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January 2025

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NOTE:

Dear Students,

Memorisation and recollection of information in Current Affairs is as important as understanding the articles. In order to enhance the learning outcomes from the Monthly Current Affairs Magazine, we are introducing following additions:

- A thematic based colors has been used in the document in the boxes, tables etc to enable easy identification and recollection of various concepts and topics.
- Questions are an important tool to assess and retain information. To enable this we are adding a Smart Quiz at the end of each section in the document for practicing the questions.
- A wide variety of infographics have been added to ensure smoother learning experience and enhanced retention of the information. This will also help in effective presentation of information in the answer writing as well.
- Places and persons in news are being presented in an objective manner through Maps, Tables & Pictures. This will help in easier recollection of factual information.

1. POLITY AND GOVERNANCE

1.1. COOPERATIVES

Union Home Minister and Minister of Cooperation and Prime Minister of India inaugurated the UN International Year of Cooperatives 2025 **(IYC 2025).**

About IYC 2025

- **Proclaimed by**: United Nations General Assembly in June 2024
- **Theme**: "Cooperatives Build a Better World"
- **Objectives**
  - **Raise Awareness**: Showcase cooperatives' role in sustainable development.
  - **Promote Growth**: Strengthen the cooperative ecosystem.
  - **Advocate for Policies**: Support legal and policy reforms for cooperatives.
  - **Inspire Leadership**: Engage youth and foster cooperative leadership.
- **Host**: Committee for the Promotion and Advancement of Cooperatives (COPAC)

What are Cooperatives?

- **Definition:** A cooperative is a **voluntary group** of individuals with **common needs** who unite to achieve **shared economic goals.**
- **Aim:** Supports members, with focus on **the interest of the poorer sections of society**, through **self-help** and **mutual aid**.
- **Resource Sharing**: Members **pool resources** and use them effectively **for mutual benefit.**
- **Cooperative Movement**: The global rise of cooperatives is partially due to the work of the **International Co-operative Alliance (ICA).**
  - Founded in **1895** by **E.V. Neale** and **Edward Owen Greening**, the **ICA** is a **global Non-Governmental Organization (NGO)** promoting **worker cooperation**.
  - In November 2024, **India hosted ICA's Global Cooperative Conference** for the first time.
    - The Theme was **"Cooperatives Build Prosperity For All",** aligning with India's **"Sahkar Se Samriddhi"** vision.

Cooperatives in India

- **Genesis:** Started with the **Cooperative Credit Societies Act, 1904.**
- **Current Status:** India holds **27% of the world's cooperatives**. **20% of Indians** are part of cooperatives (global average: 12%).
- **Top 3 Cooperative sectors:** Housing, Dairy, and Primary Agricultural Credit Society (PACS)
- **Leading States (57% of total cooperatives):** Maharashtra (constitutes **25%** of India's cooperatives), Gujarat, Telangana, Madhya Pradesh, Karnataka.
- **Constitutional Status: 97th Amendment, 2011** granted constitutional status to the Cooperative Societies with following provisions-
  - **Fundamental Right**: Added **"cooperative societies"** in **Article 19(1)(c)**.
  - **Directive Principle**: Inserted **Article 43B** to promote cooperatives.
  - **New Part IXB**: Added **Articles 243ZH to 243ZT** for cooperative governance.
- **Governance Structure**
  - **Multi-State Cooperatives**: Falls under **Entry 44 of Union List of the Constitution**. Governed by the **Multi-State Cooperative Societies Act, 2002**.

- **State Cooperatives:** Falls under **Entry 32 of State List of the Constitution**. Governed by respective **State Cooperative Societies Acts**.

What are Cooperatives banks?

- Cooperatives banks are **financial entities** set up on a co-operative basis and belonging to their members.
- They are registered under the **States Cooperative Societies Act.**
- They come under the **RBI regulation under two laws:**
  - Banking Regulations Act, 1949.
  - Banking Laws (Cooperative Societies) Act, 1955
- **Co-operative banks** may, with prior approval of RBI, issue **equity, preference or special shares**.
- India currently has a total of around 1,400 urban cooperative banks, nearly half of which are located in **Gujarat and Maharashtra.**

Significance of Cooperatives in Socioeconomic Development

- **Strengthening Social Cohesion**: Cooperatives foster **natural and private** social bonds **without third-party involvement**.
  - **Example**: Housing cooperatives bridge the gap between **residents and urban policies**, encouraging grassroots participation.
- **Empowering Society**
  - **Equal Rights**: The **"one-person-one-vote"** system ensures **equality**.
  - **Bargaining Power**: Enables **collective action** for better opportunities.
  - **Leadership Development**: Cooperatives elect leaders democratically, helping develop leadership skills in many states (e.g., In **Maharashtra many legislators are associated with cooperatives movement**).
- **Promoting Financial Inclusion**: **Affordable credit for farmers**, reducing reliance on moneylenders. Extensive **rural network** boosts financial accessibility.
- **Reducing Wealth Inequality**: **Loans at low interest rates** support marginalized communities. Encourages **self-employment and fair competition**.
- **Instilling Moral Values**: Promotes **unity, trust, honesty, and cooperation**, ensuring **social stability**.

Challenges Faced by Cooperatives in India

- **Governance Issues**
  - **Government Interference**: Regulations on borrowing, transactions, and investments limit efficiency.
  - **Politicization**: Powerful local figures influence cooperative management.
  - **Lack of Awareness**: Many members and directors are unaware of cooperative objectives and rules.
  - **Internal Rivalries**: Quarrels and tensions reduce active participation.
- **Limited Reach and Inefficiency**
  - **Regional Imbalance**: Cooperatives are underdeveloped in northeastern and eastern states.
  - **Small Societies**: Limited membership and resources hinder growth.
  - **Single-Purpose Focus**: Cooperatives lack a holistic approach to solving community problems.
- **Operational Challenges**
  - **Weak Audit System**: Audits are irregular, delayed, and ineffective.
  - **Lack of Coordination**: Cooperatives at different levels fail to work together.
- **Functional Weaknesses**
  - **Lack of Scale**: Cooperatives struggle with financial, managerial, and technical limitations.
  - **Skilled Workforce Shortage**: Training institutions and professional opportunities are lacking.
  - **Poor Management**: Limited career development affects leadership and efficiency.
  - **Lack of Familiarity with Digital Tools:** The data indicates that only **45% of cooperative members** are familiar with digital tools, suggesting a significant gap in **technological literacy**.

Key Initiatives to Strengthen Cooperatives in India

Institutional Support	• **National Cooperative Development Corporation (NCDC) (1963):** Statutory body under the **Ministry of Cooperation**. • **Ministry of Cooperation (2021):** Established to boost cooperative development and rural prosperity. • **National Cooperative Policy:** National Level Committee was constituted to draft the policy under the 'SAHKAR-SE-SAMRIDDHI' vision to promote cooperative growth.
Legal & Governance Reforms	• **Multi-State Co-operative Societies (Amendment) Act, 2023:** Strengthens **governance, transparency, and electoral processes** in cooperatives. • **Model Bye-Laws for PACS:** Ensures **better management, transparency, and accountability** in **Primary Agricultural Credit Societies (PACS)**.
Economic & Infrastructure Growth	• **'World's Largest Grain Storage Plan' (Pilot Project):** Integrates **PACS godowns into the food supply chain** for food security and economic growth. • **Margdarshika Plan:** Aims to establish **2 lakh new PACS, Dairy, and Fishery Cooperatives**. • **Standard Operating Procedures (SOPs) for 'White Revolution 2.0':** Focuses on **women empowerment in the dairy sector**, aiming to increase **milk procurement to 1,000 lakh kg per day by 2029**.
Technology & Financial Inclusion	• **National Cooperative Database (NCD):** Provides **data on co-operatives across states and sectors**. • **NUCFDC (Umbrella Organization for Urban Cooperative Banks):** Will act as a **Self-Regulatory Organization**. • **SOPs for 'Cooperation among Cooperatives':** Enhances **financial inclusion** by facilitating **bank accounts for cooperative society members**.

Strengthening the Cooperative Movement in India

- **Structural Reforms**
  - **Merge Weak Societies**: Combine inefficient cooperatives with stronger ones to pool resources and improve efficiency.
  - **Promote Multipurpose Societies**: These societies can address multiple needs of members, ensuring balanced and integrated development.

- **Improve Operational Efficiency**
  - Cooperative societies **need professional managers** in the areas of their core business and financial management, etc.,
  - **Streamline Loans**: Ensure loans are used productively and repaid on time.
  - **Enhance Coordination**: Establish better links between different cooperative bodies for mutual support.
  - **Skilled Administration**: Recruit trained personnel and simplify cooperative procedures.
- **Capacity Building**
  - **Skill Development**: Train employees, students, and aspiring cooperative members in cooperative management.
  - **Digitization**: Implement digital tools for governance, banking, and business operations to enhance transparency and efficiency.
- **Public Awareness & Education**
  - **Mass Awareness Campaigns**: Promote cooperatives through public outreach and initiatives like Jan Andolans.
  - **Value-Based Education**: Teach ethical behavior and cooperation from a young age.
  - **Legislative & Governance Reforms**
  - **Strengthen Legal Framework**: Implement the Narasimham Committee's recommendations for cooperative banking.
- **Ensure Transparency**:
  - Bring cooperatives under the **RTI Act.**
  - **Provisions of CBI and CVC inquiry** against malpractice societies and banks has to be introduced.
  - **Strengthening internal audit system** or conduct of concurrent audit in cooperative will reduce the risk and bring in more professional approach.
  - NABARD is working towards developing a **Cooperative Governance Index (CGI)** for rural cooperative banks to assess and improve governance standards.

Scan the QR code to know more about **India's Cooperatives**

Weekly Focus #48- Cooperatives: Prosperity through Cooperation

1.2. 10 YEARS OF NITI AAYOG

Why in the news?

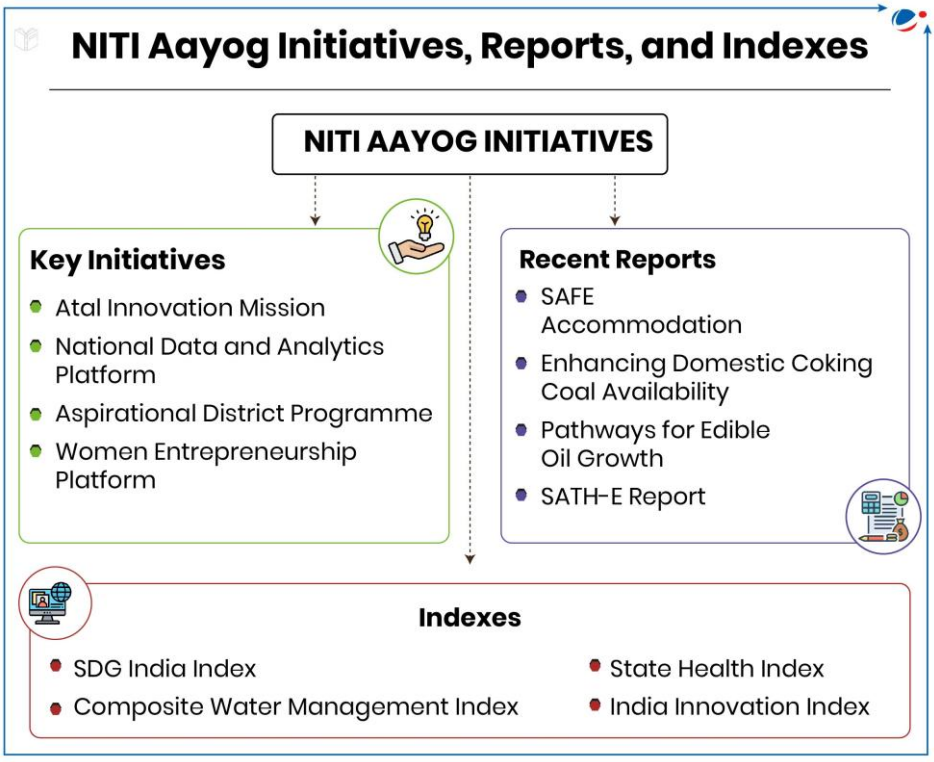
On **January 1, 2025**, National Institute for Transforming India (NITI) Aayog **celebrated its 10th year of foundation**.

About NITI Aayog

- NITI Aayog is an **advisory body** (think-tank) to the government, **established through a Union cabinet resolution**, replacing the erstwhile Planning Commission.
  - It is **neither a Constitutional nor a statutory body**.
- **Mandate:** It has a **twin mandate**:
  - To oversee the **adoption and monitoring of the SDGs** in the country; and
  - Promote **competitive and cooperative federalism** among States and UTs.
- **Composition:**
  - **Chairperson: Prime Minister** (PM) of India.
  - **Governing Council:**
    - > **PM** of India;
    - > **Chief Ministers** (CMs) of all the States and UTs with legislature;
    - > **Lt. Governors** of other UTs;
    - > **Ex-Officio Members** (include maximum 4 members of Union Council of Ministers nominated by the PM);
    - > **Vice Chairperson**, NITI Aayog (appointed by the PM);
    - > **Full-Time Members**, NITI Aayog; and

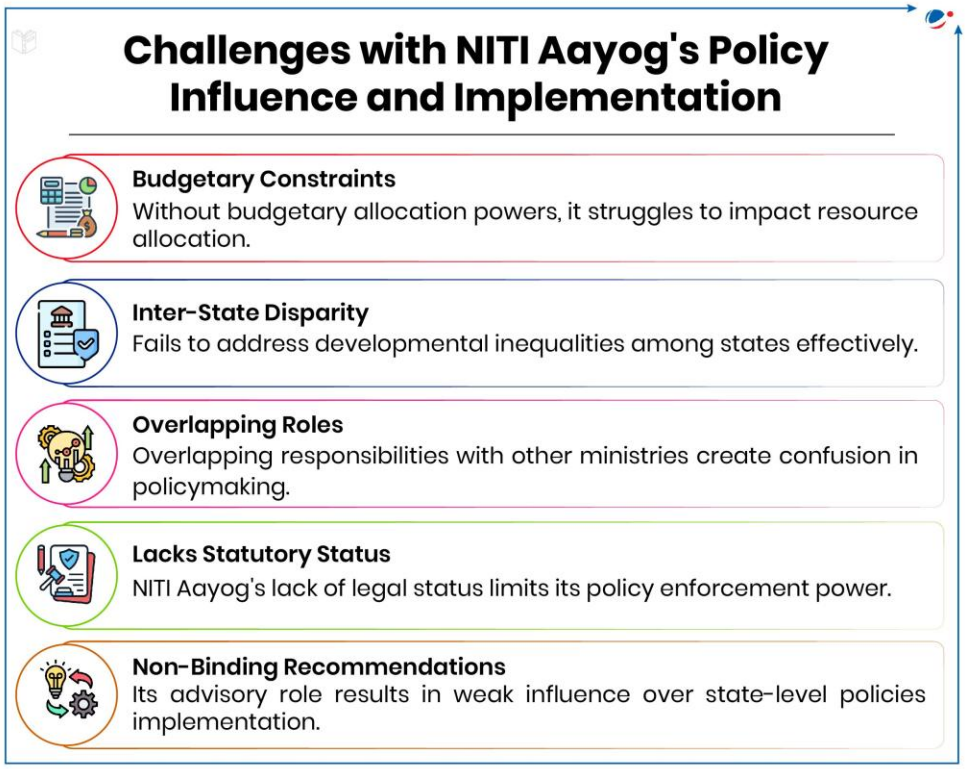
    - > **Special Invitees** (include experts, specialists and practitioners with relevant domain knowledge nominated by the PM).
  - **Regional Councils:** Formed for a **specified tenure**, to address specific **issues and contingencies impacting more than one state or a region**.
    - > It will be **convened by the PM** and will **comprise of the CMs of States and Lt. Governors of UTs** in the region.
  - **Chief Executive Officer (CEO): Appointed by the PM** for a **fixed tenure**, in the rank of Secretary to the Government of India.
- **Key objectives:**
  - Formulation of credible **plans at village levels**, and **special attention to weaker sections** at risk of not benefiting adequately from economic progress.
  - **Incorporation of national security interests** while formulating economic strategy and policy.
  - Creating a knowledge, innovation and **entrepreneurial support system**.
  - Serve as a **platform for resolution of inter-sectoral and inter- departmental issues**.
- **Other Features:**
  - It is supported by the **attached** and **autonomous bodies of Development Monitoring and Evaluation Organisation** (DMEO), Atal Innovation Mission (AIM) and **National Institute of Labour Economics Research and Development** (NILERD).
  - Its **activities can be broadly divided into** policy and programme framework; cooperative federalism; monitoring and evaluation; and think-tank, knowledge and innovation hub.

Achievements of NITI Aayog



- **Enhanced cooperative federalism:** Aayog **served as a linking bridge between central and state governments**, fostering **collaboration to align regional priorities with national goals**.
  - E.g., NITI Aayog's '**Team India Hub**' involves all states to work towards a national development agenda.
  - Another example is the **Aspirational Districts Programme (ADP)** that aims to quickly and effectively transform 112 most under-developed districts across the country. **NITI Aayog works closely with the respective line Ministries** and various development partners to fast-track progress at the district level.
- **Strengthened competitive federalism: Encouraged healthy competition among the states** through data-driven and transparent indexes and ranking systems.
  - E.g., **Fiscal Health Index**, Aspirational District Programme, Composite Water Management Index, State Energy and Climate Index etc.
- **Governance and policy advice:** As a think tank, Aayog **advised on long-term strategic policies** and **shifted its focus from financial allocation** (priority of erstwhile Planning Commission) **to policy advisory**, thus **promoted decentralized governance approach**.
  - E.g., It assisted several states in **setting up of State Institutions of Transformation** (SITs) for better governance and policy implementation.

- **Inculcated innovation, entrepreneurship and digital transformation:** Through initiatives like **Atal Innovation Mission** (Atal Tinkering Labs, Atal Incubation Centre etc.), **Knowledge and Innovation Hub**, **National Data and Analytics Platform** (NDAP), roadmap for digital payments etc.
- **Regional and inter-sectoral social interventions:** E.g., **NITI Forum for North East**, SATH-E initiative, Poshan Abhiyan, State Health Index, School Education Quality Index etc.
- **Sustainable Developments Goals (SDGs) monitoring:** Tasked with monitoring and adoption of SDGs in India, Aayog played a **crucial role in synchronizing nation's developmental programs in line with the targets**. E.g., SDG India Index.



Conclusion

NITI Aayog has played a **crucial role in shaping India's policy landscape through cooperative federalism, strategic planning, and fostering innovation**. However, its effectiveness is constrained by several limitations. To enhance its impact, NITI Aayog **must evolve into a more empowered institution with greater financial autonomy, resource allocation and stronger policy enforcement mechanisms, ensuring better coordination between the states and with states and the center**.

1.3 LOKPAL AND LOKAYUKTA

Why in the News?

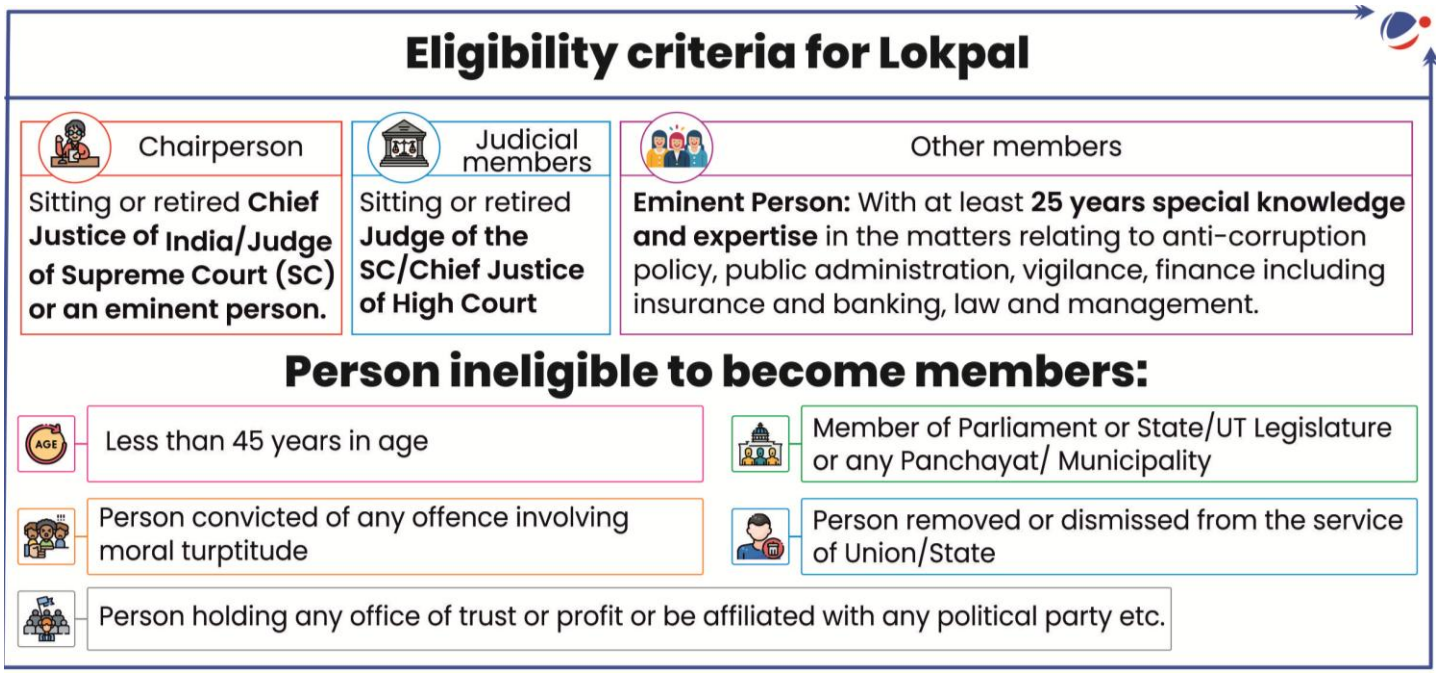
The Lokpal of India, a statutory anti-corruption body established under **Lokpal and Lokayuktas Act, 2013** celebrated its first foundation day in **January 2025.**

About Lokpal and Lokayukta Act, 2013

- **The act mandated** the establishment of the **Lokpal at the union level and Lokayukta at the state level** to deal with complaints relating to corruption against certain public functionaries**.**
- This act was **amended in 2016**, enabling the leader of the **single largest opposition party** in the Lok Sabha to become a member of the **selection committee** of Lokpal in the **absence of a recognized Leader of Opposition.**
    - It also amended **Section 44** of the act which dealt with the provisions of furnishing of details of assets and liabilities.

About Lokpal

- **Composition:** Consists of a **Chairperson and up to 8 Members**, with **50% being Judicial Members**.
    - At least **50% of total Members** must be from **SC, ST, OBC, Minorities, and women.**



- **Term for members:** 5 years or till the age of 70 years.
- **Appointment:** Appointed by the President after obtaining the recommendations of a **Selection Committee consisting of-**
  - **Prime Minister** (Chairperson)
  - **Speaker** of Lok Sabha
  - **Leader of Opposition** /Leader of **single largest opposition party** in Lok Sabha
  - **Chief Justice of India/Judge of the Supreme Court** nominated by him/her
  - **One eminent jurist** to be nominated by the President
- **Jurisdiction of Lokpal:** Includes **Prime Minister** (except on allegations of corruption relating to international relations, security, the public order, atomic energy and space), **Ministers, members of Parliament, Groups A, B, C and D officers and officials of Central Government.**
- **Powers and Functions**
  - **Superintendence Over Investigations** of **Delhi Special Police Establishment (DSPE)** concerning matters referred for preliminary inquiry or investigation.
  - Can authorize agencies to **search for and seize documents relevant** to an investigation.
  - Central Vigilance Commission **must report to the Lokpal on actions taken** on referred complaints, with the Lokpal issuing guidelines for effective disposal.
  - Powers of a civil court for the purpose of any **preliminary inquiry, the Inquiry Wing** under the Code of Civil Procedure, 1908.

About Lokayukta

- **Lokayukta** are established **by every State through a law.**
- The structure, eligibility, term, method of appointment etc. of lokayuktas **varies from state to state.**

Issues with the Lokpal/Lokayukta Office

- **Protection to the complainant**: The Lokpal and Lokayukta Act 2013 failed **to provide concrete immunity to the whistleblowers.**
  - The provision related to the initiation of inquiry against the complainant, in cases where the accused is found innocent, leads to **discouraging people from making complaints**
- **Inadequate provisions for appeal:** This **prohibits the transparency in the process.**
- **Possibility of the political influence:** The selection committee of Lokpal/Lokayukta consists of members **from political parties that put Lokpal under political influence.**

- Additionally there **are no criteria** to decide who is an **'eminent jurist'** which manipulates the method of the appointment of Lokpal.

- **Inclusion of PM under jurisdiction of Lokpal**: Any enquiry into a Prime Minister's official conduct by any authority other than the Parliament **could severely undermine their capacity to lead the government.**
- **Other Lacunae in the act**:
  - **Lack of constitutional backing** for the offices.
  - **Delays** due to **sufficient information from the government departments, and State investigating agencies.**
  - Complaint against corruption **cannot be registered after a period of 7 years.**
  - **Judiciary has been kept out of the purview of the lokpal.**
  - **Lack of clear provisions** regarding appointment of **Lokayukta.**

Way Forward

- **2nd ARC recommendations**
  - **PM should be kept out of the purview of Lokpal**, any enquiry into a Prime Minister's official conduct by any authority other than the Parliament **would severely undermine the Prime Minister's capacity to lead the government.**
- **Providing constitutional backing to the office**, along with financial autonomy could enhance its functioning.
- Distributing power across multiple **decentralized institutions, each with proper accountability measures,** to help prevent **excessive concentration of authority in a single body**
- **11th All India Lokayukta Conference (2012) suggested following reforms for enhancing effectiveness of Lokayukta**
  - Make **Lokayukta the nodal agency** for receiving all corruption complaints.
  - Accord Lokayukta jurisdiction over **State-level probe agencies.**
  - Bring **bureaucrats under the ambit of the Lokayuktas.**
  - Accord powers of **search and seizure, and powers to initiate contempt proceedings**
  - Provide **administrative and financial autonomy** to the Lokayukta for better functioning.
  - Bring **Non-Governmental Organizations (NGOs),** funded by the government, under the Lokayukta's jurisdiction

Conclusion

It is rightly said by **Publius Comelius Tecitus** that **"the more corrupt the state, the more laws"**. In this context what a country requires **is better execution of present laws rather than creation of more and more laws.**

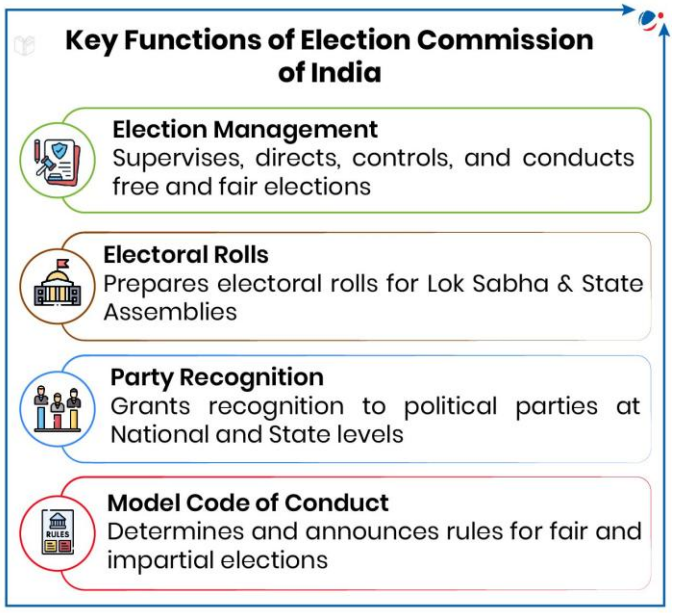
1.4. ELECTION COMMISSION OF INDIA (ECI)

Why in the news?

Election Commission of India (ECI) celebrated 75th Years of its establishment and also observed 25th January as National Voters Day.

About ECI

- **Genesis:** ECI is a **permanent Constitutional Body** established in on 25th January 1950.
  - Since 2011, **National Voters' Day** has been celebrated on **January 25** every year to mark the foundation day of the ECI.
- **Constitutional Provision: Part XV of the Constitution** entailing Articles **324 to 329.**
- **Statutory provisions:** The **Chief Election Commissioner and other Election Commissioners** (Appointment, Conditions of Service and Term of Office) **Act, 2023** regulates their appointment, service conditions, tenure, etc.



- **Key role: ECI** Administers elections to the
  - **Lok Sabha**
  - **Rajya Sabha**
  - **State Legislative Assemblies**
  - **Offices of the President and Vice President**
- **Composition:** It currently consists **of Chief Election Commissioner (CEC) and two Election Commissioners (EC).**
  - Initially, the commission had only a CEC. In 1989, two Election Commissioners were appointed who served until 1st January 1990.
  - **Since 1993**, the commission has **permanently included two Election Commissioners.**

Key Provisions of the Chief Election Commissioner and Other Election Commissioners Act, 2023

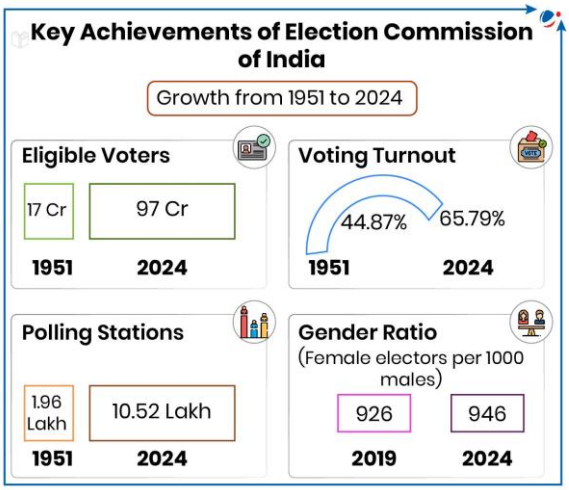
The 2023 Act **replaces the 1991 Act** and facilitates more autonomy to the ECI by specifying qualification, reforming appointment process, providing security of tenure, etc.

Specification	Details
Qualifications	For CEC or EC the person must • be holding or have held a **post equivalent to Secretary** to the Government of India. • possess **integrity and experience** in **managing and conducting elections.**
Search Committee	• **Composition** o Headed by the **Minister of Law and Justice.** o Includes **two members** (rank of Secretary or higher). • **Functions:** Prepares a **panel of 5 candidates for selection.**
Select Committee	• **Composition** o Prime Minister (Chairperson). o Leader of Opposition in the House of the People (Member). o Union Cabinet Minister to be nominated by the Prime Minister (Member) • **Functions:** Recommends the eligible candidates to the President for the appointment of CEC and EC.
Term of Office of CEC and EC	• **Tenure:** 6 years or until 65 years of age, whichever is earlier o If an EC becomes the CEC, combined tenure cannot exceed 6 years. • **Reappointment:** Re-appointment is **not allowed.**
Salary and Benefits of CEC and EC	• Salary is **equivalent to that of a Supreme Court Judge.**
Resignation and Removal	• **Resignation:** CEC or EC, can resign by writing to the President. • **Removal** o **CEC**: Can be removed like a Supreme Court Judge. o **ECs:** Require the recommendation of the CEC for removal.
Legal Protection to ECE and EC	Protected from **civil or criminal proceedings for acts or words spoken in official capacity.**

Challenges faced by ECI

- **Questionable Autonomy**
  - **Selection Process**: The search and selection committee have a **majority of government representatives**, raising concerns about independence.
  - **Removal of ECs**: Unlike the **CEC**, the ECs can be removed based on the CEC's recommendation.
  - **Post-retirement Employment:** Although the **2023 Act** prohibits reappointment it**,** is **silent regard to the further appointment** of the CEC and ECs to any post or office under the government after their retirement.
  - **Lack of Independent Staff:** ECI **relies on government employees** instead of having its own dedicated workforce, affecting its autonomy.

- **Operational issues**
  - **Limited Powers**: ECI **cannot de-register** political parties, even for serious violations.
  - **Electoral Roll Management:** Problems include duplicate entries, incorrect details, and exclusion of eligible voters.
  - **Electoral Malpractices**: Issues like voter bribery and booth capturing disrupt fair elections.
  - **Inclusivity and Voter Turnout**: Over 30 crore electors do not vote, often due to internal migration or other barriers.
  - **Security Concerns:** Protecting voters, candidates, and officials in politically sensitive areas is a significant challenge
- **Emerging challenges**
  - **Social Media and Disinformation**: Tackling fake news campaigns and AI-generated deepfakes to ensure free and fair elections have become an ever-alarming challenge



Key-Initiatives of ECI

- **Electronic Voting Machine (EVM):** Microcontroller-based **portable** device introduced in 1977; piloted in 1982 to modernize elections.
- **Systematic Voters' Education and Electoral Participation (SVEEP):** Launched in 2009 **to promote voter education, awareness, and literacy.**
- **cVIGIL App (2018):** Introduced in 2018 to **let citizens report Model Code of Conduct (MCC) violations.**
- **Introduction of Voter Verified Paper Audit Trail (VVPAT):** Introduced in 2013 **for a verifiable paper trail, enhancing transparency.**
- **National Electoral Roll Purification and Authentication Programme (NERPAP):** Launched in 2015 to create **error-free and authenticated electoral rolls.**
- **International Co-Operation:** ECI is a founding member of the **Association of World Election Bodies (A-WEB), Stockholm and Commonwealth Electoral Network (CEN).**

Way Forward for Enhancing ECI's Functioning

- **Ensuring Autonomy**
  - **Transparent Appointments**: Follow the Supreme Court's 2023 ruling **(Anoop Baranwal vs. Union of India),** advocating a **collegium system** for appointing CEC and ECs until the Parliament enacts a new law for such appointments.
    - ✓ The judgement was delivered after the enactment of the 2023 Act and the proposed collegium consisted **Prime Minister, Leader of Opposition in Lok Sabha and the Chief Justice of India.**
  - **Protection for ECs**: Removal of ECs should follow the same process as Supreme Court judges (255th Law Commission).
  - **No Post-Retirement Benefits**: CEC and ECs should be barred from post-retirement government positions, except ECs being eligible for CEC (Dinesh Goswami Committee, 1990).
  - **Independent Secretariat**: Establish a **permanent secretariat** for ECI to enhance autonomy (255th Law Commission of India report).
- **Improving Electoral Operations**
  - **Legalizing Model Code of Conduct (MCC)**: Statutory backing to MCC will strengthen its enforcement
  - **Ensure participative elections:** Pilot the **Multi-Constituency Remote Electronic Voting Machine (RVM)** to enable domestic migrants to vote remotely.
    - ✓ **RVMs can manage voting for up to 72 constituencies** from a **single remote polling booth.**
  - **One Candidate limited to One Constituency:** EC has allowed candidates to be open for two constituencies but a limit should be imposed to **cut down the expenses** of EC to one constituency

- **Tackling Emerging Challenges**
  - **Tech-Driven Elections**: Use **AI to detect hate speech** and deepfakes on social media.
  - **Preventing Bogus Voting**: Integrate **facial recognition** with Aadhaar-linked voter IDs.
  - **Electoral Research Hub**: Establish an **Electoral Roll Research & Studies Centre** to focus on election-related research, innovation, and education.

1.5. INTERNET SHUTDOWN

Why in the news?

According to **data from the Internet Shutdown Tracker** maintained by Software Freedom Law Centre, **India recorded 60 mobile internet shutdowns in 2024, the lowest in 8 years**.

More on the news

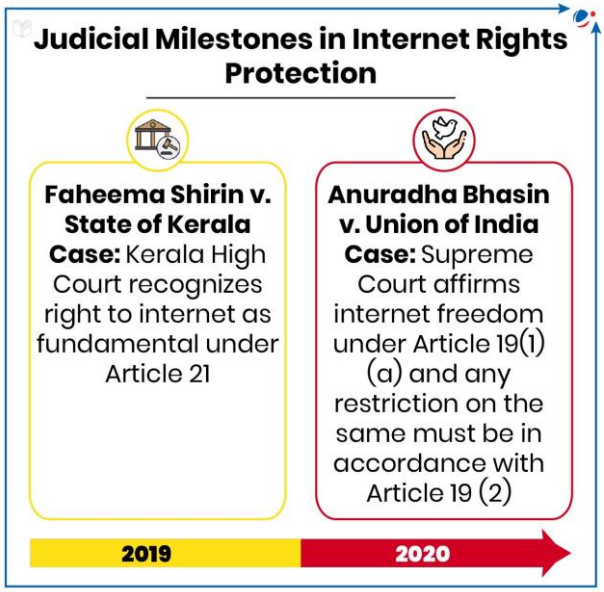
- As per the **Tracker**, the **reduction** comes, as compared to 96 in 2023, **due to fewer internet shutdowns imposed in Manipur and Jammu and Kashmir** in 2024.

Provisions for internet shutdowns in India

- **Code of Criminal Procedure (CrPC), 1973: Up to 2017**, internet shutdowns were primarily issued **under Section 144** of erstwhile CrPC (Section 163 of Bharatiya Nagarik Suraksha Sanhita).
  - **Section 144** gave **District Magistrate** the powers to prevent unlawful gathering and direct any person to abstain from a certain activity.
- **The Indian Telegraph Act, 1885 (amended in 2017):** It allows internet shutdowns under the **Temporary Suspension of Telecom Services (Public Emergency & Public Safety)** 2017 rules **for up to 15 days.**
  - **Grounds for shut down:** Such shutdown order could be issued on grounds of '**public emergency' or 'public safety'**
    - However, **public emergency and public safety are not defined** under the act or rules.
  - **Order issuing authority:** Such orders could be issued only by union/state home secretary
  - **Review of order:** A **3-member review committee headed by cabinet secretary/chief secretary** at national/state level has to be **constituted within 5 days** to review the orders
- **Article 19 (2):** It allows the government to impose reasonable restrictions on freedom of speech and expression for security of the state, public order, etc.

Arguments in favor of internet shutdown

- **National security and counter insurgency:** E.g., **in Jammu and Kashmir, internet shutdowns were extended multiple times to curb separatist propaganda** and militant activities after the abrogation of Article 370 in 2019.
- **Check communal violence and ethnic clashes:** E.g., in **2023, internet services were suspended in Manipur** following ethnic clashes to prevent further violence.
  - Similarly, in 2023, **shutdowns were imposed in certain districts of Haryana** as a response to communal violence incidents that occurred in some parts of the state.
- **Counter misinformation, hate speech and fake news:** E.g., During **Delhi riots** (2020), **shutdowns were imposed in affected areas to check the spread of misinformation and hate speech** on social media.
- **Maintenance of law and order:** E.g., During **anti-CAA and farm bill protests**, internet services were suspended to uphold public order in the protest sites.
- **To curb cheating in examinations:** E.g., in **Rajasthan**, a state-wide internet shutdown was enforced to **prevent online cheating in Rajasthan Eligibility Exam for Teachers (REET), 2021** examination.



Arguments against internet shutdown

- **Economic impact:** As per **Access Now's Internet Shutdowns Report**, shutdowns reportedly **cost India total $1.9 billion and $118 million in foreign investment** in the **first half of 2023 alone**.
  - In **2020**, the Indian economy suffered **losses to the tune of $2.8 billion** due to 129 separate instances of internet suspension, which affected 10.3 million individuals.
  - **Unemployment:** According to **Internet Society's NetLoss Calculator**, a **single-day shutdown can push up to 379 people into unemployment** in India.
- **Impact on women and human rights abuse:** Internet shutdowns make it **harder for women to report crimes** like murder, rape, and violence, thus hindering access to justice.
- **Violation of fundamental rights:** Internet shutdowns **restrict access to information, limiting digital freedom and fundamental rights**, including freedom of speech and expression (Article 19) and the right to access information.
- **Compromise on media and press freedom:** E.g., in **2019, journalists in Jammu and Kashmir faced difficulties in reporting due to prohibition of internet services**, with newspapers shutting down or relocating their offices.
- **Disruption of education and healthcare:** Internet shutdowns **impede online education, telemedicine**, emergency services etc.

Recommendations of the Parliamentary Standing Committee on Communications and Information Technology (Report: 'Suspension of Telecom Services/Internet and its Impact', 2021)

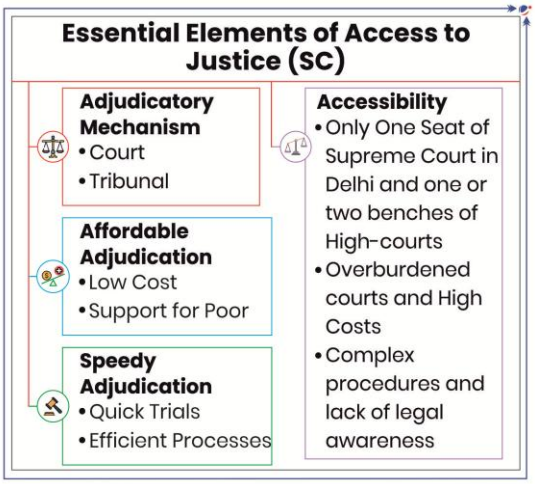
- **Adoption of global best practices:** Department of Telecommunication (DoT) to **conduct a study analyzing internet shutdown rules in other democratic countries** and adopt best global practices that suit the specific context of India.
- **Grounds for suspension:** Codifying defined parameters/ **objective criteria related to the grounds for suspension of internet services** and laying down parameters/**mechanisms to decide the merit of an internet shutdown**.
- **Principles of proportionality:** DoT in co-ordination with Ministry of Home Affairs (MHA) should lay down a **clear principle of proportionality and procedure for lifting of shutdown** so that these are not extended indefinitely.
- **Inclusive Review Committee:** Making the **executive dominated 3-member review committee more inclusive** by incorporating retired judges, public members etc.
- **Selective banning of services:** DoT to **formulate a policy to selectively restrict the use of certain services instead of banning the complete internet** to ensure minimum inconvenience to public and curb misinformation.
- **Effectiveness of internet shutdowns:** Study on the impacts of internet shutdowns and its effectiveness in dealing with public safety and public emergency to be conducted by DoT and MHA.

