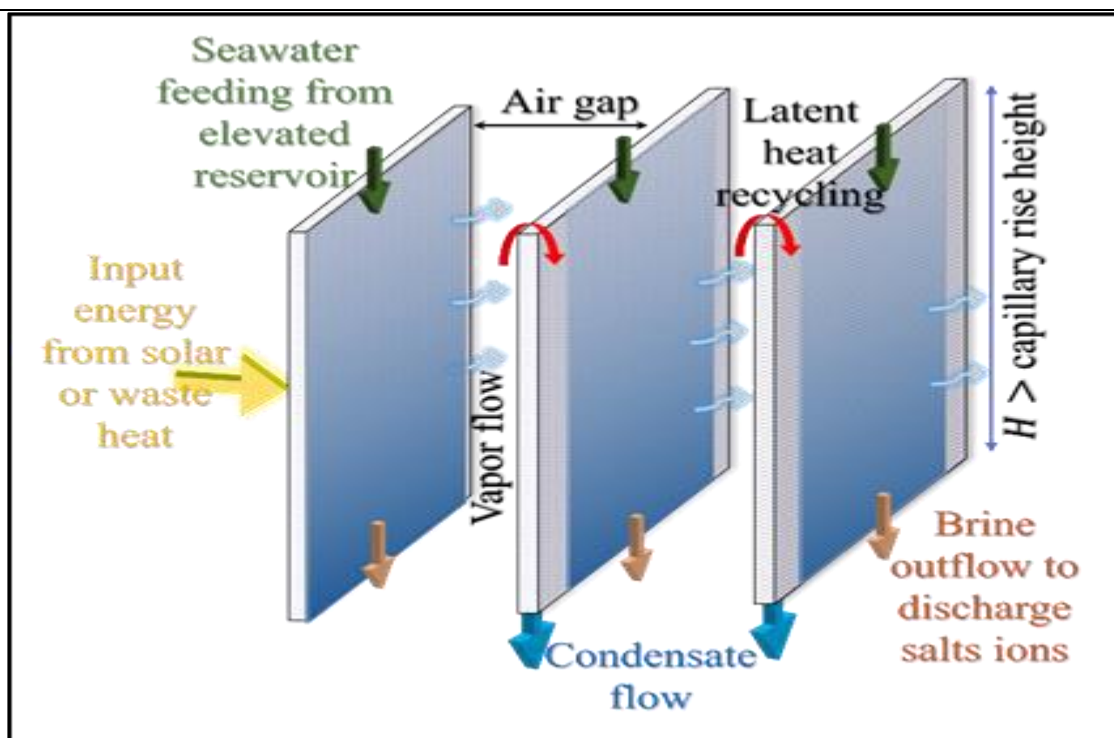


SIPHON PRINCIPLE

Context : IISc has developed a siphon-powered desalination technology that converts saltwater into clean drinking water more efficiently than conventional solar stills.

Siphon Principle

- **Definition:**
A siphon is a device that allows liquid to flow from a higher level to a lower level through a tube, even if the tube rises above the surface of the liquid in the higher container.
- **Working Principle:**
 - Relies on gravity and the difference in liquid pressure at the two ends of the tube.
 - Once the tube is filled, the liquid continues to flow because the pressure at the lower outlet is less than at the higher source.
 - The liquid column in the descending limb (heavier) pulls the liquid up the ascending limb.
- **Key Conditions:**
 - Outlet must be below the liquid surface of the source container.
 - The tube must be primed (filled with liquid) initially.
 - Works only until the source liquid level drops below the inlet end.
- **Applications:**
 - Emptying tanks, aquariums, and fuel tanks.
 - Irrigation and drainage systems.
 - Some modern technologies (like IISc's desalination system) use siphon action for fluid movement.





HISTORY AND ART & CULTURE

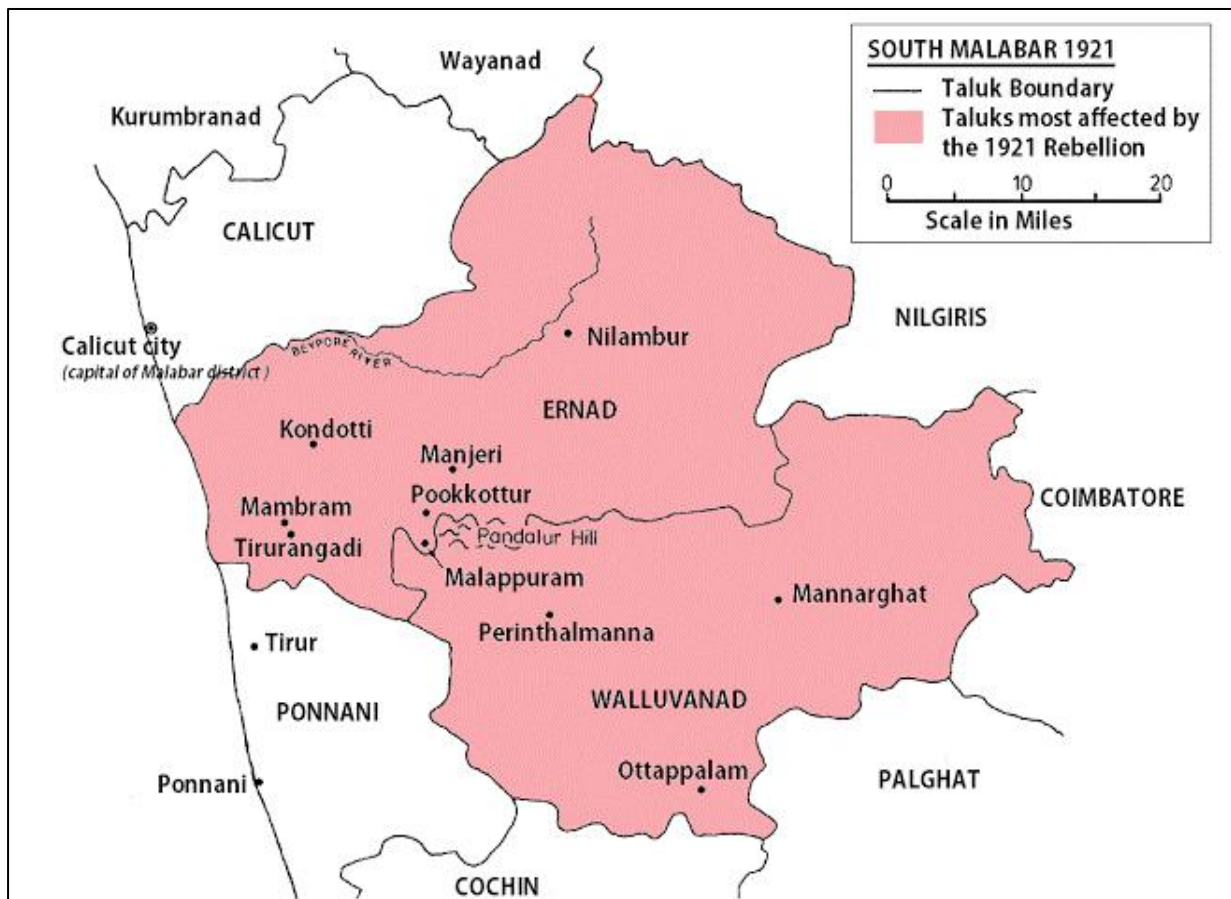


MALABAR'S REBELLION

Context: The book “Decolonial Historiography of Malabar’s Rebellion” by Ziya Us Salam offers a fresh view of the 1921–22 Malabar Revolt.

Mappilla Rebellion (or Malabar Rebellion), 1921

- **Background:** A series of uprisings by the Mappilla (Muslim) peasantry in the Malabar region of Kerala against British colonial authority and landlord (jenmi) exploitation.
- **Causes:**
 1. Economic exploitation – high rents and oppressive tenancy under Hindu landlords.
 2. Religious tension – communal polarization between Mappilla Muslims and Hindu landlords.
 3. Political influence – spread of Khilafat Movement and anti-colonial sentiment.
- **Course:** Began in 1921, marked by attacks on landlords, government officials, and police. The rebellion was initially anti-British but later took a communal turn, leading to widespread violence.
- **Suppression:** Brutally suppressed by the British army, involving mass killings, arrests, and destruction of villages.
- **Significance:**
 - Highlighted agrarian distress and tenant issues in Malabar.
 - Exposed the complex interplay of religion, economics, and politics in anti-colonial struggles.
 - Led to the introduction of the Malabar Tenancy Act (1930) to protect tenants.



SAVITRIBAI PHULE

Context: Her contribution to education was remembered on the eve of teachers day.

About Savitribai Phule:

- Contribution: India's first female teacher and pioneer of women's education.
- Key Achievements:
 - Opened the first girls' school in Pune in 1848 with her husband Jyotirao Phule.
 - Developed curricula tailored for girls, emphasizing literacy, hygiene, and social awareness.
 - Authored poems and texts to inspire girls and women to pursue education.
- Challenges: Faced social hostility, including threats and ostracism, but persisted to empower marginalized communities.
- Legacy: Laid the foundation for women's education among lower-caste and marginalized communities.

SELF-RESPECT MOVEMENT

Context: 100 Years of the Self-Respect Movement in Tamil Nadu.

E.V. Ramasamy (Periyar)

- **Born:** 17 September 1879, Erode, Tamil Nadu
- **Known as:** *Periyar* ("The Great One")

Role in Social Reform

- Founded the Self-Respect Movement (1925) to challenge caste hierarchy, Brahminical dominance, and gender inequality.
- Advocated rationalism, atheism, and social justice, rejecting religious orthodoxy and superstition.
- Strongly opposed untouchability, hereditary caste privileges, and dominance of upper castes in politics and society.

Political Engagement

- Initially associated with the Indian National Congress, but resigned due to differences over caste discrimination.
- Later allied with the Justice Party, pushing for non-Brahmin representation in politics and education.
- Played a major role in shaping Dravidian ideology, which later influenced parties like DMK and AIADMK.

Key Reforms

- Promoted Self-Respect Marriages (without Brahmin priests, based on equality).
- Championed women's rights: widow remarriage, right to property, education, and opposition to child marriage.
- Used journalism (*Kudi Arasu* weekly) and public debates to spread rationalist and egalitarian ideas.

Legacy

- Revered as the "Father of the Dravidian Movement."

- Left a lasting impact on Tamil society, politics, and social justice discourse.
- His ideas continue to shape debates on caste, rationalism, and social reform in South India.

MANKI-MUNDA SYSTEM

Context: The Manki-Munda system is a centuries-old self-governance framework of the Ho adivasi community in Jharkhand's Kolhan region.

Structure and Function

- Each village is led by a hereditary Munda, who resolves disputes and maintains order.
- A Manki oversees a cluster of 8–15 villages, handling unresolved issues.
- The system is decentralized, hereditary, and non-revenue-based, traditionally functioning without external taxation or state intervention.



British Influence

- In 1833, the British codified it under "Wilkinson's Rules", marking the first formal recognition of an adivasi self-governance system. This preserved some autonomy but enabled outsider entry and land changes.

SWAMI VIVEKANANDA

Context: On September 11, 1893, Swami Vivekananda delivered his historic speech at the Parliament of the World's Religions in Chicago.

Swami Vivekananda (1863–1902)

- A disciple of Ramakrishna Paramahansa and founder of the Ramakrishna Mission.
- Played a key role in spreading Vedanta and Yoga to the West.
- Gained worldwide recognition after his speech at the Parliament of the World's Religions, Chicago (1893), where he spoke on religious tolerance and universal brotherhood.
- Advocated for social reform, education, and upliftment of the poor, emphasizing service to humanity as true worship of God.
- Stressed spiritual nationalism, inspiring India's freedom movement with the idea of strength, self-confidence, and cultural pride.
- Passed away at the young age of 39 (1902), but left a lasting impact on philosophy, spirituality, and nation-building.

ACHARYA VINOBA BHAVE

Context: On 11 September 2025, Prime Minister Narendra Modi paid tribute to Acharya Vinoba Bhave on his birth anniversary.

Acharya Vinoba Bhave (1895–1982)

- A renowned spiritual leader, freedom fighter, and social reformer, often regarded as the spiritual successor of Mahatma Gandhi.
- Bhoodan Movement (1951): Initiated the *Land Gift Movement*, urging landlords to voluntarily donate land to the landless, symbolizing nonviolent social change.

- Association with Gandhi: Deeply influenced by Gandhian philosophy of truth and nonviolence; chosen as the first Individual Satyagrahi (1940) against British rule.
- Advocated Sarvodaya (welfare of all), social equality, rural upliftment, and selfless service.
- Promoted constructive programs like education, rural reform, and community development.
- Awarded the Bharat Ratna (posthumously in 1983), India's highest civilian honor.

Legacy:

Vinoba Bhave is remembered as the "National Teacher" (*Acharya*) whose movements and teachings emphasized harmony, compassion, and social justice, leaving a lasting imprint on India's socio-political landscape.

OPERATION POLO

Context: Seventy-seven years ago, in September 1948, India launched Operation Polo to annex Hyderabad, the largest princely state that had resisted joining the Union.