1.6. NEWS IN SHORTS

1.6.1. RIGHT TO ACCESS TO JUSTICE NOT ABSOLUTE: SUPREME COURT

Acknowledging the **right to access to justice** as the **cornerstone of democracy**, SC recently imposed a penalty on a petitioner for filing multiple **frivolous litigations** that burden the judicial system.

- A frivolous litigation is a **lawsuit** that **lacks any arguable basis either in law or in fact** and intends to harass, or delay the judicial process.
- The issue was also taken up by the apex court earlier in the **Subrata Roy Sahara Vs Union of India (2014), Dalip Singh v. State of Uttar Pradesh and others (2010),** and the **K.C. Tharakan Vs State Bank of India & Ors (2023).**



Right to Access to Justice

- **Meaning:** It is a basic principle of the **rule of law** and deals with the **ability of people** to seek and obtain a remedy through formal or informal institutions of justice for **grievances.**
  - SC in **Anita Kushwaha v. Pushap Sudan (2016)** held **Access to Justice is a Fundamental Right** under **Article 14 (Right to Equality) and Article 21 (Right to Life and Personal Liberty).**

Other Provisions/ Mechanism related to Right to Access to Justice

- **Constitutional**
  - **Preamble** covers **social, economic and political justice.**
  - **Directive Principles of State Policy** under **Article 39A (**Right to free legal aid).
  - **Article 32** (Right to Constitutional Remedies) **Article 226** (Power of High Court to Issue Writs).
- **Public Interest Litigation:** Liberalised the **rule of locus standi** (where only the aggrieved person can file a case for the enforcement of right), to allow public spirited persons or organizations file a case for the enforcement of right.
- **Alternative Dispute Redressal Mechanisms (ADR**): Grievance Redressal with lesser formality at lower cost.

1.6.2. DESIGNING INNOVATIVE SOLUTIONS FOR HOLISTIC ACCESS TO JUSTICE (DISHA) SCHEME

Hamara Samvidhan – Hamara Swabhiman Campaign organised **to commemorate 75th anniversary of Indian Constitution** and **India's establishment as a Republic** under the DISHA Scheme.

About DISHA scheme

- **Launch:** Launched in 2021 by **Department of Justice**, Ministry of Law and Justice for a period of **5 years (2021-2026).**
- **Aim:** To **secure "Justice" to the people of India** as enunciated in the Preamble & under Articles 39A, 14 and 21 of the India Constitution.
- **Other:** It widens the outreach of **Tele-Law, Pro Bono Legal Services** (Nyaya Bandhu) & **Legal Literacy and Legal Awareness programmes** both qualitatively and quantitatively.

1.6.3. AMENDMENT TO PRISON MANUAL AND CORRECTIONAL SERVICES ACT

Ministry of Home Affairs has **amended Model Prison Manual, 2016 rules** and **Model Prisons and Correctional Services Act, 2023** to address caste-based discrimination within prisons across country.

- These amendments have been made in compliance with **Supreme Court order on caste-based discrimination of prisoners** in **Sukanya Santha vs. UoI & Others Case**.
  - SC also directed that **reference to habitual offenders** in prison manuals should be in accordance with legislative definitions of respective State Laws.
    - > **Habitual offenders** are individuals **convicted and sentenced multiple times within five years** for separate offenses, with **sentences not reversed on appeal or review**.

Key Amendments

- **Prison authorities** strictly ensure that **prisoners are not discriminated against, classified, or segregated based on their caste**, including in allocation of duties or work within prison.
  - Discrimination based on caste is **prohibited** under **Article 14** (equality before law), **Article 15** (prohibition of discrimination), **Article 17** (abolition of untouchability), etc.
- Provisions of '**Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013'** shall have a **binding effect** in Prisons and Correctional Institutions.
  - **Manual scavenging or hazardous cleaning** of a sewer or septic tank inside a prison **shall not be permitted**.

1.6.4. DOCTRINE OF MERGER

Recently, Supreme Court (SC) highlighted the **Doctrine of Merger.**

About Doctrine of Merger

- It was explained in **Kunhayammed v. State of Kerala, (2000).**

- As per this doctrine, there **cannot be more than one decree or operative order** governing the same subject matter at a given point in time.
- Hence, **once the superior court** disposes of a case whether by setting aside, modifying, or confirming the **lower court's decree**, the superior court's order becomes the **final, binding, and operative, merging** the lower court's decision into it.

1.6.5. STATE CONSENT FOR CBI

Supreme Court held that **CBI does not require sanction of a state government to register a case under a Central legislation** like the Prevention of Corruption Act **against a Central government employee** posted in state concerned.

- This **overturned an Andhra Pradesh High Court decision** that had dismissed cases against central employees due to lack of state consent.

About State Consent for CBI

- **Law:** Section 6 of **Delhi Special Police Establishment (DSPE) Act, 194**6 requires CBI to get state consent for investigations a crime in a state.
- **Two types of consent:** General Consent, and Case-specific Consent.

To know more about CBI, refer to Article 1.3. Central Bureau of Investigation (CBI) in July 2024 Monthly Current Affairs Magazine.

1.6.6. PANCHAYAT SE PARLIAMENT 2.0

Lok Sabha Speaker has inaugurated **Panchayat Se Parliament 2.0.**

About Panchayat Se Parliament 2.0

- Organised by **National Commission for Women** and **Lok Sabha Secretariat** in collaboration with **Ministry of Tribal Affairs**.
- Aims to **empower elected women representatives from Scheduled Tribes from Panchayati Raj institutions** and enhance their knowledge of constitutional provisions, parliamentary procedures, and governance to foster effective leadership.

1.6.7. VIKSIT PANCHAYAT KARMAYOGI' INITIATIVE

Ministry of Personnel, Public Grievances & Pensions launched 'Viksit Panchayat Karmayogi' Initiative on Good Governance Day.

- **Good Governance Day** is celebrated on **25th December** to commemorate the birth anniversary of former Prime Minister Atal Bihari Vajpayee.

About Viksit Panchayat Karmayogi' Initiative

- **Aim:** To enhance the **capacity and competence** of **Panchayati Raj Institutions (PRIs)** by equipping elected representatives and officials with the tools and knowledge required for effective governance and participatory planning.
- It is part of the broader **'Prashasan Gaon Ki Aur' campaign**.
- **The program promotes decentralized governance** and grassroots-level decision-making.

1.6.8. PAY COMMISSION

The Union government approved the establishment of the Eighth Pay Commission.

About Pay Commission

- **Constitution**: by **central government**
- Since **1947**, seven Pay Commissions have been constituted
  - The 7th pay commission was implemented in 2016 and is set to complete its term in 2026.

- **Chairman** of 7th Pay Commission was: **Justice Ashok Kumar Mathur.**
- **Importance**: It plays a vital role in determining salary structures, allowances, and other benefits for government employees.

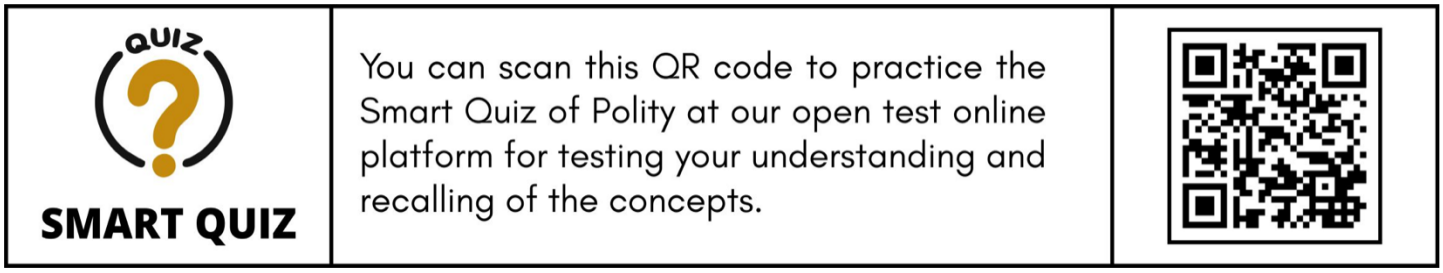
1.6.9. EDELMAN TRUST BAROMETER

Recently, annual **Edelman Trust Barometer** was released before the start of the World Economic Forum Annual Meeting.

- Released by **Edelman Trust,** it is a survey of **28 countries** that studies the influence of trust across society — government, media, business, and NGOs.

Key Findings

- **India** slipped to **3rd position**, after China & Indonesia in terms of **people's trust** in the government, businesses, media etc. (in low-income population group).
  - Within **high income group**, **India was ranked 4th.**
- **India** ranked **13th** when it comes to **trust of people in other countries, in companies with Indian headquarters.**



2. INTERNATIONAL RELATIONS

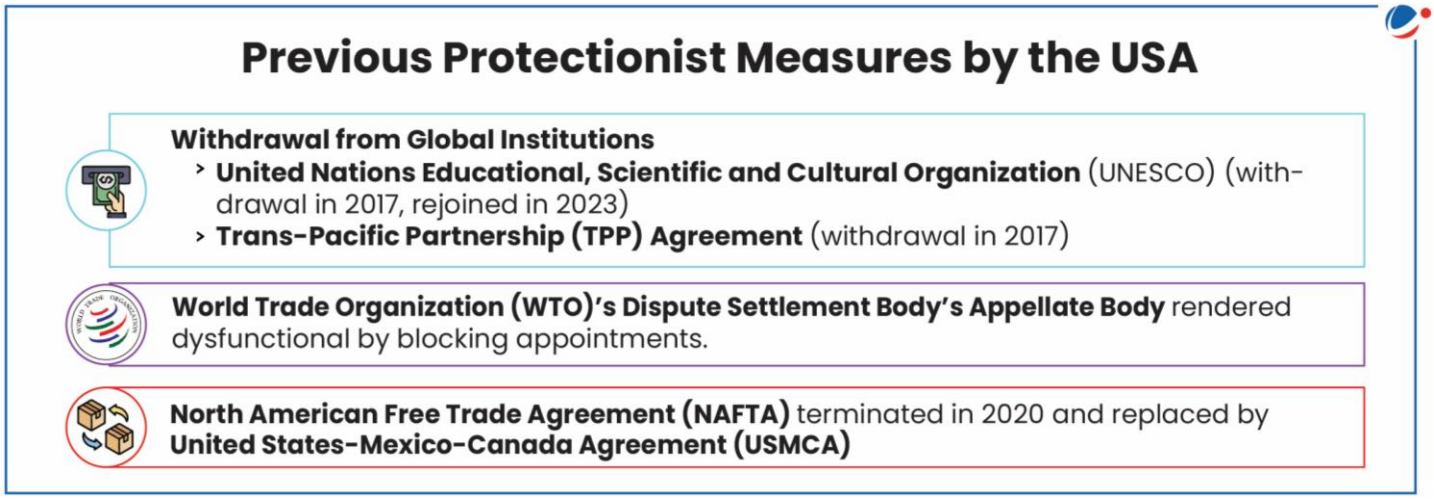
2.1. USA'S PROTECTIONIST MEASURES

Why in the news?

The USA, upholding its **'America First Policy,'** has decided to **exit from key global institutions** like the **World Health Organization (WHO), Paris agreement** and the **International Criminal Court** (**ICC**).

More on the News

- USA had earlier exited **Paris Agreement in 2017,** but rejoined in 2021 and initiated process of withdrawal from **WHO in 2020**, reversed in 2021.
- USA is also engaged in a tariff war and has **threatened to impose high tariffs on imports** from trade surplus countries to reduce **trade deficit** of the USA.
    - In 2023, the **US trade deficit** was at **$1.05 trillion**, with **4 countries (China, Mexico, Canada and EU**) accounting for almost **80%** of the trade deficit.
- These protectionist measures are being promoted to benefit American economy, upholding the idea of **economic nationalism**,



About Protectionism

- Protectionist policies also allow the government to protect developing domestic industries from established foreign competitors.
- **Types of Protectionism**: **Tariffs** (taxes/duties on imports), **Quotas** (restrictions on volume of imports), **Subsidies** (negative taxes give to domestic producers).

Advantages	Disadvantages
Promotion of local industries Increased opportunities to increase market competitiveness. E.g. for MSMEs	**Hampers technological advancement** No incentive for domestic producers to innovate and invest in R&D due to lack of global competition
Maintains trade balance and reduces trade deficits E.g. Protects against dumping of cheap goods	**Limits choice and increased cost for customers** Due to restricted market access for global firms
Higher employment opportunities for local workforce Due to restrictions on immigrants	**Misallocation of resources** Affects efficiency of production and labour due to lack of measures for innovation.
Equitable competitiveness Easier for developing countries to compete with advanced developed countries with a free market and high wages	**Ineffectiveness of tariffs** May harm the industries in the long-term due to interconnectedness of global supply chains

Potential Impact of these Measures

Impact on Multilateralism/ Multilateral Institutions

- **Weakening of Global international order**: USA's **'sovereigntist view of international law'** accelerates the **weakening of the normative authority of multilateral institutions**.
  - **'Sovereigntist view of international law'** assumes that multilateral treaties restrict a countries sovereign authority.
- **Threat to global research**: US has ceased negotiations on the **WHO Pandemic Agreement** and the amendments to the **International Health Regulations.**
  - This **risks success of many critical global research programmes** for diseases and vaccine development as well as excludes the US from **global information databases on diseases.**
- **Funding**: USA is the **highest contributor** to funding various global institutions, impacting **developmental and emergency works**.
  - E.g., U.S. has historically been the **single largest contributor to WHO** with total contributions being **15.6% WHO's total revenue in the 2022-2023**.
- **Environmental impact**: **US International Climate Finance Plan**, established to channel funds through multilateral and bilateral institutions to help developing countries' climate challenges has been **scrapped**.
  - This is against the principle of **Common but Differentiated Responsibilities (CBDR).**
- **Global Trade and Supply Chains**: USA's **America First Trade Policy** with the use of **tariffs** and potential import restrictions **disrupts global supply chains**, increases **uncertainty in trade flows**, impacts **investor confidence** and potentially **disregards WTO rules.**
- **Global South**: The Global South, with **lack of adequate resources**, rely on **multilateral** institutions to ensure **fairness and justice**.
  - US Agency for International Development (**USAID) funded climate-resilient agriculture projects in Tanzania** impacted due to fund cuts, impacting yield productivity.

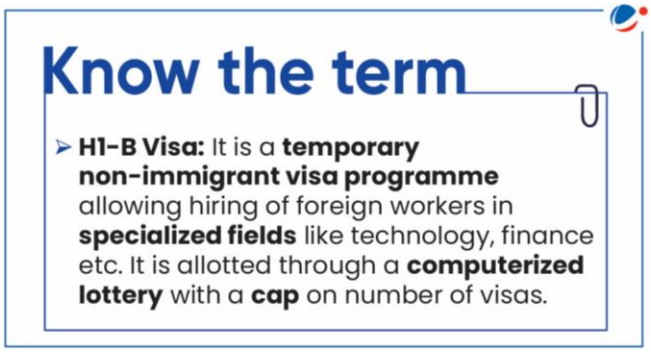
Impact on India-US cooperation

Positive

- **Trade promotion**: India can be seen as **alternative manufacturing destination** amidst the US-China trade tensions. E.g. IT services, Electronics and pharmaceuticals.
  - US Department of Commerce's Bureau of Industry and Security **removed 3 Indian organisations** from its **Entity List** (list of organizations subject to **export restrictions and licensing requirements**)
- **Indo-Pacific**: Based on the **"Pivot to Asia" strategy**, the USA has promoted **strategic partnership with India** in the Indo-Pacific region intended **to counter China's geopolitical influence**.
  - E.g. **QUAD, India Middle East Economic Corridor (IMEC),** Indo-Pacific Economic Framework (IPEF) etc.
- **Technology**: Knowledge sharing and technology transfer through initiatives like **US-India Initiative on Critical and Emerging Technology (iCET)** and civil nuclear energy partnership.

Negative

- **Trade competition**: Indian **exporters** may face **heightened competition in third markets** where **Chinese goods are diverted and redirected** due to US tariffs.
  - E.g. Indian textile exporters competing with Chinese goods in Southeast Asia.
- **Tariffs on Indian Trade**: USA has **criticized India's trade policies**, highlighting high tariffs on imports (e.g. **Harley Davidson motorcycles**) and may impose high tariffs on Indian exports (E.g. steel, automobiles etc.).
  - **US has a trade deficit of $45.7 billion with India**.
- **Immigration Policies**: **Tighter** immigration **policies** like **H1-B visa restrictions**, banning **birthright citizenship** etc. may impact Indian tech workers and diaspora in the USA.
  - **India supplies ~70% of H1-B workers annually.**



- **USA's push for domestic production**: Policy of **'Buy American'** may impact Indian exports due to **restricted market access** and impact **Make in India** initiative**, PLI Scheme** etc.

Conclusion

In the context of **changing global economic landscape**, India's ability to **navigate the complexities** of trade wars, financial realignments, and emerging blocs will be pivotal. Indian policies should focus on **strengthening bilateral trade agreements, diversifying export markets, and championing reforms in multilateral institutions**. India's geoeconomic success will depend on its ability to **balance collaboration with strategic autonomy** in a rapidly changing global landscape.

2.2. MINILATERALISM AND MULTILATERALISM

Why in the news?

Recent adoption of **Cybercrime Treaty** by **UN General Assembly** is not only a breakthrough for a fractured cyber governance system but also a major victory for **multilateralism.**

UN Cybercrime treaty and resurgence of Multilateralism

- In recent times, a number of factors like the **rise of nationalism, populism, economic inequalities, great power competition** is leading to the **fall of liberal world order** and **multilateralism.**
  - Also, there has been a growing access to internet, rising cybercrime, inadequacy of liberal institutions, broken international dialogue all of which has caused **erosion of multilateralism.**
- The above factors have led to the **emergence of short-term strategic alliances** and **minilaterals,** involving small groups of nations collaborating to pursue mutual goals.
- The process of adoption of **UN Cybercrime Treaty**, despite diverging national interests, is therefore a **major triumph for multilateralism.**
  - The UN Cybercrime Treaty relied heavily on collective efforts to tackle the global and interconnected nature of cybercrime.

About Multilateralism and Minilateralism

- **Multilateralism:** It is defined as **opposite** to bilateralism and unilateralism involving cooperation between 3 or more states adhering to a **common issue** based on **shared system of norms and values.**
  - **Emergence:** Most of the **multilateral institutions** emerged after the World War II. E.g., **United Nations, International Monetary Fund, World Bank, General Agreement on Tariffs and Trade (GATT), NATO,** etc.
- **Minilateralism:** It is an **informal, flexible,** and **voluntary** framework with varied situational interests, shared values or relevant capabilities. It allows nations to collaborate on critical issues without holding the same worldview.
  - **Emergence:** It is not a new idea and **coexisted** in global governance since **1945.**
    - It was pursued in disguise between major powers and led to the creation of **multilateral institutions**.
    - E.g., **GATT** originated as **minilateral negotiations** between major powers, and was **subsequently multilateralised** by adding other countries.

Comparison between Minilateralism and Multilateralism

Parameters	Minilateralism	Multilateralism
Actors Involved	• Lesser participants, 3 or 4.	• Collaboration among multiple countries
Formality	• Ad hoc arrangements, voluntary outcomes and commitments.	• Formal, institutionalized and adherence to rules and norms.
Target	• Initiatives to address a specific threat, contingency or security issue.	• Deal with broader global issues.
Level of Engagement	• Only involve the critical mass of members.	• Broad and Inclusive approach.

Example	• **Regional Comprehensive Economic Partnership (RCEP),** free trade agreement among Asia-Pacific countries is a minilateral framework. • **Others:** Trilateral framework between UAE, India, and France, QUAD,	• **WTO** is multilateral framework for international trade regulation. • **Others:** United Nations and its agencies, World Bank, IMF, etc.

Factors Responsible for the shift towards Minilateralism

- **Rising multipolarity:** Emergence of **multiple centres of power** like the rise of China, Russia has challenged the **multilateral institutions** established under USA's leadership.
- **Strategic Alliance Vs Global Cooperation:** Strategic alliances facilitate creation of issue-specific partnership with like minded countries.
  - E.g., QUAD, India-Japan-USA trilateral, etc. foster greater defence and security cooperation in the new regional theatres like Indo-Pacific.
- **Easy Regulation: Informal mechanisms** used in minilateral institutions such as the Basel Committee and the Financial Stability Board offer advantages like the bottom up approach, flexibility, in regulation, etc.
- **Decision Making:** Large organisations having **formal institutional** structure, international bureaucracies, and heterogenous membership often delays decision making.
  - Agile and adaptable approach of minilateralism helped in the quick culmination of **"Partnership for the Future" to I2U2** (India, Israel, UAE, USA).

- **Stagnation in reforms:** The membership of **United Nations Security Council** does not depict the present realities, **stalemate in WTO** Doha rounds, etc.
- **Perceived failure of Multilateralism:** To achieve global cooperation on the most pertinent issues faced by the international community.
  - Recent **CoP-29 of the UNFCCC** highlighted the issue of climate finance and climate justice.

Need for co-existence of Minilateralism and Mulitlateralism

- **Minilateralism as building blocks of Multilateralism:** It could **supplement** the inadequacies of existing multilateralism without delegitimizing it.
  - E.g., strength of minilateralism lies in its ability to **achieve concrete results timely**, hence it could act as a catalyst for **operationalization of multilateral-level dialogue.**
- **Streamlining Negotiations:** Minilateral lay the groundwork for **political dialogue and promote confidence-building** between key partners, before being taken up at the **multilateral platforms.**
  - Regional groups like **European Union (EU)** and **Association of Southeast Asian Nations (ASEAN),** etc., can arrive at **informal consensus** with high possibility of formal consensus.
- **Accelerate the pace in multilateral negotiations:** E.g., **Paris negotiations of 2015** received an impetus with the finalisation of **US- China agreement** (major emitters) on reducing emissions.
- **Filling gaps:** Multilateral institutions suffer from issues like pending reforms, while minilateral institutions can suffer from power imbalance and may lead to several conflicting agreements.
  - Synergy between the two can help overcome the above challenges.
- **Dealing with Global Challenges:** Like climate change, terrorism, etc., require enhanced forms of co-operation at regional and global scale.
- **Rule-Based Framework:** Multilateral organisations help build **consensus towards legally binding treaties** like UN Convention on the Law of the Sea, offering a rules-based framework for minilateral cooperation.

Conclusion

While minilaterals cannot replace multilaterals, they can **supplement** the work of multilateral organisations by providing a platform for **diplomacy, confidence-building, and cooperation**. Example, in case of climate action, minilaterals can provide an **inclusive platform** for interacting with sub-national and non-government actors to formulate **innovative solutions** for global warming.

Scan the QR code to know more about **Global World order**

Weekly Focus #90- World Order-The Rise and Potential Decline

2.3. ROLE OF INSTITUTIONS IN CLIMATE NEGOTIATIONS

Why in the news?

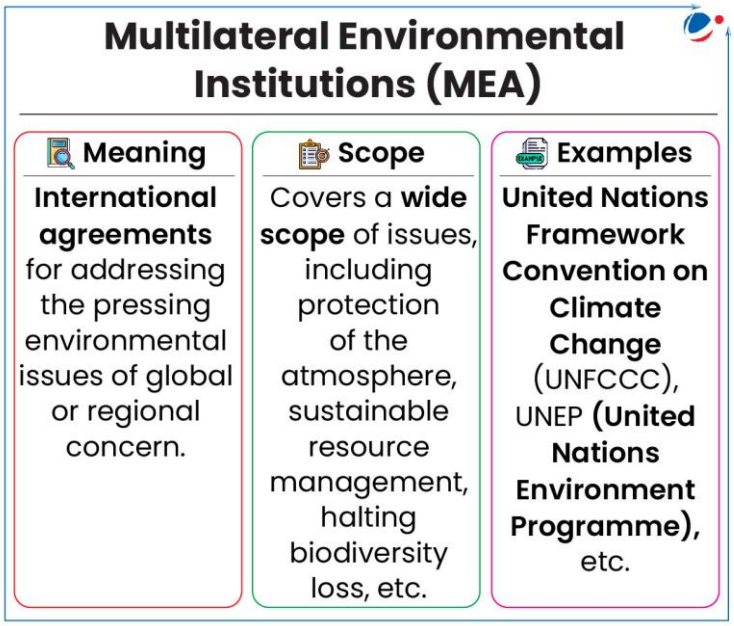
Recent **CoP29** of the **UNFCCC in Baku, Azerbaijan** witnessed a rift on the issue of climate finance between the developed and the developing countries questioning the efficacy of multilateral institution in provisioning of global common good.

Role of Institutions in advancing climate negotiations

- **Legitimacy and Credibility:** Institutions provide legitimacy to climate negotiations through structured frameworks, membership inclusivity, confidence-building measures, and binding obligations.
- **Building Trust:** Well-designed institutional frameworks foster trust among nations through transparency, structured interactions, and ideological balance.
- **Addressing Climate Corruption:** Institutions can help curb environmental crimes such as illegal logging, unregulated coal burning, and deforestation, which contribute significantly to greenhouse gas emissions.
- **Supporting implementation in Global South:** Institutions through its sets of rules, formal or informal procedures play a crucial role in implementing, sustaining, and enhancing climate change mitigation in the Global South.
- **Flexibility to ensure compliance:** It is done by avoiding overly stringent standards, offering discretion in implementation; promoting domestic interests, etc.
- **Promoting Climate Justice:** Institutions provide a platform to the vulnerable and small island developing states to forward their grievances.

Challenges in multilateral Climate Negotiations

- **Limitations of UNFCCC:** Under the Paris Agreement and its rulebook, all countries are now on their own to **mitigate, adapt and pay** for the costs of climate impacts reducing UNFCCC to merely a platform to collect, synthesize and disseminate information.
- **Unresolved Issue of Climate Justice:** The UNFCCC has lacked in its ability to provide dependable assurances to developing countries on climate finance from developed countries.
- **Non-Recognition to the Problem of Climate Change:** Major countries like USA responsible for large emissions do not recognise the problems of climate change as evident from the recent withdrawal of USA from Paris Agreement.
- **Rising Emissions:** Despite Kyoto Protocol, major agreements like Cancun and Paris, UNFCCC has little results with the increased levels of emissions.



Way forward on promoting effective institutional frameworks for Climate Negotiations

- **Role of Minilateralism:** A polycentric and multi-level governance system, involving smaller, interest-based coalitions, can be more effective than large multilateral negotiations.
  - Examples: Climate Vulnerable Forum (CVF) and the G20 Climate and Energy Framework.
- **Inclusive Multilateralism:** Climate institutions should involve diverse stakeholders, including youth, women, Indigenous communities, and civil society, ensuring a bottom-up approach to climate action.

- **Promoting Epistemic Institution**: Organizations like the Intergovernmental Panel on Climate Change (IPCC) play a crucial role in integrating scientific research into policy frameworks for better decision-making.
- **Promoting Value-Based Cooperation:** Institutions must uphold core values like equity, transparency, inclusivity, and non-discrimination to ensure fair and effective climate policies.
- **Strengthening Climate Finance Mechanisms:** A clear and enforceable framework for climate finance, including loss and damage compensation, is necessary to build trust and ensure accountability.

To know more about UNFCCC COP29, refer to Article 5.1. UNFCCC COP29 in November 2024 Monthly Current Affairs Magazine.

Scan the QR code to know more about **Climate Change Negotiations**

Weekly Focus #119- Climate Change Negotiations (CCNs): From Rio (1992) to Dubai (2023)

2.4. WORLD HEALTH ORGANIZATION (WHO)

Why in the News?

United States announced its withdrawal from WHO, pausing transfer of any funds, support or resources to WHO.

US in WHO

- **Founding Member:** US was a **founding member of WHO** in 1948 and has participated in shaping and governing WHO's work ever since.
- **Earlier Withdrawal:** US earlier withdrew from WHO in 2020 citing following reasons:
  - **Mishandling of the COVID-19 pandemic** and other global health crisis,
  - **Failure to adopt urgently needed reforms**, and
  - Its **inability to demonstrate independence** from the inappropriate political influence of WHO member states.
- **Funding from US:** For the two-year budget ending in 2025, the U.S. is projected to be WHO's largest single contributor by far.
  - It is expected to donate $958 million, or nearly 15%, of the agency's roughly $6.5 billion budget.

About WHO

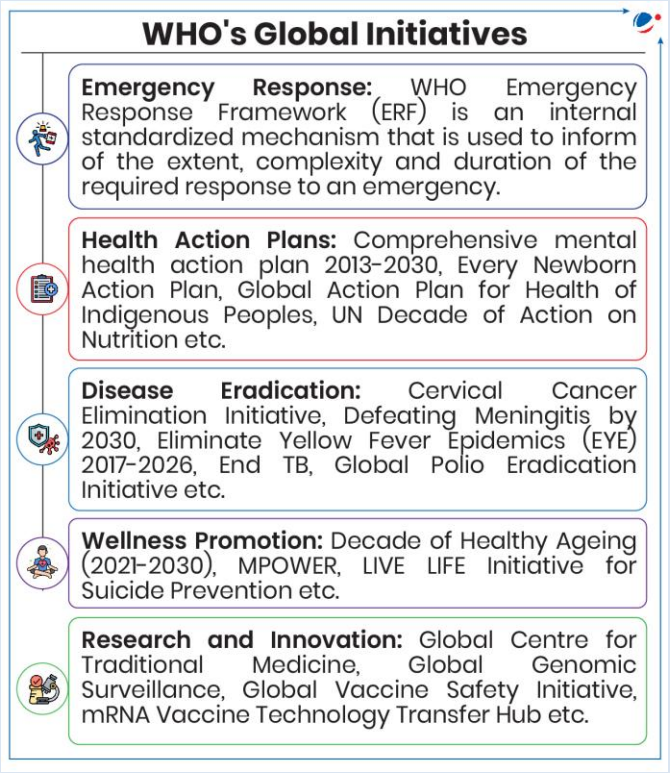
- **UN Agency:** The WHO is the **United Nation's specialized health agency** and is mandated to coordinate the world's response to global health threats.
- **Genesis:** The **International Health Conference** held in New York in 1946 adopted the Constitution of WHO, which **entered into force in 1948.**
- **Key Functions:** WHO **coordinates the world's response to health emergencies**, promote well-being, prevent disease and expand access to health care.
  - It also **provides technical assistance** to poorer countries, helps distribute scarce vaccines, supplies and treatments and **sets guidelines** for hundreds of health conditions, including mental health and cancer.
- **Membership: 194** member states grouped into **6 regions** (Africa, Americas, Eastern Mediterranean, Europe, South-East Asia, and Western Pacific).
  - All countries which are **Members of the United Nations** may become members of WHO by accepting its Constitution.
  - Other countries may be admitted as members when their application has been **approved by a simple majority vote** of the World Health Assembly.
- **Funding: Highest Funding** (2020-23) came from the US, Bill & Mellinda Gates Foundation, UK and Germany. **Two main sources of funding:**
  - **Assessed contributions (AC): Member States pay** their AC, which are a percentage of a country's gross domestic product (Agreed by the United Nations General Assembly).
    - > Member states approve them every two years at World Health Assembly and they cover **less than 20% of total budget**.

- **Voluntary Contributions (VC):** Largely from **Member States as well as from other UN organizations**, intergovernmental organizations, philanthropic foundations, the private sector, and other sources.

- **Governance and Organizational Structure:**
  - **World Health Assembly (WHA):** WHO's **highest level decision-making forum**, is held annually in Geneva, Switzerland.
    - > **Main functions** are to determine policies of organizations, appoint Director-General, supervise financial policies, and review and approve proposed programme budget.
  - **Executive Board:** It gives effect to the decisions and policies of WHA and is headed by the Director-General.
    - > **Director General** is appointed by the WHA on the nomination of the Executive Board.
  - **WHO Secretariat:** Includes its Headquarters in Geneva, Switerland, 6 regional offices and other stations located in 150+ countries.

Significance of WHO

- **Regulating international health laws:** It shaped **International Health Regulations (IHR),** which are legally binding on WHO member states.
- **Universal Health Coverage (UHC):** WHO's programmes emph asize access **to primary and preventative healthcare,** and **sustainable financial protection** for people.
  - **WHO's Global Drug Facility** has enabled millions of patients in developing countries to **access high-quality anti-TB medicines.**
  - Currently, at least **half of the world's people do not receive the health care they need**, and out-of-pocket health care costs **push about 100 million into extreme poverty** every year.
- **Tackling Health Emergencies:** Supports countries to **prepare for, detect, respond to and recover from health emergencies** and declares a **Public Health Emergency of International Concern (PHEIC).**
- **Eliminating diseases:** WHO played a key role in **eradicating smallpox, achieving near eradication of polio,** eliminating range of tropical diseases like **leprosy, trachoma, in seven countries including India.**



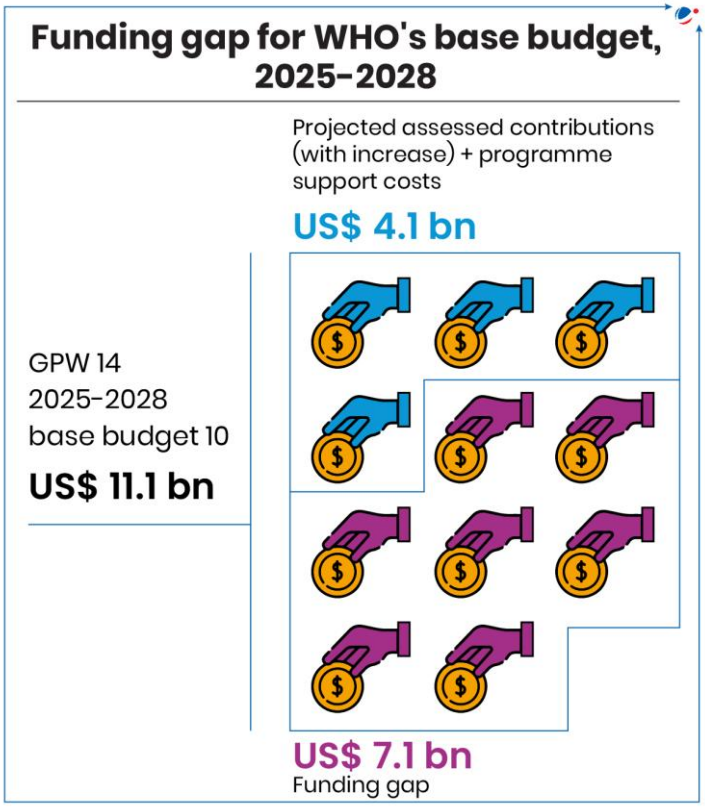
Shortcomings of WHO

- **Poorly coordinated responses to outbreaks:** While some criticize the WHO **delaying declaration of 2014 Ebola outbreak as PHEIC,** others describe its 2009 swine flu response as disproportionate as the outbreak was milder.
- **Political Pressures:** WHO is believed to be **under undue political pressure**, especially from **China and USA.**
  - For instance, **WHO's endorsement of taxes on soft drinks** to reduce sugar consumption met with resistance from beverages industry and US government.
- **Complex Organizational Structure:** Multiple departments with overlapping tasks, extensive autonomy enjoyed by regional offices, rigid operational processes slows decision making process.
- **Absence of financial independence and effective legal powers**: makes it too weak to influence states unwilling or unable to cooperate and faces difficulties in dealing with corporations and other non-state actors.
- **Conflict of Interest:** It is alleged that WHO decisions had been swayed by the interests of the pharmaceutical sector.

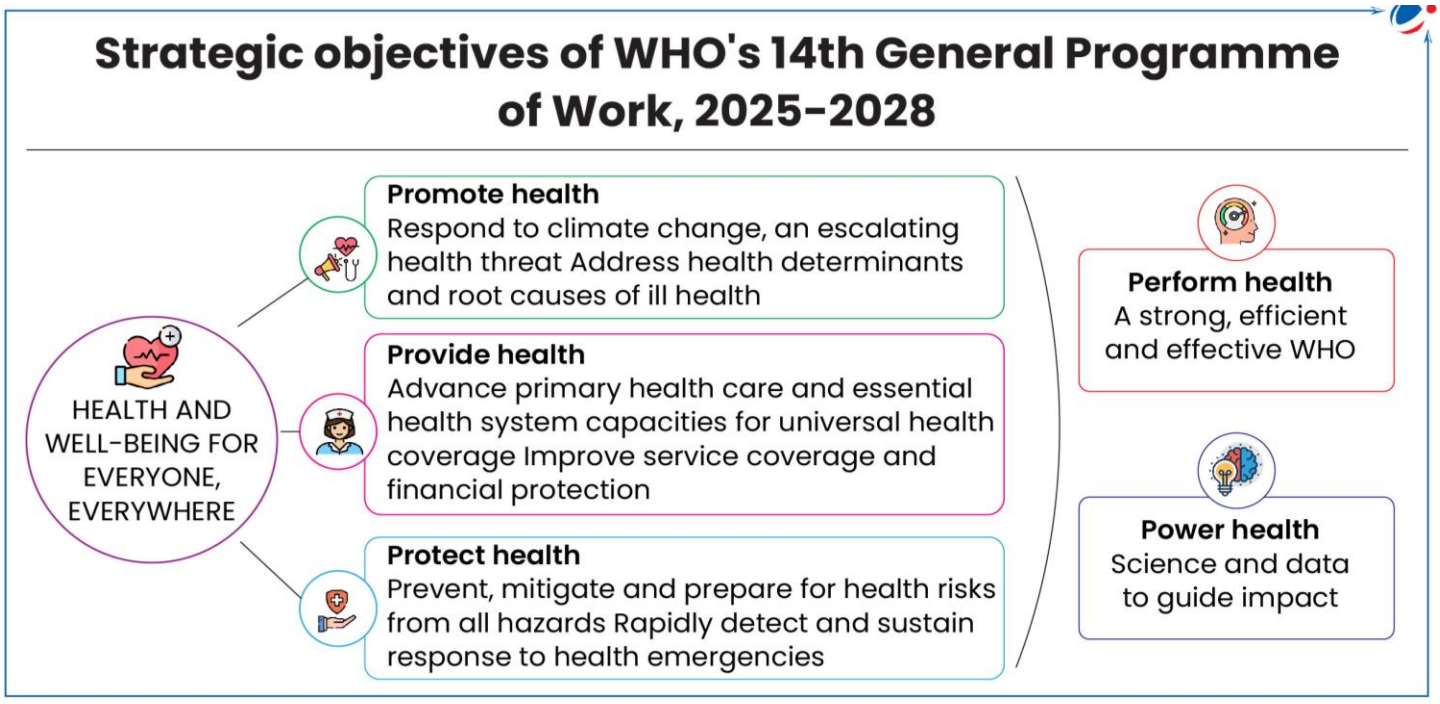
WHO Reforms

- **Transformation Agenda (2017):** It aims at **supporting health leadership**, providing global goods for public health, and provide **tailored support to countries.**

- **Three-Level Operating Model:** Includes **country offices, regional offices and headquarters operating as "one WHO"** along with creation of **a new executive level post of Chief Scientist.**
    - Also, to assert its authority over these regional power bases, the WHO has begun **requiring staff to rotate among posts around the world**, similar to a policy at UNICEF.
- **Sustainable Financing:** WHO launched its **first investment round** in 2024 to secure funding for WHO's new strategy.
    - WHO has also established **Agile Member State Task Group** for strengthening WHO budgetary, programmatic and financing governance.
- **WHO Results Framework:** Tracks **country-level progress** using **output scorecards and performance indicators**.
- **Supply Chain & Logistics: Dedicated Transport & Logistics Hub** ensures **efficient medical supply delivery**.
- **Partnerships:** WHO Youth Council, WHO Civil Society Commission, WHO Foundation and partnership with organizations such as Google and FIFA.



- **Incident Management System:** Enables **rapid deployment of medical teams, equipment, and medicines** during emergencies.



2.5. INDUS WATER TREATY

Why in the News?

Recently, **the World Bank appointed Neutral Expert on Indus Water Treaty (IWT)** has backed India's position on its **competence to decide the outcome** of a dispute over two hydroelectric projects in India's Jammu and Kashmir.

More on the News

- Complaint was initiated by Pakistan in 2015, leading to dual-track dispute resolution by the World Bank **invoking both a Neutral Expert (On India's request) and the Permanent Court of Arbitration (On Pakistan's request)**.
- **Disputed Hydroelectric Projects** include **330 MW Kishenganga Project**, inaugurated in 2018 and **850 MW Ratle Project,** under construction**,** on the Jhelum and Chenab rivers, respectively.
    - Even though these are **run-of-river projects**, Pakistan has objected to their construction, citing potential impacts on water flow to its agricultural lands.