Operation Polo (1948)

- Context: At the time of Independence (1947), Hyderabad was the largest princely state, ruled by Nizam Mir Osman Ali Khan, who sought independence despite India's appeals for integration.
- Problem:
 - Majority Hindu population under a feudal system.
 - Rise of Razakars, a private militia supporting the Nizam, known for violent suppression.
 - Peasant revolts led by communists and local groups.
- Standstill Agreement (1947): Signed between India and Hyderabad to maintain status quo while negotiations continued.
- Trigger: Breakdown of talks and rising Razakar violence pushed the Indian government to act.
- Military Action: On 13 September 1948, India launched "Operation Polo", a swift military campaign.
- Outcome:
 - Lasted only four days.
 - Nizam surrendered on 17 September 1948.
 - Hyderabad was integrated into the Indian Union.
 - Initially placed under military administration, later followed by elections in 1952.

CHHATH PUJA

Context : PM Modi, in *Mann ki Baat*, praised the RSS on its centenary journey and highlighted the government's push for Chhath Puja's inclusion in UNESCO's intangible cultural heritage list.

Chhath Puja

- Nature of Festival: An ancient Hindu Vedic festival dedicated to the Sun God (Surya) and Chhathi Maiya (Usha, the wife of the Sun God).
- Observed in: Primarily in Bihar, Jharkhand, Eastern Uttar Pradesh, and the Mithila region of Nepal; also celebrated by diaspora communities.
- Timing: Held twice a year — most prominently after Diwali (October–November, Kartika month), known as Chhath Mahaparva.
- Rituals:
 - Lasts four days with strict rituals including fasting, holy bathing, and offering *Arghya* (water and prayers) to the rising and setting Sun.
 - Devotees observe Nirjala Vrat (fast without water) as part of the worship.
 - Celebrated on riverbanks and water bodies, symbolizing purity.
- Cultural significance:
 - Emphasizes gratitude to nature, ecological balance, and solar energy.
 - Promotes social harmony and collective participation.

- Global recognition: India is making efforts to get Chhath Puja inscribed in UNESCO's Intangible Cultural Heritage list.

India & UNESCO Intangible Cultural Heritage (ICH)

- Convention: UNESCO's *Convention for the Safeguarding of the Intangible Cultural Heritage* (2003) aims to preserve cultural practices, traditions, and knowledge systems.
- India's Status: India ratified in 2005; as of 2025, India has 15 elements inscribed on UNESCO's ICH Representative List.

India's ICH Elements (as of 2025):

1. Kutiyattam, Sanskrit theatre – Kerala – 2008
2. Tradition of Vedic Chanting – Across India – 2008
3. Ramlila, the traditional performance of the Ramayana – North India – 2008
4. Ramman, religious festival and ritual theatre – Uttarakhand – 2009
5. Chhau dance – Jharkhand, West Bengal, Odisha – 2010
6. Kalbelia folk songs and dances – Rajasthan – 2010
7. Mudi yettu, ritual theatre and dance drama – Kerala – 2010
8. Buddhist chanting of Ladakh – Ladakh – 2012
9. Sankirtana, ritual singing, drumming and dancing – Manipur – 2013
10. Traditional brass and copper craft of utensil making among the Thatheras of Jandiala Guru – Punjab – 2014
11. Nowruz – Celebrated in India by Parsi community (shared with other countries) – 2016
12. Yoga – Across India – 2016
13. Kumbh Mela – Haridwar, Prayagraj, Ujjain, Nashik – 2017
14. Durga Puja in Kolkata – West Bengal – 2021
15. Garba of Gujarat – Gujarat – 2023

DEFENCE & SECURITY

MAITREE

Context : The 14th edition of the India-Thailand joint military exercise Maitree-XIV began on September 1, 2025, at the Joint Training Node in Umroi, Meghalaya.

Major military exercises of India

Exercise	Partner / Participants	Type	Focus / Objective
Maitree	Thailand	Army	Counter-terrorism, semi-urban/jungle warfare, interoperability.
Garuda Shakti	Indonesia	Army (Special Forces)	Counter-insurgency, counter-terrorism, jungle survival.
Shakti	France	Army	Counter-terrorism in semi-urban and high-altitude conditions.
Surya Kiran	Nepal	Army	Counter-insurgency, disaster response, humanitarian assistance.
Nomadic Elephant	Mongolia	Army	Counter-insurgency, peacekeeping, and desert warfare.
Hand-in-Hand	China	Army	Counter-terrorism and humanitarian assistance under UN mandate.
Yudh Abhyas	USA	Army	Counter-insurgency, counter-terrorism, and peacekeeping operations.
Indra	Russia	Tri-services	Counter-terrorism, peacekeeping, and joint operations.
Sampriti	Bangladesh	Army	Counter-terrorism and disaster management.
Ajeya Warrior	United Kingdom	Army	Counter-terrorism and joint tactical operations.
Garuda	France	Air Force	Air-to-air combat, interoperability, strategic cooperation.
Cope India	USA	Air Force	Air combat tactics, strategic airlift, and joint operations.
Indo-Russian Avia Indra	Russia	Air Force	Air defence, ground attack coordination.
Varuna	France	Navy	Maritime security, anti-submarine warfare, and interoperability.

Malabar	USA, Japan, Australia	Navy (Quadrilateral)	Maritime security, freedom of navigation, and Indo-Pacific cooperation.
JIMEX	Japan	Navy	Maritime security, anti-submarine warfare, and joint tactical manoeuvres.
Simbex	Singapore	Navy	Anti-submarine warfare, maritime security, and sea control operations.
Konkan	United Kingdom	Navy	Maritime security, anti-piracy, and naval cooperation.
MILAN	Multinational (Indian Ocean, Indo-Pacific)	Navy (Multilateral)	Maritime cooperation, interoperability, and regional security.

THEATRE COMMANDS IN INDIA

Context: Theatre Commands represent a major shift to make India's armed forces more agile, unified, and future-ready.

What is a Theatre Command?

- A unified command where Army, Navy, and Air Force resources operate together under a single structure for a region.
- Replaces service-specific commands with joint, theatre-based commands.

Rationale and Benefits

- Modern warfare is multi-domain (land, sea, air, cyber, space).
- Enables integrated use of advanced platforms, better logistics, and joint planning.
- Reduces duplication, improves efficiency, and enhances coordination.



Global Context

- Countries like the US, China, Russia, UK, and France already use theatre/joint commands (e.g., US CENTCOM).

Progress and Debate

- Support exists, but differences remain among services on structure and roles.
- Air Force stresses careful planning, Navy highlights integrating maritime strengths.
- Some single-service roles may be retained for flexibility.

Challenges

- Inter-service rivalry, overlapping structures, and integration of diverse doctrines.
- Disputes over HQ locations and command coverage.

Implementation

- Department of Military Affairs (DMA) oversees phased rollout, procurement, and integration.
- Studies and exercises are shaping the final structure.

INS ARAVALI

Context: INS Aravali is a newly commissioned shore-based naval information and communication facility of the Indian Navy in Gurugram, Haryana.

INS Aravali

- Nature: Not a warship, but a state-of-the-art naval information base.
- Role: Functions as a headquarters for real-time maritime surveillance, data fusion, and threat detection in the Indian Ocean Region.
- Global Linkages: Connects with 43 multinational centers across 25 countries for live maritime data sharing, aiding cooperation against piracy, terrorism, smuggling, and illegal fishing.
- Symbolism: Named after the resilient Aravali Range; its crest features a mountain and rising sun symbolizing strength and vigilance.

Core Capabilities

- AI-driven surveillance of ships and submarines with rapid threat analysis.
- Satellite-enabled communication through GSAT-7R.
- National Maritime Domain Awareness Center (NMDA) to be housed within, integrating security and intelligence agencies.
- Global maritime hub for India's international security partnerships.

TYPHON MISSILE SYSTEM

Context: China has urged the U.S. and Japan to withdraw the U.S.-developed Typhon missile system.

Typhon Missile System

- Developer: United States Army, as part of its *Mid-Range Capability (MRC)* program under Army modernization.
- First Deployment: Publicly showcased in Japan in 2025 during the *Resolute Dragon* joint exercises.
- Platform: Truck-based, trailer-mounted ground launch system.
- Missile Types: Launches modified versions of:
 - SM-6 (Standard Missile-6): Surface-to-air missile with extended range, capable of ballistic and cruise missile defense, as well as anti-ship roles.
 - Tomahawk cruise missile: Long-range, precision strike, land-attack missile.
- Range Category: Falls into the mid-range missile class (roughly 500–1,800 km).
- Purpose: Designed to fill the gap between shorter-range systems (like HIMARS) and long-range hypersonic weapons, giving the U.S. Army the ability to strike ships and land targets.
- Strategic Significance: Enhances U.S. and allied deterrence capabilities in the Indo-Pacific, but seen by China as destabilizing to regional security.

INDIA'S FIRST OVERSEAS DEFENCE FACILITY

Context : India has launched its first overseas defence manufacturing facility in Morocco, led by Tata Advanced Systems Limited (TASL).

Indian Overseas Defence Facilities

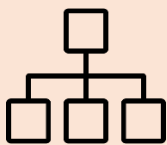
- Farkhor Air Base, Tajikistan: Often regarded as India's first overseas base. India has had an arrangement with Tajikistan for operating/supporting this base, mainly for strategic depth in Central Asia.
- Ayni (Gissar) Air Base, Tajikistan: Renovated and upgraded by India with extended runway, air traffic control and defence infrastructure. It can host IAF aircraft during contingencies, though full operational rights remain limited.
- IMTRAT, Bhutan: The Indian Military Training Team trains Bhutanese armed forces. It is one of India's longest-standing overseas defence missions.
- Listening / Surveillance Posts: India is reported to maintain radar or surveillance facilities in parts of the Indian Ocean Region, such as Madagascar, to monitor maritime traffic and enhance domain awareness.

COMBINED OPERATIONAL REVIEW AND EVALUATION (CORE) PROGRAMME

Context : It is a five-day initiative to strengthen civil–military engagement and strategic leadership in national security organised by HQ IDS in New Delhi.

CORE Programme

- Purpose: Enhances strategic awareness, fosters civil–military engagement, and equips senior leaders with balanced perspectives for national security decision-making.
- Key Themes:
 - Regional and global security challenges.
 - Technological transformation in warfare.
 - Role of strategic communication in modern conflicts.
 - Civil–military synergy for multidimensional threats.
- Features:
 - Five-day event with subject experts and professionals.
 - Exposure to contemporary national and international security issues.
 - Interactive problem-solving to promote inter-service jointness.
- Strategic Significance: Strengthens civil–military cooperation and prepares future leaders to handle complex security environments.

**UNIFIED PENSION SCHEME (UPS)**

Context : Central government employees have until September 30 to opt for the new Unified Pension Scheme (UPS).

Unified Pension Scheme (UPS)

- **Launch:** Introduced by the Government of India in 2025 as an optional scheme for central government employees.
- **Eligibility:** For employees hired before January 1, 2004, who are currently under the Old Pension Scheme (OPS).
- **Nature:** A one-time, optional switch—not mandatory.
- **Key Features:**
 - **Assured Pension:** 50% of the average basic pay of the last 12 months of service.
 - **Contribution:** Employee – 10% of basic pay + Dearness Allowance (DA); Government – 14%.
- **Comparison with OPS:**
 - **OPS:** No employee contribution; pension = 50% of last drawn basic pay.
 - **UPS:** Employee contributes 10%, but pension formula is nearly the same.
- **Reception:** Uptake has been very low because employees see OPS as more favorable (higher net benefit without deductions).
- **Significance:** Designed as a middle path between the non-contributory OPS and the market-linked National Pension System (NPS).

**OPS vs NPS vs UPS**

Features	Old Pension Scheme (OPS)	National Pension System (NPS)	Unified Pension System (UPS)
Pension Amount	50% of last drawn salary.	Market-linked pension. No defined pension, with the value depending upon the performance of the investment fund	Guaranteed pension of 50% of the average basic pay from the last 12 months before retirement.
Inflation Indexation	Adjusted for inflation through Dearness Allowance (DA) .	Not applicable, the pension is market linked.	Indexed for Inflation based on the All India Consumer Price Index for Industrial Workers (AICPI-IW)
Employee Contribution	No contribution from employee.	Defined contribution of 10% of basic pay and dearness allowance (DA) .	Defined contribution of 10% of basic pay and dearness allowance (DA) .
Government Contribution	Full Funding	Defined contribution of 14% of the employee's basic pay and dearness allowance.	Defined contribution of 18.5% of the employee's basic pay and dearness allowance.
Family Pension	Yes. Continues after retirees death.	Corpus Dependent	Yes. It is 60% of employee's pension .
Risk	No market risk	Market risk	Lower risk than NPS

NE-SPARKS PROGRAMME

Context: Union Minister of Development of North Eastern Region, Jyotiraditya M. Scindia, virtually interacted with students from the North East who visited ISRO headquarters under the NE-SPARKS programme.

NE-SPARKS Programme:

- Full form: *North East Students' Programme for Awareness, Reach, and Knowledge on Space.*
- Launched by: Ministry of Development of North Eastern Region (DoNER) in collaboration with ISRO.
- Objective: To nurture scientific curiosity and inspire youth from all eight North Eastern states by giving them exposure to India's space research and technology.
- Features:
 - Meritorious students from the region visit ISRO facilities.
 - Hands-on exposure to cutting-edge space science, satellite technology, and research activities.
 - Interaction with scientists to encourage STEM career choices.
- Progress: Nearly 400 students across four batches have already participated.
- Significance: Enhances scientific temperament, bridges regional gaps in science education, and empowers the North Eastern youth by connecting them directly with national scientific institutions.

PM MITRA SCHEME

Context: PM Modi Lays Foundation of PM MITRA Park, Promotes Swadeshi.