About IWT

- **Genesis**: **Signed in 1960** between India and Pakistan **mediated by the World Bank.**
- **Water usage rights:**
    - **Eastern Rivers** (Ravi, Beas, and Sutlej) **for India's unrestricted use**.
    - **Western Rivers** (Indus, Jhelum, and Chenab) are **allocated to Pakistan**, with India allowed for specific non-consumptive uses like navigation, floating of timber or other property, flood protection or flood control, fishing or fish culture.
        > India is, however, permitted to use waters of these rivers for following purposes:
            ✓ Domestic use;
            ✓ Non-consumptive use;
            ✓ Agriculture use;
            ✓ Generation of hydro-electric power.
        > This gives **India roughly 30% and Pakistan 70%** of the water carried by the Indus River System.
- **Implementation:** Requires both countries to create **permanent Commissioners for Indus Waters** to serve as the regular channel of communication on all matters relating to the implementation of the Treaty.
- **Dispute Resolution Mechanism (Three Level Graded Mechanism)**
    - **Permanent Indus Commission (PIC):** For questions concerning the interpretation or application of this Treaty or the existence of any fact which might constitute a breach of this Treaty.
    - **Neutral Expert**: For technical disputes where the PIC cannot reach a consensus.
        > Neutral Expert shall be **appointed by the World Bank** or **jointly by the Government of India and the Government of Pakistan.**
    - **Court of Arbitration**: 7-member arbitral tribunal for legal adjudication of disputes if unresolved at lower levels.

Challenges to IWT

- **Pakistan's opposition to Indian projects**: Pakistan frequently opposes Indian projects such as Kishanganga Hydroelectric Project on the Jhelum River and Ratle Hydroelectric Project on the Chenab River, primarily questioning their compliance with the technological criteria set by the treaty.
- **Environmental Concerns**: Rapid melting of Himalayan glaciers due to **climate change** poses a challenge in terms of **alteration in the river flow** in the Indus system.
- **India's Growing Needs**: With a burgeoning **population and expanding agricultural sector**, India seeks to reevaluate its water rights to meet current **demands for irrigation and electricity needs**.
- **Security and Political Pressure**:
    - **Strategic Use**: Water has been seen as a strategic asset, with statements like "**blood and water cannot flow together"** by Indian leaders indicating water's role in geopolitics**.**
    - **Terrorism Concerns**: India has linked water issues with cross-border terrorism from Pakistan, suggesting that treaty compliance should reflect security considerations, especially after incidents like the **Uri attack in 2016.**

Way Forward

- **Integrated water management and climate adaptation:** Both nations can adopt **integrated river basin management** approaches and initiate **joint climate impact studies**, focusing on **sustainable water use, conservation, and flood management**.

- **Modernization and renegotiations:** To take into account technological advances and changes in water-demand scenario.
  - It can also take into account principles of international water law including **Equitable and Reasonable Utilization (ERU)** and **No Harm Rule (NHR).**
    - The No-Harm Rule is a widely recognised principle of customary international law whereby a **State is duty-bound to prevent, reduce and control the risk of environmental harm to other states.**
- **Transparency and data sharing:** Real-time **satellite-based monitoring** and a **joint data-sharing mechanism** can help address the **trust deficit** regarding water flow data, dam operations, and flood management.

International Principles on Transboundary Water Sharing

Helsinki Rules, 1966

- Regulates how **rivers and their connected groundwaters** that cross national boundaries can be used.
- Includes **principles for resolving issues** through negotiations, arbitration, tribunals, or the International Court of Justice.

Helsinki Convention, 1992

- Provides a **legal framework** for preventing and controlling **water pollution** across national borders.
- Requires parties to apply the **precautionary principle**.

UN Convention on the Law of Non-Navigational Uses of International Watercourses, 1997

- Also referred as the **UN Watercourses Convention**, it is a flexible and overarching **global legal framework that establishes basic standards and rules for cooperation** between watercourse states on the **use, management, and protection** of international watercourses.
- It established **two key principles**: "**equitable and reasonable use**" and "**the obligation not to cause significant harm**" to neighbours.

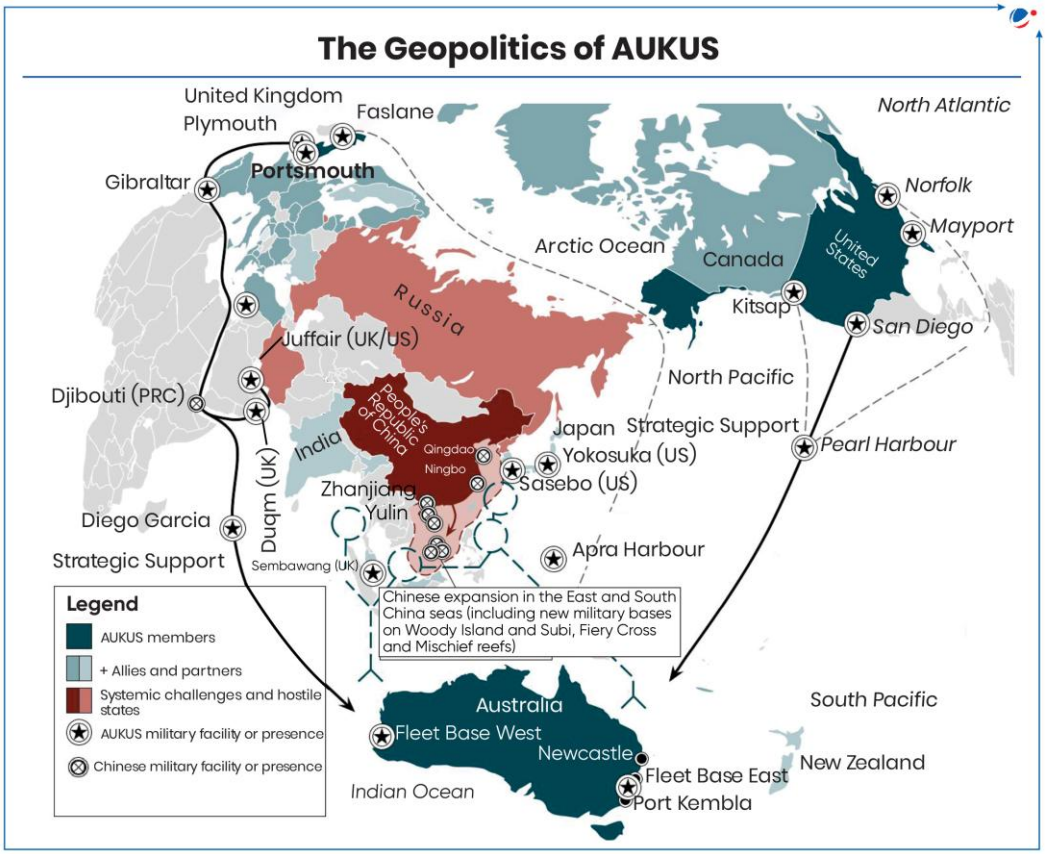
2.6. AUKUS

Why in the News?

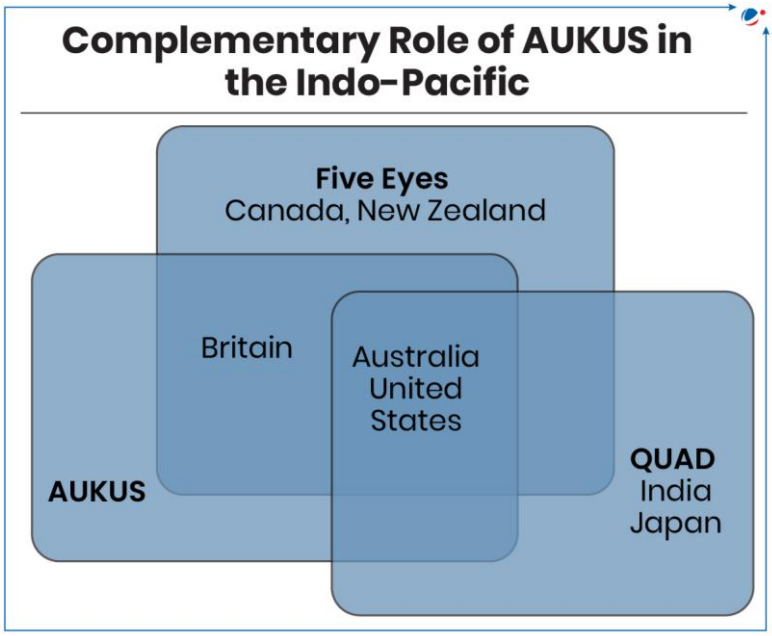
AUKUS, a trilateral security and defense partnership between **Australia, the United Kingdom, and the United States**, has entered its fifth year.

About AUKUS

- **Genesis**: In **September 2021** as a **three-way strategic defence alliance** between **Australia, the UK** and **US.**
- **Aim**: To boost **defense capabilities**, accelerate **technological integration**, and expand the **industrial capacity** of all three nations as part of a collective effort **to stabilize the Indo-Pacific region.**



- **Composed of two pillars:**
  - **Pillar 1: To support Australia** in acquiring conventionally armed, **nuclear-powered submarines (SSNs).**
    - > It will make **Australia the seventh nation** in the world to operate nuclear-powered submarines, after the US, UK, France, China, India and Russia.
  - **Pillar 2:** Focuses on expediting **cooperation in intelligence sharing and critical technologies**, including cyber capabilities, artificial intelligence, quantum technologies, undersea technologies, etc.



Significance of AUKUS

- **Strategic**: Strengthening of defense capabilities of Australia and ramping up defense industrial base by 2040 aligns AUKUS with the **vision of free and open Indo-Pacific**.
- **Complements QUAD in Indo-Pacific:** Due to **India's reluctance to project the QUAD alliance as a security platform** against China, AUKUS can fill the gap by emphasizing upon the **defense partnerships in Indo-Pacific region.**
- **Strategic Competition with China**: For **technological dominance**, particularly in emerging technologies is central to second pillar of AUKUS.
- **Alliance of Democracies:** AUKUS being projected as the alliance of liberal democracies against autocratic powers **strengthens its acceptance and legitimacy** as a security group.
  - **e.g.,** Japan has shown interest in joining the pact, especially the second pillar, for cooperation in critical technologies segment.

Concerns related to AUKUS

- **Geopolitical:** Many South East Asian nations like **Indonesia and Malaysia**, raised concerns about **potential arms races and nuclear proliferation in the Indo-Pacific Region.**
  - Australia's abrupt **cancellation of a submarine deal with the France in favor of AUKUS**, led to strained ties between France and the AUKUS members.
- **Weakening of QUAD's Strategic Role**: Quadrilateral Security Dialogue (QUAD), which includes the U.S., India, Japan, and Australia, might see a shift in focus as AUKUS takes center stage.
- **Nuclear Proliferation risks**: AUKUS enables Australia to acquire nuclear-powered submarines, raising concerns over the potential precedent it sets under the **Nuclear Non-Proliferation Treaty (NPT)**.
  - Concerns have been raised that **this arrangement could encourage other nations to seek nuclear-powered technology** under similar security justifications.

Conclusion

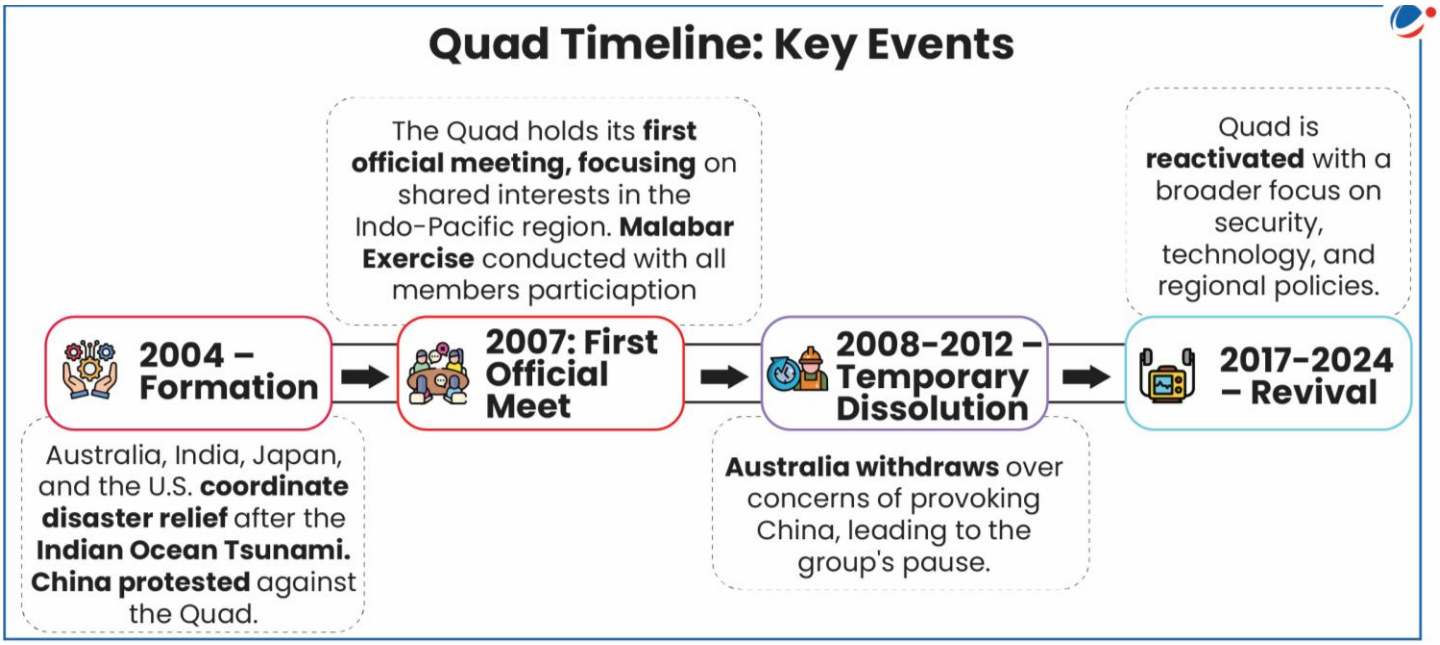
For India, AUKUS presents both challenges and opportunities—necessitating a balanced approach that upholds strategic autonomy, strengthens indigenous defense capabilities, and deepens regional partnerships. By leveraging QUAD, engaging ASEAN, and expanding its naval and technological strengths, India can navigate the evolving security landscape while maintaining stability and influence in the Indo-Pacific.

2.7. QUAD GROUPING

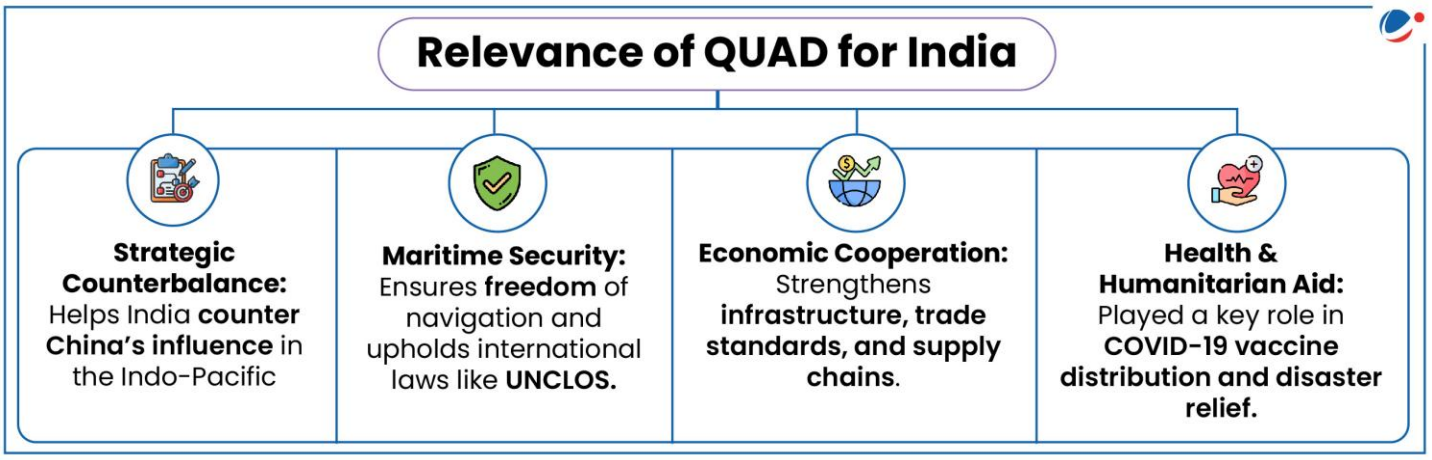
Why in the news?

Quadrilateral Security Dialogue Quad marked the 20th anniversary of Quad cooperation.

About Quad



- Formalisation led by the then **Japanese PM Shinzo Abe in 2007.**
- **Members:** Australia, India, Japan, and the U.S
- **Nature:** An **informal strategic partnership** and an **alliance of maritime democracies.**
- **Purpose:** Supports an **open, stable, and inclusive Indo-Pacific**. Four Democracies acts as a force for global good, delivering positive and lasting impact.
- **Vision: Launched Vision Statement in 2023** which is centred around theme **'Enduring Partners for the Indo-Pacific'.**
- **Working:** Work of the Quad is taken forward through following six Leader level Working Groups in **six areas: Climate, Critical and Emerging Technologies, Cyber, Health Security Partnership, Infrastructure and Space**
- **Key Summits:** Annual Quad Leaders' Summits and Foreign Ministers' Meetings.
- **Global Footprint:** Represents-
  - 24% of the world's population,
  - 35% of global GDP
  - 18% of global trade



Changing Dynamics of QUAD: From Military to Economic Alliance

Even though Quad is not a formal military bloc, it has transitioned from a military-focused group to a broader alliance emphasizing economic cooperation and regional stability, adapting to global geopolitical shifts.

Sector of cooperation	Description
Military Focus (initial phase)	• Quad partners have been working **side-by-side with partners** throughout the region to bolster **maritime security, improve maritime domain awareness, and uphold a free and open Indo-Pacific.** o Some key initiative include **annual Malabar Exercises and the 2+2 Dialogue (India-U.S.) strengthen defence ties** o **Strengthening the Quad Act:** Passed by US House in 2024, it directs the US State Department to **enact a strategy for increasing engagement and cooperation** with the Quad. > It also Seeks to establish a **Quad Intra-Parliamentary Working Group** to facilitate cooperation between members
Economic Expansion (recent phase)	Post Covid-19, most of the Quad initiatives are more focused on economic and sustainable development. **Some of them are as follows** • **Wilmington Declaration**: Marked a key Quad meeting in the U.S. • **Health Security**: Launched the **Health Security Partnership** and **Quad Cancer Moonshot** to fight cervical cancer. • **Indo-Pacific Logistics Network**: Enhancing disaster response through shared airlift and logistics. • **Quality Infrastructure**: **Quad Ports of the Future** initiative for resilient port infrastructure. • **Critical & Emerging Tech**: Promoting **Open RAN deployment** and **Quad Investors Network (QUIN)** for tech investments. • **Clean Energy**: Supporting **secure clean energy supply chains**. • **Quad Climate Change Adaptation and Mitigation Package (Q-CHAMP), 2022** to enhance climate and clean energy cooperation • **Cybersecurity**: **Action Plan to Protect Undersea Telecommunications Cables** for digital security. • **Space Collaboration**: **Earth Observation data sharing** for climate disaster management. • **Counterterrorism**: First **Counter Terrorism Working Group (CTWG)** (2023) addressing **C-UAS and CBRN threats**.

Challenges faced by QUAD

- **Lack of Institutional Framework**: Quad lacks a formal structure like NATO and operates through informal meetings. This weakens its ability to act decisively in crises.
- **Unequal Burden-Sharing**: Quad members have varying financial resources, strategic priorities, and military capabilities. This creates an imbalance, placing more responsibility on certain members.
- **Conflicting Partnerships**: India's ties with Russia and the SCO may contradict Quad's strategic objectives. Australia's economic dependence on China could make it vulnerable to coercion.
  - Quad's focus on security, maritime defense, and intelligence sharing even fuelled speculation about it becoming an "Asian NATO."
- **Diverging China Strategies**: Japan and Australia rely on China for trade but oppose its military assertiveness. India has a direct strategic rivalry but continues economic engagement with China.
- **India's Specific Concerns**
  - **Geopolitical Strains:** Strengthening Quad ties could alienate key partners like Iran (enemy of US) and Myanmar (ally of China).
  - **Different Indo-Pacific Visions:** India focuses on the Indian Ocean, while others emphasize the Pacific.

Way Forward for Strengthening Quad

- **Defining a Clear Indo-Pacific strategy**: Quad must articulate a well-defined Indo-Pacific strategy to align economic and security goals. This will reassure smaller nations about its role in regional stability.

- **Expanding Membership**: India should advocate for the inclusion of countries like Indonesia and Singapore. A broader Quad could enhance regional credibility and influence.
- **Strengthening India's Maritime Strategy**: India needs a robust Indo-Pacific maritime doctrine. This should address security challenges, integrate military and diplomatic efforts, and engage strategic allies.

2.8. SHIFT IN INDIA–AFGHANISTAN RELATIONS

Why in the news?

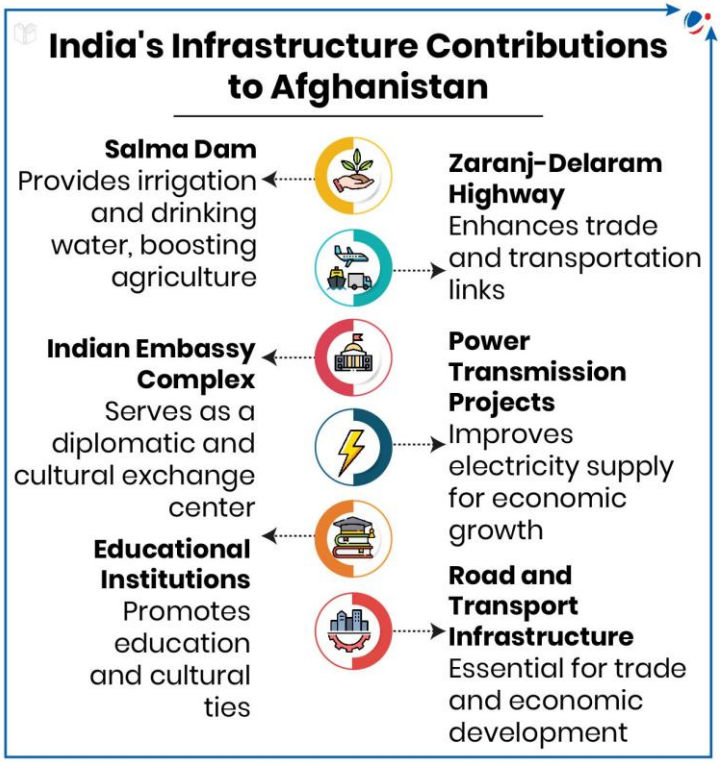
Recently, **1st bilateral meeting between India's foreign secretary and Afghanistan's acting foreign minister** took place in Dubai.

More on the news

- The meet marks **India's diplomatic shift and growing engagement with Taliban-backed Afghan government**.
- This was the **highest level of engagement with Taliban since the latter's takeover of Kabul in 2021** post US withdrawal.
- Earlier in November, 2024, **1st official meeting between Indian diplomats and Taliban's defence minister** took place in Kabul.

Why shift in India's diplomatic policy?

- **Deteriorating Afghan–Pakistan relations:** The recently **strained relationship** between the two countries **provides an opportunity for India to isolate Pakistan** from the region.
  - **E.g., Pakistan has expelled more than 5,00,000 refugees**, creating a **humanitarian crisis in Afghanistan**;
  - **Pakistani airstrike** on eastern Afghanistan to **neutralize Tehrik-e-Taliban Pakistan (TTP) camps**, has been alleged as a direct **violation to Afghan's sovereignty**.
- **To counter rising Chinese influence:** Since Taliban's return, China has been taking **aggressively proactive steps in normalizing** its ties with Afghanistan.
  - **E.g., China's appointment of new ambassador**, signing minerals and other mining contracts, taking up urban development projects in Kabul etc.
- **To prevent Afghan-soil based terrorism:** Afghanistan has been used as launchpad by terror groups; constructive engagement ensures that **Taliban would not allow Afghan territory to be used against India**.
  - **E.g.,** Since the US withdrawal, **India has been cognizant of covert or overt threat from Pakistan-backed terrorist groups operating in Afghanistan**, such as Lashkar-e-Tayyaba (LeT), Jaish-e-Mohammad (JeM) etc.



- **To strengthen connectivity and access to Central Asia:** Afghanistan's **strategic location at 'Heart of Asia' – crossroads of Central and South Asia** – is significant, as it has **served as a route to India since the ancient times** through the selected passage of Khyber and Bolan.

- **E.g.**, Collaborating with Iran on **Chabahar port development will improve access to Central Asia via Afghanistan**.

- **To restart developmental projects and secure already done investments:** E.g., India has **invested more than $ 3 billion in over 500 projects** across Afghanistan, including roads, power lines, dams, hospitals etc.
  - India has **also trained Afghan officers**, awarded thousands of scholarships to students and **built a new parliament building** in Afghanistan.
- **To strengthen India's soft power:** In the **form of humanitarian assistance** like providing wheat supplies to drought-affected Afghanistan in late 2021.
  - **E.g.**, in the **Union Budget for 2024-25**, **India allocated Rs 50 crore for assistance to Afghanistan.**
- **To ensure stability in the region:** India is concerned about the potential for instability in Afghanistan spilling over into the region.

Why the shift in diplomatic approach can be challenging?

- **Taliban's internal dynamics:** Taliban being a **violent and brutal actor has done little to reform itself** from what it was in the 1990s, **especially in its treatment towards women and girls**.
  - **E.g.,** Since its return to power, **Taliban has failed to form a functioning inclusive government** to provide the Afghan people with basic economic opportunities, health facilities, educational options etc.
- **Terrorism and security concerns:** Taliban is known to **back global and regional terror outfits** in their courtyard, which poses a direct security threat to India.
  - **E.g.**, Presence of terror groups such as **Islamic State of Khorasan** (ISKP), **Al-Qaeda**, **Pakistan-backed LeT, JeM** etc. have made the region more vulnerable to radicalism, and extremism.
- **Drug trafficking:** Afghanistan is the **leading producer of opium** globally, and the drug trade has fueled instability and violence in the region, impacting both Afghanistan and India.
  - **E.g.,** in **2021**, **over 80% of world's opium originated from Afghanistan**, and India fears that the earning could be used for terror financing.
- **Increasing presence of China:** China's rising involvement in Afghanistan after Taliban's takeover has **raised concerns in India over Beijing's expanding influence and engagements** in the region.
  - **E.g.,** China is keen on **expanding China-Pakistan Economic Corridor (CPEC) to Afghanistan**.

Way forward

- **Act West Policy:** India should be realism in acting west, and should **capitalize its traditional friendship and engage Afghanistan more prominently in its 'Act West Policy'**.
- **Humanitarian assistance:** Keeping in mind the complex geopolitical chessboard and **to counter China**, India should **enhance its humanitarian assistance for Afghan's health sector and for rehabilitation of refugees**.
- **Resuming developmental projects:** Increasing investments through developmental projects would improve the Afghan economy, create jobs, **curb drug trafficking, reduce terrorism and would also deepen India's economic engagement with Afghanistan**.
- **Cultural engagements:** Develop people-to-people ties through **liberalizing the visa regime** for Afghan people, sports (cricket) infrastructure support, educational scholarships etc.
- **Enhanced diplomatic engagements:** At various international and multi-lateral forums such as **South Asian Association for Regional Cooperation** (SAARC) etc.

Scan the QR code to know more about **India's Neighbourhood Policy**

Weekly Focus #108- India's Neighbourhood Policy: Prospects and Challenges

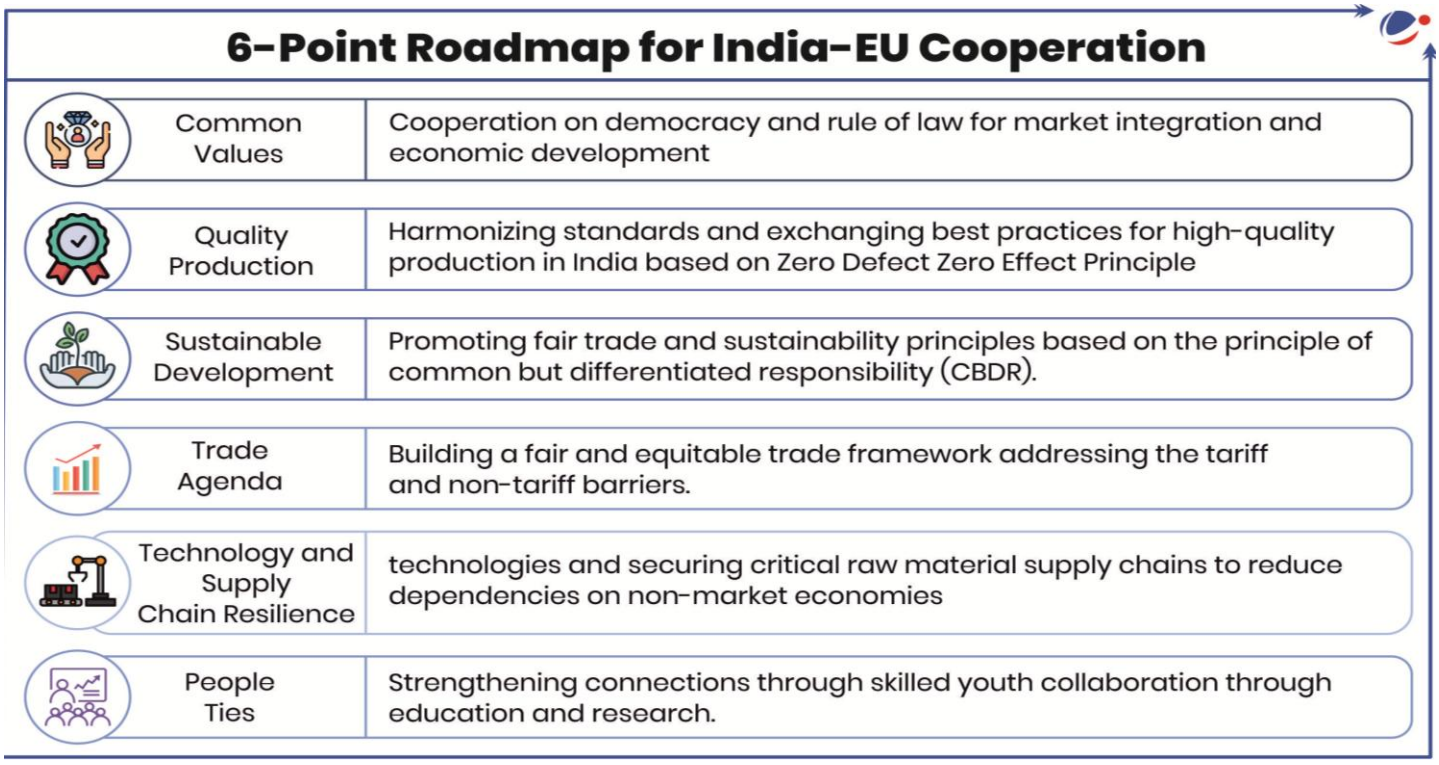
2.9. INDIA-EUROPEAN UNION (EU) RELATIONS

Why in the News?

Recently, in a **High- Level Meeting** was held between the EU Trade Commissioner, the Indian Commerce and Industry Minister.

More on the news

- During the meeting a **roadmap** based on **six broad principles for building a mutually beneficial partnership** between **India and the European Union (EU)** was outlined. (see infographic)



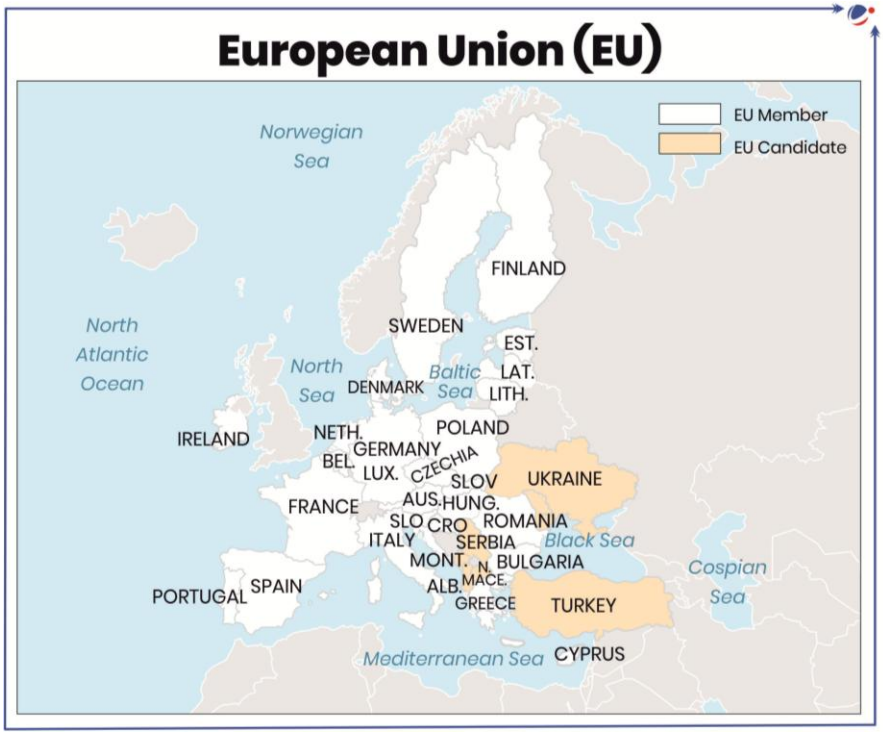
Significance of India-EU Relations

Mutual

- **Historical Relations:** India was **amongst the first** countries to establish diplomatic relations with the European Economic Community in **1962**.
  - During the **5th India-EU Summit held (2004)** in Hague, their relationship was upgraded to a **Strategic Partnership**.
- **Trade Partnership**:
  - **EU:** India's largest trading partner
  - **India:** EU's 9th-largest trading partner with India maintaining trade surplus (2023)
- **Strategic Alignment:** Common interests in security, renewable energy, climate action, and multilateralism. Examples-
  - **India-EU Bilateral Dialogues** exist on Counter-Terrorism, Cyber Security, Migration and Mobility, Maritime Security, Human Rights, Non-Proliferation and Disarmament.

Do you know

- The 1st India-EU Summit (2000) was held in Lisbon and marked a watershed in the evolution of their ties.



- **EU's Indo-Pacific Strategy** provides **strategic convergence** on India's role in the **Indo-Pacific**.
- **Both are committed to reforming multilateral institutions** like the **World Trade. Organization (WTO)** is an essential priority for both.
- **India-EU Clean Energy and Climate Partnership** launched in 2016 aims at reinforcing cooperation on clean energy and implementation of the Paris Agreement.

- **Connectivity: Connectivity Partnership (2021)** between both focused on enhancing **digital, energy, transport and people-to-people connectivity**.
  - Projects like **India Middle East-Europe Economic Corridor (IMEC)** hopes to strengthen connectivity between the EU-India.

For India

- **Investment**: Foreign Direct Investment (FDI) inflows from the EU to India, one of the largest sources, is valued at **USD 107.27 Bn**. (Apr 2000-December 2023).
  - **E**.g. **Business 20 (B20) platform** under **G20** promotes trade and investment promotion between India and the EU.
- **Export promotion**: The EU provides an avenue for **tapping India's export potential**, particularly in **IT, pharmaceuticals, textiles, and agriculture**.
  - E.g. **EU-India Bilateral Trade in Services increased by 48%** between **2019 and 2022**.
- **Security & Defence**: **European defence companies** can contribute to India's defence modernisation under the **'Make in India' campaign**. E.g. manufacturing of **Airbus C-295 aircrafts** in India.
- **Technology & Innovation**: Collaboration in AI and digital transformation accelerates India's technological progress.
  - **E.g. India-EU Trade and Technology Council (2022)** is a strategic coordination mechanism to tackle challenges related to the **nexus of trade, technology, and security**.

For the European Union (EU)

- **Access to market**: India can be the EU's **valuable trade partner** and provide access to **India's large and growing market**.
  - **E.g.** In **2024**, India and the European Free Trade Association (EFTA) signed a **Trade and Economic Partnership Agreement (TEPA)** with 4 European states- **Iceland, Liechtenstein, Norway and Switzerland.**
- **Cultural & Educational Ties**: **India's young, skilled workforce** contributes to Europe's talent pool and strengthens **academic collaborations**.
- **Geopolitical cooperation**: The EU can leverage **India's centrality in the Indo-Pacific** and **growth potential** to improve its geopolitical position in the **Global South**.
- **Security and Stability**: India can provide security and stability in the **Indian Ocean** through which critical **European sea lines of communications (SLOCs)** carrying 35% of its **trade with Asia** pass.

Challenges

- **Lack of Trade diversification**: Due to **restrictive trade regime and regulatory** with non-tariff barriers like **Technical barriers to trade (TBT), sanitary and phyto-sanitary (SPS) measures**.
  - Only 20 product categories make up 90% of total EU goods exports to India.
- **EU's import dependence on China**: Since 2010, **India's share in the EU's import basket** has **stagnated**, compared to the **growing share** from **China**.
- **Delayed FTA negotiations**: Due to **Divergent perspectives**: On issues like **digital regulation, bilateral investment treaties, dispute settlement process and investor protection,** etc.
  - Bilateral Trade and Investment Agreement (BTIA) negotiations were held between 2007 and 2013 but remained dormant till 2021.
- **Carbon border adjustment mechanism (CBAM):** India has concerns that it could create new trade barriers for its exports to the EU.
  - The EU's CBAM will impose **additional 25% tax on energy-intensive goods** exported from India to the EU, impacting 0.05% of India's GDP (Centre for Science and Environment).
- **Lack of consensus**: on some aspects of **labour laws, human rights, environmental standards etc.** which hinders investments in India by EU companies.

- The role and opinions of **European civil society** may be seen as contentious with India's **strategic autonomy** principle. E.g. ban on activities of **Amnesty International** in India.

Way Forward

- **Fastrack FTA**: Formal **re-negotiations for the India - EU Free Trade Agreement (FTA),** an Investment Protection Agreement and a Geographical Indications Agreement were launched in 2022.
- **Trade Reforms**: **Predictable tariffs and harmonised rules**, liberalizing imports through **diversification of supply chains** would further increase **business confidence and investment.**
  - E.g. **Liberalisation of public procurement** would create opportunities for European firms and address **India's infrastructure deficit**.
- **Green cooperation**: Focus on sustainability and energy transition can be capitalized through closer **cooperation for trade and innovation in green transition goods**.
- **Labour policy**: India has been **reforming its labour codes** based on international standards.
  - Provisions of **occupational safety and labour sustainability** need to be upheld to enable the India-EU FTA negotiations.

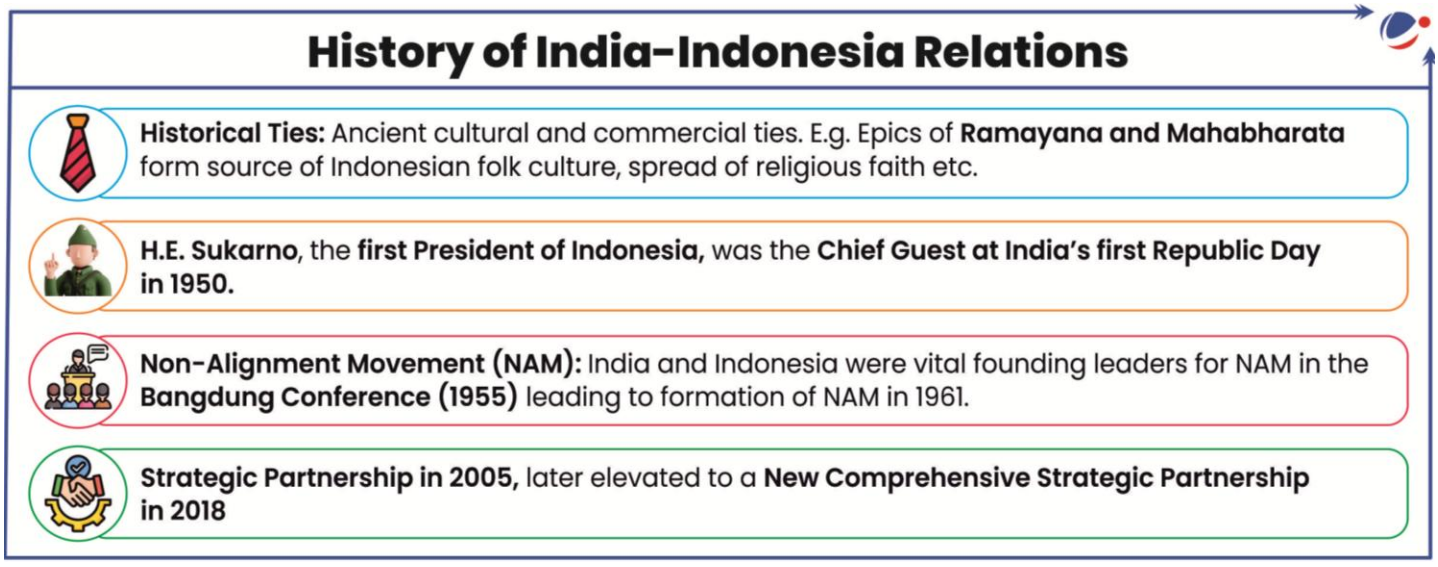
2.10. INDIA-INDONESIA RELATIONS

Why in the News?

In the context of the **75th Anniversary of India-Indonesia Diplomatic Relations**, the **Indonesian President visited India**.

Key Developments during the visit

- The two countries signed **MoUs on Health Cooperation, Traditional Medicine, Maritime Safety and Security, Digital Development and Cultural Exchange Programme (2025-2028).**
- A joint report was presented by the co-chairs at the **3rd India- Indonesia CEOs Forum.**
- He was also the **chief guest at India's 76th Republic Day celebrations**.
- A **joint statement** was released by the 2 countries highlighting the **areas of cooperation**.

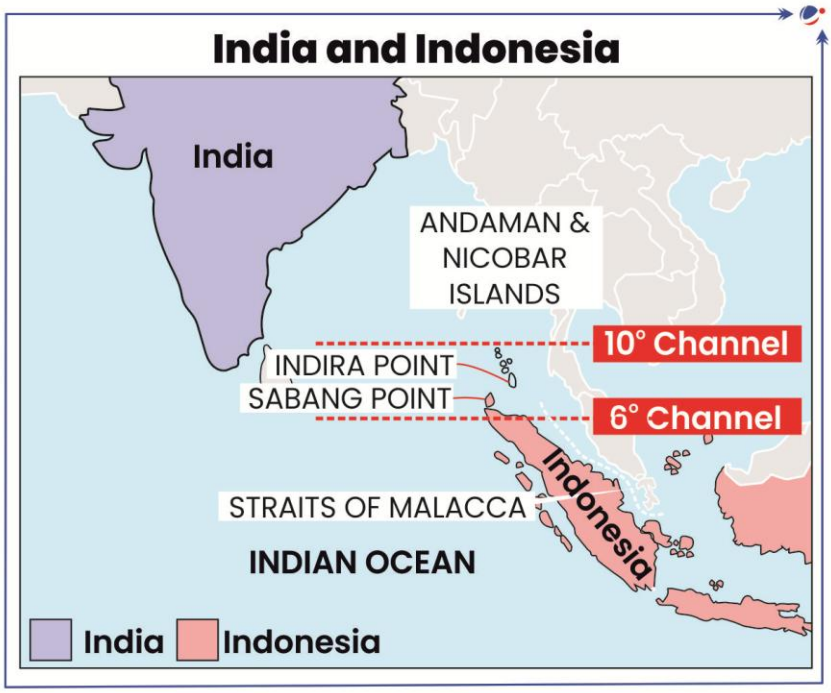


Significance of India-Indonesia Relations

Mutual Benefits

- **Economic engagement: India–Indonesia Economic and Financial Dialogue (EFD Dialogue)** (2023) aims to enhance collaboration and foster a shared understanding of global issues.
- **Maritime Security**: Enhancing cooperation through **engagement with regional mechanisms** to ensure the **safety and security of sea lanes of communication**.
  - **E.g.** Safety of Navigation in the Straits of Malacca and Singapore (SOMS)

- **Defence and Security:**
  - **Strategic and operational interaction between the defence forces**: E.g. **India–Indonesia Coordinated Patrol (CORPAT)**, bilateral exercises **Garuda Shakti** (Army) and **Samudra Shakti** (Navy), and participation in other multilateral exercises- **Milan, Komodo, Tarang Shakti and Super Garuda Shield**.
  - **Developing defence indigenization and modernization capacities**: E.g. talks on technology transfer of **Brahmos missile** are in progress.
- **Multilateral reforms**: Close coordination in the multilateral fora including **UN** and the **G20** and focus on **reformed multilateralism.**
- **Regional partners:** Indonesia recently became a full member of the BRICS and both are part of other forums Indian Ocean Rim Association (IORA), Indo-Pacific Oceans' Initiative (IPOI), Indian Ocean Rim Association (IORA), Pacific Islands Forum (PIF), etc.
- **Infrastructure & Connectivity:** E.g. India's Development Partnership with the **Indonesia-Malaysia-Thailand Growth Triangle (IMT-GT)**
- **Cultural and Heritage Cooperation: E.g. Cultural Exchange Programme (2025-2028),** Annual festival **'Bali Jatra'** commemorates the **maritime trade and cultural exchange** between **India (Odisha)** and **Bali (Indonesia).**
- **Other areas of common interests: Condemning all forms of terrorism**, Collaboration in **Digital Public Infrastructure (DPI), cybersecurity etc.**



For India

- **Trade: Indonesia** is the **second largest trading partner of India** in the **ASEAN** region (after Singapore).
  - Bilateral trade increased from **$4.3 billion in 2005-06** to **$29.40 billion in 2023-24.**
- **Geostrategic significance:** India, in line of its **Security and Growth for All in the Region (SAGAR) initiative,** is aiding development of **Sabang port in Aceh, Indonesia.**
  - It enhances **maritime connectivity** and provides a **geostrategic leverage** in the **Indo-Pacific region to counter China's influence.**
  - **Sabang port** would allow India easier access to the **Malacca Strait** and there is a proposal to establish **connectivity to Andaman and Nicobar.**
- **Internationalization of rupee**: MoU on Local Currency Settlement Systems (LCSS) for **financial integration** through **usage of local currency for bilateral transactions** (2024).
- **Health and Pharmaceuticals:** Sharing best practices on **Digital Health initiatives increase capacity building programmes for healthcare professionals etc.**

For Indonesia

- **Market Access:** India is an important **export destination** for Indonesia as it is the **2nd largest buyer of coal and crude palm oil** from Indonesia.
- **Investment**: **Indian companies** have made **significant investments** in Indonesia in infrastructure, power, textiles, steel, automotive, etc.
  - E.g. India's GMR Airports Limited will be developing and operating **Kualanamu International Airport** in Medan, Indonesia.

- **Climate Change and Disaster Resilience: Humanitarian Assistance and Disaster Relief (HADR**) activities by India have aided Indonesia which is prone to earthquakes, tsunamis etc.
  - Indonesia joined the India-led **Coalition for Disaster Resilient Infrastructure (CDRI).**
- **Food Security:** India's support in Indonesia's new **mid-day meal scheme** through the sharing of knowledge and experience.
- **Space Cooperation:** Cooperation between ISRO and its Indonesian counterpart (BRIN) on **Integrated Biak Telemetry, Tracking and Command (TTC) Facilities** for Satellites and Launch Vehicles (2024).
- **Education and Skill Development:** Capacity building training for Indonesian professionals under the **Indian Technical and Economic Cooperation (ITEC) Programme**, cooperation under the **ASEAN-India Network of Universities (AINU).**

Challenges

- **Unrealized Trade Potential:** The **bilateral trade potential** between India and Indonesia stands at US$ 61 billion which **around 33% higher than the actual current trade volume**.
  - **High tariff, non-tariff barriers** along with **low FTA (India-ASEAN Free Trade Agreement) utilisation** are major constraints to trade.
  - The bilateral trade of **$29.40 billion (2023-24)** is low compared to the set **target of US$ 50 billion in trade by 2025**.
- **China's influence:** China plays a dominant role in the development of Indonesia. Indonesia has accepted huge **investments from China under the Belt and Road Initiative (BRI**) which raises concerns for India.
- **Slow Progress of strategic projects**: Progress on strategic projects like **Indonesia's purchase of Brahmos missiles, development of Sabang Port** etc. has been slow with impact of various economic and geopolitical factors.
- **Lack of connectivity**: Limited direct air connectivity, visa issues have hindered greater people-to-people interactions.

Way Forward

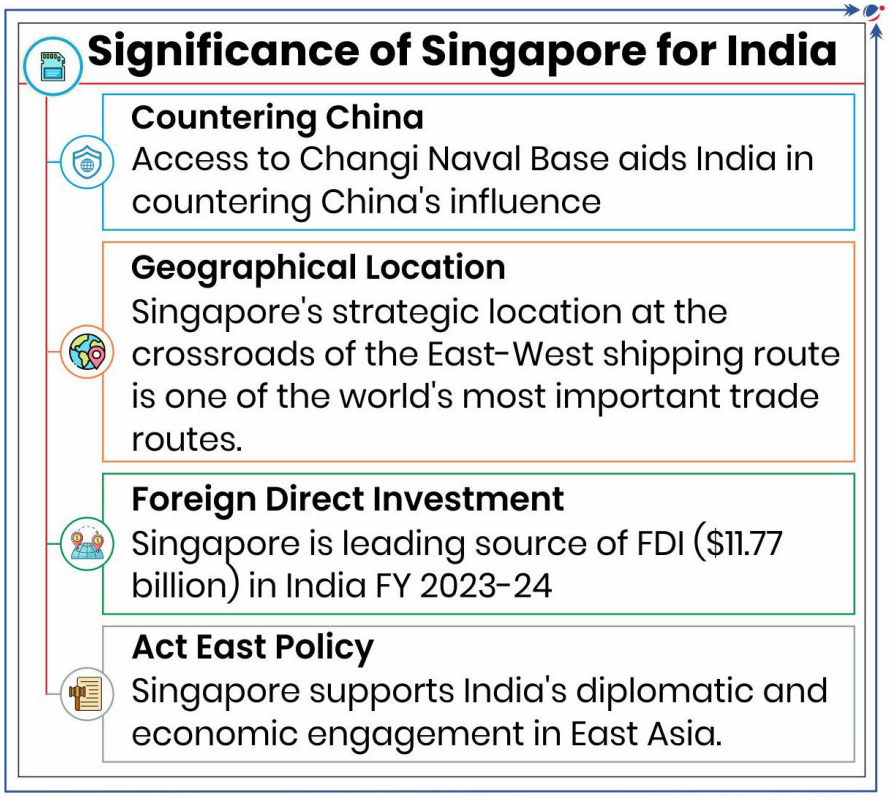
- **Identifying areas of collaboration**: India and Indonesia must also identify areas of collaboration for convergence beyond the China factor by creating an "ASEAN Plus" policy.
  - E.g. Aligning **ASEAN's Outlook on the Indo-Pacific (AOIP)** with **India's Indo-Pacific Oceans Initiative (IPOI)**- Indonesia has committed to supporting the **maritime resources pillar** under the IPOI.
- **Trade Reforms**: Rationalizing FTAs, accelerating consensus on a **Comprehensive Economic Partnership Agreement (CEPA)** etc. be encouraged to improve economic integration.
- **Capitalizing on Regional cooperation**: Engaging more actively in fora like ASEAN, East Asia Summit (EAS), BRICS, IPOI etc.
  - Indonesia can be invited to join the **Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)** for realizing the goal of Act East Policy.
- **Cooperation in the Global South**: Work together on issues of importance to the **Global South** through **South-South Cooperation.**
  - E.g. Indonesia acts as a bridge connecting India to the **Pacific Island countries.**
- **Developing Minilaterals**: Minilaterals like the trilateral partnerships like India-Indonesia-Australia can be promoted to act on focussed sectors of cooperation.
- **People-to-people Ties**: Promoting cultural exchanges, opportunities for education and employment and tourism.
  - E.g. Capitalizing on **2025 being declared as the ASEAN-India Year of Tourism.**

2.11. NEWS IN SHORTS

2.11.1. 60 YEARS OF INDIA-SINGAPORE BILATERAL RELATIONS

The Presidents of India & Singapore jointly unveiled a **logo to mark the 60th anniversary** of diplomatic relations between the two nations.

India-Singapore Relations



- **Diplomatic Relations:** India was one of the first countries to recognize Singapore's independence & establish **diplomatic relations in 1965.**
  - Comprehensive Economic Cooperation Agreement was signed in 2005. In 2015 relations were upgraded to a Strategic Partnership which further elevated to a **Comprehensive Strategic Partnership** in 2024.
- **Trade:** Singapore is **India's 6th largest trade partner** (2023-24) with a share of 3.2 % of India's overall trade. It is **India's largest trade partner in ASEAN** (India is net importer).
- **Multilateral Cooperation:** Both are members of forums like **East Asia Summit**, Commonwealth, **IORA (Indian Ocean Rim Association),** and IONS (Indian Ocean Naval Symposium).
- **Defence Cooperation:** India and Singapore hosts' military exercises i.e. Exercise **Agni Warrior** (**Army)** & **SIMBEX (Navy).**
- **Indian Diaspora:** Indian origin people constitute **9% of Singapore's population**.
  - **Tamil** is one of the four **official languages** of Singapore.

2.11.2. BRICS

Nigeria has been admitted as **"partner country"** of **BRICS** grouping.

- It is the **9th BRICS partner country**, joining **Belarus, Bolivia, Cuba, Kazakhstan, Malaysia, Thailand, Uganda,** and **Uzbekistan**.

About BRICS

- **Total members: 10**
  - **Informal grouping** formed by **Brazil, Russia, India and China** in **2009**, with **South Africa** added in **2010.**
  - **Other Full Members:** Egypt, Ethiopia, Iran, UAE, Indonesia.
- **Three pillars of Cooperation**: Political and Security; Economic and financial; Cultural and people to people exchanges.
- Represents **~40% of global population** and an estimated **37.3% of global GDP**.
- **India** hosted **4th (2012), 8th (2016)** and **13th (2021) BRICS Summit.**

To know more about BRICS, refer to Article 2.5. BRICS in October 2024 Monthly Current Affairs Magazine.

2.11.3. BIRTHRIGHT CITIZENSHIP IN US

The United States President Signed an Executive Order to End Birthright Citizenship

- However, A **federal judge has temporarily blocked** this executive order that sought **to curtail birthright citizenship** in the United States regardless of parents' immigration status.

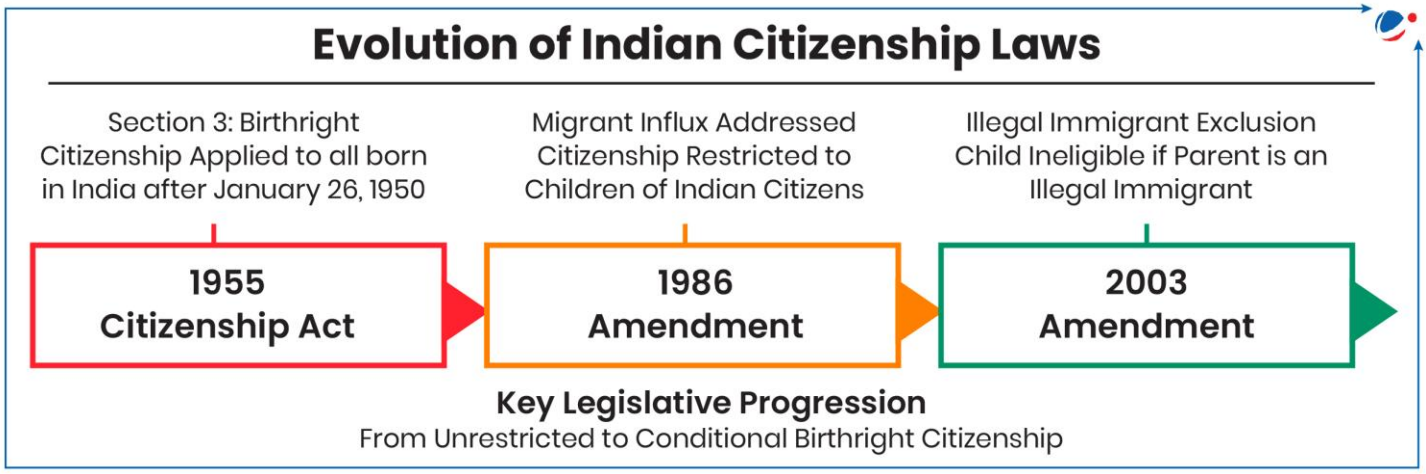
About Birthright Citizenship in the US

- **Definition**: Birthright citizenship is a provision under the **14th Amendment (1868) of the US constitution** that grants automatic citizenship to anyone born on US soil.

- **Historical Context**: Upheld by the US Supreme Court in **United States v. Wong Kim Ark (1898),** even for children of non-citizen parents.

Implications for India with End of U.S. Birthright Citizenship

- **H-1B Visa Holders**: Children born to Indian professionals on H-1B visas, or those **awaiting Green Cards** (allows a person to live and work in US permanently), will no longer qualify for automatic citizenship.
- **Temporary Visa Holders**: Indian students (**one of the largest groups of international students**) and families on temporary visas will face difficulties securing citizenship for their US-born children.
- **Impact on Immigration**: The policy would discourage Indian professionals, students, etc, from migrating to the US, pushing them toward immigration-friendly countries like **Canada and Australia**.
- **Curb "birth tourism"**: A practice of women travelling to the US specifically to give birth, so their children can claim citizenship.



2.11.4. WORLD'S LARGEST HYDROPOWER DAM ON BRAHMAPUTRA

China has approved the construction of the world's largest dam and world's biggest infra project in **Medog region of Tibet.**

- The dam is **over three times the capacity of the Three Gorges Dam (**currently the world's largest, in central China)**.**

Project Overview

- **Location:** Lower reaches of the Yarlung Zangbo River (Tibetan name for Brahmaputra) at a **huge gorge in the Himalayan** reaches where **river makes a huge U-turn** to flow into Arunachal Pradesh.
- **Stated Purpose:** To support **China's carbon neutrality goals, boost industries, and create jobs in Tibet.**

Concerns Associated with the Dam Construction

- **Engineering Challenges:** Tibetan plateau, regarded as the roof of the world, frequently experiences earthquakes as it is located over the tectonic plates.
- **Environmental Impact:** Potential disruption to local ecology and downstream water flow. Risk of altering the river's course, affecting agriculture and biodiversity.
- **Geopolitical Risks:** India and Bangladesh fear China's ability to control water flow—concerns about the dam's use to release excess water during conflicts, causing floods.

China and India have established **Expert Level Mechanism (ELM)** in 2006 to address trans-border river issues under which China provides India with hydrological data on Brahmaputra and Sutlej rivers during flood seasons. **I**ndia is also **building its hydropower dam on the Brahmaputra in Arunachal Pradesh**.

2.11.5. PANGSAU PASS

The **Pangsau Pass International Festival, a three-day event** celebrating border trade and cultural exchange, concluded recently in Arunachal Pradesh.

About Pangsau Pass

- **Location:** Situated at 3,727 feet (1,136 m) on the **Patkai Hills along the India-Myanmar border.**
- **Origin of Name:** Named after the nearest Burmese village, Pangsau.
- **Historical Significance:** Believed to be the route of the 13th-century Ahom invasion of Assam by the Shan tribe.
- **Connectivity:** The historic **Stilwell Road (Ledo Road) passes through Nampong** and the Pangsau Pass into Myanmar.

2.11.6. PHILADELPHI CORRIDOR

Recent **ceasefire terms between Israel and Hamas** also stipulate Israel's withdrawal from the Philadelphi Corridor.

About Philadelphi Corridor

- Corridor was **originally established under the 1979 Israel-Egypt Peace Treaty**.
- It is a **narrow strip of land along the Gaza-Egypt border**, ~14 km long and 100 meters wide.
- It serves as a **critical border** area between the **southern Gaza Strip and Egypt's Sinai Peninsula.**
- It runs from the **Mediterranean to Kerem Shalom** crossing with Israel and was **designated as a demilitarised border zone** after the **withdrawal of Israeli settlements and troops from Gaza in 2005**.

2.11.7. GULF OF MEXICO

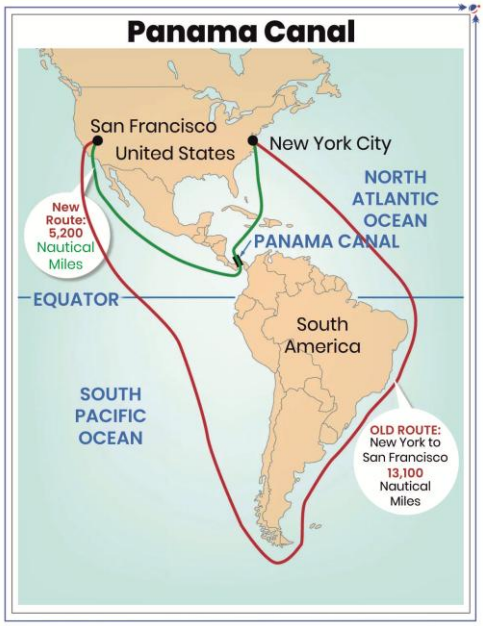
Recently, there has been a proposal to change name of **Gulf of Mexico** to "Gulf of America".

About Gulf of Mexico

- **Boundaries:** United States (North), Mexico (West and South), Cuba (South-east).
- It connects to the **Atlantic Ocean** through the **Straits of Florida** and to the **Caribbean Sea via the Yucatán Channel.**
- **Draining Rivers:** Mississippi River, Rio Grande
- **Control and Ownership:** Shared by **U.S., Mexico, and Cuba**
- **Significance:** Large continental shelf, oil and natural gas extraction, fisheries etc.
- **Vulnerability: Prone to hurricanes and twisters** due to warm waters and atmospheric conditions

2.11.8. PANAMA CANAL

U.S. President-elect Donald Trump threatened to reimpose U.S. control over the Panama Canal.



About Panama Canal

- It is an **82-km (51-mile) artificial waterway** that **connects Pacific** & **Atlantic Oceans** through Panama.
- The canal transports ships through **Gatun Lake.**
- **Significance:**
  - It is **one of the two most strategic artificial waterways** in the world, the other being the Suez Canal.
  - It **shortens the journey of ships between east and west coasts of U.S.** by 8,000 miles (around 22 days).

3. ECONOMY

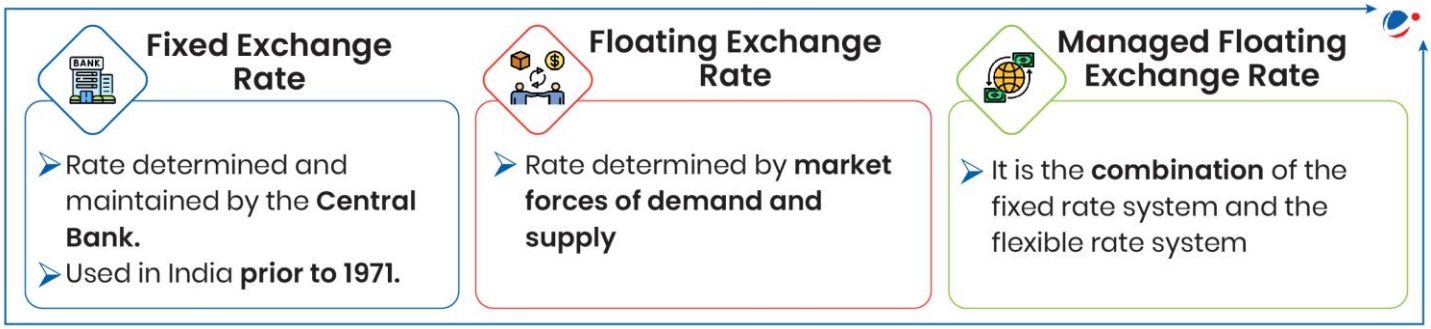
3.1. RUPEE DEPRECIATION

Why in the News?

Recently, the Indian rupee's **exchange rate** against the US dollar has breached the 85 mark. The Rupee faced its **sharpest depreciation** in last two years.

What is Rupee Depreciation?

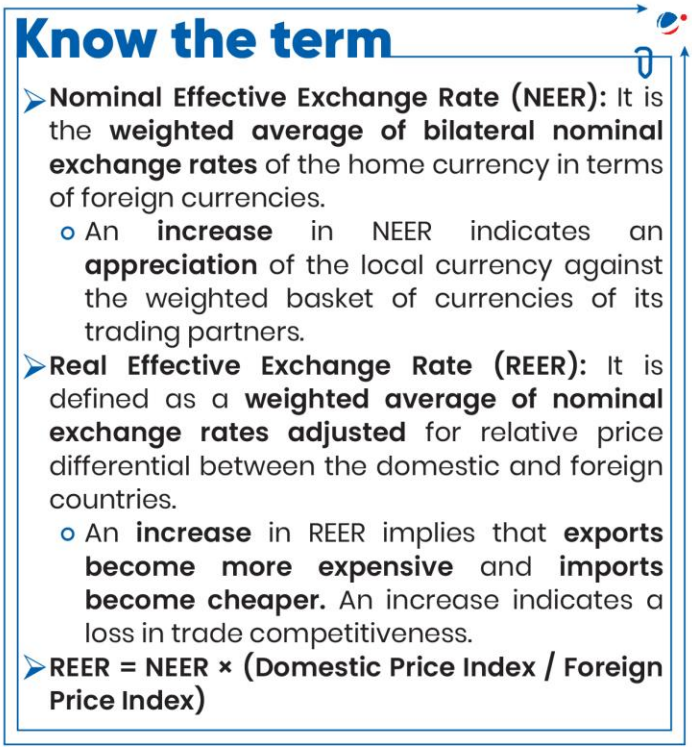
- It refers to the **decline in the value of the Indian Rupee** (INR) **relative to a foreign currency**, typically the US Dollar (USD) or other major global currencies.
- **Exchange Rate**: It is the price of one currency in terms of other.



Note: Currently, India follows Floating Exchange Rate with occasional RBI interventions, when necessary.

Key Factors Responsible for Rupee's Depreciation

- **Confidence in Central Bank**: Modern generations of currency crises seem to be triggered by markets that conduct **value at risk assessments** of the central bank's balance sheet. This affects the investor confidence.
- **Illiquidity:** It arises out of short term foreign currency debt becoming larger than liquid foreign currency assets.
- **Inflation:** Higher inflation in India compared to trading partners **erodes purchasing power** of Indian Rupee and adversely affects the exchange rate.
- **Monetary policy:** RBI's **interest rate decisions and foreign exchange interventions** impact the rupee's strength.
  - **RBI's market operations to buy USD** to maintain sufficient Forex reserve also affects exchange rate of the INR.
- **Capital Outflows: Foreign investors pulling out funds from Indian markets** reduce Forex reserves, leading to depreciation.
  - The recent depreciation can be significantly attributed to the **outflow of Foreign Portfolio Investments**.
- **Trade Deficit:** When **imports exceed exports**, demand for foreign currency rises, weakening the rupee.
  - **India's traditional demand for high-value imports** such as crude oil and gold boosts demand for the dollar and weakens the rupee.
- **Global economic factors: High crude oil prices**, **US Federal Reserve interest rate hikes**, or **global recessions** can also weaken the rupee.



Impact of Rupee's Depreciation

Positive Impact	Negative Impact
• **Boost to Exports**: Goods and services become more competitive in international markets due to lower prices in dollar terms. ○ Export-oriented sectors, such as IT and pharmaceuticals, are expected to benefit. • **Higher Remittance Value**: NRIs benefit from higher rupee value sending money back home. • **Effect on Capital and Investment**: A weakening rupee may also result in domestic investments due to rise in exports.	• **Higher Import Costs**: A weaker rupee makes imports more expensive, particularly for crude oil. It further leads to the widening of Trade Deficit. • **Higher Inflation**: As some industries are import dependent, these results in high production costs. • **Effect on Capital and Investment**: A weakening rupee may also trigger capital flight and a decline in foreign direct investment (FDI) inflow. • **Others**: Increased cost of foreign debt, reduced purchasing power and higher import costs erode consumer sentiment, etc.

Way Forward

- **Short-term measures**
  - **RBI's market operations** to sell dollars, **Currency swap agreements** with other countries, **Monetary Policy Adjustments** to attract foreign investment, **import rationalization** to restrict non-essential imports, etc.
- **Long-term measures**
  - **Diversifying trade payments:** Boosting forex reserves and **diversifying trade payments** (e.g., using INR for international trade) to strengthen the rupee. (**Economic Survey 2022-23**)
  - **Export promotion:** It can result in **reduction of the current account deficit** to improve rupee stability. (**Rangarajan Committee on Balance of Payments, 1993**)
    - > **Strengthening of the Free Trade Agreements, improving ease of doing business** to attract global companies, etc., can help enhance India's exports.
  - **Others:** Fiscal Prudence, inflation control, reducing energy import dependence, etc.

3.2. INTERNATIONALIZATION OF RUPEE

Why in the news?

Recently, the **Reserve Bank of India** (RBI) liberalized **FEMA regulations, 1999** to **encourage use of Indian Rupee** (Internationalization of Rupee) for **settlement of cross border transactions.**

Recent Changes made in FEMA regulations by RBI:

- **People residing outside of India** will be able to -
  - **Open Indian Rupee (INR) accounts in overseas branches of Authorized Dealer banks** for settling all permissible **current and capital account transactions** with a person resident in India.
  - **Settle transactions with other persons resident outside India** using balances in their repatriable INR accounts such as Special Non-Resident Rupee (SNRR) account & **Special Rupee Vostro Account (**SVRAs).
    - > **Any person resident outside India**, having a **business interest in India**, can open SNRR account for purpose of putting through bona fide transactions in rupees.
  - Use their balances held in repatriable INR accounts for **foreign investment**.
- **Indian exporters** will be able to **open accounts in any foreign currency overseas** for **settlement of trade transactions**, including receiving export proceeds and using these proceeds to pay for imports.

Difference between Vostro and Nostro Account

Vostro Account	Nostro Account
• It refers to a **foreign bank's account held in a domestic bank** in the local currency.	• It refers to a **domestic bank's account held in a foreign bank** in the currency of the overseas country. ○ E.g., if an Indian bank (SBI) holds an account in a US bank (Citibank) in **USD**, it is SBI's Nostro account.

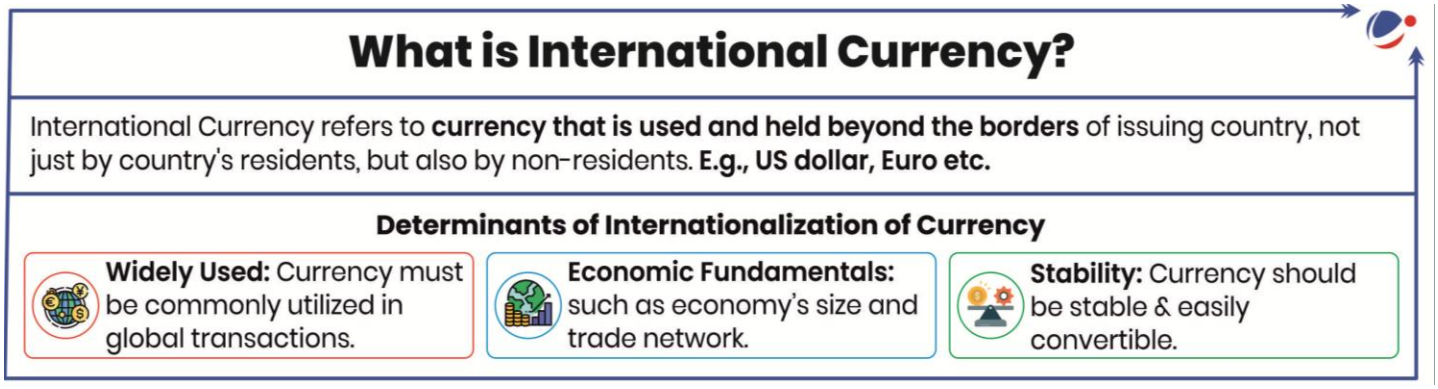
○ E.g., if a US bank (Citibank) holds an account in an Indian bank (SBI) in INR, it is SBI's Vostro account. • Allows foreign banks to operate in another country and **facilitate transactions**.	• Nostro accounts **simplify the process of exchanging and trading in foreign currencies**.

What is Internationalization of Rupee?

- **Internationalization of Rupee** refers to a process that involves **increasing the use of the rupee in cross-border transactions.**
- It involves **promoting the rupee for import and export trade** and then other **current account transactions**, followed by its use in **capital account transactions**.

Benefits of Internationalization of Rupee

- **Reduces Vulnerability**: Reducing dependence on foreign currencies (particularly dollar), it will shield the economy from sudden **exchange rate fluctuations, currency crises, and inflationary pressures.**
- **Limits Exchange Rate Risks:** Protection from currency volatility not only **reduces the cost of doing business**, it also enables better **growth of business**, improving the chances for **Indian businesses to grow globally**.
- **Reduces Requirement of Forex Reserves**: It reduces the requirement to maintain and depend on large foreign exchange reserves in convertible currencies to manage external vulnerabilities.
- **Deficit Financing:** A globally accepted INR allows the Indian government to issue **debt in its own currency** to international investors, making it easier to **manage fiscal deficits without exchange rate risks**.
- **Strengthening India's Financial Markets:** Greater global demand for INR increases **foreign participation in Indian financial markets**, such as bonds and equity **bringing in long-term investments**.



Challenges in Internationalization of the Rupee

- **Exchange Rate Volatility:** It may result in a potential increase in volatility of its exchange rate **in the initial stages**.
- **Monetary Policy Dilemma or Triffin Dilemma**: Creates a monetary policy dilemma, including the **Triffin Dilemma**, where a country struggles to balance global currency demand with domestic monetary needs.
- **Restricted Convertibility**: INR is fully convertible in the current account but **partially in the capital account** limiting its global appeal.
- **Risk to External Shock:** Given the **open channel of the flow of funds in and out of the country**, it may increase the volatility of the financial system.
- **Lack of global Usage: INR is not widely used in global trade** compared to USD, EUR etc. further it **lacks deep liquidity in international forex markets**, restricting large-scale transactions.

Do you know ?

- The **Indian rupee was the legal tender in the Gulf countries,** including Kuwait, Bahrain, Qatar and UAE, till the early 1970s.
- The currency had the same value as the Indian rupee and was known as the **Gulf rupee or external rupee.**

Steps taken for Internationalization of Rupee

- **Internationalization of Indian Payment Infrastructure:** UPI is adopted in **Singapore, France, UAE, Sri-Lanka, Bhutan, Mauritius, Nepal** etc.
- **Memorandum of Understanding (MoU):** RBI has signed **MoU with the central banks of the United Arab Emirates, Indonesia and Maldives** to encourage cross-border transactions in local currencies, including Indian Rupee.
- **RBI's Strategic Action Plan for 2024-25:** In its Annual Report for 2023-24, the RBI unveiled a Strategic Action Plan for 2024-25 aimed at **promoting the internationalization of INR**. It includes-
  - **Permitting Opening of INR Accounts outside India**; Extending **INR-denominated loans to** persons resident outside India **(PROI)**.
  - **Implementation of the SPECTRA Project**: **SPECTRA** (Software Platform for **ECB**s and **Trade Credits Reporting and Approval**) software platform of **RBI** aimed at streamlining the approval and reporting process for **External Commercial Borrowings (ECB)** and **Trade Credits**.
- **Special Vostro Rupee Accounts (SVRAs):** RBI has enabled **INR trade settlement with 22 countries** by allowing banks to open SVRAs.
- **Other: Bilateral Currency Swap agreements**, **INR as a Designated Foreign Currency in Sri Lanka**, Issuance of **rupee-denominated bonds** i.e. Masala bonds.

Way Forward (Recommendations of Inter-Departmental Group of RBI)

- **Internationalisation of Indian Payment Systems:** Real Time Gross Settlement (**RTGS**), National Electronic Funds Transfer (**NEFT**), **UPI** etc.
- **Inclusion of INR in Continuous Linked Settlement (CLS):** CLS is a global **system for the settlement of foreign currency transactions** on a Payment vs Payment (PvP) basis. It currently settles trades in 18 currencies.
- **Currency Swaps & Local Currency Settlement (LCS):** It stabilises local currency, protect businesses against currency risk exposure & reduces transaction costs.
- **Efforts for Inclusion of INR to Special Drawing Rights (SDR) basket: SDR** is an international reserve asset created by IMF in 1969 to supplement its member countries' official reserves.
  - Value of the SDR is calculated from a weighted basket of 5 major currencies **- U.S. dollar, Euro, Japanese yen, Chinese Renminbi, & British pound**.
- **Strengthening Financial Markets:**
  - **Harmonisation of KYC norms of RBI and SEBI** to ease access of foreign investors to INR assets.
  - **Global 24x5 INR market:** While customer transactions are facilitated round-the-clock in the offshore market, the inter- bank market operates only for a limited set of hours onshore.
  - **Inclusion of Indian Government Bonds in Global Bond Indices**: It will enable widening of investor base, stable passive flows, appreciation of INR, and reduction of overall borrowing costs.

Foreign Exchange Management Act (FEMA), 1999

- **About:** It replaced the **Foreign Exchange Regulation Act (FERA), 1973** and came into effect on **June 1, 2000**. It regulates **dealings in foreign exchange and transactions** involving **cross-border payments**.
- **Objective**: To **facilitate external trade and payments** and to promote **orderly development and maintenance of the foreign exchange market in India**.
- **Current and Capital Account Transactions**: It distinguishes between **current account transactions** and **capital account transactions**.
- **Liberalization**: Unlike FERA, which was restrictive and focused on criminal penalties, FEMA is **more liberal and regulatory** in nature.
- **Reserve Bank of India (RBI) and Government Control**: The **RBI** monitors most aspects of foreign exchange transactions, while the **government has control over policy decisions**.

3.3. WPI BASE YEAR REVISION

Why in the News?

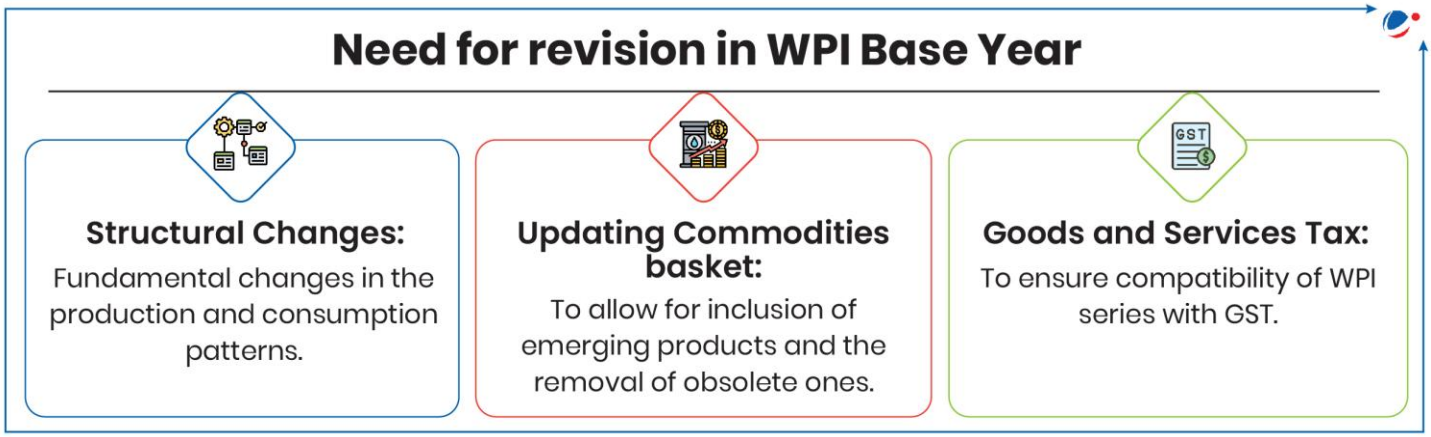
The **Government of India** has constituted a **Working Group** for **base revision** of the current series of **Wholesale Price Index (WPI)** from base **2011-12 to 2022-23.**

More on the News

- Working Group will be **chaired by Prof. Ramesh Chand**, Member, NITI Aayog.
- Additionally, the Group will also suggest improvement in compilation and presentation and **recommend roadmap for switch over from WPI to Producer Price Index (PPI)**.
- **Terms of Reference** of the Group also include review the existing system of price collection, decide on the computational methodology to be adopted for WPI / PPI, among others.

About WPI

- It is a measure of the **average change of prices of a fixed set of goods** at the **first point of bulk sale** in a **commercial transaction in the domestic market** over a given period of time.
- **Released by: Office of the Economic Adviser**, **Department for Promotion of Industry and Internal Trade**, Union Ministry of Commerce & Industry.
- **Measurement**: Measured as **weighted average of a basket of commodities.**
  - **Composition of Basket:** Comprises **697 items** categorized into **three major groups**:
    - **Primary Articles (Weight:** 22.618 out of 100**):** Consists of 4 sub-groups: **Food Articles; Non-Food Articles; Minerals**; and **Crude petroleum and natural gas**.
    - **Fuel and Power (Lowest weight:** 13.152 out of 100**):** Consists of 3 sub-groups: Coal; Mineral Oils; Electricity.
    - **Manufactured Products (Highest weight:** 64.230 out of 100**):** Consists of 22 sub-groups.



About Producer Price Index (PPI)

- It measures the **average change in the price a producer receives** for his goods/services sold in the **domestic market/ exports.**
- **Two types**:
  - **Output PPI**: Measures the average price change of all covered goods and services resulting from an activity and sold on the domestic/ export markets.
  - **Input PPI**: Measure the change in the prices of all intermediate inputs used in production by a specified sector of the economy.

Need to replace WPI by PPI

- **Multiple Counting Bias:** WPI has inbuilt bias due to double/ multiple counting of same product.
- **Exclusion of Services:** WPI also excludes the service sector (about 55% of GDP).
- **Exclusion of taxes**: News WPI (2011-12) series considers only basic prices and does not include taxes, rebate/trade discounts, transport and other charges.
- **Advantages of PPI:** Cover services, exclude indirect taxes among some, **International Prominence of PPI being u**sed by advanced economies like U.S.A. etc.

Comparison

Parameters	WPI	PPI	CPI
Definition	Measures price changes at the wholesale level (before retail).	Measures price changes at the producer level (prices received by producers for goods and services).	Measures price changes at the consumer level (retail prices paid by consumers).
Scope	Covers goods at the wholesale stage before reaching consumers.	Covers goods and services at the producer level, including inputs and outputs.	Covers goods and services consumed by households.
Base Year	2011-12	Not yet officially implemented in India.	2012
Composition	Primarily includes manufactured products, fuel, and primary articles.	Includes both goods and services across different production stages.	Includes goods and services like food, healthcare, education, and housing.
Are services included?	No	Yes	Yes
Measurement	The weights of the WPI are based on production values.	Weights of items are derived from Supply Use Table.	The weights of the CPI basket are based on the average household expenditure taken from the Consumer expenditure survey.
Inclusion of taxes	Excludes indirect taxes	Some variants of PPI may include taxes if they are passed on to producers.	Includes indirect taxes
Multiple Counting bias	Present	Absent	Present
Published by	Office of Economic Advisor, DPIIT, Ministry of Commerce and Industry.	Not yet officially implemented in India.	National Statistics Office (NSO), Ministry of Statistics and Programme Implementation.

Conclusion

The WPI base year revision and the planned transition to PPI may pa**ve the way for a more precise and globally aligned inflation metric**. Moving forward, adoption of PPI can also e**nhance economic policymaking, improve price tracking across sectors**, and provide a **robust framework for data-driven decisions** in a dynamic economy.