PM MITRA (Prime Minister Mega Integrated Textile Region & Apparel) Parks

Launched by: Ministry of Textiles, Government of India

Objective:

- To create integrated textile manufacturing hubs that boost domestic production, employment, and exports.
- Promote the 5F textile model: Farm → Fibre → Factory → Fashion → Foreign.
- Attract private investment and foster a globally competitive textile industry.

Key Features:

- Modern, plug-and-play industrial infrastructure for textile companies.
- Focus on end-to-end value chain integration: raw material sourcing, spinning, weaving, apparel production, and exports.
- Encourages "Swadeshi" or indigenous manufacturing and local employment.
- Promotes exports of textiles and apparel by increasing competitiveness and scale.

Current Sites (7 Approved Parks):



PM MITRA
A LANDMARK DECISION TO EMPOWER TEXTILES SECTOR

Approves 7 Mega Integrated Textile Region & Apparel (MITRA) Parks

- 7 MITRA Parks with a total outlay of ₹4,445 Crores in a period of 5 years
- World-class Industrial infrastructure to attract investment
- Generation of 7 lakh direct and 14 lakh of indirect employment

The infographic also features a portrait of Prime Minister Narendra Modi and a circular inset showing a woman in traditional Indian attire working on a textile.

1. Dhar, Madhya Pradesh (first laid foundation)
2. Virudhnagar, Tamil Nadu
3. Warangal, Telangana
4. Navasari, Gujarat
5. Kalaburagi, Karnataka
6. Lucknow, Uttar Pradesh
7. Amravati, Maharashtra

Investment & Impact:

- Dhar park has proposals worth ₹23,000 crore from 114 textile companies.
- Expected to generate employment and strengthen India's textile export capacity.

Significance:

- Strengthens domestic textile industry under the "Make in India" and Swadeshi initiatives.
- Helps integrate traditional textile clusters into global value chains.

LIBERALISED REMITTANCE SCHEME (LRS)

Context: Outward remittances under RBI's Liberalised Remittance Scheme (LRS) fell 11% in July 2025 to \$2.45 billion due to lower spending on travel and education abroad.

Liberalised Remittance Scheme (LRS):

- **Introduction:** Launched by the Reserve Bank of India (RBI) in 2004, the Liberalised Remittance Scheme allows resident individuals to remit money abroad for permitted current and capital account transactions.
- **Limit:** Initially capped at USD 25,000 per financial year, it has been gradually increased in line with global trends. The current limit is USD 250,000 per individual per financial year.
- **Permitted Uses:**
 - Education and living expenses abroad
 - Medical treatment
 - Travel (private or business)
 - Purchase of immovable property abroad
 - Investments in shares, debt instruments, or mutual funds
 - Gifts and donations
- **Prohibited Uses:**
 - Remittances for margin trading, lottery, gambling, or banned activities
 - Remittances to countries identified as non-cooperative by FATF or where transactions are restricted by RBI
- **Monitoring:** Banks must ensure compliance with LRS rules, and PAN is mandatory for all remittances under this scheme.

MISCELLANEOUS

NIRF 2025

Context: IIT Madras has topped the NIRF 2025 overall rankings for the seventh consecutive year, also retaining its position as India's best engineering college for the tenth year.

Key Highlights

- Top Institutions: IIT Madras, IISc Bengaluru, IIT Delhi, IIT Bombay, IIT Kanpur, IIT Kharagpur, IIT Roorkee, AIIMS Delhi, JNU Delhi, Banaras Hindu University.
- Coverage: The tenth edition spanned 17 categories, reflecting the growing scope of Indian higher education.
- Critique: Education Minister Dharmendra Pradhan flagged regional bias in the *peer perception* metric (10% weight), which favors metropolitan colleges, and called for more inclusive mechanisms from 2026.

About NIRF:

The National Institutional Ranking Framework (NIRF) is an initiative of the Ministry of Education, launched in 2015, to assess and rank higher education institutions in India. It provides a systematic methodology to promote quality, transparency, and accountability in the education sector.

Key Features:

- Parameters: Teaching and learning, research and professional practice, graduation outcomes, outreach and inclusivity, and perception.
- Coverage: Institutions are ranked under categories such as overall, universities, engineering, management, medical, law, pharmacy, architecture, agriculture, innovation, and others.
- Objective: To guide students, parents, and policymakers with credible benchmarks of performance while encouraging healthy competition among institutions.
- Recent Trends: Growing number of categories, increasing participation of institutions, and policy discussions on refining criteria to reduce regional bias and include entrepreneurship and innovation metrics.

RAMON MAGSAYSAY AWARD

Context: Educate Girls, an Indian non-profit dedicated to enrolling unprivileged and out-of-school girls, has won the 2025 Ramon Magsaysay Award.

Ramon Magsaysay Award:

- Established: 1957, in memory of Ramon Magsaysay, the 7th President of the Philippines, known for integrity and leadership.
- Presented by: Ramon Magsaysay Award Foundation (RMAF), Manila, Philippines.
- Objective: To honor individuals or organizations in Asia who demonstrate selfless service, transformative leadership, and commitment to the common good.

- Categories (originally): Government Service, Public Service, Community Leadership, Journalism/Literature/Creative Communication Arts, Peace and International Understanding, Emergent Leadership.
- Prestige: Often called the “Nobel Prize of Asia.”

DR. BHUPEN HAZARIKA

Context: Recently, the birth centenary of Bharat Ratna Dr. Bhupen Hazarika, the “Bard of the Brahmaputra” was celebrated.

- Named after his iconic song *Bistirna Parore*, symbolizing unity and cultural resilience.
- Began at Guijan, Dibrugarh, featuring live renditions of Hazarika’s songs, folk performances, and cultural showcases by communities like Moran, Motok, Tea Tribe, Sonowal Kachari, Deuri, and Gorkha.

Dr. Bhupen Hazarika

- Born: 8 September 1926, Sadiya, Assam
- Known as: *Bard of the Brahmaputra*
- Profession: Singer, lyricist, composer, poet, filmmaker, and cultural icon.

Contributions

- Gave voice to the struggles, hopes, and unity of people through songs rooted in Assamese folk traditions.
- His iconic song *Bistirna Parore* used the Brahmaputra as a metaphor for justice, solidarity, and resilience (inspired by *Ol’ Man River*).
- Brought Assamese and North-Eastern culture to national and global platforms.
- Advocated themes of peace, universal brotherhood, and social justice through music and films.
- Composed music for Assamese, Bengali, and Hindi films, making regional music nationally popular.

Recognitions

- Bharat Ratna (2019) – India’s highest civilian award.
- Padma Vibhushan (2012, posthumous), Padma Bhushan (2001).
- Recipient of Dadasaheb Phalke Award (1992) for contribution to Indian cinema.

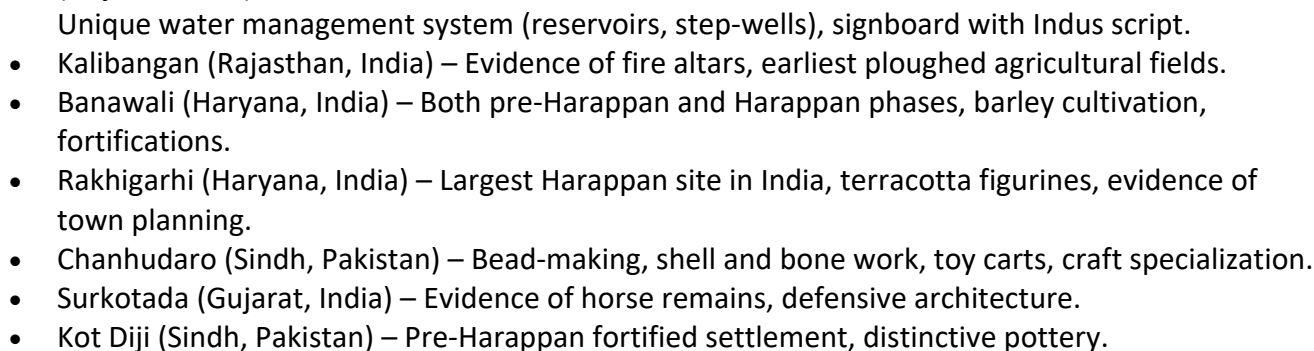
Legacy

- Revered as a cultural unifier of Assam and the North-East.
- Left behind a legacy of socially conscious art that continues to inspire movements for justice, equality, and cultural pride.
- His centenary is celebrated with music and cultural programs across Assam and beyond.

NATIONAL MARITIME HERITAGE COMPLEX

Context: Prime Minister Narendra Modi will review the progress of the National Maritime Heritage Complex (NMHC) at Lothal, Gujarat, on September 20, 2025.

- Harappa (Punjab, Pakistan) – First site excavated; evidence of urban planning, granaries, and cemeteries.
- Mohenjo-daro (Sindh, Pakistan) – Great Bath, Great Granary, advanced drainage system.
- Lothal (Gujarat, India) – Dockyard, bead-making and semi-precious stone craft, evidence of maritime trade.
- Dholavira (Gujarat, India) – Unique water management system.
- Kalibangan (Rajasthan, India) – Earliest evidence of the wheel and bull cart.
- Banawali (Haryana, India) – Fortifications.
- Rakhigarhi (Haryana, India) – Largest site, evidence of town planning.
- Chanhudaro (Sindh, Pakistan) – Evidence of trade and craft specialization.
- Surkotada (Gujarat, India) – Fortified site, evidence of metalworking.
- Kot Diji (Sindh, Pakistan) – Evidence of early urbanization.



Context : In September 2025, seven new natural heritage sites from India were added to UNESCO's Tentative List, taking the total to 69 properties (49 cultural, 17 natural, 3 mixed).

- Deccan Traps at Panchgani and Mahabaleshwar, Maharashtra
- St. Mary's Island Cluster, Karnataka
- Meghalayan Age Caves, Meghalaya
- Naga Hill Ophiolite, Nagaland
- Erra Matti Dibbalu (Red Sand Hills), Andhra Pradesh
- Tirumala Hills, Andhra Pradesh
- Varkala Cliffs, Kerala

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- Definition: Sites recognized by UNESCO for their cultural, natural, or mixed significance of outstanding universal value to humanity.
- Categories:
 1. Cultural Sites – Monuments, architectural works, or urban settlements (e.g., Taj Mahal, Jaipur City).
 2. Natural Sites – Natural landscapes, ecosystems, or geological formations (e.g., Sundarbans, Western Ghats).
 3. Mixed Sites – Sites with both cultural and natural importance (e.g., Khangchendzonga National Park).
- India's WHS:
 - As of 2025, India has 42 World Heritage Sites: 29 cultural, 12 natural, 1 mixed.
 - Additionally, 69 sites are on the Tentative List, the first step toward nomination.
- Significance:
 - Ensures protection, conservation, and global recognition.
 - Promotes sustainable tourism, education, and research.
 - Helps safeguard heritage for future generations.
- Administration:
 - In India, the Archaeological Survey of India (ASI) and the Ministry of Culture manage nominations and site protection.
- UNESCO Criteria: Sites are evaluated based on ten criteria, six cultural and four natural, emphasizing outstanding universal value.



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MAINS

PAPER 1

WHY PUNJAB KEEPS FLOODING

Context: Punjab, historically known as the "Land of Five Rivers," derives its fertility and agricultural prosperity from its rich riverine system.

However, this geographical advantage also renders the state highly vulnerable to floods. While heavy monsoon rains and upstream inflows from Himachal Pradesh and Jammu & Kashmir (J&K) remain natural triggers, the scale of devastation in recent floods highlights governance lapses, dam mismanagement, weak embankments, and unsustainable human activities.

Current status

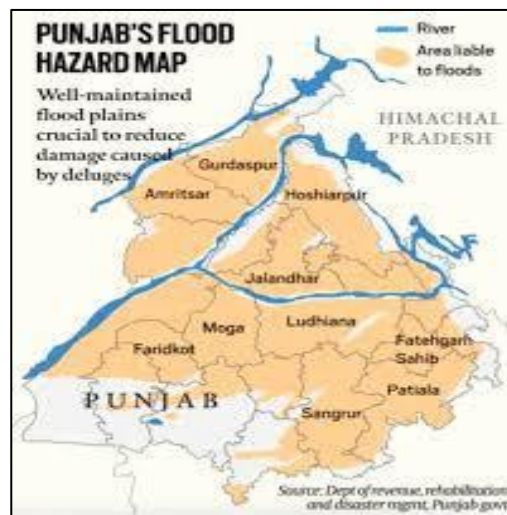
- The state government has declared all 23 districts to be flood-hit.
- 1,902 villages have been inundated, more than 3.8 lakh people affected, and more than 11.7 lakh hectares of farmland destroyed.
- At least 43 people have been killed.
- The worst-affected is the northern district of Gurdaspur, where 329 villages and 1.45 lakh people have been affected, and 40,000 hectares of farmland inundated.

Geographical reasons

- Three perennial rivers Ravi, Beas and Sutlej flow through the state of Punjab.
 - The Ravi passes through Pathankot and Gurdaspur
 - The Beas through Hoshiarpur, Gurdaspur, Kapurthala, Amritsar, Tarn Taran (Harike wetland), and Harike; and
 - The Sutlej through Nangal, Ropar, Nawanshahr, Jalandhar, Ludhiana, Moga, Ferozepur, and Tarn Taran (Harike wetland).
- The seasonal river Ghaggar, and smaller tributaries and hill streams, known locally as choes, also cut across the state.
- Rainfall in Punjab and upstream catchment areas in Himachal Pradesh and Jammu & Kashmir (J&K) make Punjab's rivers swell up during the monsoon.
- While an elaborate system of *dhussi bundhs* (earthen embankments) form a first line of defence against flooding, heavy rain often overwhelms these.
- Heavy rain in southern Punjab's Malwa region led to severe waterlogging in the districts of Ludhiana, Jalandhar, Ropar, Nawanshahr and Moga.
- Punjab, Himachal Pradesh, and J&K have all recorded more than 45% excess rainfall (above the seasonal normal) this year.