3.4. FISCAL HEALTH INDEX REPORT 2025

Why in the News?

Recently, NITI Aayog released **Fiscal Health Index (FHI) Report 2025** to throw light on **fiscal status at the sub-national level** and guide **policy reforms for sustainable and resilient economic growth**.

More on the News

- FHI report will be an **annual publication focusing on the fiscal health of Indian states**.
- It will offer data-driven insights that will be leveraged for **informed state-level policy interventions** to improve overall **fiscal governance, economic resilience**, and **stability of the nation.**

Fiscal Health Index 2025

- **About**: Index **ranks States on the basis of composite fiscal index**, which is based on five major sub-indices and nine minor sub-indices (**See the info graph**).
- States have been classified on the **basis of the FHI score:**
  - **Achiever:** Greater than 50

- **Front Runner:** Greater than 40 & less than equal to 50.
- **Performer:** Greater than 25 & less than equal to 40
- **Aspirational:** Less than equal to 25

- **Report analyses 18 major states** using CAG data, **excluding special category and Himalayan states**.
- **Period of the analysis:** Financial Year 2022-23.
- **Competitive Governance Initiative:** Government aims to boost state participation through **fiscal incentives and performance indexes** to achieve growth targets through improved governance.

Key Findings of FHI 2025

- **Top Performing States:** Odisha, Chhattisgarh and Goa.
- **Non-tax revenue: Odisha, Jharkhand, Goa, and Chhattisgarh** demonstrated strong non-tax revenue generation, accounting for **21% of their total revenue**.
- **Capital expenditure:** Madhya Pradesh, Odisha, Goa, Karnataka, and UP demonstrated stronger capital investment by **allocating 27% of their development funds to capital expenditure**.
- **Debt Sustainability:** West Bengal and Punjab showed concerning fiscal trends with increasing debt-to-GSDP ratios, raising serious questions about their long-term debt sustainability.

Significance of the FHI Report

- **Competitive federalism**: FHI can promote **healthy competition among states** to align their fiscal strategies with national objectives, ensuring their contributions to the goal of a fiscally stable and prosperous India.
- **Transparency and accountability**: Index can promote transparency in fiscal practices by providing a public measure of how well states manage their finances.
- **Informed policy making:** By evaluating fiscal health through quantifiable metrics, the FHI can help policymakers identify where states need to focus reforms or allocate resources for better fiscal outcomes.

Conclusion

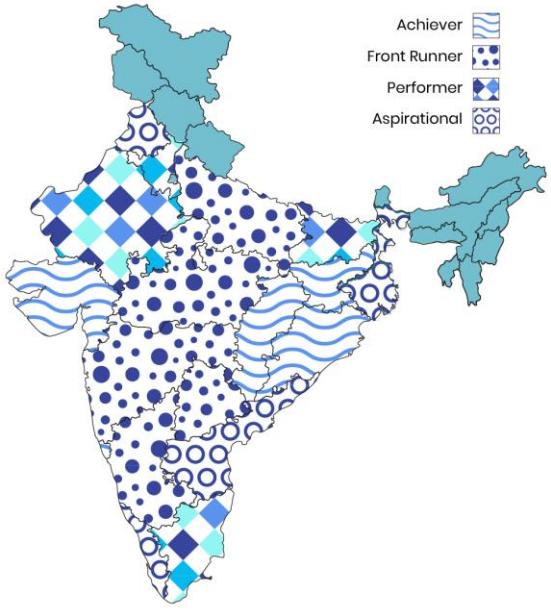
By fostering an environment of transparency, accountability, and cooperative federalism, the FHI encourages states to adopt best practices in fiscal management, thereby paving the way for sustainable economic growth. It can provide a roadmap for states to navigate towards fiscal prudence and stability, ultimately contributing to India's broader vision of achieving **Viksit Bharat @2047.**

Sub-Indices of FHI

MAJOR SUB-INDICES	MINOR SUB-INDICES
1. Quality of Expenditure	Total Developmental Expenditure/Total Expenditure
	Total Capital Outlay/ GSDP*
2. Revenue Mobilization	State Own Revenue/ GSDP*
	State Own Revenue/ Total Expenditure
3. Fiscal Prudence	Gross Fiscal Deficit/GSDP*
	Revenue Deficit/GSDP*
4. Debt Index	Interest Payments/Revenue Receipts
	Outstanding Liabilities/ GSDP*
5. Debt Sustainability	Growth Rate of GSDP* - Growth Rate of Interest Payments

*GSDP at current prices for the year 2022-23

State-wise Composite FHI Score Heatmap



Achiever	Front Runner	Performer	Aspirational
Odisha (1)	Maharashtra (6)	Tamil Nadu (11)	Kerala (15)
Chhattisgarh (2)	Uttar Pradesh (7)	Rajasthan (12)	West Bengal (16)
Goa (3)	Telangana (8)	Bihar (13)	Andhra Pradesh (17)
Jharkhand (4)	Madhya Pradesh (9)	Haryana (14)	Punjab (18)
Gujarat (5)	Karnataka (10)		

To know more about Fiscal health of India's States, refer to Article 3.1. State Finances in December 2024 Monthly Current Affairs Magazine.

3.5. HOUSEHOLD CONSUMPTION EXPENDITURE SURVEY (HCES), 2023-24

Why in the news?

National Sample Survey Office (NSSO) released the results of the household consumption expenditure survey **(HCES)**.

More on the news

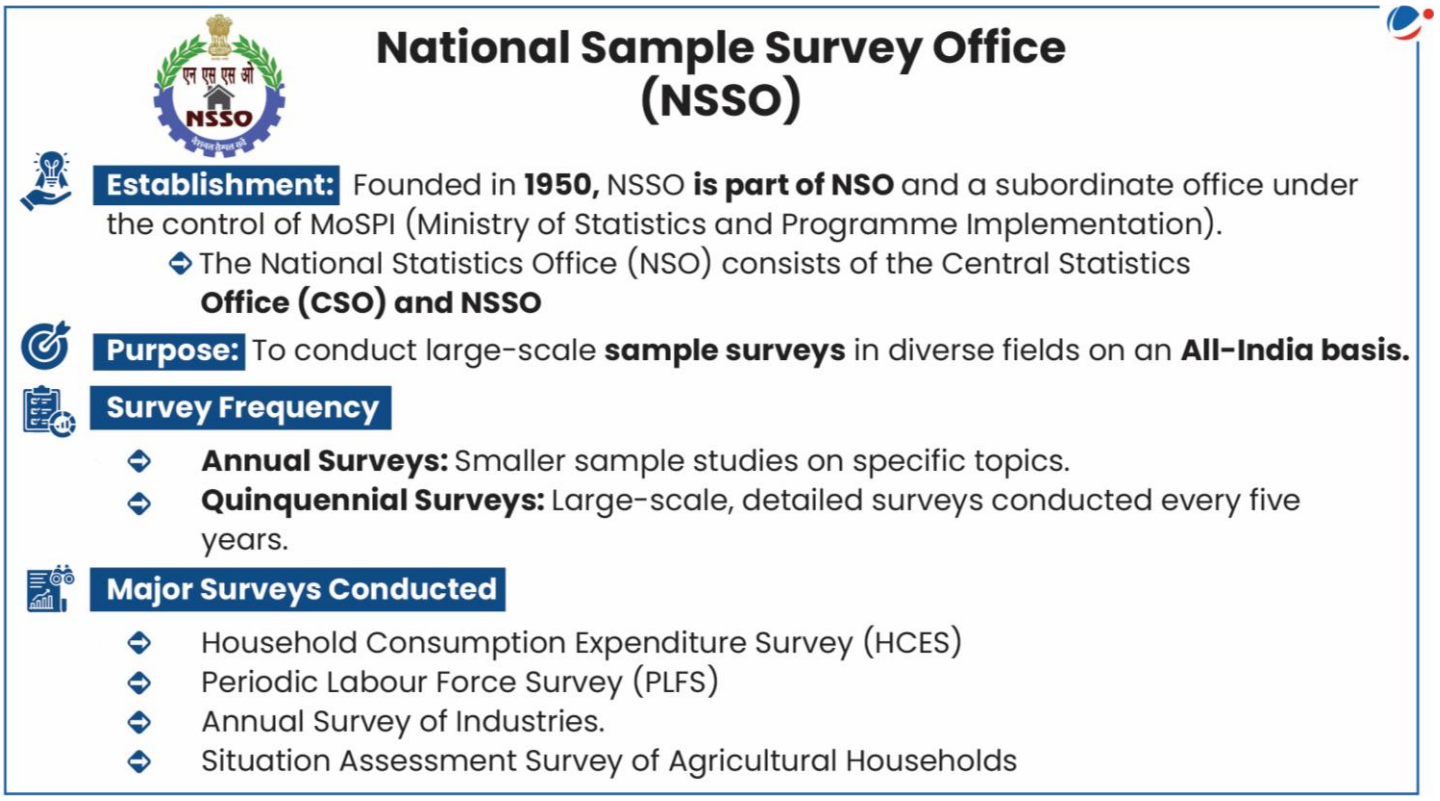
- MoSPI decided to conduct two consecutive surveys on household consumption expenditure **during 2022-23 and 2023-24**, once situation normalized after the Covid-19 pandemic.
- The fieldwork of the second survey on the subject has been undertaken during **August 2023 to July 2024 throughout the entire country.**

Important Findings of HCES: 2023-24

- Average Monthly Per Capita Expenditure (MPCE):
  - **Rural**: ₹4,122 (₹4,247 with imputed benefits)
  - **Urban**: ₹6,996 (₹7,078 with imputed benefits)
- **Growth in MPCE: Increased** by 9% in rural and 8% in urban areas from 2022-23.
- **Urban-Rural Gap: Reduced** from 84% (2011-12) to 70% (2023-24), indicating rural consumption growth.
- **Increased Spending on Non-Food Items: Non-food items** dominate expenditure (53% rural, 60% urban), with the major contribution from conveyance, clothing, etc.
  - Percentage **share of food** in average monthly expenditure had **fallen**.
- **Consumption Inequality: Gini coefficient declined** to 0.237 (rural) and 0.284 (urban), reflecting **reduced income disparity.**
  - **Gini Coefficient measures the extent of income inequality** among households. It ranges from 0 (perfect equality) to 1 (perfect inequality).
- **Inequality among States:** MPCE is highest in Sikkim and lowest in Chhattisgarh.
- **Implications for Inflation Measurement:** The shift towards non-food spending may lead to changes in the Consumer Price Index (CPI) composition, affecting inflation assessments.

About Household Consumption Survey Expenditure (HCES)

- **Aim:** To capture detailed data on household consumption and expenditure patterns, essential for analysing living standards and well-being across India.
- **Conducted by: National Sample Survey Office (NSSO)** at regular intervals,
  - Initially, It was conducted at **one-year duration (**starting 1950-51**).** However, since its 26th round, the survey has been **conducted roughly every 5 years.** (The 2017-18 Survey was discarded by the government citing 'Data Quality' issues.)
- **Key Objectives of HCES**
  - **Consumption Patterns**: Captures data on household consumption **of goods and services,** reflecting living standards and well-being.
  - **Consumer Price Indices:** Facilitates the development of **weighing diagrams for Consumer Price Indices (CPI),** crucial for economic analyses.
  - **Economic Indicators**: Provides a basis for revising the base year for macroeconomic indicators such as GDP and CPI.



3.6. CENTRAL BANK DIGITAL CURRENCY

Why in the News?

Recently, US President issued an executive order for **banning** the establishment of USA's Central Bank Digital Currency (CBDC), i.e., **'Digital Dollar'**.

What is Digital Currency?

- It is money that is **exclusively available only in digital or electronic form**.
- They are generally **handled, preserved and exchanged using digital computer systems**, connected to the Internet.

3 Types of Digital Currencies		
Cryptocurrency	**CBDCs**	**Stablecoins**
• Regulates the **generation of new units** and secures transactions **using cryptographic methods**. • **Blockchain** ledger is used to verify transactions. • **Control**: Decentralized • **E.g.,** Bitcoin.	• **Digital version of fiat currencies** issued by Central Banks. • Maintains the **reliability and security of traditional currencies.** • **Control**: Centralized • **E.g.,** Digital Rupee (**e₹**)	• Typically **backed by underlying asset's reserves or by algorithms** that modify the supply based on market demand. • Designed to have a **constant value in comparison to a traditional currency** or other asset. • **Control**: Centralized or hybrid • **E.g.,** Tether (USDT)

About CBDC

- It is a **legal tender** and a central bank **liability in digital form denominated in sovereign currency** and appearing on central bank balance sheet. **(RBI)**
- **Types of CBDCs**
  - **Wholesale CBDCs:** Used among banks and other licensed financial institutions for interbank payments and securities transactions.

- **Retail CBDC:** It is available to general public via digital wallets, smartphone apps, etc.
  - **Two models of retail CBDC:**
    - ✓ **Token-based CBDCs:** Enables anonymous transactions through private and public key authentication.
    - ✓ **Account-based CBDCs:** Requires user digital identification for account access. **e.g.,** DCash of Eastern Caribbean.

Do you know

- **Sand Dollar:** Bahamas became the first country to launch CBDC in 2020.
- **DCash:** Eastern Caribbean Currency Union launched its digital currency and become the first currency union to embrace blockchain-based CBDC.

Potential benefits of CBDCs

- **Financial inclusion:** CBDCs can give unbanked or under-banked people access to digital payment services, allowing them to engage more fully in the economy.
- **Reduced transaction costs:** Elimination of intermediaries like commercial banks and payment processors reduces transaction fees for businesses and individuals.
- **Reduced dependence on cash:** Help in reducing the cost of printing, distributing, and managing physical currency.
  - CBDCs operate on digital ledgers, allowing for **better tracking of transactions, reducing corruption, tax evasion**, and **illicit activities**.
- **Improve monetary policy transmission:** Central banks can implement direct stimulus measures, such as distributing funds instantly to citizens during economic crises, improving the effectiveness of monetary policy.
- **Cross-Border Payment Efficiency:** CBDCs can simplify and speed up international trade payments, reducing reliance on intermediaries like SWIFT.
- **Programmable Payment Mechanisms:** Digital currency transfers can be conditionally programmed, such as setting expiration dates or restricting spending to specific vendors.

About India's Digital Rupee (e₹)

- It is a **digital form of fiat currency**, issued and regulated by the RBI.
- It is **currently in pilot mode (ongoing with 15 Banks),** since **December 2022,** to test and explore the uses/ features/ technology and applications of Digital Rupee.
- It is **available in the same denominations as physical currency**.
- It is **legal tender** and is the **liability of Reserve Bank of India** (as per Section 26 of the Reserve Bank of India Act, 1934).

Challenges with CBDCs

- **Cybersecurity risks:** CBDCs are vulnerable to cyberattacks, hacking, and data breaches, which could potentially compromise financial stability.
- **Privacy Concerns**: Transaction tracking and identity verification raise data protection issues.
- **Digital divide:** The complex technical requirements and need for digital literacy in using CBDCs could widen the gap between tech-savvy and less technologically adapted populations.
- **International Regulatory Challenges**: Cross-border use of CBDCs requires coordination between countries to prevent financial crimes, money laundering, and regulatory arbitrage.
  - Technical variables such as **different blockchain / Distributed Ledger Technology (DLT) standards** and applications may reduce the efficiency of CBDCs across borders.
- **Threat to Monetary Sovereignty:** If people prefer a foreign CBDC (e.g., Digital Dollar or Digital Yuan) over their national currency, it could weaken the local monetary system.

Way Forward

- **Balancing Privacy and Transparency:** Use of technologies such as Zero-Knowledge Proofs (ZKPs) and privacy-preserving digital ledger solutions can ensure user privacy while enabling regulatory oversight.
  - **Zero-knowledge Proofs** are a cryptographic method used to prove knowledge about a piece of data, without revealing the data itself.
- **Monetary Policy and Fiscal Policy integration:** Specific use-cases of CBDCs for Direct Benefit Transfers (DBTs), subsidies, and social security payments, etc., can be explored to improve economic efficiency.
- **Regulatory and Legal Frameworks**: States need to unambiguously define CBDC's and other digital currencies' legal status, liabilities, and consumer rights to prevent misuse.
  - In this regard, **regulatory sandboxes** can be developed to test and refine CBDC policies before national rollout.

- **Cross-border collaboration and standardization:** Global community can work with international financial institutions (IMF, BIS, etc.) to establish global standards for CBDC interoperability and regulation.

3.7. INDIA'S DIGITAL ECONOMY

Why in the News?

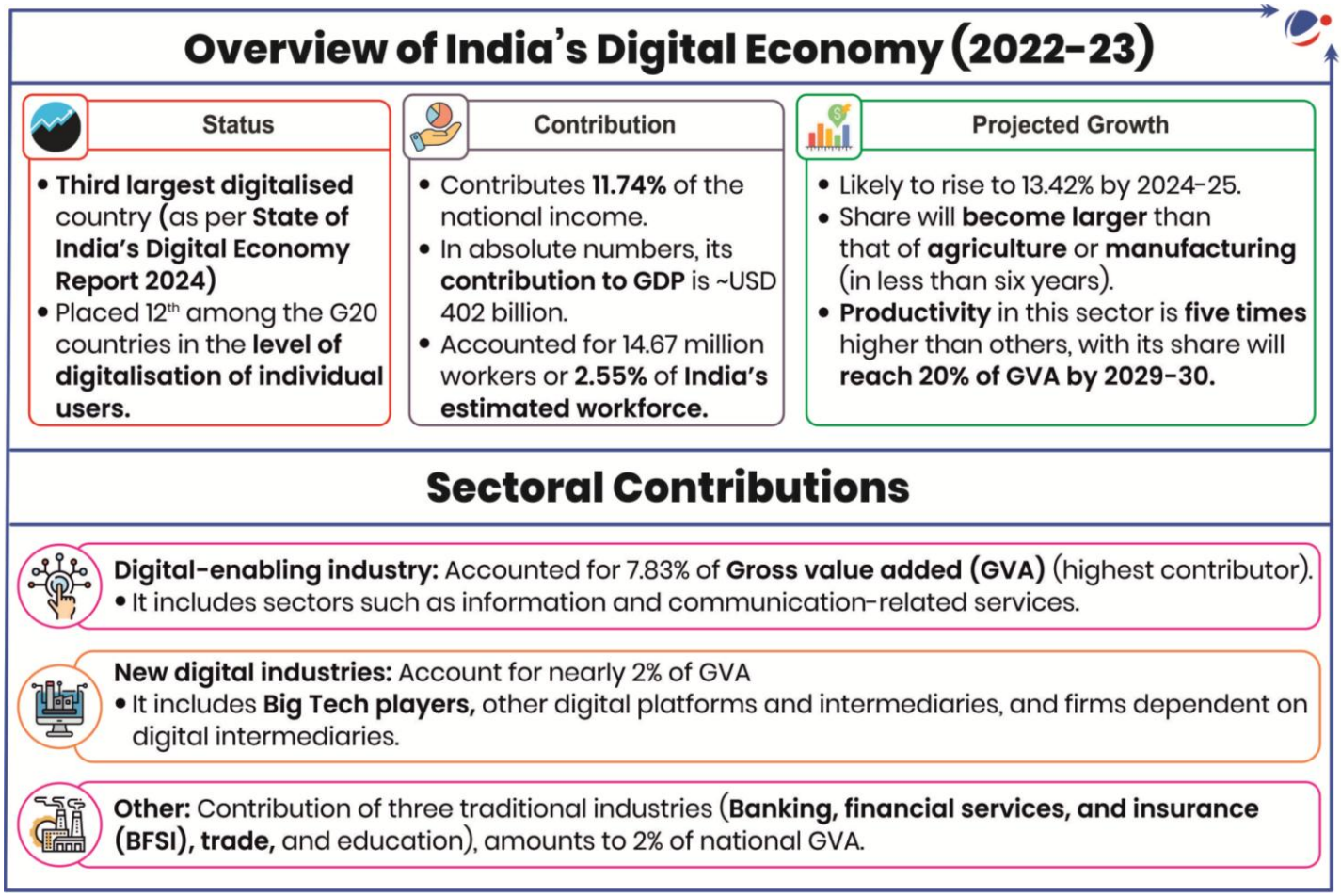
The **Ministry of Electronics and Information Technology (MeitY)** has released a comprehensive study titled **Estimation and Measurement of India's Digital Economy**.

About Study

- The study has been done by the **Indian Council for Research on International Economic Relations.**
- It is based on an **internationally accepted framework** developed by the **Organisation for Economic Co-operation and Development (OECD)** and the **Asian Development Bank (ADB).**
    - India will be **first among developing countries**, to have used the OECD framework to estimate the size of its digital economy.
    - The study goes beyond the **OECD approach** to also include the digital share of **traditional industries** like **trade, banking, financial services, and insurance (BFSI**), and **education**.

What is the Digital Economy?

- It generally refers to the **information and communication technology (ICT)** sector, including telecommunications, the Internet, ICT services, hardware and software.
    - Its broad definition includes both the ICT sector and parts of traditional sectors that have been integrated with digital technology (International Monetary Fund (IMF)).



Benefits/Significance of Digital Economy

- **Enhances Exports**: India is the 2nd highest ICT services exporter in the world, behind Ireland (2023)
- **Enhanced Service Delivery:** E.g., **e-Hospital** and **e-Sanjeevani** (National Telemedicine Service) have made healthcare facilities more accessible.
- **Increases Global Competitiveness/Promotes Ease of doing Business:** E.g., **GST (Goods and Services Tax)** filing is largely online, reducing delays and fostering a more predictable business environment.
- **Boost to Startups and Innovation:**
  - India has the **third-largest number** of homegrown unicorns in the world (2024).
  - Also, hosts about **55%** of the world's **Global Capability Centers (GCCs)**.

Know the terms

Global Capability Centers (GCCs): These are offshore centres established by **multinational corporations** to provide a variety of services to their parent organisations, including R&D, IT support, and business process management.

- **Reducing Inequality/Promoting Rural Development**: E.g., the **National Agriculture Market (e-NAM)** enables transparent price discovery for farmers for their produce through a competitive online bidding system.
- **Other**: Empowering people by fostering Financial Inclusion, Environmental Sustainability (e.g. e-tickets), etc.

Major Initiatives/Drivers for/of Digital Economy?

- **Digital Infrastructure Development:** E.g., **Digital India Mission (2015)** and **BharatNet** (National Optical Fiber Network - NOFN)
- **Digital Identity & Inclusion:** E.g., **Aadhaar (Unique Identification Number)**, etc.
- **Digital Literacy**: E.g., **Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA)**, implemented only in rural areas.
- **Digital Payments & Financial Services:** E.g., **Unified Payments Interface (UPI)**, **BHIM App, Bharat QR, RuPay & e-RUPI** and **Direct Benefit Transfer (DBT)**
- **E-Governance & Digital Services:** E.g., **UMANG App** (Unified Mobile Application for New-age Governance)
- **Cybersecurity & Data Protection:** E.g., **Indian Cybercrime Coordination Centre (I4C)** and **Digital Personal Data Protection Act (DPDP Act 2023)**
- **Other:**
  - India Stack, a set of digital public infrastructures (DPIs) that provide access to public services.
  - **BHASHINI (BHASHa INterface for India)**, democratizing access to digital content and services across India's linguistic spectrum.
  - **Open Network for Digital Commerce (ONDC)**, democratizing digital commerce.
  - **Start-Up India**, etc.

Key Challenges faced by the digital economy?

- **Universal Definition**: The increasingly **cross-cutting** and int**egrated nature of digital technologies** makes the concept of a distinct digital economy difficult to define.
- **Lack of Reliable Data**: Scarcity of appropriate and granular data poses a **potential trade-off** between accuracy and completeness in capturing the digital economy.
- **Cyberattacks and cybercrimes**: E.g., Digital arrest and cyber slavery
- **Privacy violation and related Concerns**: E.g., misuse of personal data, misinformation, monopolisation, etc.
- **Poor digital Literacy**: 70% of Indian youth aged between 15 and 29 years cannot send emails with files attached, and nearly 60% cannot copy and move a file or folder (NSSO's Multiple Indicator Survey published in 2023)
- **Other:** The **off-take on semiconductors** in India is slow and **value addition** in mobile phones is low, **Telecom** is yet to **unleash competitive forces**, etc.

Way Forward

- **Reliable Data Collection**:
  - Produce **periodic updates** and expanding estimates for the digital economy

- Move beyond the **estimation of size** to **measure impact**, MeitY should undertake a separate study on estimating the productivity gains from digitalisation
- **Promoting digital literacy and skilling:** Incorporate digital literacy in the schools.
- **Minimise regulatory uncertainty:** Bring regulatory clarity on the use of **emerging technologies** such as cryptocurrencies, and generative AI, and remove frictions in the operation of digital platforms.
- **Make high-quality broadband universal:** Building resilient fixed-line broadband networks to supplement mobile coverage.
- **Enhance cybersecurity and trust:** Build cross-country collaboration to identify and mitigate cybercrimes.
- **Improve the ease of doing business:** Review and re-evaluate business laws, including labour laws (e.g., extending work hours in the ICT sector, etc.) to create a balance between labour rights and compliance cost.

3.8. 'CASHLESS TREATMENT' SCHEME FOR ROAD ACCIDENT VICTIMS

Why in the news?

Union Minister for Road Transport and Highways announced the launch of the **"Cashless Treatment"** scheme to provide financial assistance to road accident victims.

Key Provisions of the Scheme

- **Financial Coverage**: Government will cover **treatment costs of up to ₹1.5 lakh for seven days**, provided **the police are informed within 24 hours.**
  - Claims raised by hospitals for providing treatment to be reimbursed from the **Motor Vehicle Accident Fund.**
  - Victims can opt for treatment under **Ayushman Bharat PM-JAY packages** for trauma and polytrauma.
- **Eligibility:** Applicable to all road accidents involving motor vehicles on any type of road.
- **Implementation**: The **National Health Authority (NHA)** will coordinate with police, hospitals, and state health agencies to implement the scheme.
  - **e-Detailed Accident Report (eDAR) application** will help NHA in implementation of Scheme.
- **Ex-Gratia Payment**: **₹2 lakh compensation** for families of deceased **victims in hit-and-run cases**.
- **Legal mandate: under Section 162 of the Motor Vehicles Act, 1988**, which emphasizes providing cashless treatment to victims of **road accidents involving motor vehicles.**

Need for the Scheme

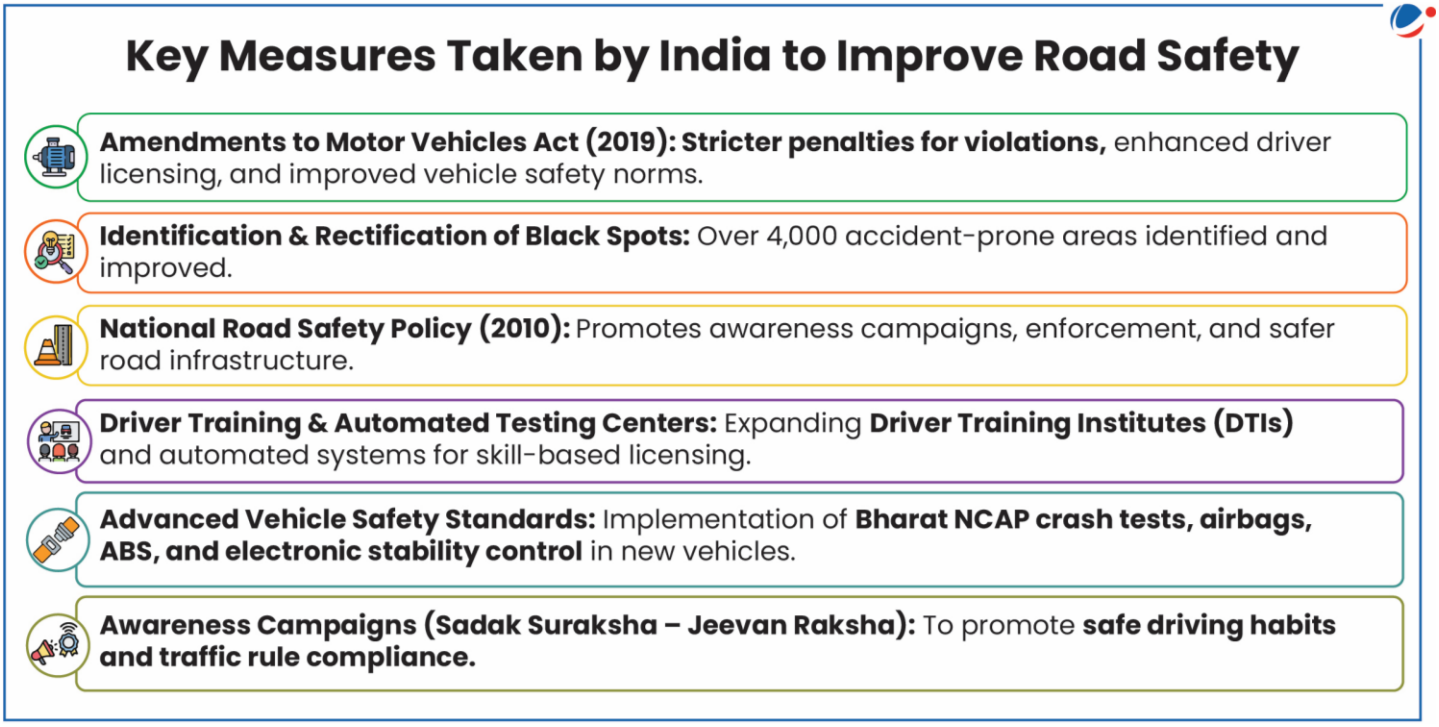
- **High Road Accident Fatalities**: India records one of the highest numbers of road accident deaths globally.
- **Golden Hour Treatment:** Ensuring immediate medical attention can save thousands of lives.
- **Financial Burden on Victims:** High treatment costs often prevent timely medical intervention.
- **Enhanced Emergency Response:** The scheme integrates technology to streamline accident reporting and hospital coordination.
- **Government Commitment:** The initiative aligns with **India's broader goal of** reducing road fatalities by 50% by 2030 under **the UN's Decade of Action for Road Safety.**

Global Plan for the Decade of Action for Road Safety 2021–2030

- **Developed by: WHO** and **UN Regional Commissions** to guide global road safety.
- **Objective:** Based on **UN Resolution 74/299**, targeting a **50% reduction in road deaths and injuries by 2030**.
- **Alignment:** Supports the **Stockholm Declaration** and the **Safe System approach**.
  - **Stockholm Declaration**: Presented by **Sweden** at the **3rd Global Ministerial Conference on Road Safety (Stockholm, 2020)**,
  - The **Stockholm Declaration** emphasizes the **Safe System approach** and reaffirms the commitment to **halving global road fatalities and injuries by 2030**, in line with the **UN SDGs.**

Challenges to Road Safety in India

- **High Fatality Rate and Injury Burden:** India accounts for **11% of global road fatalities in 2022**, making it one of the most dangerous countries for road travel.
- **Over-Speeding and Reckless Driving:** Over-speeding is the **leading cause of road fatalities,** with expressways and highways witnessing frequent high-speed crashes.
- **Lack of Traffic Law Enforcement:** Weak enforcement of traffic laws leads to **widespread helmet and seatbelt non-compliance,** signal jumping, and drunk driving, increasing accident risks.
- **Inadequate Public Transport and Growing Vehicle Population**: Rising private vehicle ownership, coupled with inadequate public transport, leads to congestion, pollution, and increased road accident risks.
- **Defective Vehicles & Lack of Safety Features:** Many vehicles, especially low-cost models, lack essential safety features like airbags and ABS, making them highly unsafe in crashes.
- **Weak Post-Crash Response and Emergency Care**: Nearly 50% of accident victims die due to delayed medical assistance, as emergency response remains inadequate in many areas.



Recommendation: The Safe System Approach of Global Plan for Road Safety (2021-2030):

The **Safe System** approach recognizes **that human error is inevitable but aims to ensure that road crashes do not result in fatalities** or serious injuries. The key components include:

- **Multimodal Transport & Land-Use Planning:** Encouraging **public transport, cycling, and walking** to reduce risks.
- **Safe Road Infrastructure:** Designing roads with **safety features** like pedestrian crossings, speed limits, and segregated lanes.
- **Safe Vehicles:** Mandating **advanced safety features** in all vehicles, including **electronic stability control, automatic braking, and crash protection technologies**.
- **Safe Road Use:** Strengthening **traffic laws**, **speed management**, and **awareness campaigns** to prevent **speeding, drunk driving, and distracted driving**.
- **Post-Crash Response:** Improving **emergency medical services, trauma care, and rehabilitation** to minimize fatalities and long-term disabilities.

3.9. NEWS IN SHORTS

3.9.1. INDIA SECURES 14.3% OF GLOBAL REMITTANCES: WORLD BANK

According to the World Bank, **India secured 14.3% of Global Remittances in 2024, highest share ever.**

- Remittances are **financial transfers made by individuals working abroad** to support their families in their home country.

Trend in Remittances flow

- **Top five recipients in 2024:** India at $129 billion (Compared to $125 billion in 2023), Mexico, China, Philippines, and Pakistan, driven by recovery in job markets in high-income countries of OECD.
- Remittances to **Low- and Middle-Income Countries** are projected to surge to **$685 billion in 2024**, with **5.8% growth rate**.
- **China's** share of global remittances **dropped to 5.3% in 2024, its lowest share in two decades,** due to reduced **low-skilled emigration** stemming from its rising economic prosperity and aging population.

Factors responsible for High Remittances in India

- **Scale of Migration:** India has one of the largest diaspora populations in world, with over 18 million Indians living abroad as of 2023 (UN World Migration Report 2024).
- **Shift in Destination Trends:** Increasingly, Indian migrants are moving to high-income economies like US, UK, and Australia.
- **Skilled and Unskilled Labor:** Indian migrants range from highly skilled professionals (IT, healthcare) to semi-skilled and unskilled labourers.

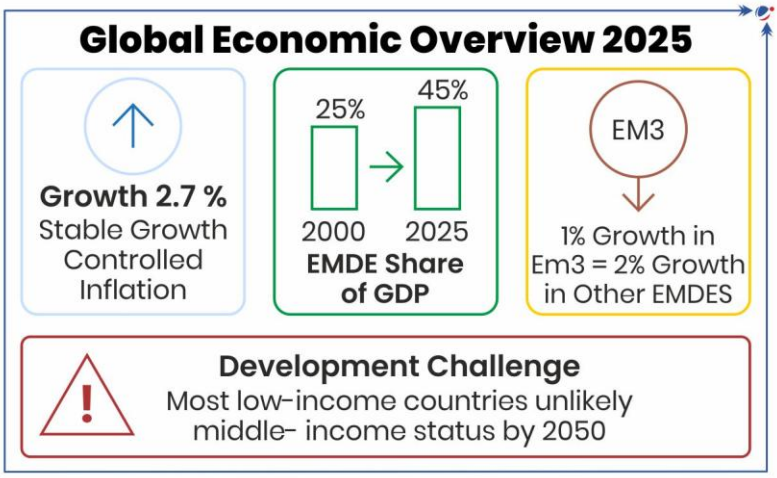
Significance of High Remittances

- **For Recipient Households:** used for essential expenses like food, healthcare, and education, directly improving living standards.
- **For Macro-economy:** Major source of foreign exchange, reduced reliance on foreign aid, funding current account deficits and fiscal shortfalls etc.

To know more about remittances, refer to Article 3.1.3. Cross-Border Remittances in March 2024 Monthly Current Affairs Magazine.

3.9.2. INDIA REMAINS THE FASTEST-GROWING ECONOMY: WORD BANK

World Bank's latest **Global Economic Prospects Report** gives overview of Global Economy for the 1st quarter of 21st Century (refer to the infographic).



Key Highlights

- **Rising influence of EMDEs:** Emerging Market and Developing Economies (EMDEs), led by the **EM3 nations** (China, India, and Brazil), **have significantly increased their share in the global economy** from 2000 to 2025.
- **India's Growth Leadership:** India remains the **fastest-growing economy**, with **projected 6.7% annual growth** through FY26–FY27, slightly below the 7% achieved in 2022.

Factors reflecting robustness of Indian Economy

- **Strong Sectoral Performance:**
  - **Services:** The services sector is set for **sustained expansion**, with rising service exports boosting trade integration in South Asia since 2000.

- **Manufacturing:** Manufacturing is **strengthened** to grow, driven by government initiatives **to** improve logistics and tax reforms.

- **Solid Economic Foundation**
  - **Fiscal Health:** Shrinking fiscal deficits and increasing tax revenues.
  - **Investment Outlook:** Investment growth overall is expected to be **steady,** with **rising private investment**, supported by healthy corporate balance sheets and easing financing conditions.
  - **Consumption outlook: Private consumption** growth is expected to be boosted by a **strengthening labor market, expanding credit, and declining inflation**.
    - > However, **government consumption** growth is likely to **remain contained**.

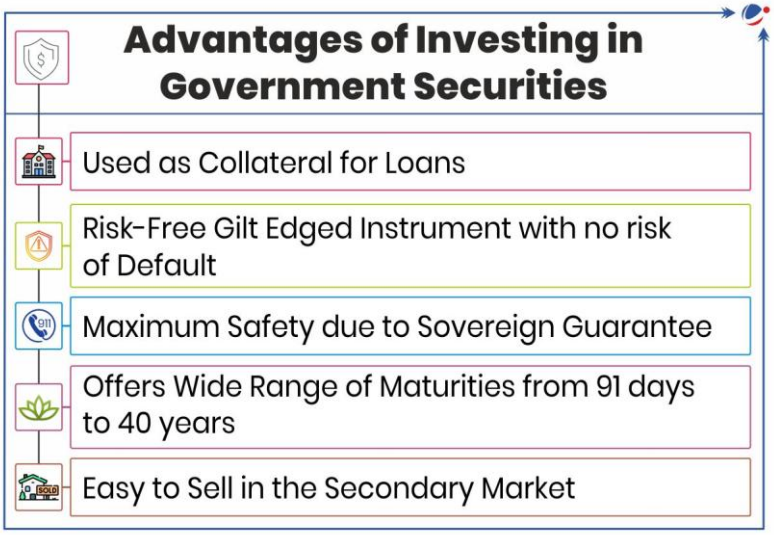
The report identifies key challenges, including **rising protectionism, geopolitical tensions, mounting debt burdens, and climate change-related costs**. Success requires **focused policies on boosting investment, productivity, and macroeconomic stability** while effectively managing external pressures.

3.9.3. GOVERNMENT TO BORROW RS 3.94 LAKH CRORE VIA TREASURY BILLS (T-BILLS)

Recently, RBI notified the calendar for issuance of **T-Bills,** one of the types of **Government Securities (G-Sec).**

Government Securities Market in India

- **About:** It is a **tradeable instrument** issued by the **Central or State Governments** acknowledging the Government's **debt obligation.**
- **Issued by:** RBI through an auction on its electronic, **E-Kuber platform.**
  - **RBI's Public Debt Office (PDO)** acts as its registry/ depository.
- **Major Participants:** Commercial banks, Primary Dealers, Insurance companies, co-operative banks, regional rural banks, mutual funds, retail investors (non-competitive bidding section), etc.



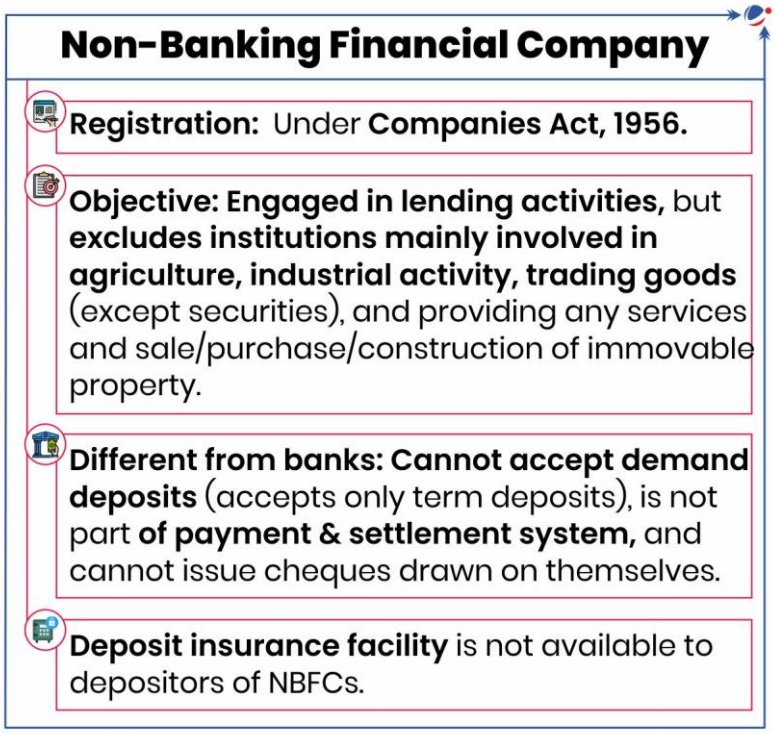
Types of G-Secs

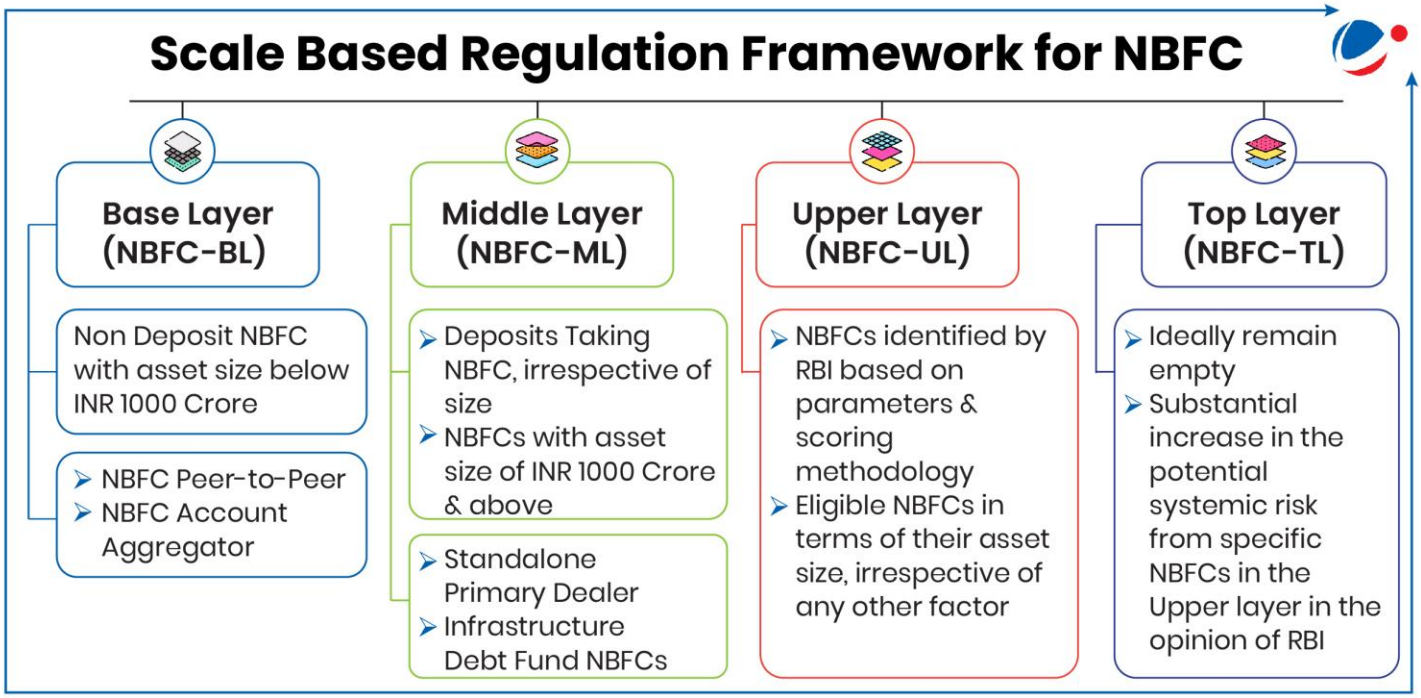
- **Short term** with original maturities **less than a year.** E.g., T-Bills
  - **Treasury Bills (T-bills)**
    - > **Money market** and **short term debt instruments** issued by the Government of India (GOI)
    - > **Zero coupon** securities and pay no interest.
      - ✓ Issued at a **discount** and **redeemed at the face value** at maturity.
    - > Issued in 3 tenors, namely, **91 day, 182 day and 364 day.**
  - **Cash Management Bills (CMBs)**
    - > **Short-term** (maturities less than 91 days) instrument introduced by the GOI in 2010 to meet the temporary mismatches in its cash flows.
- **Long Term,** with original maturity **of one or more year**. E.g., Government Bonds or Dated Securities.
  - **Dated G-Sec:** They carry a **fixed or floating interest rate** paid on the face value, on half-yearly basis, with maturities ranging from 5 to 40 years.
  - **SDLs: Dated securities** issued by State Governments with half-yearly interest payments.
- **NOTE:** In India, the **Central Government** issues both T-Bills and bonds or dated securities while the **State Governments** issue only bonds or dated securities, called the **State Development Loans (SDLs).**

3.9.4. RBI RELEASES LIST OF NBFCS IN THE UPPER LAYER (NBFC-UL) FOR 2024-25

- The list includes **LIC Housing Finance Limited, PNB Housing Finance Limited, Shriram Finance Limited** etc and is in accordance with **Scale Based Regulation (SBR) ,** a regulatory framework for NBFCs.
    - Once an NBFC is classified as NBFC-UL, it is subjected to **enhanced regulatory requirement, at least for a period of 5 years**
- The framework has been introduced to **mitigate contagion or systemic risks**, apply the **principle of proportionality in regulation** and strengthen quality and improve risk management of NBFCs.

Scale Based Regulation Framework for Non-Banking Financial Company (NBFCs)





3.9.5. BAANKNET (BANK ASSET AUCTION NETWORK)

Ministry of Finance launched a revamped e-auction portal **'BAANKNET'**.

About BAANKNET

- It c**onsolidates information on e-auction properties from all Public Sector Banks** and offers a **one-stop destination for buyers and investors** to discover a wide range of assets.
- The listings include residential properties such as **flats, independent houses, and open plots, as well as commercial properties, industrial land and buildings, shops, etc.**
- The platform is expected to **unlock the value of distressed assets** and boosting investor confidence.

3.9.6. PREPAID PAYMENT INSTRUMENTS (PPI)

RBI has allowed **Prepaid Payment Instruments (PPIs)** holders to make and receive **Unified Payments Interface (UPI) payments** through **third-party mobile applications.**

About PPI

- PPIs are instruments that facilitate the **purchase of goods and services**, conduct of financial services, enable remittance facilities, etc., against the value stored therein. E.g. Mobile wallets, digital wallets, gift cards
- PPIs can be **issued by banks and non-banks.**
  - Classified under two types: **small PPIs** (issued after obtaining minimum details of the PPI holder) **and Full KYC PPIs.**

To know more about UPI, refer to Article 3.2. Unified Payments Interface (UPI) in January 2024 Monthly Current Affairs Magazine.

3.9.7. ROLE OF TRADE IN REDUCING FOOD INSECURITY

Role of Trade in reducing Food Insecurity and preventing famine examined by UNCTAD Report.

- The report analyses various drivers of food insecurity and how can trade play a mitigating role in addressing these challenges

Role of Trade

- **Sustainable supplies can ensure food availability:** E.g. 30% of Africa's cereal needs are met through imports
- **Stabilizing prices and markets**: E.g. **Black Sea Initiative** (brokered by UN and Türkiye) during Russia-Ukraine war facilitated food and fertilizer exports

Challenges

- **Higher costs: E.g.** non-tariff measures, such as sanitary standards, can increase food import costs by 20%.
- **High Import dependency**: It exposes countries to global price hikes and supply chain disruptions.
- **Rising transportation costs:** It affects developing and least developed countries disproportionately.

Recommendations

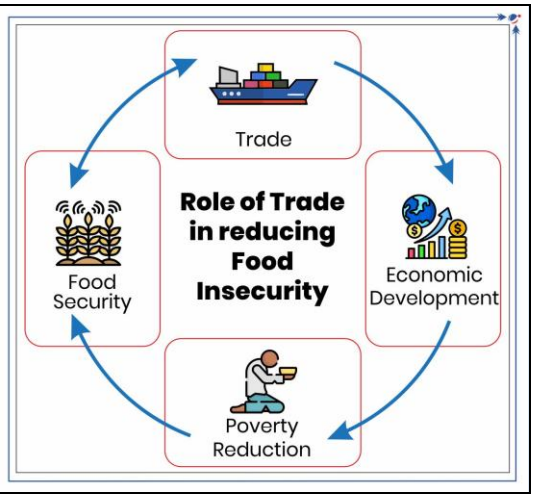
- Reach a **"Short Term Export Facilitation Mechanism to Combat Severe Food Insecurity"** at international forum, such as WTO
- **Reduce trade barriers & boost export capacities** of food insecure countries.
- **Invest in trade infrastructure** such as ports, transport networks and storage **facilities to shorten supply chains and reduce vulnerabilities to global disruptions** especially for low-income countries.
- **Support climate-smart and sustainable farming in developing countries**

Factsheet

- >280 million faced acute hunger whereas ~733 million faced chronic hunger (2023)
- Without urgent action, 582 million could be chronically hungry by 2030.

Drivers of global hunger

- Armed conflict: affected 5 million people in 20 countries (2022)
- Climate change: It has led to reduction in agricultural productivity by 21% since 1961.
- Urbanization: It is blurring lines between rural and urban areas thereby impacting agrifood systems

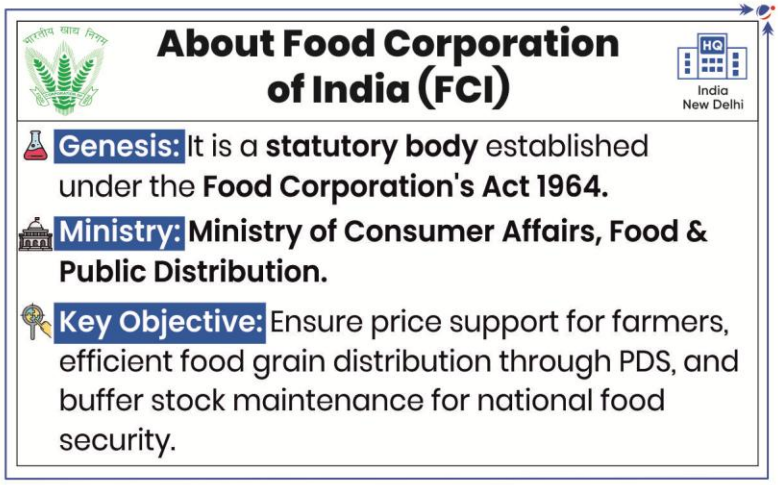


To know more about Global Hunger, refer to Article 6.3. Global Hunger Index in October 2024 Monthly Current Affairs Magazine.

3.9.8. REVISED OPEN MARKET SALE SCHEME (DOMESTIC) POLICY FOR 2024-25

The revised policy announced by **Ministry of Consumer Affairs, Food & Public Distribution** aims to enhance food security & bolstering ethanol production.

- **It set Rice Reserve Price** (₹2,250 per quintal) for **sale to State Governments, Corporations, & Community Kitchens**, without e-auctions.
- The policy set reserve prices at ₹2,250 per quintal (slashed by ₹550) of rice to **ethanol distilleries to aid ethanol production**.



What is Open Market Sale Scheme (Domestic)?

- **About:** Under this scheme, **Food Corporation of India** (FCI) **sells surplus food grains** (wheat & rice) from the **central pool** in open market via **e-auction** at **pre-determined prices**.
- **Aim**: To **control market prices** and **curbs inflation**.
- **Eligibility:** Processors / Atta Chakki / Flour Millers of Wheat Products. (Traders / Bulk Buyers are not allowed through e-auction.
    - Usually, **states** are also **allowed to procure** food grains **without participating in auctions**.

3.9.9. PROJECT VISTAAR

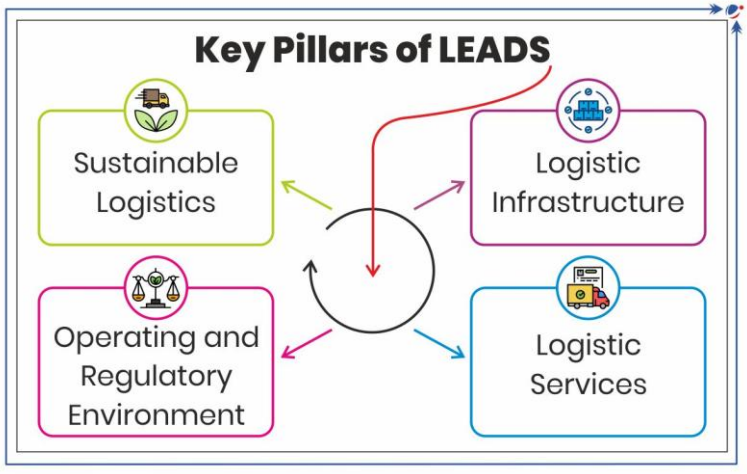
IIT Madras has partnered with the Ministry of Agriculture and Farmers Welfare on Project VISTAAR (**Virtually Integrated System to Access Agricultural Resources**)

About VISTAAR

- It is a "Network" of Networks (AI-augmented) and every State can build their own Agri-Advisory network.
- It is a comprehensive network that connects **decentralized databases** to provide seamless access to vital agricultural resources.
- **Objective:** Enhance decision-making and resource utilization
- **Significance**
    - Expand access to **high-quality advisory services** on crop production, marketing, **value addition**, and supply chain management.
    - Provide farmers with information on **relevant government schemes.**

3.9.10. LOGISTICS EASE ACROSS DIFFERENT STATES (LEADS) 2024' REPORT RELEASED

LEADS 2024 is has been released by the **Ministry of Commerce and Industry.**



About LEADS

- **Objective**: Provides insights into improvement of logistics performance at State/UT level.
    - LEADS was conceived on the lines of **Logistics Performance Index** (LPI) of **World Bank** in 2018.
        > While the LPI relies entirely on perception-based surveys, LEADS incorporates both perception as well as **objectivity**.
- **Parameters**: Evaluates logistics performance across four key pillars (refer to infographic).

- **Categories of State/UTs**: They are categorised into four groups **Coastal**, **Landlocked**, **Northeast** and **Union Territories.**
  - And further they are given tags of **Achievers**, **Fast movers**, and **Aspirers** on the basis of their performance.
- **Performance Highlights of 2024**
  - **Achievers:** Gujarat, Haryana, Assam, Chandigarh, etc.
  - **Fast movers**: Andhra Pradesh, Bihar, Himachal Pradesh etc.
  - **Aspirers**: Kerala, West Bengal, Manipur, Chhattisgarh, etc.

LEAD framework

Ministry also urged logistics sector to adopt **LEAD framework** – Longevity, Efficiency and Effectiveness, Accessibility and Accountability and Digitalisation of processes to transform the logistics sector.

- And also suggested following measures
  - Promotion of **green logistics** and **sustainable transport** initiatives.
  - Encouraging **public-private partnerships (PPPs)** to enhance **multi-modal logistics hubs**.
  - Develop **regional** and **city-level logistics plans** as well for last-mile connectivity.
  - Promote **gender inclusivity**

3.9.11. ENTITY LOCKER

The National eGovernance Division, under **Ministry of Electronics and Information Technology**, has developed **Entity Locker**.

About Entity Locker

- It is a secure, **cloud-based solution** that **simplifies storage, sharing, and verification of documents f**or large organisations, corporations, micro, small, and medium Enterprises,etc.
  - It is a **critical component of India's Digital Public Infrastructure.**
- **Entity Locker offer:**
  - **Real-time access and verification** of documents through integration with government databases
  - **Consent-based mechanisms** for secure sharing of sensitive information
  - **Aadhaar-authenticated role**-based access management to ensure accountability.
  - **10 GB of encrypted cloud storage and Legally valid digital signatures** for authenticating documents.

3.9.12. Z MORH TUNNEL (SONAMARG TUNNEL)

Prime Minister has inaugurated **Z-Morh tunnel in Ganderbal's Sonamarg area in J&K.**

About Z Morh Tunnel

- Initially started by BRO in 2015 and evolved with National Highways and Infrastructure Development Corporation Limited.
  - **APCO Infratech firm** has been **instrumental in executing** the project.
- Situated at an **altitude of 8,650 feet**, it is a **two-lane road tunnel** equipped with **parallel 7.5-metre-wide escape** passage.
- **Spanning 12 km** that includes **main 6.4 km main tunnel**, an egress tunnel, and approach roads.
- **Significance**:
  - **Enhance all-weather connectivity** between **Srinagar and Sonamarg enroute to Leh.**
  - **Ensure safe** and **uninterrupted access to Ladakh** region**.**
- Promote tourism by transforming Sonamarg, boosting winter tourism, adventure sports, and local livelihoods.

3.6.13. BANIHAL BYPASS

The Banihal bypass has been completed.

About Banihal Pass

- The pass is **2.35 km road section of NH-44 in Jammu and Kashmir,**

- NH44, also known as the Old NH 7, is the **longest national highway in India**.
- It stretches 3,745 kilometers, connecting **Srinagar** in the northern tip of Jammu and Kashmir to **Kanyakumari** at the southernmost point of India.

- The bypass is **particularly important for security forces**, enabling rapid movement, and will also r**educe the travel time between Kharpora, Banihal, and the Navyuga Tunnel** to just seven minutes.

3.9.14. ANJI KHAD BRIDGE

The Indian Railways has unveiled a monumental engineering achievement with the completion of the Anji Khad Bridge, **India's first cable-stayed rail bridge.**

Anji Khad Bridge: Key Details

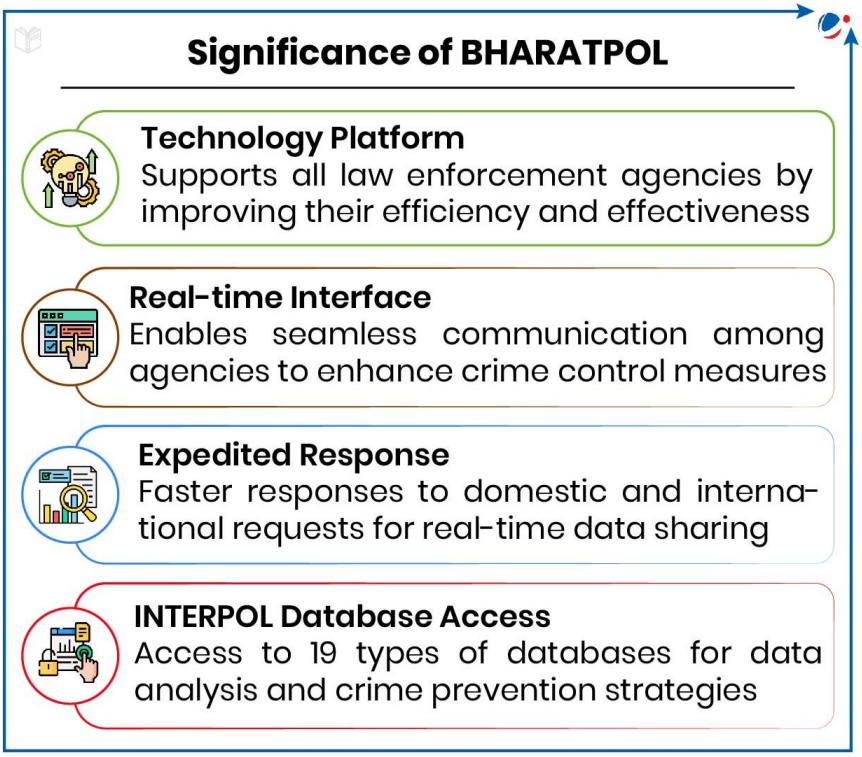
- **Location**: Reasi district, Jammu and Kashmir, part of the Udhampur-Srinagar-Baramulla Rail Link (USBRL) Project.
- **Dimensions**:
  - **Length:** 725.5 meters
  - **Height:** 331 meters above the Anji River (a tributary of the Chenab).
- **Significance**:
  - Enhances connectivity between **Katra** and **the Kashmir Valley.**
  - Expected to boost tourism and foster economic growth in Jammu and Kashmir.

4. SECURITY

4.1. INTERPOL

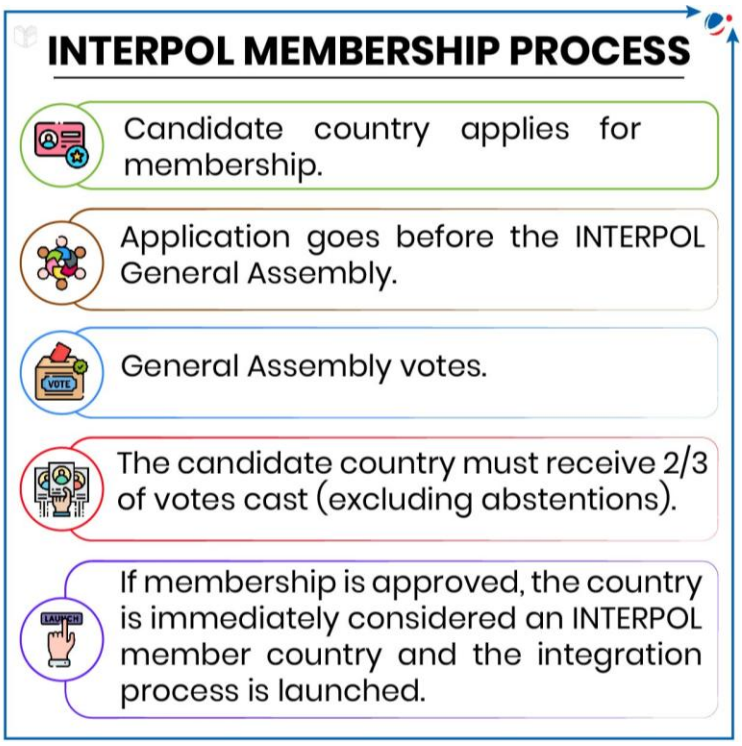
Why in the News?

INTERPOL issued its first Silver Notice in a 52-country pilot, including India, and Ministry of Home Affairs also launched BHARATPOL portal to seamlessly connect with INTERPOL.



About Bharatpol

- **Portal:** BHARATPOL is an **online portal for international police cooperation** developed by the Central Bureau of Investigation (CBI)
  - Through this, **every agency and police force in India** will be able to **seamlessly connect with INTERPOL**, thereby expediting investigations.
- **Five Key Modules:**
  - **Connect:** Will enable all law enforcement agencies to essentially function as an extension of INTERPOL's National Central Bureau (NCB-New Delhi).
  - **INTERPOL Notices:** System will ensure quick, secure, and structured **transmission of requests for INTERPOL notices**, enabling a scientific mechanism to swiftly locate criminals from India and across the globe, within India.
  - **References:** INTERPOL references from 196 countries will make it much simpler to **seek and provide international assistance for investigations abroad**.
  - **Broadcast:** Through this, **requests for assistance** from 195 countries will now be **immediately available**.
  - **Resources:** It will facilitate the **exchange and management of documents and capacity-building initiatives**.



About INTERPOL

- **Genesis:** Established as **International Criminal Police Commission (ICPC)** during 2nd International Police Congress in Vienna in **1923**.
  - It was **established as INTERPOL** – The International Criminal Police Organization – after **adoption of its Constitution in 1956** at its 25th General Assembly.
- **Members: 196 countries** including **India** as one of the **founding members**.
- **Headquarters:** Lyon, France.
- **National Central Bureau (NCBs):** Established by member countries as a **point of access for INTERPOL affairs.**

- NCBs connects with the General Secretariat via **INTERPOL's secure global police communications network** called **I-24/7**.
- **CBI is India's NCB** to the INTERPOL.

- **Governing Bodies:** The General Assembly and Executive Committee.
  - **General Assembly (GA)** is INTERPOL's **supreme governing body**, comprising representatives from each of our member countries, which meets once a year.
  - **13-member Executive Committee** is the governing body in charge of supervising the execution of the GA's decisions and administration and work of General Secretariat.
    - > It has **13 members** including President (elected for four years), which are **elected by the GA** and it meets thrice a year.
- **Notices:** INTERPOL's **colour coded notices** are **international requests for cooperation or alerts** allowing police in member countries to share critical crime-related information.
  - Notices are **published by the General Secretariat** at the request of a NCB and are made available to all our member countries.

Role of India in INTERPOL

- **CBI as National Central Bureau (NCB)**
  - **INTERPOL Liaison Officers (ILOs):** CBI connects all Indian law enforcement agencies (at the Central, and State/Union Territory levels) through designated ILOs.
    - > These ILOs **work in conjunction with Unit Officers (UOs)**, who typically hold positions such as Superintendents of Police, Police Commissioners, or Branch Chiefs within their respective organizations.
  - **Global Operations Centre (GOC):** GOC of CBI at New Delhi has been proactive in rendering expeditious **international law enforcement assistance** on references on a 24x7 basis.
- **INTERPOL Young Global Police Leaders Programme 2023:** Hosted by India to train young police leaders from across the world and help them develop an international perspective and understanding.

Need for International Police Cooperation

- **Transnational nature of crimes:** Crimes like money laundering, trafficking, and smuggling span borders.
  - For instance, INTERPOL launched **Operation HAECHI** for strengthening transnational coordination against cyber-enabled financial crimes.
- **New age criminal activities:** Emerging threats like cybercrime, radicalization, and trafficking exploit global legal gaps.

- For instance, in November 2024, **Operation Serengeti of INTERPOL** led to arrests of more than 1,000 suspected cybercriminals responsible for 35,000 victims in 19 countries across Africa.

- **Couter-terrorism efforts:** Intelligence-sharing and coordinated law enforcement actions are key to countering sophisticated networks terrorist network for financing, recruitment, and execution of attacks worldwide.
- **Strengthening legal assistance:** INTERPOL's **Operation FLASH-WEKA** was coordinated with participation of 54 countries to dismantle organized crime networks behind human trafficking in Africa.
- **Resource Optimization:** Pooling of resources is required for intelligence sharing, mitigating transnational crimes and tracking new age criminal activities.

Obstacles in International Police Cooperation

- **Legal and Procedural Disparities:** Variations in legal systems, criminal laws and human rights standards create conflicts in investigative procedures, evidence collection and prosecutions.
- **Cultural Barriers:** Language barriers impede effective communication, cultural differences create conflicts and varying levels of corruption undermine trust.
- **Resource limitations:** Disparities in technological capabilities hinder seamless information sharing and restrict participation in joint operations.
- **Political indifference:** Political tensions and conflicting national interests hinder comprehensive cooperation.

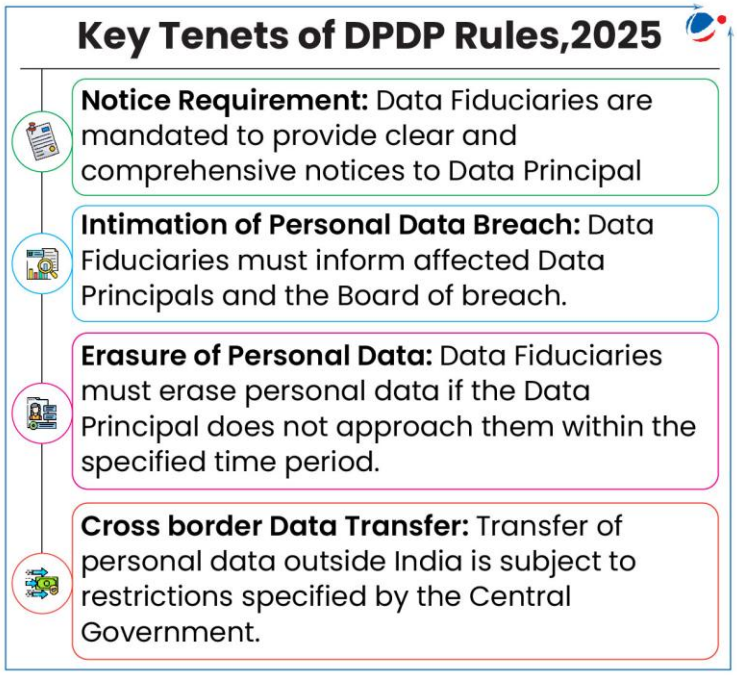
Conclusion

While challenges like jurisdictional conflicts, legal differences, and data privacy concerns persist, continuous collaboration, technological advancements, and diplomatic efforts can strengthen global policing efforts. As crime continues to evolve in an increasingly interconnected world, international police cooperation remains indispensable in fostering a safer and more just global society.

4.2. DRAFT DIGITAL PERSONAL DATA PROTECTION (DPDP) RULES 2025

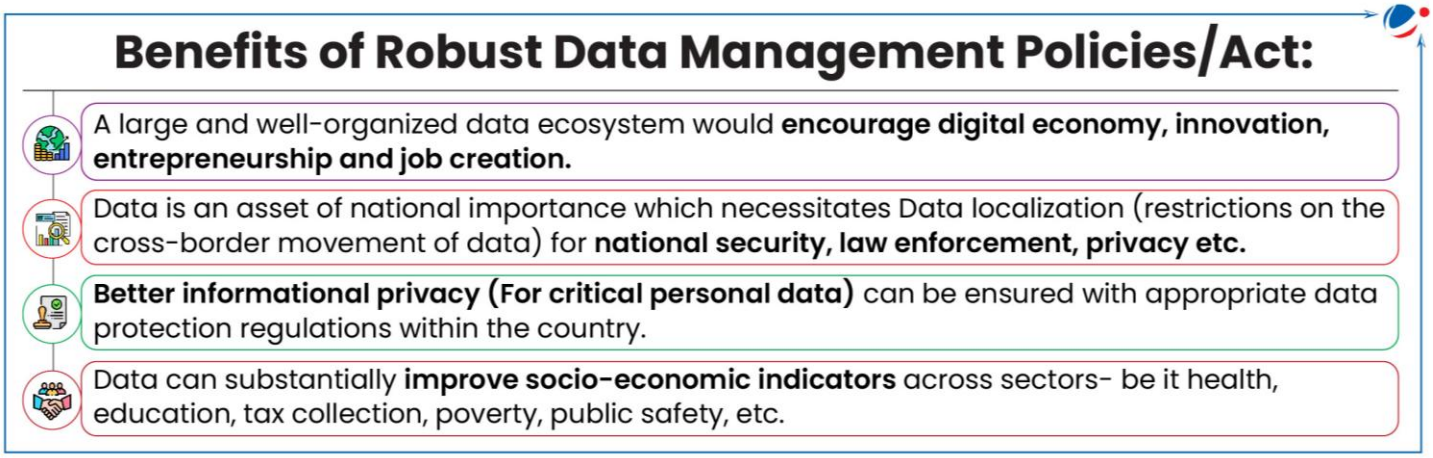
Why in the News?

Ministry of Electronics and Information Technology (MeitY) released draft Digital Personal Data Protection Rules, 2025 to facilitate implementation of Digital Personal Data Protection Act, 2023 (DPDP Act).



Brief Background of DPDP Act, 2023

- **Supreme Court's K S Puttaswamy judgment (2017**) recognized **right to privacy as a fundamental right under Article 21** and directed the government to establish a robust data protection regime.
- **In 2017, Justice B.N. Srikrishna Committee** examined data protection issues. Based on its recommendations, Personal Data Protection Bill, 2019 was introduced which was later withdrawn.
- MeitY released a **draft of the DPDP Bill 2022** for public consultations, which later became the DPDP Act 2023.



Digital Personal Data Protection Act, 2023

- **Primary objective of Act** is to establish a comprehensive framework for **Protection and Processing of Personal Data.**
- It protects **digital personal data** (means personal data in digital form) by providing for:
  - The obligations of **Data Fiduciaries** (that is, persons, companies and government entities who process data) for data processing;
  - The rights and duties **of Data Principals** (that is, the person to whom the data relates);
  - **Consent manager i.e., Person or entity** that is officially registered with Data Protection Board of India (DPBI).
    - > It provides transparent& interoperable platform to enable data principals to give, review, and withdraw their consent.
  - **Financial penalties** for breach of rights, duties, and obligations.

Key Provisions of Digital Personal Data Protection Act, 2023

Specifications	Detail

Applicability	• **Processing of digital personal data** within India where such data is collected:
	  ○ In digital form or
	  ○ In non-digital form and digitized subsequently.
	• **Processing of personal data outside India** if it is for offering goods or services in India.
	• **Does not apply to:**
	  ○ Personal data processed for any **personal purpose.**
	  ○ Personal data that is made or caused to be **made publicly available by-**
	  > Data Principal **to whom such personal data relates**; or
	  > any other person under legal obligation to make such personal data publicly available

Consent	• Personal data may be processed **only for a lawful purpose** after obtaining the **consent of the Data Principal** (who shall have the right to withdraw consent at any time). ○ Consent will not be required for **'legitimate uses'** including the provision of benefits or services by the government, medical emergency etc. • **For a child or a person with a disability**, consent will be provided by the parent or legal guardian.

Data Protection Board of India (DPBI)	• Provides for the **establishment of DPBI** by the **Central government.**
	• **Key functions of the Board:**
	  ○ Monitoring compliance and imposing penalties.
	  ○ Directing data fiduciaries to take necessary measures in event of a data breach.
	  ○ Hearing grievances made by affected persons.
	• Board members will be appointed for two years and will be **eligible for re-appointment.**

	• Appeals against decisions will lie with **Telecom Disputes Settlement and Appellate Tribunal.**
Rights and Duties of Data Principal	• **Data principal** will have the right to o **Obtain information** about processing. o **Seek correction and erasure of personal data**. o **Grievance redressal.** o **Right to nominate a person** to exercise rights in case of death or incapacity. • Data principals must not register a **false or frivolous complaint** and furnish any false particulars. • **Violation of duties will be punishable** with a penalty of up to Rs 10,000
Obligations of Data Fiduciaries	• **Data Fiduciary** (Entity determining the purpose and means of processing) must o Ensure the **accuracy and completeness of data.** o **Build reasonable security safeguards** to prevent a data breach. o **Inform DPBI and affected persons** in the event of a breach. o **Erase personal data** as soon as the purpose has been met and retention is not necessary for legal purposes.
Significant Data Fiduciaries (SDF)	• Central Government may **notify any Data Fiduciary as SDF,** based on factors such as: o **Volume and sensitivity of personal data** processed, Risk to the rights of data principal o **Potential impact on sovereignty and integrity** of India o **Security of the State**, Risk to electoral democracy and Public order • SDF will have **certain additional obligations** including appointing a data protection officer and an **independent data auditor** and **undertaking impact assessment.**
Parental Consent	• Under Section 9 of the DPDP, 2023 data fiduciaries must obtain **verifiable consent from parents or legal guardians** before processing children's data. o The Act also bans harmful data processing and ad targeting for children (Age below 18).
Exemptions	• **Rights of the data principal** and obligations of data fiduciaries (except data security) will not apply in specified cases, including: o **For notified agencies, in** the interest of security, sovereignty, public order, etc.; o **For research,** archiving or statistical purposes; o **For start-ups** or other notified categories of Data Fiduciaries; o **To enforce legal rights and claims**; o Prevention and investigation of offences; o **To perform judicial or regulatory functions;** o **To process in India personal data of non-residents** under foreign contract. • Central government **may exempt certain activities in the interest of the security** and public order.

Issues of DPDP Act:

- **Violate Fundamental Rights:** Exemptions for State may lead to data collection, processing, and retention beyond what is necessary and may violate fundamental right to privacy.
- **Missing Rights:** Act omits the right to data portability and the right to be forgotten (limiting online disclosure of personal data).
  - **Data portability** allows data principals to **obtain and transfer their data from data fiduciary** for their own use.
- **Cross-Border Data Transfer:** The Act allows unrestricted data transfer, with the government only restricting certain countries.
- **State Exemptions and Privacy Risks:** Act grants broad exemptions to State, allowing unchecked data processing that may violate privacy rights.
- **Lack of Harm Regulation:** Act does not address risks like identity theft, financial loss, or discrimination arising from data processing.
- **Data Protection Board Independence:** A two-year term with reappointment for Board members may impact independence, increasing executive influence. Other regulators like SEBI and CCI have five-year terms.

Way Forward

- **Adopt Global Best Practices:** Draw from international models like the EU-US Data Privacy Framework to enable secure cross-border data flows.
- **Encourage Bilateral Agreements:** Facilitate secure data transfers through international agreements, avoiding rigid isolationist mandates.
- **Regulatory Adaptability:** Continuously update frameworks to address emerging privacy risks and evolving technologies.
    - **Dedicated Task Force:** Establish an **AI-Privacy task force** to identify risks and co-create adaptive regulatory measures.
- **Clear definition:** Terms like sovereignty and integrity of India should be clearly defined along with a defined procedure to provide exemption.

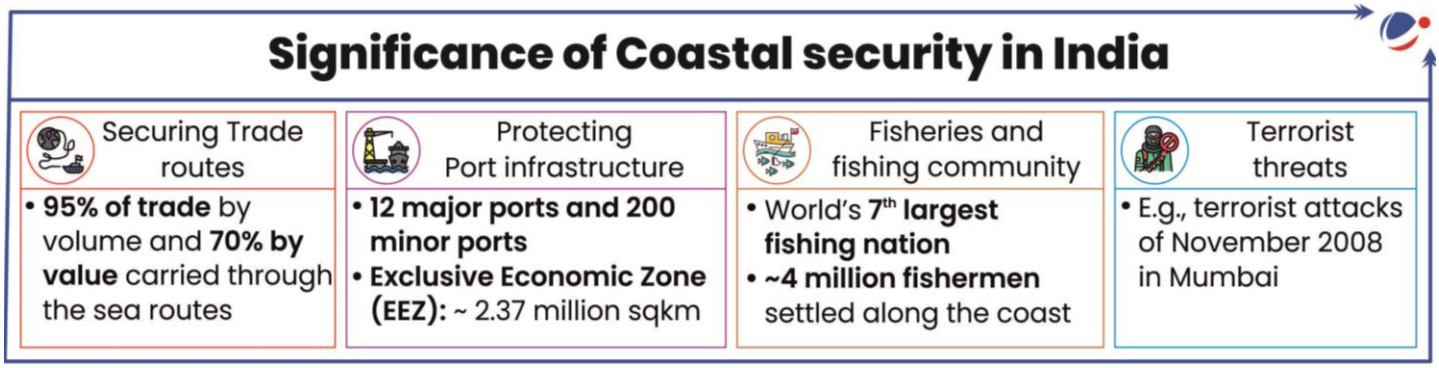
4.3. COASTAL SECURITY SCHEME

Why in the news?

During a review of the implementation of the **Coastal Security Scheme (CSS)** by the **Ministry of Home Affairs**, various **shortcomings were reported.**

About Coastal Security scheme (CSS)

- The scheme was formulated **in 2005 by the Ministry of Home Affairs (MHA)**.
- **Objective:** Strengthening infrastructure of Coastal Police for **patrolling and surveillance of coastal areas, particularly shallow waters close to the coast.**
- **Phases of the scheme**
    - **Phase-I (2005-2011):** Based on the requirements projected by **the coastal States/Union Territories.**
        - The government aided all the **coastal states and UTs to set up 73 coastal police stations (CPS), 97 check posts, 58 outposts and 30 operational barracks.**
    - **Phase-II (2011-2020):** On the basis of **vulnerability/gap analysis** carried out by coastal States/Union Territories which projected additional requirements for strengthening **the coastal security infrastructure.**
    - **Phase-III:** Currently under the **process of formulation** by the center**.**



Challenges to Coastal Security Mechanism in India

- **Topography and location:** India has a **7,516 km long coastline** with creek or rivulets, enabling multiple entry points and for **illegal migration and maritime terrorism.**
    - E.g., **Harami Nala**, in the Sir Creek area of Kutch, Gujarat which originates from **India and enters Pakistan** has become a **preferred route for infiltrators and smugglers**.
- **Insufficient Manpower in Indian Coast Guard (ICG):** Due to issues like recruitment challenges, tough selection processes, and limited operational capabilities
- **Poor Training**: The absence of **trained personnel at coastal patrolling and sea combat** operations affects the marine police and the Customs.
- **Inadequate infrastructure**: For instance, security in both **Gujarat and Maharashtra are greatly constrained by the lack of adequate infrastructure** in the form of office buildings, weapons, boats and vessels, etc.

- Comptroller and Auditor General (CAG), in a report presented in Parliament, said the **coastal security force** set up after the November 2008 Mumbai terror attacks still did not have full infrastructure.

- **Systemic Flaws:** These include **inter- and intra-agency confusion about areas of operational jurisdiction and lack of coordination, laws and procedures**, and governmental apathy.
- **Fishing Vessel Monitoring:** With over **300,000 registered fishing boats operating in Indian waters, distinguishing between legitimate fishing vessels** and those involved in illegal activities poses a significant challenge.
  - E.g., The **explosives used in the 1993 serial attacks in Mumbai** were smuggled through the Raigad coast in Maharashtra through a **fishing boat.**

Other Initiatives to Strengthen the Coastal Security

- **Maritime Security Modernization:** India's maritime **security agencies (Navy, Coast Guard, and Marine Police) are being upgraded with better capacity and new equipment** like ships, submarines, helicopters, radars, and satellites.
  - For E.g. The Andaman and Nicobar Command is a unified force of the three forces of Indian defense, **including the Indian Coast Guard Theatre Command.**
  - Under **Project Seabird**, the Indian Navy commissioned **INS Kadamba at Karwar, near Goa.**
- **Technical Surveillance System:** Projects and such as the **Coastal Surveillance Network, the National Command Control Communication and Intelligence Network (NC3I) and the National Maritime Domain Awareness Project** aims to provide a comprehensive and integrated picture of the maritime domain.
  - E.g., **The NC3I was established** to link the operational Centers and lower echelons of the Navy and the Coast Guard spread across the country's coastline, **including the island territories.**
- **Inter-agency coordination**: For E.g. **National Committee for Strengthening Maritime and Coastal Security, the National Maritime Security Coordinator, the Joint Operations Centers and the Coastal Security Operations Centers** help overcome the working in Silos features of agencies.
- **International Cooperation:**
  - **Security and Growth for All in the Region (SAGAR) initiative** emphasises regional cooperation, economic growth, and a secure maritime environment.
  - **Forums like the Indian Ocean Naval Symposium (IONS) and the Indian Ocean Rim Association (IORA)** provide platforms for dialogue, cooperation, and coordinated efforts to **address shared maritime challenges.**

Conclusion

In the era of **heighted coastal security concerns**, the government will have to **overcome the shortages in the existing coastal security architecture**. There is a need to **sustain the initiatives, recruit manpower**, and **ensure greater co-ordination among ICG, Indian Navy and other stakeholders** to strengthen the overall **national security.** Moreover, infrastructure for monitoring and surveillance can be improved and the standard and quality of personnel training can be strengthened.