Issues due to the dam management

- Bhakra Dam: built on the Sutlej in Himachal Pradesh's Bilaspur district, operated by the Bhakra Beas Management Board (BBMB).



- Pong Dam: located on the Beas in Kangra district of Himachal Pradesh, also under BBMB.
- Thein (Ranjit Sagar) Dam: situated on the Ravi at the Punjab–J&K border, operated by Punjab State Power Corporation Ltd. and the state's Irrigation Department.
- During excessive rainfall, reservoirs fill up and water must be released to prevent overtopping, which could lead to catastrophic dam failure.
- BBMB follows a *rule curve* system—target reservoir levels maintained through the year depending on inflows and weather forecasts.
- Extreme rainfall, however, often leaves little buffer, forcing sudden water releases to protect dam safety.
- Even controlled releases during heavy rains can cause severe flooding downstream, as witnessed this year.

Issue with BBMB

- Punjab officials allege BBMB maintains high reservoir levels in July–August for winter irrigation and power, leaving insufficient cushion for August–September monsoon inflows.
- Complaints include lack of timely warnings, with sudden water releases catching state authorities unprepared.
- The core issue lies in BBMB's constitutional setup: it is a Centre-controlled body, with flood management not included in its primary mandate.
- The 2022 amendment to BBMB rules, allowing officers from anywhere in India (not just Punjab and Haryana) to hold top posts, has further deepened Punjab's concerns of being sidelined.

Issues related to Governance

- Due to the poor coordination between officials upstream and downstream, in August, two gates of the Madhopur Barrage on the Ravi were destroyed after sudden water releases from the Thein (Ranjit Sagar) Dam, worsening the floods in Pathankot, Gurdaspur, and Amritsar.
- At Ranjit Sagar, Pong, and Bhakra, water was stored for many days and then released in massive volumes, causing sudden flooding downstream. A flood cushion was not maintained, and warnings were delayed.
- Weak maintenance of dhussi bundhs (earthen embankments) worsened flooding, many weakened by illegal sand mining along riverbeds.
- Punjab's Drainage Department estimates that strengthening embankments and desilting rivers would cost ₹4,000–5,000 crore, but these preventive measures are repeatedly ignored.

Impact of floods

- Floods in Punjab cause severe humanitarian crises, including loss of lives, displacement of communities, and destruction of houses.
- They lead to massive agricultural losses, damaging standing crops like wheat, rice, and cotton, thereby threatening India's overall food security.
- The economic impact is immense, with extensive damage to infrastructure, transport networks, and irrigation systems, resulting in losses worth thousands of crores.
- On the social front, floods aggravate rural distress, increase farmer indebtedness, and trigger migration pressures.
- The problem also has a cross-border dimension, as floods often extend into Pakistan's Punjab, creating regional security and humanitarian concerns.

Way forward

- Punjab floods demand urgent reforms in flood management, with BBMB's role expanded to include flood control and stronger Centre–State coordination.
- Infrastructure like bundhs and riverbeds must be reinforced through desilting and curbing illegal mining.
- Early warning systems and climate adaptation strategies are needed to build resilience.
- Crop diversification and climate-resilient farming can reduce agricultural vulnerability.
- Dedicated funds, regular audits, and preventive investments are crucial for sustainable flood preparedness.

Conclusion

Punjab's floods stem from governance failures poor dam management, weak embankments, illegal mining, and lack of preparedness aggravated by climate change.

Urgent reforms in dam governance, embankment strengthening, and community-based resilience are vital to safeguard lives, livelihoods, and India's food security.

CLIMATE CHANGE ALTERING GLACIER-FED HYDROLOGICAL CYCLE

Context: The Gangotri Glacier System (GGS), the source of the Bhagirathi River in the central Himalayas, is crucial for the upper Ganga basin.

Recent studies have investigated how climate change is affecting its snow and ice reserves, thereby altering the glacier-fed hydrological cycle.

What is glacier?

A glacier is a large, persistent body of ice that forms over centuries from accumulated snowfall and slowly flows under its own weight. Glaciers are found in high mountain regions and polar areas. They act as natural reservoirs of freshwater.

Significance of glacier

- Glaciers store about 69% of the world's freshwater, releasing it gradually as meltwater.
- They regulate river flows, especially in summer and dry seasons, sustaining ecosystems and human use.
- Snow and ice melt from glaciers contribute to base flow in rivers, maintaining water availability when rainfall is low.
- Glaciers respond to temperature and precipitation changes, making them important indicators of climate change.

About Gangotri Glacier System (GGS)

- Gangotri Glacier is located in Uttarakhand, Himalayas and is the source of the Bhagirathi river, a major tributary of the Ganga.
- The GGS is composed of four main glaciers: Meru (7 km²), Raktavaran (30 km²), Chaturangi (75 km²), and Gangotri (140 km²).
- Receives precipitation from Western Disturbances in winter (Oct–Apr) and Indian Summer Monsoon in summer (May–Sep).
- Summer precipitation is the primary driver of annual discharge, followed by winter temperature.

Key Findings of the Recent Study

- The report shows that the Gangotri Glacier System (GGS) is still largely fed by snowmelt, which contributes 64% of the total water flow each year over the past forty years.
- The total water flowing from GGS comes from several sources:

- ✓ **Snowmelt:** Water that comes from melting seasonal snow deposited during winter. It usually melts in the summer months, feeding rivers like the Bhagirathi. Snowmelt dominates the river flow, especially in glacier-fed rivers, because it releases large amounts of water over a short period.
- ✓ **Glacier melt:** Water that comes from the permanent ice of glaciers, which melts slowly over time. This is smaller than snowmelt (21%) because glaciers melt gradually and continuously, even outside the summer months.
- ✓ **Rainfall-runoff:** Water that comes directly from rainfall, which flows over the land into rivers. It contributes 11% to the total flow and is especially important during the monsoon season.
- ✓ **Base flow:** The part of river flow that comes from groundwater or springs, maintaining river levels even when there is no rain or snow melt. It contributes about 4% of the flow.

Implications of the Study

- Increasing rainfall-runoff and base flow indicate warming-induced hydrological changes.
- Recent intense summer monsoons in North India have caused frequent floods in Uttarakhand, Himachal Pradesh, and Jammu, sometimes “cloudbursts.”
- Continuous field monitoring and modeling are critical for water resource management in glacier-fed river basins.

Conclusion

Climate change is accelerating early snow melt in the Gangotri Glacier System, altering seasonal discharge patterns and increasing the contribution of rainfall-runoff and base flow.

This has direct implications for water management and flood preparedness in the upper Ganga basin, emphasizing the need for sustained monitoring and scientific assessments.

TRIBALS AND THEIR UPLIFTMENT

Context: International Day of the World’s Indigenous Peoples (August 9) highlighted the continued denial of property rights to tribal women.

Except for certain matrilineal tribes in the North-East, customary laws across tribal communities often exclude women from succession rights.

This raises critical questions of gender justice, equality under the Constitution, and protection of indigenous identity.

Land and equality

- Tribal customary laws govern matters of succession, marriage, and adoption.
- Despite women contributing more in farms than the men, none of the tribal customary laws prevalent in the Scheduled Five Area States (which also includes Chhattisgarh, Jharkhand and Odisha) give land inheritance rights to females in ancestral properties.
- The All India Report on Agriculture Census 2015-16 shows that 16.7% of ST women possess land when compared to ST men (83.3%).
- In tribal society, land is often seen as communitarian property, not something that can belong to an individual
- However, when tribal land is sold or acquired, the money rarely goes to the gram sabha or community, and is instead controlled by individuals.
- A common reason given to deny women land rights is the fear that if tribal women marry non-tribal men, land will pass to outsiders.
- In reality, even if land is transferred, its nature as indigenous or tribal land remains intact, especially in the case of forest land.

- Gender disparity in property ownership translates into economic marginalisation, political invisibility, and social dependency for tribal women.

Judicial Interventions

A. Ram Charan & Ors. vs Sukhram & Ors. (2025)

- Trial & Appellate courts rejected plea citing Gond custom of male-only inheritance.
- Supreme Court held:
 - Denial of property rights under guise of custom perpetuates gender discrimination.
 - Female heirs entitled to equal share in property.

B. Madhu Kishwar vs State of Bihar (1996)

- Raised issue of parity in intestate succession among tribals.
- Court refrained from striking down customs, citing fear of legal chaos.
- Revealed judiciary's reluctance in directly confronting tribal patriarchy.

C. Prabha Minz vs Martha Ekka (Jharkhand HC, 2022)

- Court recognised property rights of Oraon tribal women.
- Held that customs excluding women from inheritance must meet tests of antiquity, continuity, reasonableness, and conformity with public policy.

D. Kamala Neti vs Special Land Acquisition Officer (2022)

- SC upheld tribal women's rights in compensation related to land acquisition. Seen as an affirmative step towards gender parity.

Way forward

- Enact a Tribal Succession Act, codifying inheritance rights for women.
- Strike balance between indigenous traditions and constitutional equality.
- Courts must continue to test customs on grounds of reasonableness and public policy.
- Civil society, women's groups, and tribal leaders must sensitise communities.
- Promote joint land titles in government land distribution.
- Expand access to credit, schemes, and skill-building for tribal women.
- Codification of tribal laws on the lines of Hindus and Christians can also help resolve the issue substantially.

Conclusion

Exclusion of tribal women from property rights is not just a customary practice but a constitutional question of equality. Supreme Court judgments mark a progressive shift, but piecemeal interventions are insufficient. Gender justice for tribal women must be seen as integral to inclusive development and constitutional morality.

PAPER 2

INDIA NEEDS MORE WOMEN JUDGES IN THE SUPREME COURT

Context : With the retirement of Justice Sudhanshu Dhulia (August 2025), two vacancies arose in the Supreme Court.

Despite this opportunity, no women were appointed. Justice B.V. Nagarathna remains the only woman judge in a sanctioned strength of 34 judges.

Since independence, women's representation in the Supreme Court has been negligible, raising concerns about diversity, inclusivity, and fairness in the judicial system.

Data

- Since its inception (1950), only 11 women judges have been appointed to the Supreme Court, i.e., a mere 3.8% of the 287 judges.
- Justice Fatima Beevi (October 6, 1989-April 29, 1992) was the first female judge of the Supreme court
- The appointment of three women judges in August 2021 under CJI N.V. Ramana was unprecedented. For the first time, women's representation crossed 10% in the Court.
- Caste and community diversity is absent; no woman from SC/ST has ever been appointed, and Justice Fathima Beevi remains the only woman from a minority faith.
- Direct appointments from the Bar show stark gender disparity: nine men vs. only one woman (Justice Indu Malhotra). Despite capable women Senior Advocates, no further elevation has taken place.
- Women are often appointed at a later age, resulting in shorter tenures, limited chances in the Collegium, and rare opportunities to become CJI.
- The first woman CJI, Justice B.V. Nagarathna, will hold office only for 36 days (Sept–Oct 2027), reflecting systemic barriers.

Appointment Procedure of judges

- As per the Memorandum of Procedure, a Supreme Court judge is appointed by the President based on recommendations of the Collegium, comprising the Chief Justice of India (CJI) and the four seniormost judges.
- The recommendation is sent by the CJI to the Union Law Minister, who forwards it to the Prime Minister, and finally to the President of India for approval.

Issues

- Criteria for selection are not public; Collegium resolutions are inconsistent in disclosing reasons. Secrecy around who is being considered and when undermines accountability.
- Gender is not taken into consideration for appointments of judges to the Supreme Court and High Courts.
- Seniority is applied inconsistently, with senior women judges often overlooked.
- No systematic effort to appoint women judges, either from High Courts or directly from the Bar. Since 2018 (Justice Indu Malhotra), no woman lawyer has been elevated directly from practice.

- While the Supreme Court has directed Bar Associations to reserve 30% seats for women, it has no mandate for its own gender representation.

Way forward

- Make gender, caste, religion, and regional representation part of a formal written policy for higher judiciary appointments.
- Gender must be recognised as a criterion in the Memorandum of Procedure.
- Collegium must publish criteria and reasons for every appointment.
- Appointments must be based on intellectual ability, sound judgment, and sensitivity to diverse social realities, alongside diversity commitments.
- Encourage direct elevation of women lawyers from the Bar to address historical exclusion.
- Ensuring timely elevation of women High Court judges to provide them sufficient tenure for leadership roles.
- Representation must not remain confined to urban, upper-caste women judges. Broader inclusivity will enhance legitimacy and representativeness of the judiciary.

Conclusion

Women judges make the Supreme Court fairer and representative. Their presence brings new perspectives, builds public trust, and strengthens justice.

True gender equality in India's top court will be achieved only when more women are given space on the Bench.