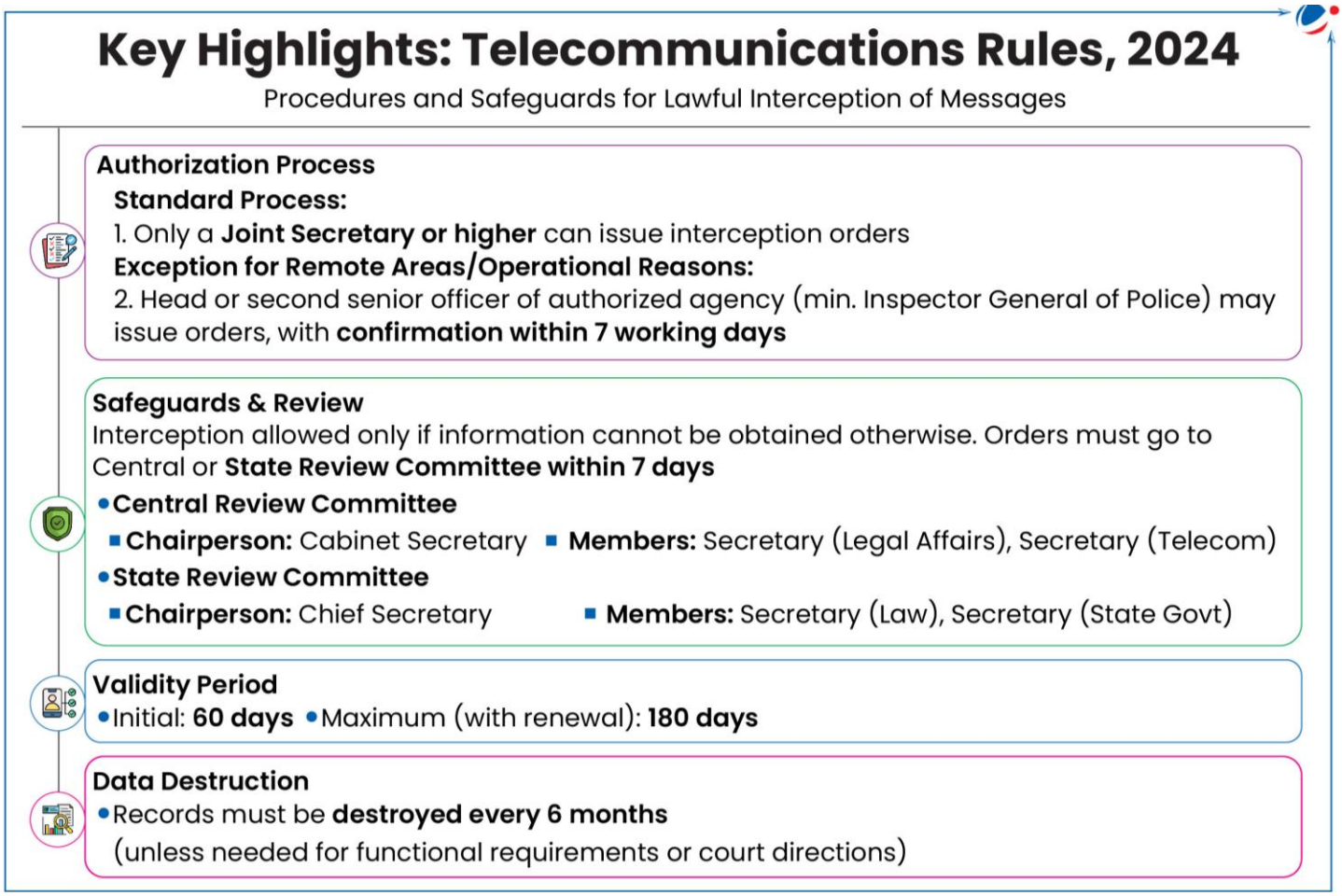
4.4. TELECOMMUNICATIONS (PROCEDURES AND SAFEGUARDS FOR LAWFUL INTERCEPTION OF MESSAGES) RULES, 2024

Why in the News?

Union Government notified the **Telecommunications (Procedures and Safeguards for Lawful Interception of Messages) Rules, 2024 that allows interception in India.**

Key provisions of New Rules 2024

- **Legal Basis**: Notified under Section 56 of the **Telecommunications Act, 2023**. Supersedes **Rules 419 & 419A** of the Indian Telegraph Rules, 1951.
- **Authorised Agencies**: The **Central Government** may authorize agencies to **intercept messages** in case of a **public emergency** or **public safety concerns**, with approval from the **Competent Authority**.



Legality of interception in India

- **Telecommunication Act 2023:** It repealed Indian Telegraph Act 1885 and Indian Wireless Telegraph Act 1933, which allowed the government to monitor communications.
  - It provides for intercepting telecom devices on occurrence of any **public emergency or in interest of public safety**.
- **Information Technology (IT) Act 2000:** It allows interception of **all electronic transmission of data.**
  - **Section 69** empowers central or state government to intercept or monitor or decrypt any information generated, transmitted, received or stored in any computer resource.
  - **IT (Procedure and Safeguards for Interception, Monitoring and Decryption of Information) Rules 2009** provides that the **competent authority may authorise an agency of the Government** to intercept, monitor or decrypt information generated, transmitted, received or stored in any computer resource.
- **People's Union for Civil Liberties (PUCL) vs Union of India (1996) Case:** Supreme Court held that **phone tapping is an infringement on the right to freedom of speech and expression** under Article 19 of the Constitution.
  - However, it is **permissible only** if it comes within the grounds of **restrictions under Article 19(2)**.

Concerns with Interception rules

- **Privacy Concerns:** Telecommunication Act's **definition** of telecommunications as the "transmission, emission, or reception of any messages, by wire, radio, optical, or other electromagnetic systems" is so **broad** that it could **cover all mobile phone traffic**, including Internet-based activity.
  - This could extend interception orders to encrypted messaging platforms like WhatsApp, **bringing encrypting systems under surveillance**.
- **Lack of clarity:** Lack of definition of public emergency and public order may allow the state to justify intercepting communications **for trivial or politically motivated reasons** rather than legitimate national security concerns.

- **Concentration of powers:** It gives officials of similar rank within the **executive branch the power to both issue and review** interception orders, **undermining impartiality** in the review process.
  - It creates an environment where **politically motivated or unlawful interceptions may go unchecked, bypassing independent oversight from Parliament or the judiciary**—key pillars of democratic accountability.
- **Indefinite retention in some cases:** Rules allow the indefinite retention of intercepted messages for functional purposes with no clear time limit.
- **Lack of protection for Telecom Service Providers (TSPs):** Without safeguards for TSPs, they may be tempted to collude with authorities, ignoring unauthorized surveillance.
- **Lack of Accountability:** Deletion of records of interception could place the interception of private information by the Competent Authorities **beyond the scope of public scrutiny** by mechanisms such as the RTI.

Way Forward

- **Limit subjective interpretation:** Clearly define the terms such as public emergency and public order etc. to ensure interception is **strictly for national security**, not political misuse.
- **Establish an independent oversight body:** Establish a parliamentary or judicial review board to oversee interception orders and ensure compliance with legal provisions.
- **Protection to TSPs:** TSPs be provided legal safeguards and liabilities against arbitrary requests for interception.
- **Accountability:**
  - **Mandate a periodic audit of interception records** by an independent authority to prevent potential misuse.
  - Develop a mechanism for **periodic public reporting on the number and nature of interceptions,** while maintaining national security confidentiality.
  - **Competent authority needs to be held accountable through impartial review** for any wilful misuse of interception powers.

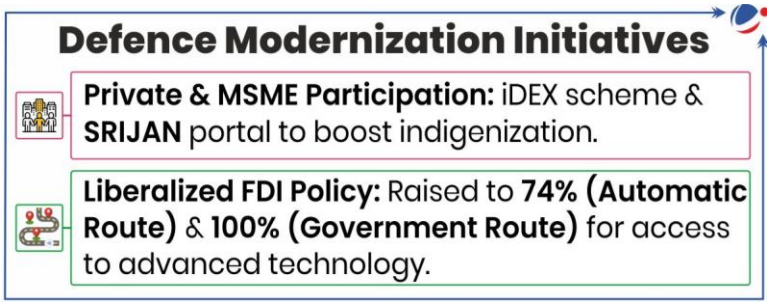
4.5. NEWS IN SHORTS

4.5.1. MINISTRY OF DEFENSE DECLARES 2025 AS 'YEAR OF REFORMS'

The declarations aims at modernization of the Armed Forces into a technologically-advanced combat-ready force capable of multi-domain integrated operations and give impetus to the ongoing and future reforms.

Identified areas for focussed interventions

- **Integrated Theatre Commands (ITCs)**: To bolster **Jointness & Integration initiatives** to facilitate establishment of ITCs.
  - ITCs are **tri-service** commands **incorporating** units from the **Army, Navy, and Air Force**, **collectively** for addressing security challenges within **designated geographic areas**.
- **Emerging technologies and new domains**: Focus on **Cyber and Space** domains, **AI/ML, Hypersonics,** etc., to be future war-ready.
- **Technology transfer and knowledge sharing**: To be facilitated through enhanced **ease of doing business** and **PPP**.
- **Collaboration**: Breaking **silos**, promoting **civil-military coordination** and developing **joint operational capabilities** through **inter-service cooperation & training**.
- **Defence exports and R&D:** Position India as a **credible exporter** of defence products, **fostering R&D and partnerships**.



4.5.2. FRONTIER TECHNOLOGIES IN WARFARE

Raksha Mantri said that "Mastering frontier technologies is need of the hour".

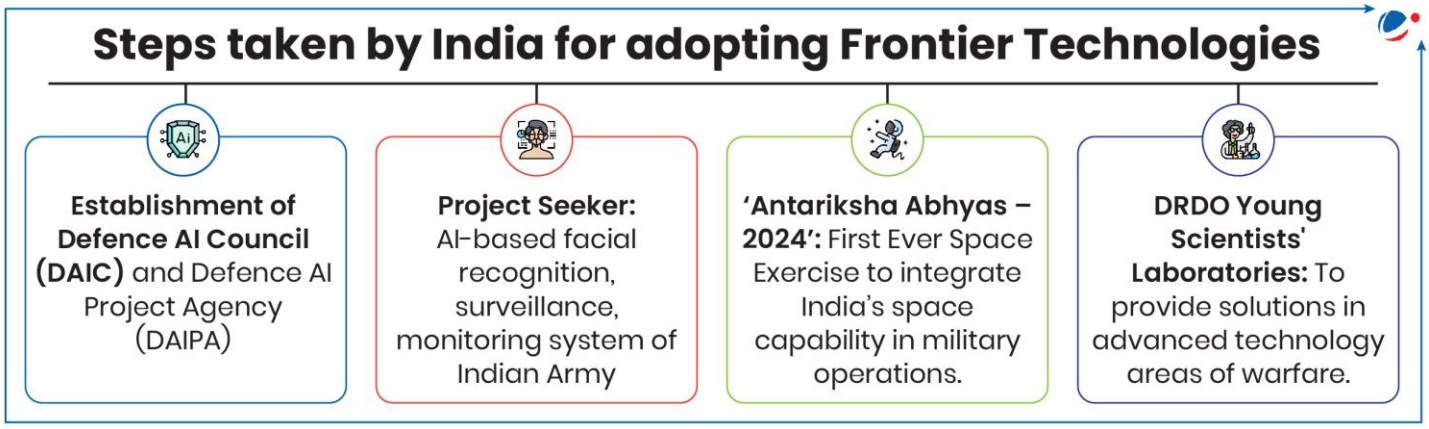
- Frontier technologies such as **AI, proxy warfare, space warfare** and **cyber-attacks** are posing a big challenge and **reshaping nature of warfare.**

Frontier Technologies in Warfare

- **AI based warfare:** AI based tools are designed to assist complex decisions like target selection, collateral damage assessments, providing recommendation etc. **e.g. AI-powered drones**
- **Electromagnetic warfare:** It is a military capability that exploits electromagnetic energy across the battlespace to create offensive and defensive effects.
- **Space warfare:** Military operations in outer space, utilizing both kinetic (physical) and non-kinetic (electronic, cyber) means to achieve strategic objectives. **E.g. Anti-satellite (ASAT) weapons**
- **Cyber attacks:** it is deliberate exploitation of computer systems to steal critical data of a country. **E.g. cybersecurity breach at Kudankulam Nuclear Power Plant**

Issues with Frontier Technologies

- **Challenges to International Security:** Increased risk of destabilization due to asymmetry in technological capabilities and Proliferation of advanced technologies to non-state actors**.**
- **Legal gaps:** lack of international laws on use of these technologies in warfare further increases vulnerability of human rights violation.
- **Dual use dilemma:** Technologies designed for peaceful purposes can be repurposed for military applications, blurring lines between civilian and military tech use.
- **Other Issues:** Risks of algorithmic bias, accountability issues, potential for AI arms races etc.



To know more about technological absorption in Defence, refer to Article 4.2. Technology Absorption in Defence in May 2024 Monthly Current Affairs Magazine.

4.5.3. INDIAN CYBERCRIME COORDINATION CENTRE

Recently, the **Union Finance Minister asked banks to complete Indian Cybercrime Coordination Centre (I4C) integration** to check financial frauds.

- After the integration, any complaint on financial fraud will be routed to the concerned bank for **speedy remedial action.**

About Indian Cybercrime Coordination Centre

- **Ministry**: Ministry of Home Affairs
- **Objectives:**
  - **Serve as a central hub** to combat cybercrime, particularly against women and children, by **simplifying complaint filing and trend analysis.**
  - Provide **early warnings and proactive measures** for law enforcement while enhancing **public awareness**
  - Support **capacity building for police, prosecutors, and judicial officers** in cyber-related fields.

4.5.4. PIG-BUTCHERING SCAM

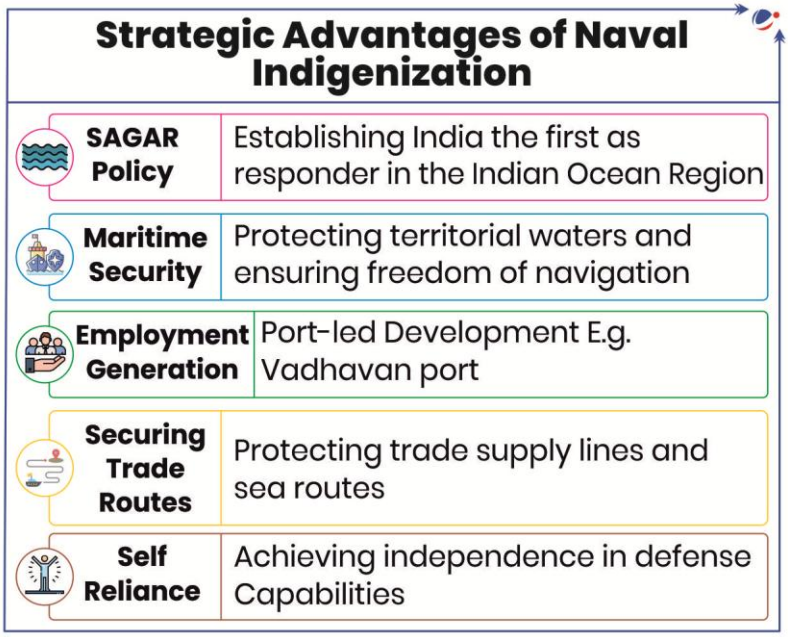
Union Ministry of Home Affairs in its **annual report of 2023-24** highlighted the new cyber fraud known as the **"pig butchering scam"** or **"investment scam".**

About Pig-Butchering scam

- It is a global phenomenon and involves **large-scale money laundering** and **even cyber slavery**.
- It is a **type of confidence and investment fraud** in which the victim is gradually lured into making increasing **monetary contributions to a seemingly sound investment** before the scammer disappears with the contributed monies.
- **Scammers target** mostly unemployed youths, housewives, students, etc.

4.5.5. NAVAL COMBATANTS – INS SURAT, INS NILGIRI AND INS VAGHSHEER COMMISSIONED

This **first tri-commissioning** of indigenously developed destroyer, frigate and submarine marks a significant step towards realizing India's vision of becoming global leader in naval indigenisation and maritime security.



About three frontline naval combatants

- **INS Surat**: **4th and final ship** of the **P15B Guided Missile Destroyer Project**.
- **INS Nilgiri: 1st ship** of the **P17A Stealth Frigate Project** designed by the **Indian Navy's Warship Design Bureau.**
- **INS Vaghsheer: 6th and final** submarine of the **P75 Scorpene Project** built by **Mumbai-based Mazagon Dock Limited**.
  - It is an **indigenously constructed submarine** of the **Kalvari-class** based on **French Scorpene-class** design.

India's Naval Indigenization efforts

- **Policies:**
  - **Indian Navy's Maritime Capability Perspective Plan (MCPP):** Targets a force of **200 ships by 2027** with a vision of transforming it from a **buyer's navy to a builder's navy.**
  - **Indian Naval Indigenisation Plan (INIP) 2015-2030**: Encourages **domestic industries** including **MSMEs** to participate in ship construction.
- **Navy's expansion of Make in India initiative**: Of the **40 naval vessels** included in the Navy in the **past decade, 39** have been **built in Indian shipyards**.
  - E.g. **INS Vikrant (aircraft carrier), INS Arihant and INS Arighat (nuclear submarines).**
- **R&D initiatives**: **Underwater Domain Awareness (Samudrayaan project)**, Scientific partnerships with **Indian Ocean Rim** countries and development of **autonomous systems** for high-risk environments like mine detection**.**

4.5.6. ANTI-TANK GUIDED MISSILE (ATGM)- NAG MK 2

DRDO has announced that field evaluation trials of ATGM- Nag-Mk 2 were successfully conducted recently at Pokhran Field Range in Rajasthan.

About ATGM- Nag Mk 2

- Indigenously-developed **third-generation** ATGM**.**

- It uses **advanced fire-and-forget technology**, allowing operators to **lock onto targets before launch** and **strike with pinpoint accuracy**, even in complex battlefield environments.
- It is **capable of neutralising modern armoured vehicles** equipped with explosive reactive armour.
- **Guidance:** Passive Homing through IIR Seeker.
  - An **Imaging Infra-Red (IIR) seeker** is a system that **uses infrared to detect and track targets.**
- **Operation**: Day & Night

4.5.7. BHARGAVASTRA

India has successfully tested its **first indigenous micro-missile system,** Bhargavastra, designed to counter the **threat of** swarm drones.

- Swarm drones are **multiple unmanned aerial vehicles (UAVs) working together** as a **coordinated system.**

Key Features of Bhargavastra

- **Detection Capability:** Capable of detecting small incoming drones at **distances exceeding 6 kilometers.**
- **Rapid Response:** Designed for rapid deployment on mobile platforms.
- **Multi-**Target Engagement: can simultaneously detect and track & engage up to 64 targets.
- **Guided Micro Munitions:** Utilizes micro munitions that can be guided towards identified threats.

4.5.8. PRALAY MISSILE AND PINAKA ROCKET

Tactical ballistic missile Pralay & long-range Pinaka rocket system will be part of Republic Day parade.

About Pralay missile

- **Surface-to-surface** short-range ballistic missile (SRBM)
- Developed by **Defence Research and Development Organisation.**
- **Missile has a range of 150-500 km** and can be launched from a mobile launcher.
- **Missile guidance system** includes a state-of-the-art navigation system and integrated avionics.

About Pinaka Pinaka multi-barrel rocket launcher (MBRL) system

- It is a **long-range artillery system** capable of **striking targets up to 75 kilometers** away.
- **Developed by** DRDO, it has multiple variants, which offer flexibility in terms of payload, firepower, and range.

4.5.9. EURODRONE

India has joined **Eurodrone programme** as an observer member.

- **Eurodrone** or **European Medium Altitude Long Endurance Remotely Piloted Aircraft System (MALE RPAS)** is a twin-turboprop MALE unmanned aerial vehicle (UAV).
- It can be used for long-endurance missions such as intelligence, surveillance, target acquisition, and reconnaissance (ISTAR), maritime surveillance, etc.

About Eurodrone programme

- **Members:** Four-nation initiative involving Germany, France, Italy, and Spain.
- **Led by:** the Organisation for Joint Armament Cooperation (OCCAR).

4.5.10. SANJAY SYSTEM

The Defence Minister recently launched **SANJAY**, an advanced **Battlefield Surveillance System (BSS)**, to enhance the Indian Army's surveillance and reconnaissance capabilities.

About SANJAY System

- **It is** jointly developed by the **Indian Army & Bharat Electronics Limited** (BEL), in line with the **'Aatmanirbhar Bharat'** initiative.

- It creates a **unified surveillance picture of the battlefield** via the Army Data Network and Satellite Communication Network by processing the gathered information.
    - The system is designed to **seamlessly integrate data** from both **ground and aerial battlefield sensors**.

4.5.11. EXERCISES IN NEWS

Surya Kiran	Indian Army contingent left for Nepal to take part in the **18th Battalion Level Joint Military Exercise, SURYA KIRAN**. • It is an **annual Joint military exercise** between India and Nepal conducted alternatively in two countries.
La Perouse	Navies of **nine Indo-Pacific countries**, **including India**, took part in a multilateral exercise, **La Perouse.** **About La Perouse** • It is **hosted by France** in **strategic straits of Malacca, Sunda, and Lombok**, between Indian Ocean and Pacific Ocean. • **Participating countries:** Australia, Canada, USA, France, **India**, Indonesia, Malaysia, United Kingdom, Singapore. • **Aim: Develop common Maritime Situational Awareness** by enhancing cooperation in field of maritime surveillance, maritime interdiction operations and air operations.

5. ENVIRONMENT

5.1. ANNUAL GROUND WATER QUALITY REPORT 2024

Why in the news?

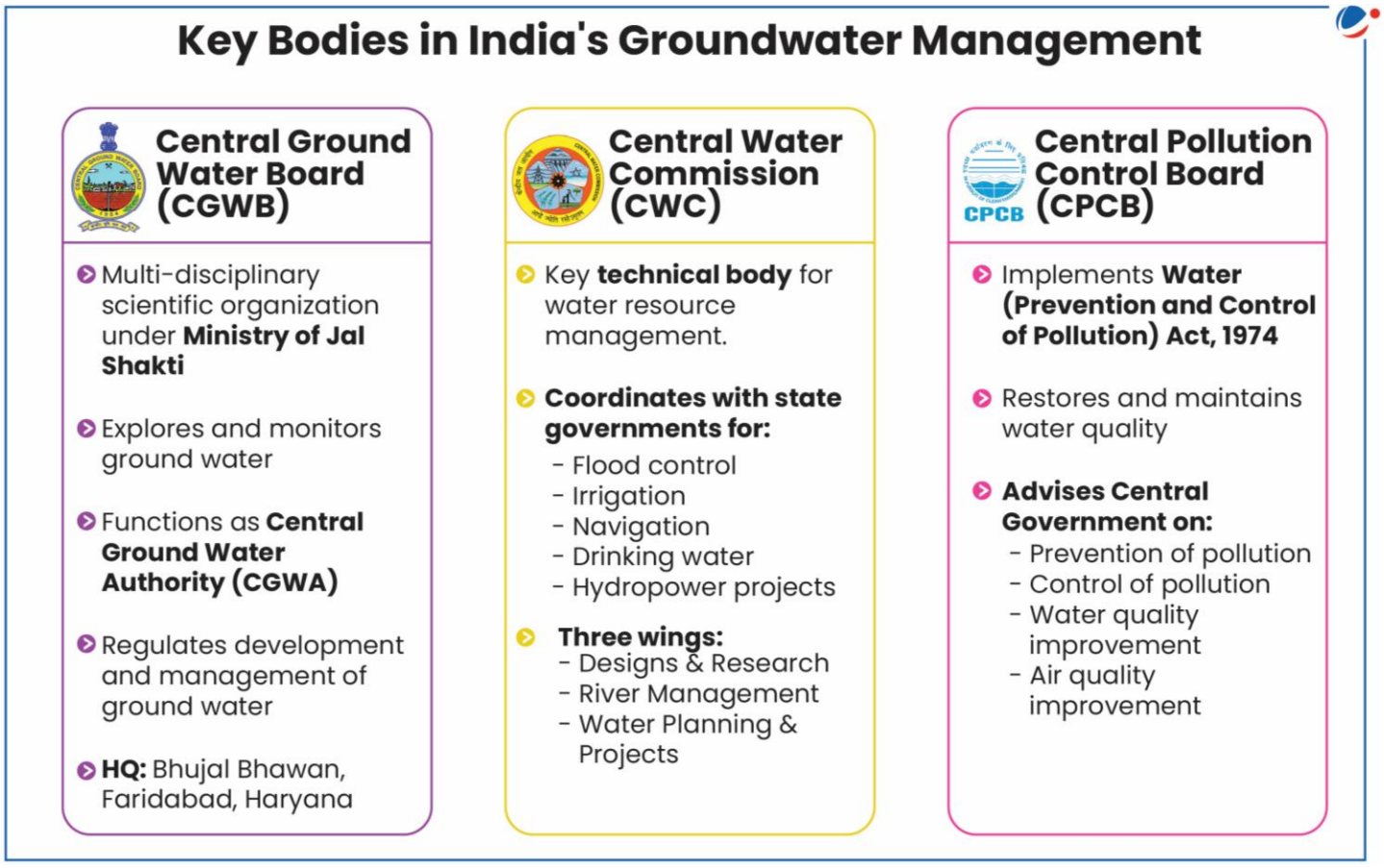
Ministry of Jal Shakti, released Annual Ground Water Quality Report for the entire country for the year 2024.

More on the News

- **Assessment Authority**: Conducted by the **Central Ground Water Board (CGWB).**
- **SOP Adoption**: Adopt a Standard Operating Procedures (SOPs) for uniform and reliable groundwater quality monitoring.
- **Relevance**: Serves as a crucial reference **for policymakers, researchers, and stakeholders** engaged in groundwater management.

Do you know

> The **global use of freshwater has increased six-fold over the past 100 years,** with **a growth rate of about 1% per year** since the 1980s (World Water Development Report, 2021).

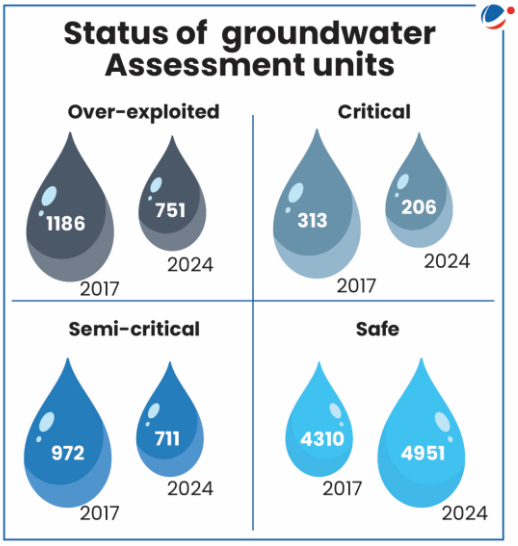


Key Findings on Groundwater Quality in India

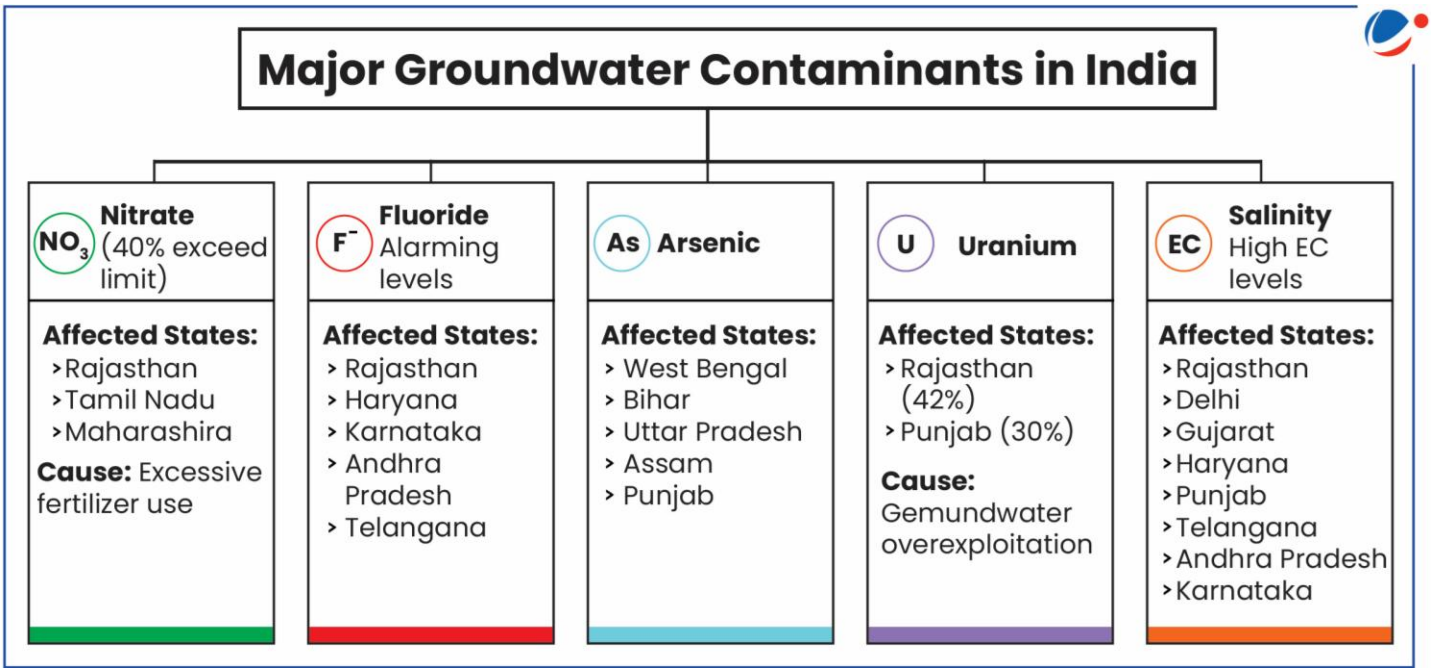
- **Groundwater Usage:**
  - India is the **largest user** of groundwater and has **the largest area** under groundwater irrigation in the world**.**
  - **87% of extracted groundwater** is used in **agriculture and 11%** is used **for domestic purposes.**
- **Recharge**: Total **Annual GW Recharge has increased** (15 BCM) substantially and **Extraction has declined** (3 BCM) in 2024 from 2017 assessment.
  - **Groundwater Extraction Categories:**
  - **Safe (<70%)**: Most states/UTs, including Andhra Pradesh, Assam, Bihar, Maharashtra.

- **Semi-Critical (70-90%)**: Tamil Nadu, Uttar Pradesh, Puducherry, Chandigarh.
- **Critical (90-100%)**: No states/UTs.
- **Over-Exploited (>100%)**: Punjab, Rajasthan, Dadra & Nagar Haveli, Daman & Diu, Haryana, Delhi.

- **Chemical Composition**:
  - **Cations**: Calcium dominates, followed by sodium and potassium.
  - **Anions**: Bicarbonate is most prevalent, followed by chloride and sulfate.
    - > **Rajasthan and Gujarat** experience **high chloride** due to natural Na-Cl formations.
  - **Overall Type**: Calcium-Bicarbonate water.
    - > **Overextraction and repeated wetting-drying cycles increase salt concentration**, worsening groundwater salinity.



- **Agricultural Suitability**:
  - Over **81% of groundwater** samples are safe for irrigation.
  - Some areas have high **Sodium Absorption Rate (SAR) and Residual Sodium Carbonate (RSC)** levels, requiring targeted interventions to prevent soil degradation.
  - **North-Eastern States**: 100% of samples are excellent for irrigation.
- **Regional Variations**
  - **Clean Water:** 100% of samples met BIS standards in Arunachal Pradesh, Mizoram, Meghalaya, and Jammu & Kashmir.
  - **Contaminated Regions: Rajasthan, Haryana, and Andhra Pradesh** face widespread contamination.
  - **Salinity Concern:** Rising **electrical conductivity (EC) in Barmer and Jodhpur (Rajasthan)** indicates worsening groundwater **salinization.**
- **Seasonal Trends**: Electrical Conductivity (EC) and fluoride levels indicate positive effects of monsoon recharge, improving water quality.



Key Factors behind Groundwater Pollution

- **Industrial Pollution**: Discharge of untreated industrial waste (heavy metals, chemicals, solvents) contaminates groundwater.

- **Harmful Agricultural Practices**: Excessive fertilizers and pesticides lead to nitrate contamination. Over-extraction for irrigation depletes aquifers and increases salinity.
- **Urbanization & Waste Mismanagement**: Sewage leaks, landfill runoff, and industrial effluents pollute shallow aquifers.
- **Climate Change Impact**: Altered rainfall patterns and overuse hinder aquifer replenishment, worsening water quality.
- **Institutional and Management Gaps**: Multiple agencies and outdated laws (**1882 Indian Easement Act**) result in fragmented policies and unregulated private wells.
    - **Poor data and unclear aquifer boundaries** make management difficult.

Steps Taken for Groundwater Management

- **Atal Bhujal Yojana (ATAL JAL):** Focuses on community participation and demand-side interventions for sustainable groundwater management in water-stressed Gram Panchayats across 7 states.
- **Jal Shakti Abhiyan**: this initiative focused on water conservation and rainwater harvesting in water-stressed districts. It expanded as "**Catch the Rain**" in 2021, covering all districts nationwide.
- **Mission Amrit Sarovar (2022**): To create or rejuvenate 75 Amrit Sarovars in every district to enhance water harvesting and conservation.
- **"Bhu-Neer" Portal**: Provides detailed information on the legal framework for groundwater extraction, including state and national regulations
- **National Aquifer Mapping & Management Programme (NAQUIM):** CGWB maps major aquifers, creates sustainable use plans.
- **Heliborne Geophysical Surveys**: CGWB conducts high-resolution surveys in stressed areas, covering 1 lakh sq km in NW India.
- **Master Plan for Artificial Recharge**: For rainwater harvesting and recharge structures.
- **Model Bill for Groundwater Regulation**: Issued for states/UTs to regulate groundwater ns.
- **State Programs for Watershed Development:** Many states implement watershed programs that incorporate groundwater conservation, including through MGNREGA.

Way Forward for Groundwater Management

- **Institutional Reforms: Create a National Water Commission (NWC) by merging** CWC & CGWB for integrated water management **(Mihir Shah Committee).**
- **Legal Reforms**: Separate **groundwater rights from land ownership** & empower local bodies for regulation.
    - **Formalize groundwater rights to empower marginalized communities** and farmers, enabling legal access and financial opportunities.
- **Sustainable Water Practices**
    - **Water-Efficient Agriculture**: Promote crop diversification, drip irrigation & zero tillage.
    - **Rainwater Harvesting**: Scale up traditional systems like Rajasthan's JOHAD for aquifer recharge.
    - **Artificial Recharge**: Use recharge techniques to prevent saltwater intrusion & land subsidence.
    - **Blue-Green Infrastructure**: Integrate green spaces (parks, trees) and blue spaces (rivers, wetlands) to rejuvenate aquifers and water bodies.
- **Community Empowerment**: Support local programs like Telangana's **MISSION KAKATIYA** for better conservation.
    - Mission Kakatiya involves **development of minor irrigation infrastructure, strengthening community based irrigation management** and adopting a comprehensive programme for restoration of tanks.

Scan the QR code to know more about **Indias's Water**

Weekly Focus #125- Reforming India's Water Governance To Meet Emerging Challenges

5.2. 150 YEARS OF INDIA METEOROLOGICAL DEPARTMENT (IMD)

Why in the news?

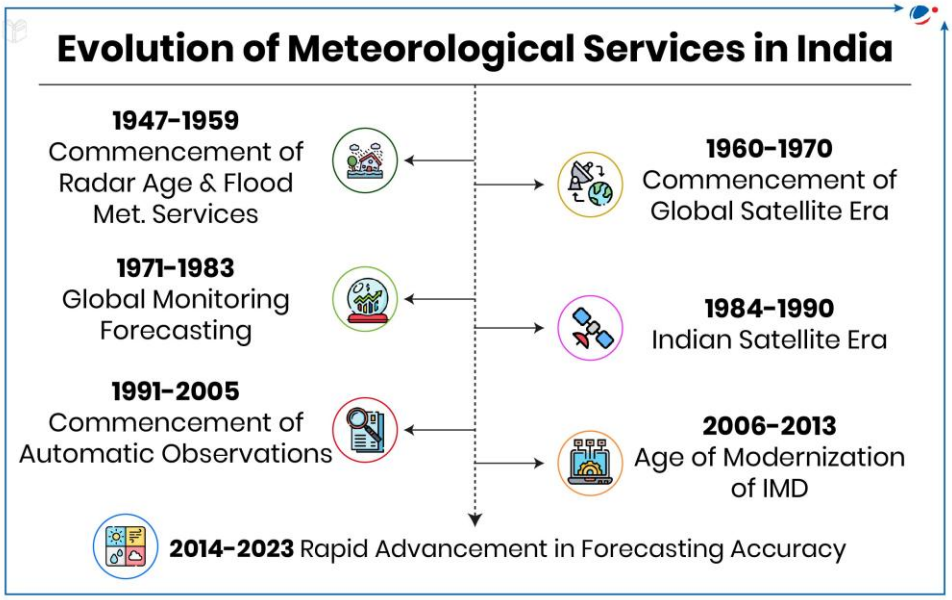
Marking 150 years of IMD, the Prime Minister launched Mission Mausam.

About the Mission Mausam

- **Ministry**: Ministry of Earth Sciences (MoES).
- **Aim:** Making India a "**Weather-ready and Climate-smart**" nation to mitigate the impact of climate change and extreme weather events and strengthen the resilience of communities.
- **Implementation:** The **Phase-I** of Mission Mausam will be implemented during 2024-26 and **Phase-II** will be implemented during 2026-31 in the next financial cycle.
- **Implementation: IMD, the Indian Institute of Tropical Meteorology**; Pune, and the **National Centre for Medium-Range Weather Forecasting**; Noida.
- **Target beneficiaries:** General public and numerous sectors, such as agriculture, disaster management, defense, environment, aviation, water resources, power, tourism, shipping, transport, energy, health etc.
  - It can improve the short- and medium-range weather forecast accuracy by about 5-10%.

History and Background of Meteorology in India

- **Background: In 1636 Halley, a British scientist** published **treatise on the Indian monsoon**, which he attributed to a seasonal reversal of winds due to the differential heating of the Asian land mass and the Indian Ocean.
- **History of IMD**
  - **Genesis: 1875**.
  - **Headquarters: New Delhi.** (Initially it was Calcutta).
  - **The first Director General of** Observatories was **Sir John Eliot,** who was appointed in **May 1889 at Calcutta headquarters.**
- **Evolution post 1947**
  - **Ministry:** Ministry of Earth Sciences (MoES).
  - **First organization in India to have a message switching computer:** For supporting its global data exchange.
  - **One of the first few electronic computers introduced in the country** was provided to IMD for scientific applications in meteorology.



- **India was the first developing country i**n the world to have its own geostationary satellite**, INSAT**, for continuous weather monitoring of this part of the globe and particularly for cyclone warning.
- **International help:** It provides Cyclone forecast and warning services to 13 north Indian Ocean countries along with forecast and warning services to SAARC nations.

Major achievements of the IMD

- **Pioneering accurate Weather Observations:** From manual observations to the deployment of state-of-the-art Automatic Weather Stations (AWS), IMD collects reliable weather data forming the backbone of our forecasts and services.
  - Automatic Weather Stations increased from **675 in 2014 to 1,208 in 2024.** Rainfall Monitoring Stations have increased from **3,995 to 6,095.**

- **Advances in Numerical Weather Prediction:** Provide accurate forecasts for up to **7 days with the outlook for 15 days, 1 month and a season**.
- **Monsoon Predictions:** Over the years, IMD has easily perfected the art of monsoon forecasting, to predict **seasonal rainfall patterns since 1886.**
- **Disaster Preparedness and Mitigation**: Accurate cyclone warnings by IMD have reduced the number of deaths **from 10,000 in 1999 to near zero in 2020-2024.**
    - There are two geostationary satellites, viz., INSAT-3D and INSAT-3DR in 2023 against only one such satellite INSAT-3D in 2014 for more advanced information about disasters.
- **Boost to telecommunication:** Directorate of telecommunication was established in 1970 along with high speed switching computers in 1970 and Delhi became the Regional Telecommunication Hub.
- **Support to Aviation, Agriculture, and Other Sectors:** Specialized services for aviation, agriculture, energy, and water resource from flight safety to crop advisories.
    - **Tropical Cyclone Advisory for International Civil Aviation** commenced in 2003 from IMD New Delhi and it acted as one of the seven Tropical Cyclone Advisory Centre (TCAC) as per the requirement of ICAO.
- **Meteorological support for inland water and surface transport:** Flood Meteorological Offices (FMOs) have been set up by IMD at fifteen locations and they provide valuable meteorological support mainly in the form of river subbasin-wise Quantitative Precipitation Forecast (QPF).
    - It played pivotal role in predicting the heavy to very heavy rainfall in **Mumbai and north Konkan** areas during the monsoon season IN 2017 and avoid casualties.

Challenges in front of IMD

- **Climate change:** Unpredictable weather events such as extreme rainfall highlight the need for accelerated improvements in observational and communication systems to tackle emerging challenges.
    - **The IMD's 12 km x 12 km grid means each cell covers 144 square kilometers**. While this broader coverage is beneficial, it significantly hampers the accuracy of localized weather predictions, such as hailstorms or heavy rainfall, which can vary greatly within small areas of 2-3 square kilometers.
- **Early warning in case of disasters:** Need to account for the increasing frequency and intensity of extreme weather events, particularly on smaller spatial and temporal scales, such as thunderstorms.
    - IMD can predict **heat waves with 97-99%** accuracy **24 hours in advance,** but its accuracy for **heavy rainfall events is under 80%**, highlighting a gap in forecasting that could lead to disasters.
- **Weather data limited regions**: India has **56 RS/RW (Radiosonde/Radiowind) observation stations**, which are insufficient to accurately monitor upper air observations in a tropical India. They are as high as 120 in China.
- **Unpredictability of monsoon:** There are more weather systems in the mid-latitudes or at the poles, which are more predictable. Monsoon, which are more transient and chaotic and hard to predict.
    - In 2012 IMD predicted normal rain; a drought plan was needed due to lack of rain. However, after downgrading the forecast, heavy rains reemerged; deficit in North India was 12%.
- **Instruments quality:** None of the Indian radiosondes are WMO certified. The WMO recommends RS/RW with a minimum score of 3.0 or higher for all parameters in regular operation.
- **Overall data unavailability for AI/ML models:** Lack of local level data can pose a fundamental problem.
    - **The Geological Survey of India** has recorded **over 9,575 glaciers in the Himalayas** yet detailed glaciological studies **cover less than 30.** This data scarcity undermines the development of AI-based early warning systems.