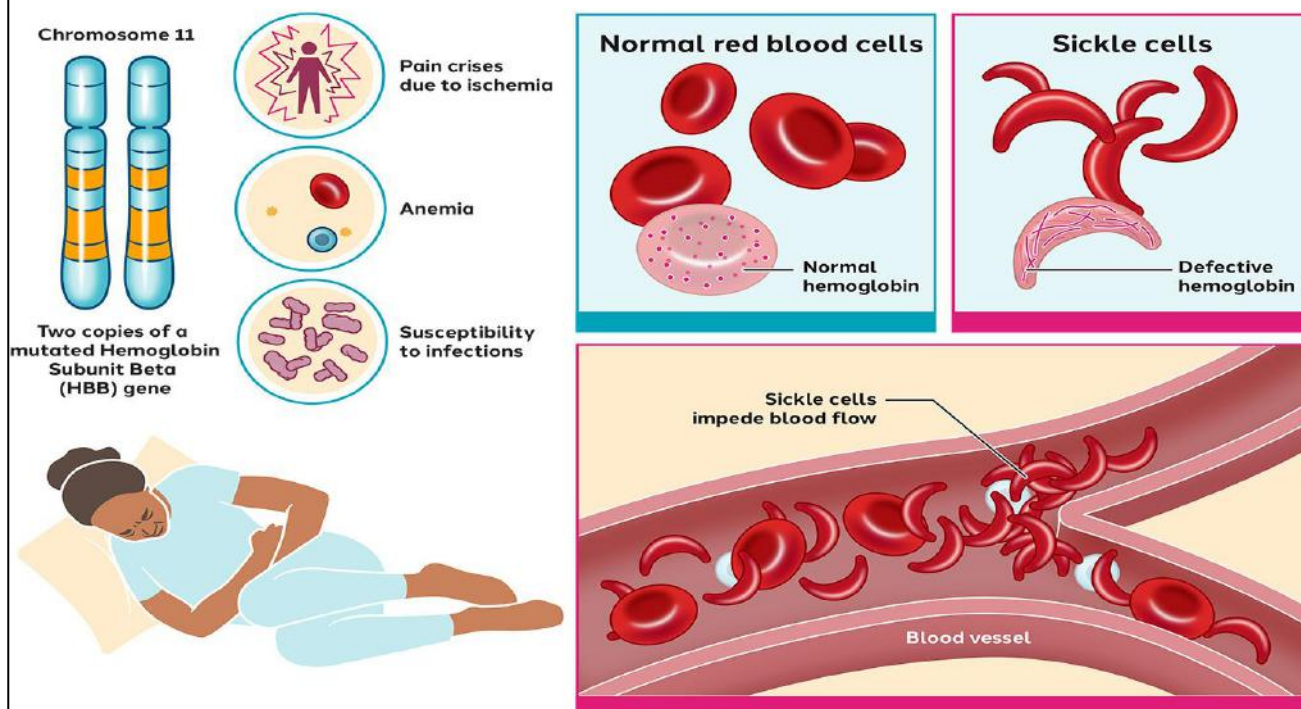
SICKLE CELL: THE BATTLE FOR DISABILITY JUSTICE

Context: The Government of India has issued revised guidelines under the Rights of Persons with Disabilities (RPWD) Act, 2016.

The guidelines provide a framework for assessing disability in individuals with two copies of the sickle cell gene, or with sickle cell plus beta thalassaemia/Hb D.

However, the exclusion of sickle cell disease (SCD) from the 4% reservation quota has triggered criticism and demands for reform.

What is Sickle Cell Disease (SCD)?



About Sickle Cell Disease (SCD):

- SCD is a genetic blood disorder caused by an abnormal form of haemoglobin (HbS).
- Red blood cells, instead of being round and flexible, take the shape of a sickle (crescent).
- This makes them sticky and fragile, leading to:
 - ✓ Anaemia: Shortage of healthy red blood cells.
 - ✓ Severe pain episodes (crises): Due to blocked blood flow.
 - ✓ Organ damage: Heart, kidney, spleen, and brain may be affected.
 - ✓ Frequent hospitalisation from childhood.
- Beyond health issues, stigma and discrimination deepen the barriers to education, employment, and social mobility.

Salient features of Rights of Persons with Disabilities (RPwD) Act, 2016

- The Rights of Persons with Disabilities (RPwD) Act, 2016 was passed to safeguard the dignity and equality of persons with disabilities and to ensure they are protected from any form of discrimination.
- The 2016 Act expanded the scope to 21 types of disabilities. These include conditions such as autism spectrum disorder, cerebral palsy, muscular dystrophy, specific learning disabilities, and survivors of acid attacks, among others.

Benefits

- Discrimination in recruitment, promotion, training, or pay on the basis of disability is not allowed.
- Persons with disabilities must be treated equally in the workplace.
- At least 4% of vacancies in government jobs are reserved for candidates with benchmark disabilities (40% or more impairment).
- Employees who acquire a disability during service cannot be removed from their job.
- Such employees can be shifted to another suitable post without any cut in pay or benefits.
- Employers must provide necessary adjustments or assistive devices to help employees perform their duties.
- Workplaces should have accessible infrastructure like ramps, adapted furniture, supportive technology, and suitable toilets.
- Policies must be in place to prevent harassment, bullying, or discrimination related to disability.
- Persons with disabilities should have equal access to training, reskilling, and promotional opportunities.

RPWD Act, 2016 and Benchmark disability

- The RPWD Act widened the meaning of disability and gave special rights to those with benchmark disabilities.
- A benchmark disability means a person has at least 40% or more impairment, as per Section 2(r) of the Act.
- People with benchmark disabilities can get free school education, reservations in higher studies, benefits under government schemes, and job reservations.
- The 40% rule leaves out many who still suffer as the percentage system is not uniform. Different doctors or medical boards may give different results for the same person.
- Because of this, many disabling conditions that affect daily life do not get officially recognised.
- Sickle Cell Disease (SCD) may not always look like a disability but causes severe problems.

- People with SCD face repeated episodes of pain, weakness, anaemia, organ damage, and frequent hospital visits, often from childhood.
- These health issues disturb schooling, reduce job chances, and shorten life expectancy.
- The problem is worse for Adivasi and Dalit communities, who also face stigma and discrimination along with the disease.

The continual reliance on biomedical scoring and exclusion of people with SCD from full protections undermines the very purpose of recognising the condition under the Act.

Issue of burden of proof

- In India, many government schemes give special benefits to people who have an official disability certificate.
- Some states like Odisha and Himachal Pradesh provide higher pension amounts for people with severe disabilities.
- Under Section 80U of the Income Tax Act, 1961, a person with a certified disability can get a tax deduction of ₹75,000, which goes up to ₹1.25 lakh in cases of severe disability.
- To claim these benefits, a person must get a disability certificate, issued by a medical authority as per Section 58 of the RPwD Act.
- The certificate is issued after evaluation by a medical board, usually led by the Chief Medical Officer.
- Confirmatory test reports must come from a government-approved or standard lab.
- Disability beyond the basic 40% benchmark is calculated through a scoring system that gives points for issues like pain, frequent blood transfusions, or neurological problems.
- This scoring system often ignores the real impact of the disease, especially when symptoms are invisible or occur only sometimes.
- As a result, people with serious challenges may not qualify for a higher score.

Way forward

- Extend job reservations under the 4% quota to individuals with SCD and related blood disorders.
- Reform certification process, move beyond biomedical scoring to consider fluctuating, invisible, and social impacts.
- Introduce decentralise certification ensure accessibility in rural/tribal areas with mobile medical boards.
- Adopt rights-based approach, treat disability as a lived experience shaped by health, social exclusion, and structural barriers.
- Combat stigma within healthcare, education, and workplaces by increasing awareness.

Conclusion

The RPWD Act promised inclusion and dignity but continues to rely on narrow biomedical frameworks. Unless sickle cell disease is recognised as a genuine, lifelong disability with real entitlements and protections, India risks reducing inclusion to mere tokenism.

AGEING AND AFFORDABILITY

Context: India is witnessing a demographic shift with a rapidly growing elderly population. Ageing is often accompanied by declining income levels, increased dependency, and greater vulnerability to chronic diseases. These factors combined make healthcare expenses one of the most pressing challenges for senior citizens in India.

Hence, Doctors stress the need for people to be prepared for future healthcare expenses, while also emphasising the importance of strengthening public healthcare infrastructure.

Current Status

- 14.9 crore elderly in 2022 (10.5% of total population).
- By 2050, India will have nearly 319 million elderly citizens (projected), creating unprecedented pressure on health systems.
- Highest concentration in southern and western states.
- Older adults often suffer from multiple comorbidities (diabetes, hypertension, arthritis, heart disease, respiratory ailments)
- Loss of income or retirement increases dependency on family support, increasing financial stress.
- Lack of adequate insurance coverage and high out-of-pocket expenditure undermine access to quality healthcare.

Challenge of High healthcare expenditure

- Elderly often need frequent out-patient consultations for problems like chronic joint pain, arthritis, high blood pressure, diabetes complications, heart diseases, breathing problems, and vision issues.
- In-patient care is required for more serious cases such as surgeries (eye/abdominal), stroke, advanced heart issues, and complications from diabetes.
- According to the India Ageing Report 2023 by the United Nations Population Fund India and International Institute for Population Sciences the enormous burden of healthcare costs depletes savings, leading to distress financing and debts.

Challenges related to Insurance schemes

In India, both the Central as well as several State governments offer health insurance schemes. Private health insurance is also available.

Some are:

- a) Ayushman Bharat–Pradhan Mantri Jan Arogya Yojana (PM-JAY)
 - In late 2024, the Union government expanded PM-JAY to cover all senior citizens aged 70 and above, irrespective of income
 - Provides cashless hospitalisation up to ₹5 lakh per family per year at empanelled public and private hospitals.
- b) Chief Minister's Comprehensive Health Insurance Scheme (CMCHIS), Tamil Nadu
 - A state-run scheme that offers free health coverage to low-income families, including the elderly.
 - Covers costly medicines, diagnostic imaging (CT/MRI scans), and advanced surgeries like angioplasty, bypass surgery, and joint replacements.
- c) Integration of State Schemes with PM-JAY
 - Several states have merged or linked their own insurance schemes with PM-JAY.
 - This ensures wider coverage, portability of benefits across states, and reduced duplication of services.

According to the India Ageing Report

- Insurance coverage is limited, only about 20.4% of elderly in the 60–69 age group are covered, and coverage reduces further with increasing age.
- Gender disparity exists as men (19.7%) are slightly better insured than women (16.9%), reflecting women's weaker economic and social security.
- More than half of the elderly (52.9%) are not even aware of available schemes

- Around 21.6% cannot afford insurance premiums.
- Elderly in rural areas have far less awareness and access to insurance compared to their urban counterparts.
- Current insurance schemes do not cover palliative care, end-of-life care, physiotherapy, or home-based oxygen support, even though these are common needs of the elderly.
- Rising private insurance premiums with age make it nearly impossible for many elderly citizens to afford coverage.

Challenge of non communicable diseases

- The elderly commonly suffer from non-communicable diseases (NCDs) such as diabetes, hypertension, and cardiac ailments, which require lifelong treatment and regular medication.
- Advanced care such as ICU admissions, ventilatory support, or surgeries leads to skyrocketing medical bills.
- Due to high costs, many elderly patients discontinue medication, avoid hospitalisation, or even request discharge against medical advice, worsening their health outcomes.

Way forward

- Expand government hospital capacity for geriatric care.
- Introduce elderly vaccination drives (pneumonia, influenza) to reduce morbidity
- Simplify enrolment for elderly in public schemes
- Expand coverage to palliative care, post-hospitalisation care, rehabilitation, and home-based support.
- Offer affordable premiums with higher coverage for elderly-specific needs
- Promote financial literacy on saving for health in middle age
- Introduce dedicated geriatric health funds or subsidies.
- Incorporate home-based healthcare into insurance packages.
- Replicate Chief Minister's Comprehensive Health Insurance Scheme in which, diagnostic imaging such as CT scans, MRI scans and costly medicines are also covered. Also, advanced procedures like angioplasties, coronary bypass surgeries and replacement of joints are offered under this scheme, benefiting many elderly.

Conclusion

India's ageing population faces the dual challenge of declining income and rising healthcare costs. While schemes like PM-JAY and state-specific insurance provide partial relief, gaps in coverage and affordability persist. The way forward lies in strengthening public health infrastructure, expanding insurance scope, and ensuring financial preparedness.

WHY ARE EUROPEAN NATIONS MOVING TO RECOGNISE PALESTINE

Context: Several European nations, including Spain, Ireland, and Norway, have formally recognised the State of Palestine in 2024–25.

The recognition reflects overlapping geopolitical, moral, and domestic pressures, reshaping Europe's approach to the Israel–Palestine conflict.

Palestine - Brief introduction

- Palestine refers mainly to the West Bank, Gaza Strip, and East Jerusalem.

- The majority population is Arab.
- In 1947, the UN Partition Plan proposed separate Jewish and Arab states.
- In 1948, Israel was created, leading to mass displacement of Palestinians (Nakba).
- In 1967, Israel occupied the West Bank, Gaza, and East Jerusalem after the Six-Day War.
- The Palestinian Authority (PA) governs parts of the West Bank under Fatah
- Hamas has controlled Gaza since 2007.
- Key conflict issues include land disputes, refugees' right of return, Israeli settlements, and Jerusalem's status.
- Palestine has non-member observer status at the UN since 2012.
- The internationally backed solution is a two-state solution with East Jerusalem as Palestine's capital.



What makes recognition urgent now?

- The war in Gaza after the October 7 (attack in Israel) attacks became the main trigger.
- Israel's large-scale military response caused massive destruction and a humanitarian crisis.
- The situation shocked European nations and made the old status quo unacceptable.
- Further, Israeli Prime Minister Netanyahu openly rejected the two-state solution.
- South Africa's case at the International Court of Justice accused Israel of violating the Genocide Convention. These legal proceedings added more pressure on Europe to act.
- For many governments, recognition of Palestine is now seen as essential to keep the two-state solution alive.

How has Ukraine reshaped Europe's stance on sovereignty?

- Russia's invasion of Ukraine in 2022 made Europe take a firm stand on national sovereignty and rejecting land grabs by force. This highlighted Europe's inaction on Israel's occupation of Palestinian territories.
- Intellectuals, media, and civil society pointed out the hypocrisy in Europe's double standards.
- Governments are now under pressure to act with consistency. The "consistency gap" has become a liability for Europe's credibility
- Recognising Palestine is seen as a way to realign policies with principles.

What are the domestic political pressures inside European countries?

- Public opinion in Europe has turned strongly in favour of applying international law equally in all conflicts.
- Human rights groups are actively campaigning, adding further pressure on governments.
- Governments fear that inaction could hurt them politically and electorally.
- Recognition of Palestine is seen as a way to show alignment with the moral expectations of their citizens.

Significance of recognition

- Strengthens the global push for a two-state solution by keeping it alive amid its erosion.
- Sends a symbolic message that Europe will not remain passive during the Gaza humanitarian crisis.

- Enhances Europe's moral credibility and soft power on the global stage.
- Adds weight to Palestine's standing in international forums like the United Nations.
- Signals a shift from viewing recognition as a "reward for peace" to treating it as a prerequisite for peace.

Challenges

- Recognition is largely symbolic and does not directly change the ground reality in Palestine. Israel rejects the move and continues with settlement expansion, limiting its practical impact.
- Could deepen internal divisions within Europe, as some states prefer caution due to historical responsibilities.
- Without concrete follow-up (economic or political pressure), recognition may be seen as symbolic posturing.

Conclusion

The recognition of Palestine by several European nations reflects a powerful moral and diplomatic signal aimed at reviving the two-state solution and reasserting Europe's commitment to international law. For long-term peace, recognition must be complemented with sustained political engagement, humanitarian support, and pressure on all stakeholders to return to negotiations.

THE RTI'S SHIFT TO 'RIGHT TO DENY INFORMATION'

Context: The Right to Information (RTI) Act, 2005 was a landmark legislation that empowered citizens to hold the state accountable by accessing information. It has been one of the strongest tools for ensuring transparency, curbing corruption, and deepening participatory democracy.

However, recent amendments through the Digital Personal Data Protection (DPDP) Act, 2023 have drastically altered Section 8(1)(j) of the RTI Act. This shift, critics argue, effectively transforms RTI into a "Right to Deny Information (RDI)".

About Right to Information

- The Right to Information (RTI) Act is based on the idea that in a democracy citizens elect their representatives, who then control the bureaucracy, so the information must flow back to the people.
- One important exemption is Section 8(1)(j), which deals with personal information.
- According to the Section, the government could refuse to give information only in two cases:
 1. If the information had nothing to do with any public work or public activity.
 2. If giving it would unnecessarily interfere with someone's personal privacy unless sharing it was clearly in the larger public interest (for example, exposing corruption)
- *There was also a strong safeguard:* if the government could not refuse that information to Parliament or a State Legislature, then it could not refuse it to an ordinary citizen either.
- Restrictions on RTI must follow Article 19(2) of the Constitution, which limits them only on grounds like decency and morality. If sharing violates decency or morality, it can be denied both to Parliament and to citizens.

(Public work / public activity means any task, function, or duty that the government, a public authority, or a public official performs as part of their job for the people.)

The Amendments under DPDP Act

- The DPDP Act has changed Section 8(1)(j) of the RTI Act, making it very easy to deny information.
- The main problem is the meaning of “personal information,” which is not clearly defined.
- There are two different ways to understand it:
 1. One view is that “person” means only a normal human being (natural person).
 2. Another view, based on the DPDP Act, says “person” also includes companies, firms, associations, Hindu undivided families, and even the State.
- If the broader DPDP definition is applied, almost everything can be treated as personal information.
- This allows most information to be denied, turning RTI into a “Right to Deny Information (RDI).”
- Such an interpretation goes against the spirit of transparency and accountability.
- The DPDP Act also has a clause that overrides all other laws in case of conflict, making it stronger than RTI.
- It imposes heavy penalties (up to ₹250 crore) for wrong disclosure, creating fear among Public Information Officers (PIOs). Since most records are now digital, PIOs may prefer to reject applications to avoid risk of punishment.
- This may change RTI to Right to Deny Information.

Consequences

- These amendments are harmful for public accountability and the fight against corruption.
- Citizens are the best watchdogs against corruption. If they are denied information, this natural monitoring mechanism is lost.
- Example: Sharing details of pension beneficiaries to combat “ghost employees” and “ghost cards” will cease. Even a simple order signed by an official could be denied as “personal information”. It can result in over 90% of information being denied.
- Corruption will find safe cover. Details of ghost employees, fraud in welfare schemes, or charges of misconduct can all be classified as “personal information”, making it easy for corruption to continue without exposure.
- In reality, less than 1% of decisions apply this “larger public interest” exception. Officers usually avoid it because it is hard to weigh private harm against public benefit. This makes the safeguard almost useless after the amendment.
- RTI is part of the right to freedom of speech and expression under Article 19(1)(a). Restricting it without proportional safeguards is unconstitutional.

Way Forward

- Media and citizens must actively engage through public discussions, debates, and awareness drives to show how the amendment weakens democracy.
- Political parties should be pressured to commit in their manifestos that the amendment will be reversed.
- Civil society groups and RTI activists need to strengthen public opinion by mobilising grassroots campaigns.
- The amendment can be challenged in courts, as its constitutionality can be tested against Articles 19(1)(a) and 21.

- Laws must be balanced so that data protection safeguards individual privacy without becoming a shield for the state to hide information.

Conclusion

The RTI Act transformed governance by making secrecy the exception and disclosure the norm. The DPDP-led amendment to Section 8(1)(j) threatens to reverse this ethos, replacing transparency with opacity. If unchecked, this could cripple one of India's most powerful democratic tools against corruption and abuse of power.

KATCHATHEEVU AND PALK STRAIT DISPUTES

Context : India has historically shaped regional and global diplomacy through the Panchsheel principles, the Non-Aligned Movement, the South Asian Association for Regional Cooperation, and, most recently, with its "Neighbourhood First Policy". This stance has generally promoted peace and interdependence in South Asia.

However, its unresolved issues with Sri Lanka, as the fisheries crisis in the Palk Strait and the sovereignty of Katchatheevu island, pose challenges.

These issues, if handled prudently, can be transformed into opportunities for cooperation rather than conflict.

About Katchatheevu island

- Katchatheevu is a tiny island in Palk Strait measuring 285.20 acres, and is located about 14 nautical miles from Rameswaram in India.
- While there are records stating that the island was part of the then Ramnad Kingdom, Ceylon (Sri Lanka) also laid claim to it. It was administered jointly under British rule.
- It is barren, has no drinking water or infrastructure, except a sole Catholic structure dedicated to St. Anthony.
- India and Sri Lanka signed two bilateral agreements in 1974 and 1976 under Prime Ministers Indira Gandhi and Sirimavo Bandaranaike.
- Under these agreements, Katchatheevu island was recognised as Sri Lankan territory, and the maritime boundary in the Gulf of Mannar and Bay of Bengal was defined.
- Both countries agreed to exercise sovereign rights over living and non-living resources within their respective Exclusive Economic Zones (EEZs).
- It was agreed that fishing vessels and fishermen from either side shall not fish in each other's territorial waters, seas, or EEZs.
- Despite this, the 1974 agreement allowed Indian fishermen access to Katchatheevu island for limited purposes like rest, drying of nets, and participation in the annual St. Anthony's Church festival, but fishing was strictly prohibited.



Present scenario

- Fishermen from south India and northern Sri Lanka depend on the Palk Strait for their livelihood.
- Many Tamil Nadu fishermen use bottom trawling, which drags nets along the seabed to catch more fish.

- Bottom trawling is harmful as it destroys the seabed, damages coral reefs and shrimp habitats, and reduces fish stocks.
- The United Nations Convention on the Law of the Sea (UNCLOS) stresses not only fair use of marine resources but also their conservation.
- The FAO's Code of Conduct for Responsible Fisheries (1995) considers destructive methods like bottom trawling as unacceptable.
- These boats are usually owned by wealthy operators, while the fishermen working on them are daily wage earners.
- When caught fishing illegally, these fishermen often face arrest by the Sri Lankan Navy.

Way forward

1. Quota system

- Indian and Sri Lankan fisher organisations can hold dialogue to find solutions.
- With the agreement of Sri Lankan fishers, they can fix quotas or regulated access for Tamil Nadu's small fishers.
- Limited fishing rights can be given on specific days or during certain seasons until fish stocks in Indian waters recover.

2. Community sensitisation

- Sri Lankan Tamil MPs and Tamil media can explain in Tamil Nadu how Northern fishermen lost decades of income during the civil war due to military restrictions on sea access.
- These fishermen should not be seen as enemies but as victims of economic loss, similar to Indian fishers.

3. International framework

- The Palk Strait and nearby waters are considered "historic waters" by both India and Sri Lanka.
- According to UNCLOS (United Nations Convention on the Law of the Sea), Article 123, countries sharing a semi-enclosed sea (like the Palk Bay and Gulf of Mannar) are encouraged to cooperate and manage resources together.
- Hence India and Sri Lanka could adopt similar ideas:
 - Share quotas for fishing days and catch.
 - Set up a joint research station on Katchatheevu for marine scientists to study resources and suggest sustainable practices.
 - Promote deep-sea fishing in India's Exclusive Economic Zone (EEZ), so fishermen rely less on near-shore waters and avoid crossing illegally into Sri Lankan territory.

Conclusion

India and Sri Lanka share not only maritime boundaries but also centuries of cultural, religious, and kinship ties.. To protect them, disputes must be addressed without populist rhetoric but through quiet cooperation, legal recognition and shared livelihood security.

The way forward involves multiple levels such as government-to-government talks (retaining trust and treaty obligations) and State/Provincial engagement (involving Tamil Nadu and Sri Lanka's Northern Provincial Council and community dialogue, encouraging people-people empathy that overcomes media distortions).

PAPER 3

GLOBAL PLASTIC POLLUTION CRISIS

Context: Rapidly increasing plastic pollution is a serious global environmental issue as it significantly impacts ecosystems, their functions, sustainable development, and ultimately the socio-economic and health dimensions of humanity.

Hence, World Environment Day (June 5), 2025 focused on “Ending Plastic Pollution” and encouraging worldwide awareness and action against it.

Present status: Data

According to the OECD’s ‘Global Plastic Outlook’:

- Global plastic consumption has surged with the rise of emerging economies and markets.
- Plastics production doubled between 2000 and 2019, reaching 460 million tonnes.
- Plastic waste generation increased to 353 million tonnes in the same period.
- Nearly two-thirds of plastic waste has a lifespan of less than five years.
- Waste composition: 40% packaging, 12% consumer goods, 11% clothing and textiles.
- Only 9% of waste is recycled; 19% incinerated; 50% landfilled.

About 22% escapes waste management systems, entering dumpsites, open burning, terrestrial and aquatic ecosystems, particularly in poorer nations.

According to the Intergovernmental Negotiating Committee on Plastic Pollution:

- In 2024 alone, 500 million tonnes of plastic were produced or used, generating around 400 million tonnes of waste.
- If the current trends continue, global plastic waste could almost triple by 2060, reaching 1.2 billion tonnes.

According to the Ocean Conservancy data:

- Each year, 11 million tonnes of plastic enter the ocean, in addition to the estimated 200 million tonnes that already flow through our marine environment.
- If the current rate of plastic production and waste generation continues, there will be more plastic in the ocean than fish by the mid-century.

End Plastic Pollution: Looking forward

Why is plastic pollution such a grave problem?

- Plastics do not break down naturally; instead, they keep breaking into very tiny pieces called microplastics and nanoplastics. These small particles spread into the soil, the air we breathe, and the water we drink making them almost impossible to remove.
- The production, use, and disposal of plastics release greenhouse gases. At present, plastics are responsible for about 3.4% of total global emissions
- By 2040 plastics alone could consume nearly one-fifth (19%) of the world's total carbon budget, worsening climate change.
- Plastic pollution has reached every corner of the planet from Mount Everest to the deepest parts of the ocean like the Mariana Trench, showing how widespread and persistent the problem has become.

Health Impacts

- Plastics contain toxic additives: carcinogens, neurotoxicants, endocrine disruptors, that can leach from products and waste, and persist in the environment, threatening humans and ecosystems.
- Microplastics detected in human lungs, blood, placenta, and breast milk.
Evidence of reproductive harm in animals.

Global health call (2023) in which around 18 million health professionals from 88 countries urged treaty negotiators to act against plastic risks.

Remedies proposed

- In 2022, all 193 UN member states agreed to work on a legally binding agreement to end plastic pollution, which is seen as essential for protecting oceans, restoring ecosystems, achieving climate goals, and promoting sustainable consumption.
- UNEP has set an ambitious target of reducing global plastic waste by 80% within the next two decades, which requires international cooperation, new innovations, better product design, and use of eco-friendly alternatives.
- Since plastics are made mostly from petrochemicals, it is important to limit their production and immediately phase out unnecessary items, especially single-use plastics.
- Governments should strictly regulate plastic production and ensure it happens only within approved legal frameworks.
- At present, most plastics used are new (virgin) plastics, while recycled plastics make up only around 6%. Therefore, improving recycling technologies and creating profitable markets for recycled products are urgent needs.
- Policies like landfill taxes, incineration charges, deposit refund systems, and “pay-as-you-throw” models can encourage recycling and reduce careless disposal.
- Companies must be held accountable through Extended Producer Responsibility (EPR), making them responsible for collecting and recycling the plastic they produce.
- Individuals can also make a big difference by switching to greener alternatives such as cloth bags, reusable bottles, and traditional eco-friendly materials that were used in the past.
- Media campaigns and public awareness drives are crucial for changing behaviour and building a culture of responsible consumption.

Conclusion

Tackling plastic pollution requires combined efforts from governments, industries, communities, and individuals. Strong laws, better recycling, eco-friendly alternatives, and lifestyle changes can together make the vision of a world free from plastic pollution a reality.

THE RISE AND RISKS OF HEALTH INSURANCE IN INDIA

Context: Universal Health Care (UHC), as defined by the Bhore Committee (1946), aims to provide quality health care to all irrespective of ability to pay.

Despite decades of planning, India lags behind global peers in achieving UHC.

Recent years have witnessed a surge in State-sponsored health insurance schemes like PMJAY (Ayushman Bharat, 2018) and State Health Insurance Programmes (SHIPs), creating an impression that UHC can be achieved through insurance expansion.

However, evidence shows that while insurance provides some relief, it also carries structural risks that may deepen inequalities and undermine the public health system.

Growth of Health Insurance in India

- Pradhan Mantri Jan Arogya Yojana (PMJAY) was launched in 2018 under Ayushman Bharat as the flagship national health insurance scheme.
- Most states run their own State Health Insurance Programmes (SHIPs), generally offering coverage of ₹5 lakh per household per year, similar to PMJAY.
- Coverage is restricted to in-patient hospitalisation, with treatment available in empanelled public and private hospitals (roughly 50:50 distribution).
- In 2023–24, PMJAY covered about 58.8 crore individuals with an annual budget of ₹12,000 crore (including 40% state contribution).
- SHIPs, covering a similar population, together had a budget of at least ₹16,000 crore.
- Combined expenditure of ₹28,000 crore remains a small share of public health spending, but is expanding rapidly.
- In states like Gujarat, Kerala, and Maharashtra, SHIP budgets grew at a rate of 8%–25% annually (real terms) between 2018–19 and 2023–24.

Risks and Challenges of Insurance-led UHC

While PMJAY and State Health Insurance Programmes (SHIPs) do provide some relief to vulnerable sections especially when public hospitals are overcrowded or lack adequate facilities.

However, these schemes cannot be considered a genuine alternative to a robust Universal Health Care (UHC) system.

Some of the flaws are:

- Promotion of profit-driven medicine:
 - ✓ Nearly two-thirds of PMJAY funds flow to private hospitals, most of which are profit-oriented (similar data for SHIPs is limited).
 - ✓ A study across six states revealed that PMJAY did not significantly raise hospitalisation rates, but it did increase the use of private hospitals.
 - ✓ The dominance of poorly regulated private providers means that profit motives overshadow patient welfare, further entrenching inequalities rather than correcting them.
- Bias towards hospitalisation over primary care:
 - ✓ Insurance schemes primarily finance hospital-based treatments, while primary and outpatient care, which are more cost-effective and widely needed, remain neglected.
 - ✓ Strengthening primary health centres and outpatient services would reduce the burden of unnecessary hospital visits and associated costs.

- ✓ The inclusion of citizens aged 70 and above under PMJAY, combined with India's rapidly ageing population, risks diverting a large share of public spending towards expensive tertiary care, leaving basic health services underfunded and inadequate.
- Utilisation Challenges
 - ✓ Although official estimates suggest that PMJAY and SHIPs together cover nearly 80% of the population, the actual usage of these schemes is far lower.
 - ✓ A large section of the enrolled population is unaware of their entitlements or finds the procedures too complex to navigate.
 - ✓ According to the 2022–23 Household Consumption Expenditure Survey, only 35% of insured hospital patients could successfully use their insurance benefits.
 - ✓ Hence insurance programmes have not led to a significant reduction in out-of-pocket health expenditure (OOPE), which continues to remain high in India.
- Discrimination Between Insured and Uninsured Patients
 - ✓ Private hospitals often prefer treating uninsured patients, as they can charge higher commercial rates compared to the relatively lower reimbursement rates under insurance schemes. This discourages patients from availing their entitled benefits.
 - ✓ Public hospitals, in contrast, sometimes show preference towards insured patients, since reimbursements from schemes bring them additional revenue.
 - ✓ This situation has created a form of discriminatory treatment within the health-care system.
 - ✓ Patients may face pressure to enrol for insurance at the time of admission in order to be treated, which defeats the principle of equity in health care.
- Concerns of Health-care Providers
 - ✓ Health-care providers themselves have expressed dissatisfaction with these schemes.
 - ✓ Low reimbursement rates are often cited, though this argument may not always be objective.
 - ✓ Delays in settlement of claims, however, are a major and valid concern.
 - ✓ The National Health Authority (NHA) reported that pending dues under PMJAY stood at ₹12,161 crore, which is higher than the scheme's annual budget itself.
 - ✓ Due to these payment issues, many private hospitals have temporarily suspended services for PMJAY beneficiaries, while others have completely withdrawn from the programme.
 - ✓ As per a Health Ministry statement in the Lok Sabha, a total of 609 hospitals has opted out of PMJAY since its inception.
- Corruption
 - ✓ The National Health Authority (NHA) has recently flagged over 3,200 hospitals for engaging in fraudulent practices under PMJAY.
 - ✓ Reports from across the country highlight widespread irregularities such as denial of treatment to eligible beneficiaries, overcharging of insured patients, and unnecessary medical procedures carried out to exploit the system.
 - ✓ Such practices undermine the very purpose of health insurance by exposing vulnerable patients to both financial hardship and health risks.

- ✓ Although mechanisms such as monitoring frameworks and periodic audits are intended to curb these malpractices, evidence suggests that they are largely ineffective.
- ✓ For instance, audit reports are rarely available in the public domain, reflecting a deeper issue of limited transparency and weak accountability in the administration of health insurance schemes.

Global Lessons

- Canada and Thailand use social health insurance as part of UHC.
- But PMJAY and SHIPs lack important features of social health insurance, such as universal coverage and focus on non-profit health-care providers.

Way forward

- India must gradually enhance its public health spending to 2.5% of GDP by 2025, as envisaged in the National Health Policy (2017).
- Higher allocations should be directed towards strengthening government hospitals, primary health centres (PHCs), and sub-centres, especially in underserved rural and tribal areas.
- The Health and Wellness Centres (HWCs) under Ayushman Bharat should be scaled up with adequate human resources, medicines, diagnostics, and telemedicine facilities.
- Emphasis on preventive and promotive healthcare (nutrition, sanitation, lifestyle changes, vaccination, early screening) can reduce disease burden significantly.
- Simplified digital claim systems and multilingual helplines can reduce procedural hurdles.
- Community health workers (ASHAs, ANMs) can act as facilitators, guiding patients on scheme utilisation and helping bridge information gaps, especially in rural and marginalised communities.
- Regular social audits, parliamentary reviews, and performance evaluations should be institutionalised.
- Use of data analytics and AI tools can help detect fraud, monitor utilisation patterns, and ensure accountability in fund usage.
- Insurance schemes like PMJAY and SHIPs should act as supplementary tools, not as the primary backbone of UHC.
- The core focus must remain on public sector strengthening, universal primary care, and non-profit health delivery models.

Conclusion

India's health insurance expansion (PMJAY, SHIPs) has been a major policy experiment, offering short-term relief to millions. However, it cannot substitute for robust public health infrastructure, adequate funding, and regulation of private players.

Unless India addresses its chronic under-investment (1.3% GDP) and strengthens primary, preventive, and public healthcare, UHC will remain elusive.

Insurance can complement reforms, but the foundation of UHC must rest on strong, equitable, and accountable public health services.

SHAPING THE FUTURE, INDIA'S SEMICONDUCTOR JOURNEY

Context: Semiconductors are the backbone of the digital economy, powering everything from smartphones and satellites to defence systems and artificial intelligence.

The COVID-19 pandemic exposed the vulnerabilities of global chip supply chains, underscoring their strategic importance.

India must work to improve the semiconductor industry to maintain the supply chain.

Why Semiconductors Matter for India

- Dependence on foreign chips leaves India vulnerable in critical areas such as healthcare, defence, and communication. Indigenous capability ensures sovereignty in technology and security.
- With electronics manufacturing crossing ₹12 lakh crore annually and over 65 crore smartphone users, India's demand for chips is surging. This presents both an opportunity and a compulsion to develop domestic capacity.
- Semiconductor manufacturing is concentrated in a few regions (Taiwan, South Korea, US). Even small disruptions can halt global production. Semiconductors now lie at the heart of global geopolitics.

Steps taken by the government

Unlike countries such as Taiwan, South Korea, or the US, India had not been able to set up large-scale semiconductor fabrication plants (fabs). However, recently government has taken steps to improve the semiconductor industry in India.

Some are discussed below:

1. India Semiconductor Mission

- The India Semiconductor Mission (ISM), launched in 2021 under MeitY, to develop India as a global hub for semiconductor and display manufacturing.
- It supports setting up fabs, design-linked incentives, ATMP units, and skill development.
- Under this, the government approved the setting up of 10 semiconductor fabrication plants across the country. Work on these plants has already started.
- In Sanand, Gujarat, pilot production has begun, and the first "Made in India" chip is expected this year.
- ISM aims to reduce import dependence, boost innovation, and secure India's digital and strategic future.

2. Global Investment and Ecosystem Building

- Making semiconductors is not just about building one factory. It requires a whole ecosystem — suppliers, equipment makers, raw material providers, logistics, and R&D support. Recognising this, many global leaders are investing in India.
- Applied Materials, Lam Research, Merck, and Linde are setting up factories and support systems
- This ecosystem approach will make India's semiconductor journey sustainable.

3. Workforce

- India already contributes to 20% of the world's semiconductor design workforce. This is a huge advantage because:
- The world is expected to face a shortage of over 1 million semiconductor professionals by 2030.
- India is well placed to fill this gap, thanks to its large pool of skilled engineers.

4. Training and Tools

- To prepare the next generation of chip designers, the government is giving free access to world-class Electronic Design Automation (EDA) tools to 350 institutions and start-ups.
- In 2025 alone, these tools were used for 1.2 crore design hours
- This shows how India is equipping its young workforce with the latest technologies.

5. Start-up ecosystem

- Start-ups are emerging as important players in the semiconductor field. Example: Mindgrove Technologies is building IoT chips using IIT Madras' indigenous SHAKTI processor.
- These start-ups, supported by the Design Linked Incentive (DLI) Scheme, are driving innovation and creating confidence among investors.
- Design Linked Incentive (DLI) Scheme: A government scheme to promote semiconductor chip design in India by providing financial and infrastructural support to start-ups, MSMEs, and academic institutions. It encourages innovation and reduces dependence on imported designs.
- Electronic Design Automation (EDA): EDA refers to specialized software tools used to design, simulate, and test semiconductor chips before actual manufacturing. These tools help engineers create efficient, error-free, and complex chip designs virtually.

Challenges

- Setting up a fab requires \$5–10 billion investment, making financing difficult.
- Dependence on imports of rare earths, silicon wafers, and specialty gases makes India vulnerable
- Absence of strong supply chains for chemicals, gases, and equipment.
- Despite a strong design workforce, India lacks experienced professionals in chip fabrication and equipment handling.

Steps needed

- Move from pilot fabs to mass production and develop economies of scale.
- Focus on indigenous technologies, advanced nodes, and collaborative research.
- Reduce import dependence in critical raw materials through global partnerships and strategic reserves.
- Create specialised semiconductor engineering programs and industry-academia linkages.
- Involve global majors while nurturing local start-ups and MSMEs.
- Deepen cooperation with Quad, EU, Japan, and South Korea for technology and resilience.
- Ensure long-term incentives, infrastructure support, and investor confidence.

Conclusion

Semiconductors are the backbone of the digital age, much like steel was for the industrial era. India's push in this sector marks a transition from dependence to self-reliance, backed by policy support, global partnerships, and a strong talent base. Despite challenges of high costs, technology gaps, and supply chain vulnerabilities, sustained efforts can make India a trusted hub in the global semiconductor value chain and secure its digital future.

INDIA'S RECENT MARITIME REFORMS NEED COURSE CORRECTION

Context: India's maritime sector has long been governed by colonial-era and fragmented laws. Recently, the Rajya Sabha has passed the Indian Ports Bill, 2025, marking a major overhaul in India's maritime legislative framework.

Along with the Coastal Shipping Act, 2025, the Carriage of Goods by Sea Bill, 2025, and the Merchant Shipping Act, 2025, this legislative package seeks to replace colonial-era laws (notably the Act of 1908) and align India's maritime sector with global best practices.

However, concerns have emerged regarding federalism, ownership safeguards, regulatory overreach, and impacts on smaller players.

Indian Ports Bill, 2025

- The act will modernise India's port governance, enhance trade efficiency, and solidify India's position as a global maritime leader.

- The legislation also emphasises sustainability, incorporating green initiatives, pollution control, and disaster management protocols for sustainable port development.
- It aims to simplify port procedures & digitalise operations to enhance ease of doing business (EODB).
- For ports themselves, the bill provides greater autonomy with accountability, allowing ports to set competitive tariffs within a transparent framework.

Criticism

- The Ports Act, 2025 has been criticised for centralising powers in the hands of the Union government, thereby weakening the role of States and diluting safeguards meant to protect Indian sovereignty.
- A key feature of the Act is the creation of the Maritime State Development Council (MSDC), chaired by the Union Minister of Ports. This body acts as a centralised policy-making authority, empowered to direct States to follow central guidelines.
- Critics argue that this design does not reflect cooperative federalism but instead shows federal subordination, where States are compelled to align their port development policies with central schemes such as Sagarmala (port-led development programme) and PM Gati Shakti (national master plan for integrated infrastructure).
- Under this framework, State maritime boards cannot revise or adapt their port-related policies without central approval, thereby stripping coastal States of fiscal autonomy and administrative flexibility.
- Further experts warn that the Act introduces vague and discretionary regulatory powers, meaning authorities can interpret rules broadly, potentially creating compliance burdens that are difficult for smaller port operators to manage.
- Clause 17 of the Act bars civil courts from hearing port-related disputes, and instead channels such disputes to internal resolution committees set up by the same authorities whose actions are being challenged.

Merchant Shipping Act, 2025

- The law seeks to modernise registration systems, ownership norms, safety standards, environmental obligations, and liability frameworks in the shipping sector.
- It expands the definition of vessels to include offshore drilling units and non-displacement crafts (vessels that move above water like hovercrafts, not by displacing water like traditional ships).
- It strengthens oversight of maritime training institutes, ensuring better quality control in seafarer education and skill development.
- It aligns India's liability and insurance rules with global conventions, making them consistent with international standards to improve investor and operator confidence.

Criticism

- Under the older Merchant Shipping Act, 1958, Indian-flagged vessels had to be 100% Indian-owned. The new law allows "partial" Indian ownership, including by Overseas Citizens of India (OCI) and foreign entities. The exact threshold is left to government notification, raising fears of excessive executive discretion.

- This dilution of ownership requirements creates a risk of India turning into a flag-of-convenience jurisdiction (where foreign owners control ships under India's flag, often to exploit regulatory leniency).
- The Act introduces Bareboat Charter-Cum-Demise (BBCD) registration, a system where Indian operators can lease foreign vessels with an option of eventual ownership. While globally accepted, without strict enforcement, lessors (foreign owners) may retain effective control indefinitely, weakening India's maritime autonomy.
- The law mandates registration of all vessels, irrespective of size or propulsion. This may impose heavy bureaucratic and financial burdens on small coastal and fishing operators.
- By allowing the executive unchecked power to dilute ownership norms "whenever convenient," the Act hands over a blank cheque to the government, raising concerns of arbitrariness and loss of long-term sovereignty.

Coastal Shipping Act, 2025

- It introduces a simplified licensing system for coastal shipping and lays down the framework for regulating foreign vessels engaged in coasting trade.
- The Bill mandates the formulation of a National Coastal and Inland Shipping Strategic Plan to guide future infrastructure development and policy direction.
- The legislation also provides for the creation of a National Database for Coastal Shipping, enabling real-time access to authentic and regularly updated data, promoting transparency and confidence.

Criticism

- The Act's primary objective is to protect cabotage (the rule that only Indian-flagged ships can carry goods along India's coast).
- While this appears to strengthen domestic trade, the Act gives the Director General of Shipping (DG Shipping) wide discretion to permit foreign vessels in domestic routes.
- Such permissions may be granted on vague grounds like "national security" or "alignment with strategic plans." These open-ended clauses invite subjective interpretation and selective application.
- The Act also mandates a National Coastal and Inland Shipping Strategic Plan to be centrally framed, which States must follow, undermining the principle of decentralised planning for local needs.

Way Forward

- Maritime State Development Council should be redesigned to ensure equal say for States.
- Define ownership thresholds and licensing conditions clearly in legislation. Avoid leaving critical decisions to executive discretion.
- Establish independent maritime tribunals or empower High Courts for maritime disputes.
- Introduce exemptions or simplified compliance mechanisms for fishing vessels and small-scale operators.
- Safeguard cabotage rules to protect domestic coastal shipping from unfair competition.

Conclusion

India's maritime reforms are undoubtedly necessary to bring its laws in line with global standards and unlock the potential of its 7,500 km coastline. Yet, modernisation should not come at the cost of federal balance, fair competition, and sovereignty safeguards. A balanced approach that respects States'

autonomy, judicial independence, and protection for small operators will ensure that maritime reforms truly strengthen India's long-term maritime security and economic growth.

HYDROGEN TRAINS

Context: Indian Railways has recently tested its first hydrogen-powered coach, marking a significant step towards the deployment of Hydrogen Fuel Cell (HFC) technology in India's vast railway network.

Hydrogen-powered trains, or hydrail, are emerging as a promising zero-emission alternative to diesel-electric locomotives.

What are Hydrogen Trains?

- Hydrogen trains are electric trains with an onboard power source, unlike conventional electric trains that are powered via overhead wires.
- They use HFC (Hydrogen Fuel Cell) technology, which generates energy through the electrochemical reaction of compressed hydrogen with atmospheric oxygen, emitting water vapour as the sole byproduct making it a zero-emission mechanism.
- The electricity produced by the fuel cell is stored in batteries, which provide additional power during acceleration and climbing inclines.
- Hydrogen trains also employ regenerative braking technology, which captures the kinetic energy (motion energy) generated during braking and converts it into electricity to recharge onboard batteries.

Hydrogen Fuel Cell vs Electric Trains

- Hydrogen trains work by first using electricity to produce hydrogen (through electrolysis), and then converting that hydrogen back into electricity inside the train to run it. Because of this double conversion process, some energy is lost along the way.
- Electric trains, on the other hand, draw electricity directly from overhead wires. This makes them more energy-efficient, especially when the power comes from renewable sources like solar or wind.
- This means that, over their full life cycle, electric trains are generally more efficient than hydrogen trains.

Green Hydrogen vs Grey Hydrogen

- Green Hydrogen: Made using renewable energy (like solar or wind) to split water into hydrogen and oxygen. This process does not release harmful gases, so the trains powered by it can truly be called zero-emission.
- Grey Hydrogen: Produced from fossil fuels (like coal or natural gas). This process releases carbon dioxide (CO₂), which reduces the environmental benefits of hydrogen trains.
- For hydrogen trains to actually fight climate change, India needs to shift from grey hydrogen to green hydrogen at a large scale. Only then can hydrail become a genuinely clean and climate-friendly option.

Advantages of Hydrail

- Eliminates smoke emissions from fuel combustion, reducing noise and air pollution.
- Operates on both electrified and non-electrified routes, ensuring greater flexibility.
- Particularly useful for routes where overhead electrification is unfeasible or prone to disruption.
- Can be refuelled in 20–25 minutes, faster than battery-electric train recharging.
- Supports India's net-zero target by 2070; Indian Railways already reduced fuel use by 136 crore litres (2018–19 to 2023–24).

- Though initial investments are high, cost-effective on non-electrified routes by avoiding overhead electrification costs.
- Reduces dependence on imported diesel, strengthening energy security and improving balance of payments.

Challenges

- Hydrail has a substantially high initial cost of production compared to both electric and diesel trains.
- It requires the development of an extensive system for hydrogen production, storage and distribution – an infrastructure that is largely absent in India today.
- The massive refueling stations and machinery needed to support the substantial fleet of hydrogen trains present another logistical and financial challenge.
- The highly flammable nature of hydrogen requires adherence to strict safety standards from production to storage and refuelling, necessitating further investment in safety infrastructure and training for railway personnel.
- Currently, most hydrogen in India is derived from fossil fuels → undermines decarbonisation goals.

Way forward

- Leverage India's growing renewable energy capacity to scale up green hydrogen production and reduce costs.
- Develop a decentralised hydrogen infrastructure focusing on storage and refuelling, inspired by the Hydrogen Highways model under NGHM.
- Invest heavily in research and development to improve hydrogen fuel cell efficiency, safety standards, and cost competitiveness.
- Ensure long-term policy support with clear roadmaps, incentives, and public-private partnerships to sustain momentum.
- Strategically deploy hydrogen trains on non-electrified, remote, and hilly routes where they have maximum advantage.

Conclusion

Hydrogen trains mark a significant milestone in India's pursuit of a sustainable and decarbonised transport system. With the right mix of renewable energy integration, infrastructure development, and supportive policies, India can position itself as a global leader in green hydrogen innovation.

WHAT INDIA SHOULD DO TO BUILD CLIMATE-RESILIENT CITIES

Context: Indian cities are at the forefront of the country's economic and demographic transformation. By 2030, they will generate 70% of new jobs, and by 2050, India's urban population will approach one billion. The new infrastructure will need to withstand the growing impacts of climate change.

It will therefore be essential to make early investments in climate-resilient urban design and infrastructure to avert billions of dollars in annual damages while saving countless lives.

Key Risks for Indian Cities and solutions

- a) Floods
 - Floods are emerging as a major risk for Indian cities.
 - With rapid housing and infrastructure construction, over two-thirds of urban residents will face pluvial or surface flooding.
 - Projected economic losses: \$5 billion by 2030 and \$30 billion by 2070.
 - An integrated approach is needed to address this risk, including:

- ✓ Demarcating high-risk areas as no-build zones.
- ✓ Expanding and upgrading city-wide drainage systems.
- ✓ Promoting nature-based solutions to absorb excess rainwater.
- ✓ Establishing flood forecasting and warning systems.
- Examples:
 - ✓ Brazil, now 80% urban, has shifted from structural flood control to integrated, nature-based approaches.
 - ✓ Kolkata Implemented a city-level flood forecasting and warning system.
 - ✓ Chennai is Enhancing stormwater management and flood preparedness, focusing on vulnerable populations.
- b) Extreme Heat
 - The urban heat island effect is raising nighttime city temperatures by 3°C to 5°C above surrounding areas year-round.
 - Temperatures are expected to rise further throughout the 21st century.
 - Cities can build on Ahmedabad's Heat Action Plan as a model.
- c) Poor transport infrastructure
 - Efficiency of transportation is vital for urban productivity.
 - Over a quarter of India's urban roads are exposed to flooding.
 - In some cities, inundation of just 10–20% of roads can disrupt more than half of transport systems.

How to build Climate-Resilient Cities?

- Build technical and administrative capacity for climate-risk assessment and enforcement of urban planning norms.
- Equip ULBs with modern tools like GIS mapping, early warning systems, and climate modelling. Ensure adequate staffing, funding, and training for city-level institutions.
- Encourage convergence of schemes such as AMRUT, Smart Cities Mission, and Jal Jeevan Mission with climate adaptation goals.
- Local communities should be partners in designing and maintaining green infrastructure such as parks, urban forests, and wetlands.
- Launch targeted campaigns on heat action, flood safety, and sustainable lifestyles.
- School and university curricula can integrate climate adaptation awareness.
- Ensure incentives for green building designs, energy-efficient housing, and renewable energy integration.

Conclusion

Around \$10.95 trillion is needed by 2050 for climate-resilient, low-carbon cities. This investment can prevent billions in climate-related damages annually. Returns include creation of new green jobs, enhanced innovation ecosystems, improved health outcomes, and global competitiveness.

Hence Early investments today will reduce disaster losses, save lives, and make Indian cities inclusive and globally attractive for investment.

CASE STUDY 1

A young IPS officer posted in a district of Maharashtra launched a crackdown against an illegal sand mining mafia that had been operating for years with alleged political backing. Her impartial and bold actions led to multiple seizures of trucks, arrests, and a temporary halt in the illegal trade. However, soon after, she began facing immense political pressure from influential local leaders to go slow on the issue. She was repeatedly summoned by state-level authorities and questioned about her "over-enthusiasm," while some of her juniors were warned unofficially to not cooperate with her. Anonymous threats were also issued to her family, and there were rumors of her imminent transfer to an insignificant post. Despite these pressures, the officer felt that allowing the mafia to continue would not only weaken the rule of law but also destroy the river ecosystem and livelihood opportunities of local farmers who depended on groundwater. She finds herself in a dilemma: On one hand, her professional duty and conscience compel her to continue the crackdown against the mafia; on the other, continuous political interference and personal threats endanger her career security and family's safety. Many of her colleagues advise her to "adjust to the system" until she gains seniority. The situation raises larger questions about the independence of civil services, political interference, systemic corruption, environmental justice, personal integrity, and the ethics of public service in the face of adversity.

- a) Identify the ethical dilemmas faced by the officer in this situation. What options are available to her, and what are the ethical merits and demerits of each?
- b) How can principles of integrity, courage, and environmental ethics guide her decision-making?
- c) Suggest institutional reforms that can safeguard honest officials from undue political pressure in such cases.

CASE STUDY 2

You are the District Collector of a small town in interior southern India. An opposition political party organised a mass rally which turned tragic, resulting in the death of several innocent participants, with many others critically injured and being taken to hospitals. The situation is tense: Media is demanding immediate answers regarding the incident. Local population is agitated and threatening to resort to violence if monetary compensation for victims is not announced promptly. Political allegations are being levelled against you and the district administration, claiming deliberate inaction that allegedly caused the fatalities. Rescue and medical assistance is ongoing, but political blame games are intensifying. As the senior-most administrative authority in the district, you must balance relief operations, law and order maintenance, and the public perception of administrative integrity.

- a) Identify the ethical issues and dilemmas in this situation.
- b) What immediate steps will you take to control the situation?
- c) How will you ensure transparency and accountability while handling media pressure?
- d) Suggest long-term measures to prevent such incidents, balancing political neutrality and public safety.
- e) If you were accused of negligence, how would you address such allegations while continuing administrative work?



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