Way forward

- **A better understanding and study of physical processes**: It will allow more accurate predictions on different temporal and spatial scales.
    - Two good examples are **land-atmosphere interaction** (land surface processes) **and convective parameterization** (How different clouds are treated in weather prediction models).
- **Three-dimensional observations of the Earth system**: These are essential components for an observation system for accurate data especially related to complex systems such as monsoon.
- **Strengthening Early Warning Systems:** We aim to enhance our forecasting capabilities for extreme weather events, reducing lead times and increasing accuracy.
    - The IMD has been trying out experimental forecasts for 3 km x 3 km grids, but the eventual objective is to get hyper-local forecasts for 1 km x 1 km areas.

- **Improve the last mile connection:** There is still a gap between the forecasters and the users. At many times, users do not fully understand what the forecasters speak. Also, the forecasters are not fully aware the scope of their requirements.
- **Leveraging Artificial Intelligence and Machine Learning (AI & ML):** Integrating AI and ML into weather models will allow us to process available data for more precise predictions.

To know more about Mission Mausam, refer to Article 5.2. Mission Mausam in September 2024 Monthly Current Affairs Magazine.

5.3. INDIGENOUS HYDROGEN TRAIN ENGINE

Why in the News?

Indian Railway Minister announced the development of the world's most powerful hydrogen fuel-run train engine with 1,200 horsepower.

More about the news

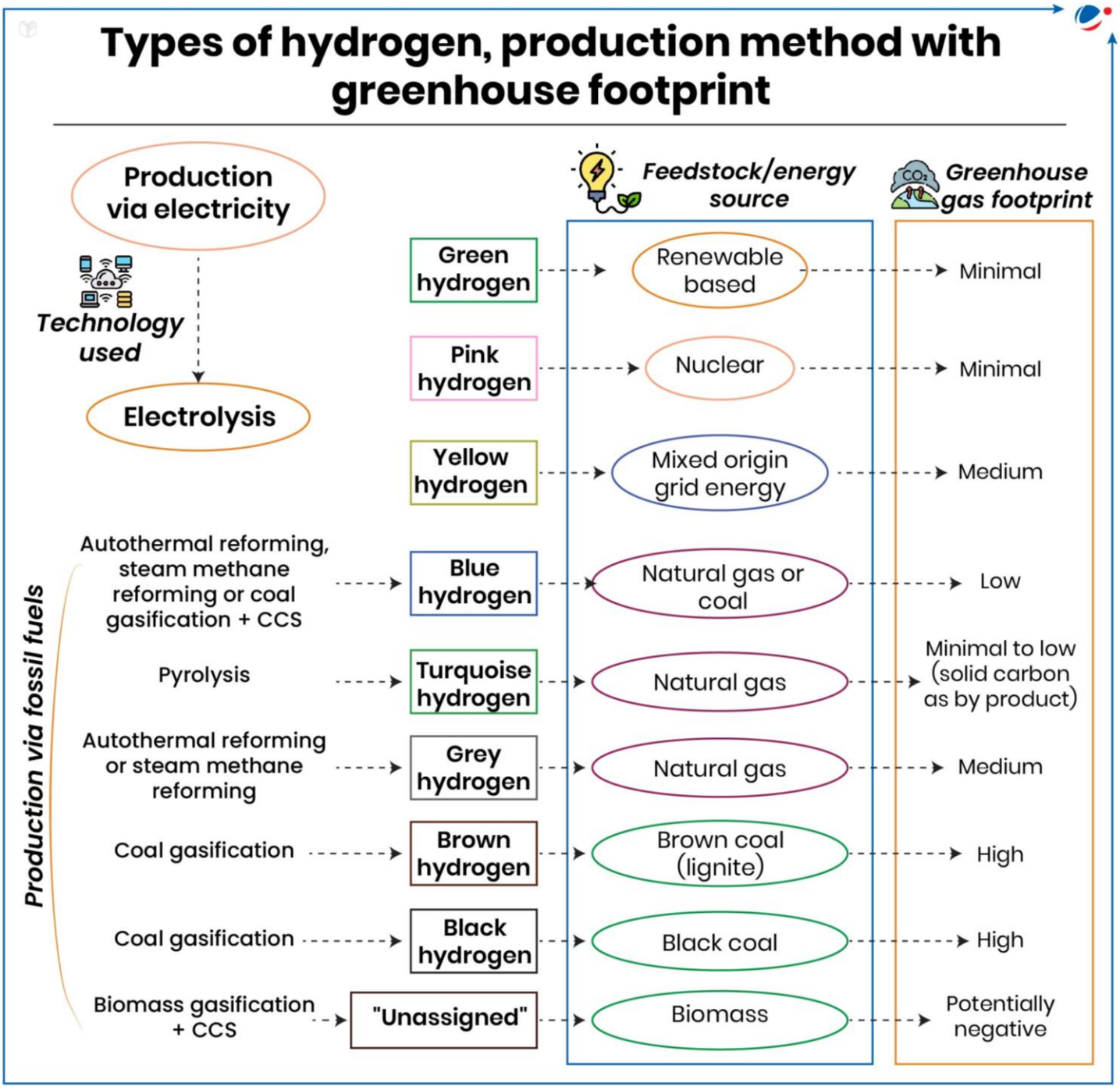
- Only four countries **(Germany (1st), France, Sweden, and China**) in the world have hydrogen-powered trains, capable of producing around 500 to 600 horsepower**.**
- **All hydrogen powered rail vehicles**, whether large or small, are categorized as **'hydrail,'** whether the fuel is used for the traction motors, auxiliary systems, or both.
- **They have considerable advantage over electric trains:** Electric trains require expensive and complex infrastructure, including overhead gantries to carry power cables and power substations, which is not required in hydrail.

About India's Indigenous Hydrogen Train

- **Designed by:** Research, Design, and Standard Organization (RDSO) in Lucknow.
- **Manufactured by:** Integral Coach Factory, Chennai manufacturing coaches for the train.
- **Background:** The Ministry of Railways, Government of India, announced the **"Hydrogen for Heritage"** project in 2023.
  - **Union Budget 2023–24:** Announced and allotted funds for developing 35 hydrogen fuel cell trains.
  - As part of this venture, **existing Diesel-Electric Multiple Unit (DEMU)** rakes will be retrofitted with green hydrogen fuel cells.
- **Trial Route:** Jind-Sonipat in Haryana.

About Hydrogen and its ecosystem

- Hydrogen is the simplest and **most abundant element in the universe,** consisting of just **one proton and one electron.**
- **Molecular Structure:** Diatomic, meaning it contains two atoms.
- **Chemical Properties:** Highly reactive and combines with almost all elements to form binary compounds called hydrides, can undergo oxidation as well as reduction can lose an electron to form H+ (proton) or gain an electron to form H^- (hydride ion).
  - Known for forming acids when combined with non-metals like chlorine, sulfur etc.
  - **Isotopes:** Protium, Deuterium, Tritium.



Global initiatives for Hydrogen production

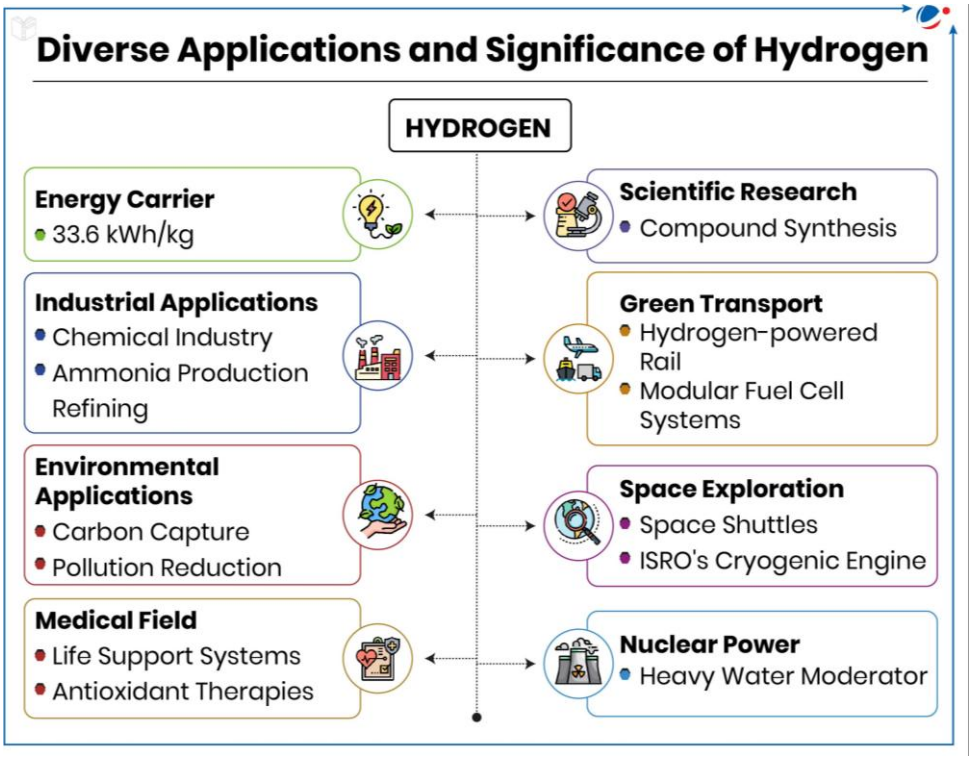
- **World Bank's 10 GW Clean Hydrogen Initiative:** Promoting clean hydrogen as a low-carbon energy source using renewable energy, in emerging markets and developing countries.
- **The Clean Energy Ministerial (CEM): International clean energy leadership platform** to drive international collaboration on policies to accelerate the commercial deployment of hydrogen fuels.
  - **The Clean Energy Ministerial Hydrogen Initiative (CEM H2I):** Coordinated by The International Energy Agency (IEA), developed according to the CEM framework document. **India is member**.
- **Global Programme for Hydrogen in Industry (GPHI):** In 2021, UNIDO launched (GPHI) to support developing countries and transition economies in overcoming various challenges that hinder hydrogen development.

India's initiatives for Hydrogen production

- **National Green Hydrogen Mission (NGHM):** To make India a Global Hub for production, usage and export of Green Hydrogen and its derivatives and green hydrogen production target of 5 million metric tonnes per annum by 2030.
- **The Green Hydrogen standard for India**: Define emission thresholds for 'Green' classification, was notified on 19th August, 2023.
- **Guidelines for Pilot Projects for utilizing Green Hydrogen in the Shipping and Steel Sector:** For retrofitting existing ships to run on Green Hydrogen and relevant facilities on ports.

Challenges in adoption of hydrogen as fuel

- **Cost of Raw Materials:** Precious metals such as platinum and iridium are typically required as catalysts in fuel cells and some types of water electrolyze, which means that the initial cost can be high.
- **Hydrogen Extraction:** Hydrogen does not exist on its own naturally so needs to be extracted from water or separated from carbon fossil fuels. Both of these processes require a significant amount of energy.
- **Need of specific infrastructure** for the green hydrogen production and requirement of advanced technology.



- **Highly Flammable:** Hydrogen gas burns in air at concentrations ranging from 4 to 75%. It brings understandable safety concerns.
- **Hydrogen Storage:** Complex process, as storing hydrogen as a liquid or at high pressure requires energy-intensive processes, such as liquefaction at cryogenic temperatures or compression to high pressures.

Way forward

- **Government Support and Incentives**: Continue providing financial incentives and programs to give investors the confidence needed for rapid private investment in the sector.
- **Generate Demand for Production**: The next step is to generate demand for production and consumption as done in case of Electric vehicles through schemes like **PM E-DRIVE Scheme.**
- **Scale up Renewable Energy Capacity**: Green hydrogen production necessitates significant renewable energy capacity. The mission aims for an associated renewable energy capacity addition of about 125 GW.
- **Global collaborations:** Such as in September 2023, India signed an MoU with Saudi Arabia for cooperation in the field of Green Hydrogen & Ammonia to set up capacities.

To know more about National Green Hydrogen Mission, refer to Article 7.2. National Green Hydrogen Mission in July 2024 Monthly Current Affairs Magazine.

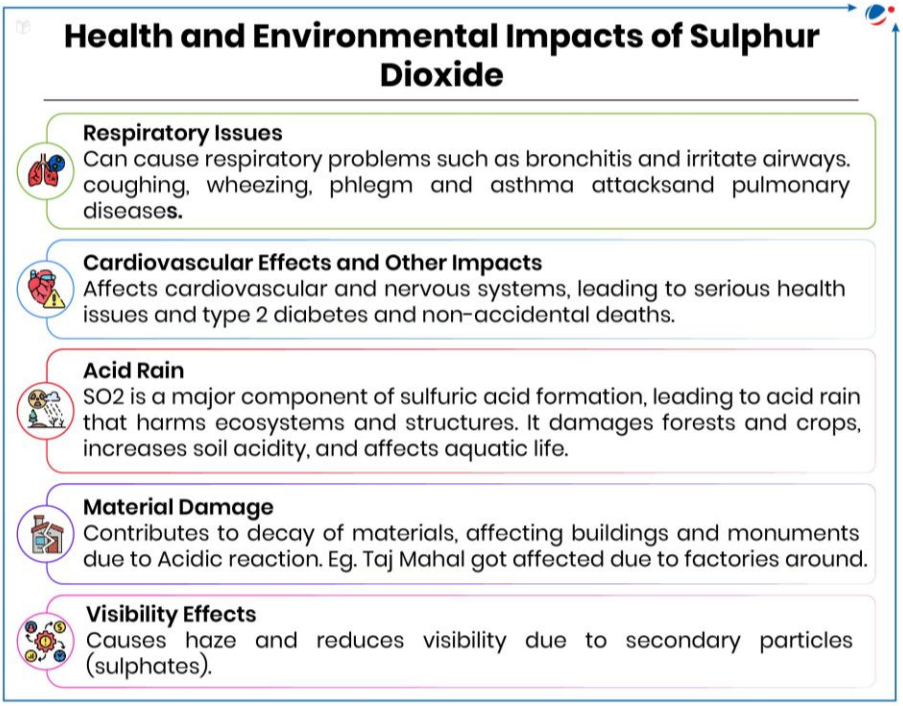
5.4. THERMAL POWER PLANTS AND SULPHUR DIOXIDE

Why in the News?

The Union Ministry of Environment, Forest and Climate Change (MoEF&CC) has issued fourth extension for thermal power plants (TPP) to comply with Sulphur dioxide (SO_2) emission norms.

More about the News

- **Extension from 2022 notification deadline:** Ministry extended the deadlines for installing (FGD) systems in TPPs.
  - As per 2022 notification deadlines for SO_2 compliance for non-retiring TPPs were announced in September Category A by December 31, 2024; Category B by December 31, 2025 and Category C by December 31, 2026.
- **New compliance deadline:** Category A now has a deadline of December 31, 2027; Category B by December 31, 2028 and Category C by December 31, 2029 for installing Flue Gas Desulphurization (FGD) systems in TPPs.
  - The flue gas desulfurization (FGD) plant removes sulfur dioxides (SO_2) from flue gas produced by boilers, furnaces, and other sources.
  - **Category A** included plants within a 10-kilometre radius of the NCR or cities with populations greater than one million.
  - **Category B** included plants within a 10-kilometre radius of critically polluted areas or non-attainment cities and
  - **Category C** includes all remaining plants.
- **Genesis:** In 2015, the MoEF&CC implemented India's first emission norms for SO_2, NO_x and mercury control, acknowledging the significant impact of coal-fired power plants on pollution levels
- **2017:** The Union Ministry of Power requested an extension of seven years. The Supreme Court eventually granted five additional years, until 2022.



Sources of the Sulphur dioxide

- **Natural:** Volcanoes (67%).
- **Anthropogenic:** Combustion of fossil fuel (coal, heavy fuel oil in thermal power plants, office, factories); Paper Industry; Extraction & distribution of fossil fuels; Smelting of metals (sulfide ores to produce copper, lead and zinc); Petroleum refining; Combustion process in diesel, petrol, natural gas driven vehicles etc.

Government regulations to control Sulphur dioxide

- **The Air (Prevention and Control of Pollution) Act, 1981:** This act empowers the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs) to monitor and regulate the emission of pollutants, including SO_2.
- **Environment (Protection) Act, 1986:** The government can set specific SO_2 emission limits for industries like power plants, refineries, and cement manufacturing under the **Environment Protection Act (EPA).**
- **National Ambient Air Quality Standards (NAAQS)**: The MoEFCC has established National Ambient Air Quality Standards to control the concentration of various pollutants, including sulfur dioxide.
- **BS-VI Fuel Standards**: The Indian government has implemented stricter **Bharat Stage VI (BS-VI) emission standards** for vehicles, which also regulate the sulfur content in fuels.
- **National Clean Air Programme (NCAP), 2019** was launched by Ministry of Environment, Forest and Climate Change to control pollution.
- **SAMEER App and Social Media Accounts** (Facebook & Twitter) have been set up by CPCB, which have been very effective in monitoring performance of implementing agencies to curb Air Pollution.

Way forward

- **Need of strict implementation of regulations:** There should not be further extension of deadlines for installing (FGD) systems in TPPs.

- **Fuel Cleaning**: Employ fuel cleaning methods like coal beneficiation to remove pyritic sulfur before combustion. Coal washing can remove approximately 50% of pyritic sulfur and 20-30% of total sulfur,
- **Fuel Cleaning**: Employ fuel cleaning methods like coal beneficiation to remove pyritic sulfur before combustion. Coal washing can remove approximately 50% of pyritic sulfur and 20-30% of total sulfur,
- **Shift to clean energy sources**: Such as renewable energy sources and fuels like hydrogen through policies like National Green Hydrogen Mission.

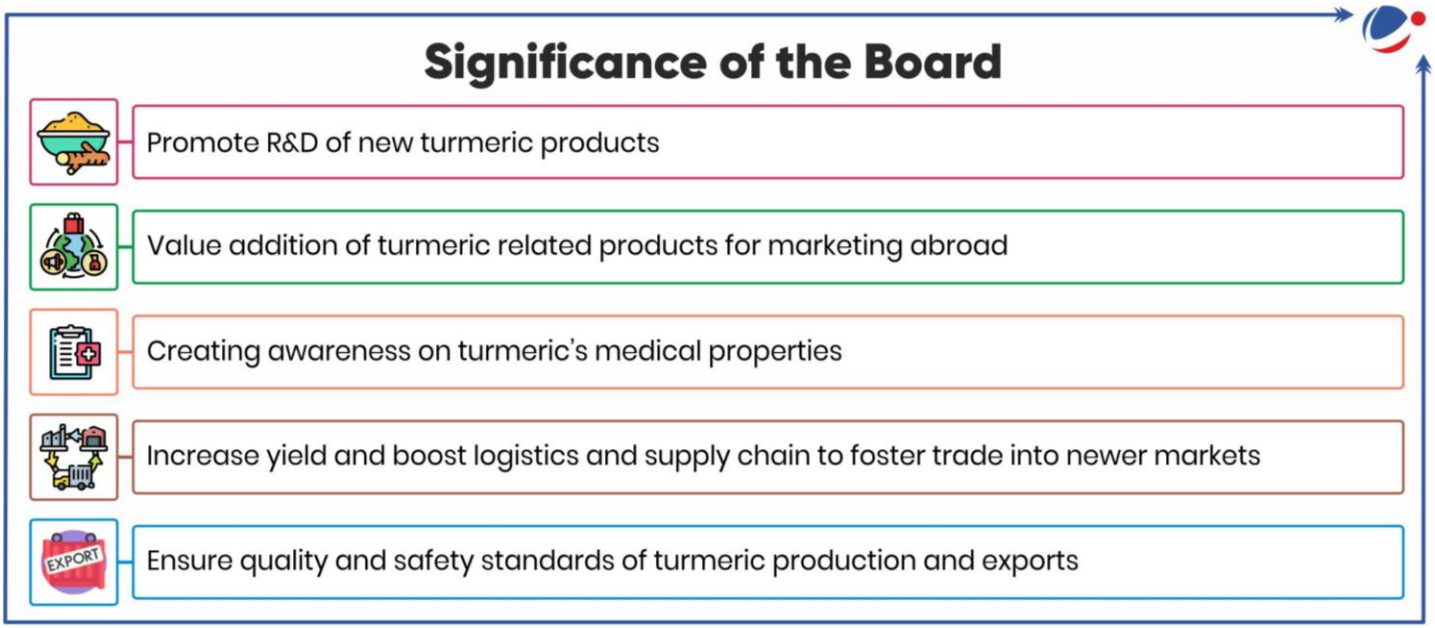
5.5. NATIONAL TURMERIC BOARD

Why in the news?

Recently, **Union Minister of Commerce and Industry**, inaugurated the **National Turmeric Board (NTB).**

About the NTB

- **Aim:** To provide **leadership on turmeric related matters, augment the efforts, and facilitate greater coordination with Spices Board** and **other Government agencies** in development and growth of the turmeric sector**.**
- **Headquarters:** Nizamabad, Telangana
- **Ministry:** Ministry of Commerce & Industry
- **Composition:**
  - **Chairperson to be appointed** by the Central Government
  - Members from the **Ministry of AYUSH, Departments of Pharmaceuticals, Agriculture & Farmers Welfare, Commerce & Industry of the Union Government**
  - **Senior State Government representatives** from three states (on rotation basis),
  - **Select national/state institutions** involved in research
  - Representatives of **turmeric farmers and exporters**
  - **A Secretary** to be appointed by **the Department of Commerce.**



About Turmeric

- A rhizome (underground stem) often referred to as the **"Golden Spice"**
- **Climatic Condition:** Grown in **diverse tropical conditions**
  - **Temperature range**: 20^0-35^0C
  - **Annual rainfall:** 1500 mm or more.
- **Soil:** Thrives best in well-drained sandy or clay loam soils
- **Properties:**
  - Active ingredient in turmeric called **curcumin** has **antioxidant** and **anti-inflammatory properties.**

    - Traditionally used for disorders of the skin, upper respiratory tract, joints, digestive system etc.
  - A **natural indicator** that changes color depending on the pH of a solution.

Turmeric production in India

- **Area under turmeric cultivation:** 3.05 lakh hectare with 30 varieties (2023-24)
- **Production:** 70% of global turmeric production
  - Telangana, Maharashtra, Tamil Nadu, and Andhra Pradesh together contribute **63.4%** of India's turmeric production.
- **Export**: >62% share of world trade in turmeric
  - The leading export markets for Indian Turmeric are **Bangladesh, UAE, USA and Malaysia.**
- **Turmeric in India with GI Tag:**
  - **Maharashtra:** Sangli Turmeric Waigaon Turmeric
  - **Tamil Nadu:** Erode Manjal (Erode Turmeric)
  - **Meghalaya:** Lakadong Turmeric

5.6. NEWS IN SHORTS

5.6.1. INTERNATIONAL YEAR OF GLACIERS' PRESERVATION

Recently, **UN has declared 2025** as the **International Year of Glaciers' Preservation**.

- It was also announced that **March 21** of each year will be celebrated as **World Day for Glaciers, starting in 2025.**

About International Year of Glaciers' Preservation

- **Co-facilitated by:** UNESCO and the World Meteorological Organization (WMO).
- **Objective:** To raise global awareness about the critical role of glaciers in the climate system and the hydrological cycle, and the economic, social and environmental impacts in the Earth's cryosphere.
- **Significance of Glaciers:** There are more than **275 000 glaciers in the world**, covering an area of **around 700,000 sq. kms**, which account for **~70% of the global freshwater.**

5.6.2. YALA GLACIER IN HIMALAYAS PROJECTED TO VANISH BY 2040S

The Yala glacier (Nepal) **retreated by 680m** and witnessed significant **reduction in area (36%)** between 1974 and 2021.

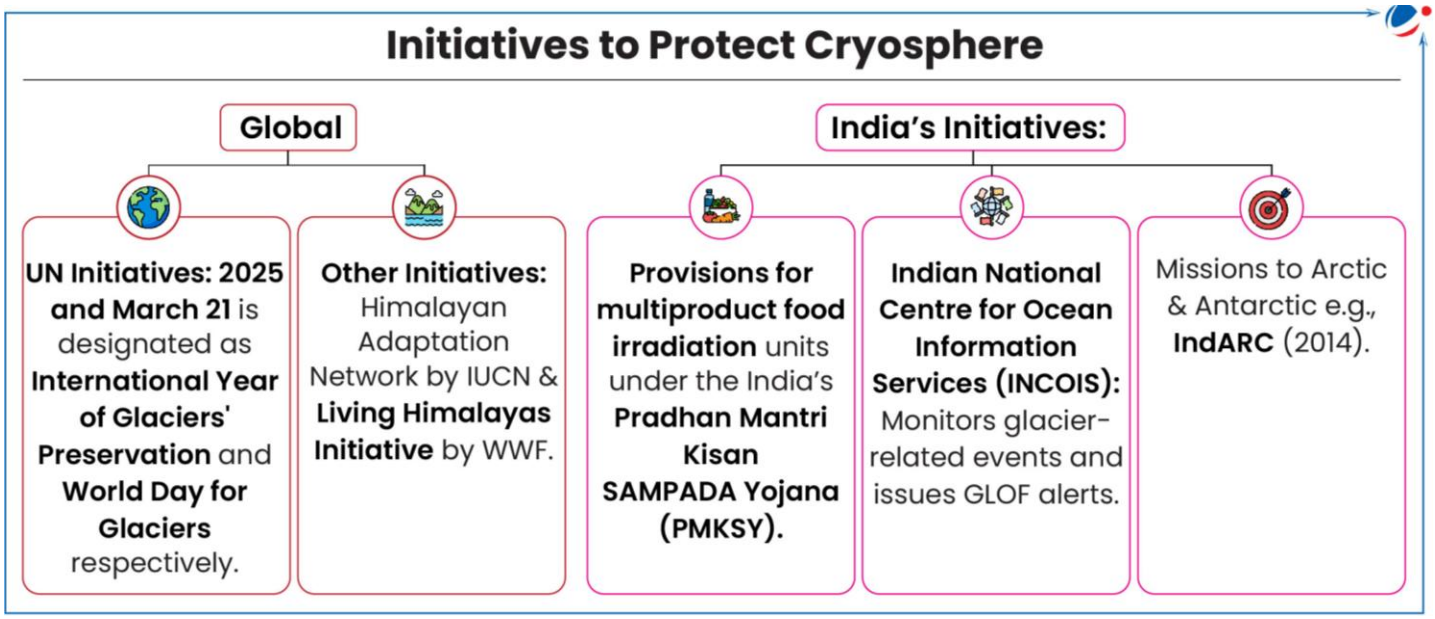
- It is the **only glacier in entire Himalayas** to be included in the **Global Glacier Casualty List** (GGCL) which highlights accelerating **impact of climate change on Himalayan glaciers/cryospeher**.
  - The **cryosphere** is the **frozen part of the Earth**, including snow, ice, and frozen ground.
- The **GGCL project** was launched in **2024** by Rice University, University of Iceland, Iceland Glaciological Society, World Glacier Monitoring Service, & UNESCO.

About Glacier Retreat

- Glacier retreat is the process by which **glaciers shrink in size & mass** due to melting, evaporation, and other causes.
- **Glaciers Already Lost: Pico Humboldt Glacier**, Venezuela (2024), **Sarenne Glacier**, France (2023).
- **Dagu glacier** in **China** is expected to **disappear by 2030**.

Impact of Melting Glaciers/Cryosphere

- **Disruption of Ecosystem & livelihoods:** Glaciers and ice sheets hold approximately 70% of the world's freshwater, essential for ecosystems & human life.
  - **e.g., 240 million people in the Hindu Kush Himalaya** rely on the cryosphere for survival.
- **Increased Risk of Glacial Lake Outburst Floods (GLOFs):** Rapid glacier melting creates **unstable glacial lakes** that can breach, causing **catastrophic floods**.
- **Climate Feedback Loop:** Melting glaciers **reduce Earth's reflectivity (albedo),** absorbing more heat & accelerating global warming.



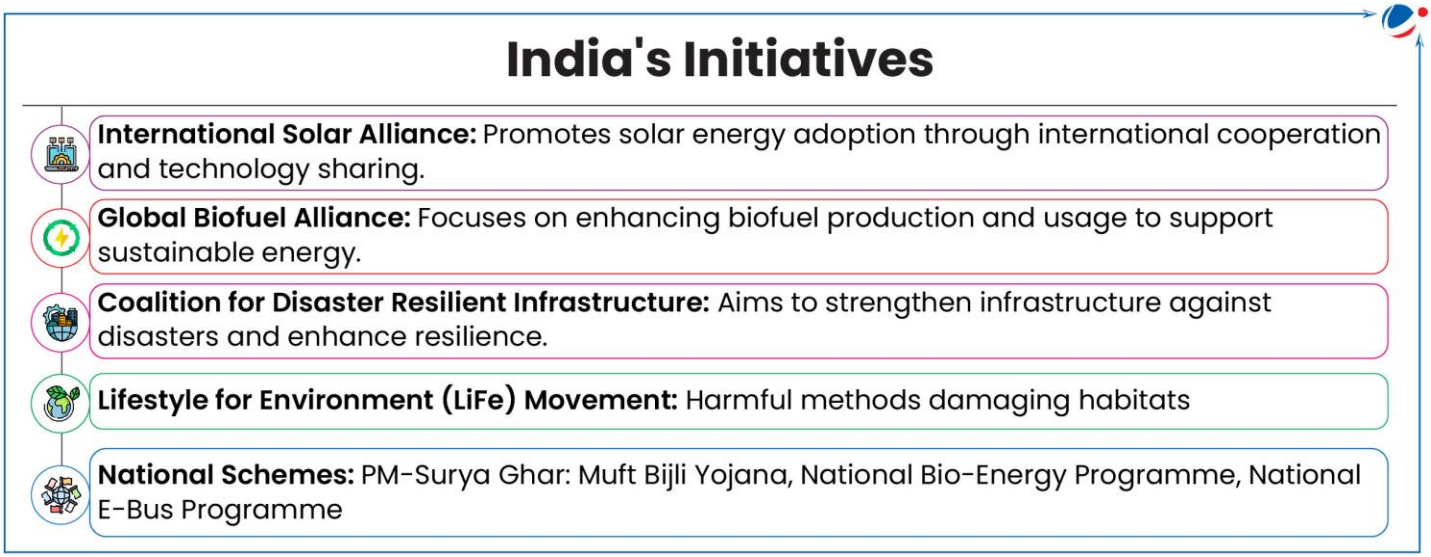
5.6.3. INDIA SUBMITS ITS FOURTH BIENNIAL UPDATE REPORT (BUR-4) TO UNFCCC

BUR-4 updates the **Third National Communication (TNC)** and contains the **National Greenhouse Gas (GHG) inventory for the year 2020.**

- **The Ministry of Environment, Forest and Climate Change** is **India's nodal ministry** for managing and coordinating climate change activities and reporting under **Article 4.1 of UNFCCC.**

Key Highlights of report

- **GHG emissions:** It has **decreased by 7.93%** in 2020 compared to 2019.
  - Sector wise Emissions: **Energy (75.66%)> Agriculture(13.72%)>Industrial Process and Product Use (8.06%)>Waste (2.56%).**
- **Emission Intensity of GDP:** It has reduced by 36% (Between 2005 to 2020)
- **Share of non-fossil sources:** It constitutes **46.52% of installed electricity generation capacity** (October 2024)
- **Generation of Carbon Sinks:** An additional carbon sink of **2.29 billion tonnes of CO2 have been created through forest and tree cover (2005 to 2021)**
  - **Forest and tree cover:** It currently stands at **25.17%** of the country's total geographical area and has **consistently increased**



5.6.4. MOEF&CC NOTIFIED ENVIRONMENT RELIEF FUND (AMENDMENT) SCHEME, 2024

Notification, amending the **Environment Relief Fund (ERF) Scheme 2008**, has been issued in exercise of powers conferred under **Section 7A of Public Liability Insurance Act (PLIA), 1991**.

- Section 7A of PLIA provides for **establishment of Environment Relief Fund (ERF)**, which is utilized for providing immediate relief to victims of accidents involving hazardous substances.

Key Amendments

- **Administration:** It vests the Environment Relief Fund (ERF) in the **Central Government**.
- **Fund Manager: Central Pollution Control Board (CPCB)** replaces **United India Insurance Company Limited** as the fund manager for **five years with effect from 1st January, 2025.**
- **Disbursement: Fund Manager**, in consultation with Central Government, shall develop and maintain an **online portal** and shall **disburse amount** as per the **order of District Collector or Central Government**.
- **Investment:** ERF amount shall be invested appropriately in **public financial institutions** and in **saving accounts** to ensure timely availability of funds**.**
- **Restoration of Environmental Damage:** Fund Manager shall earmark the ERF funds for restoration of damage caused **due to** manufacture, processing, treatment, package, storage, transportation, use, collection, destruction, conversion, transfer etc., of **hazardous substances**.
- The accounts of the Relief Fund shall be audited by **an independent auditor appointed by the Central Government** from the **panel approved by the Comptroller and Auditor-General**.

Related News

Public Liability Insurance (Amendment) Rules, 2024

MoEF&CC notified Public Liability Insurance (Amendment) Rules, 2024, in exercise of powers conferred by PLIA 1991.

Key Amendments

- Persons with **direct and substantial connection** and interest in affected public property can also **claim for restoration** of property.
- It provides for **utilization of ERF** towards **environmental damage restoration**.
- **Increases insurance policy coverage limit** to ₹250 crore for single accident and ₹500 crore for multiple accidents.

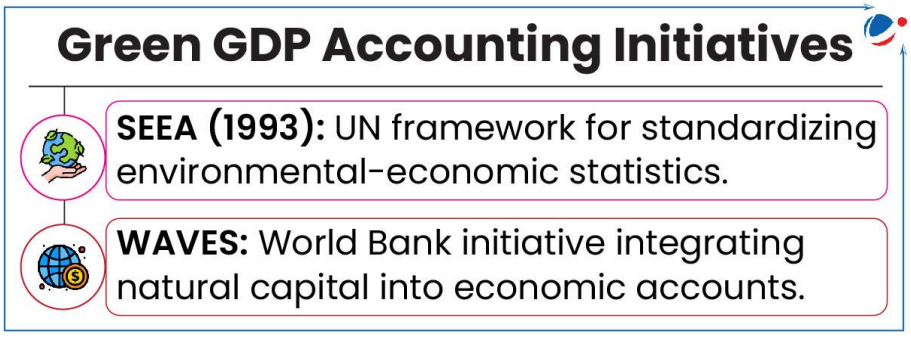
5.6.5. CHHATTISGARH FIRST STATE TO ADOPT GREEN GDP

Chhattisgarh has introduced an innovative plan that **connects ecosystem services of its forests** with the **Green GDP.**

- The move highlight the **direct link** between significant **environmental contributions of forests** like clean air, water conservation, biodiversity and **the state's economic progress**.
  - Forest accounts for **Chhattisgarh's 44% of land cover** playing crucial role in **mitigating climate change.**
  - Also, forest products like **tendu leaves, lac, honey, and medicinal plants contribute** significantly to **the rural economy.**

About Green GDP

- **Genesis: '**Green GDP' was coined **in the late 1980s** with aspiration to modify GDP better to reflect the impacts of economic activities on the environment.
- **Definition:** Green GDP refers to **environmentally adjusted gross domestic product (GDP).**



- **Calculation:**
  - **Green GDP** = Net Domestic Product - (Cost of Depletion of Natural Resources + Cost of Degradation of Ecosystem)
- **Need for Green GDP:** GDP overlooks **environmental depletion and degradation**, often treating them as economic gains.
  - For instance, **cutting down a rainforest** and selling the timber **increases GDP** but harms long-term wellbeing and growth.

5.6.6. NET-ZERO BANKING ALLIANCE (NZBA)

Wall Street's biggest banks including Goldman Sachs Group Inc., etc. have announced their exit from NZBA.

About Net-Zero Banking Alliance

- **Bank-led and UN-convened**, NZBA is a **group of leading global banks** committed to aligning their lending, investment, and capital markets activities with **net-zero greenhouse gas emissions by 2050.**
- **No Indian bank** is a member of NZBA**.**
- It is the **climate accelerator for UNEP Finance Initiative's** Principles for Responsible Banking (PRB).

5.6.7. BHARAT CLEANTECH MANUFACTURING PLATFORM

Recently, the Union Minister of Commerce & Industry launched the **Bharat Cleantech Manufacturing Platform** at the **Bharat Climate Forum 2025.**

About Bharat Cleantech Manufacturing Platform

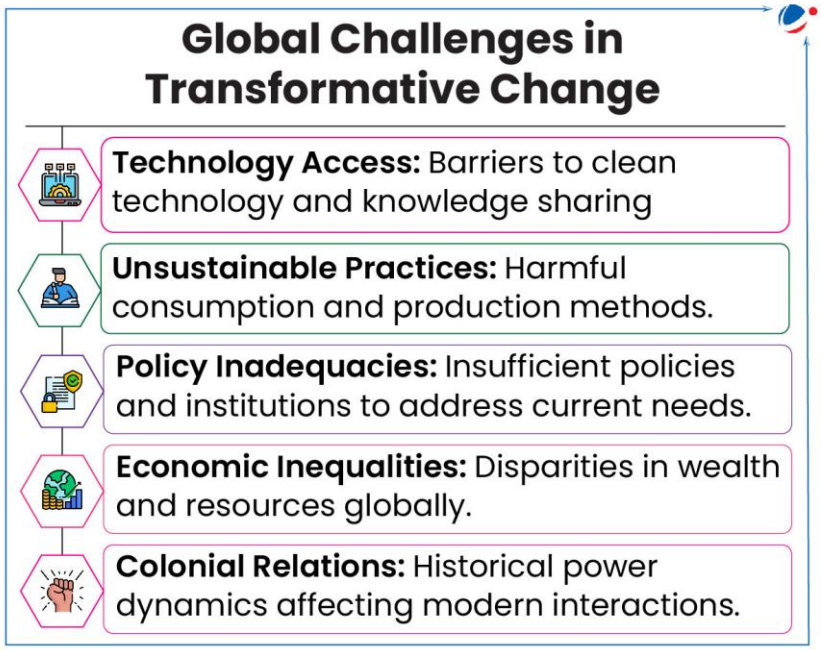
- It is designed to **enhance India's cleantech value chains** in the solar, wind, hydrogen, and battery storage sectors.
- Provide an opportunity for the Indian firms to **collaborate**, to **co-innovate** and will help provide a platform for financing, to share ideas, technologies and resources.
  - This will help India become an **attractive business case** and **a global leader in the sustainability and cleantech sector.**

5.6.8. IPBES RELEASES TRANSFORMATIVE CHANGE REPORT

The Report is also known as **Assessment Report on the Underlying Causes of Biodiversity Loss and the Determinants of Transformative Change and Options for Achieving the 2050 Vision for Biodiversity**.

About Transformative Change

- **Definition:** Transformative Change is a fundamental system-wide shifts in **views (**ways of thinking), **structures** (ways of organizing & governing) and practices (ways of doing & behaving).
- **Four principles to guide transformative change**: equity and justice; pluralism and inclusion; respectful and reciprocal human-nature relationships; and adaptive learning and action.



Five Strategies for Transformative Change for Global Sustainability

- **Conserve, restore and regenerate places of value. E.g.,** Community Forestry Programme in Nepal; Community-based Forest management in India.
- **Drive systematic change in sectors responsible for nature's decline. Sectors like:** agriculture and livestock, fisheries, forestry & urban development.
- **Transform economic systems for nature and equity. E.g.,** Biodiversity management needs over **$900 billion** yearly, but only **$135 billion is spent**.
  - **Over 50% of annual global GDP** ($58 trillion) depends moderately to highly on nature.
- **Transform governance systems to be inclusive & accountable. E.g.,** The Galapagos Marine Reserve exemplifies ecosystem-based governance.
- **Shift views to recognize human-nature interconnectedness**: Achieved through nature-based experiences, policy support, and integrating Indigenous knowledge to transform behaviors.

5.6.9. FIRST-EVER GLOBAL FRESHWATER FAUNA ASSESSMENT BY IUCN

It is the first-ever multi-taxon global freshwater fauna assessment for **The IUCN Red List of Threatened Species** led by **International Union for Conservation of Nature (IUCN).**

Key-findings

- **24% of the world's Freshwater Species** are at **risk of extinction.**
- **Major Hotspots: Lake Victoria** (Kenya, Tanzania and Uganda), Lake Titicaca (Bolivia and Peru), Sri Lanka's Wet Zone, and the **Western Ghats (India).**
- **Key threatened species**: **Crabs, crayfishes and shrimps** are at the highest risk of extinction followed by freshwater fishes
  - At least 4,294 species out of 23,496 freshwater animals are at high risk of extinction.
- **Other**: Areas with **high water stress** (where there is high demand and low supply) and areas with more **eutrophication** are not home to **higher numbers of threatened species** than areas with **lower water stress** and less eutrophication.
  - **Eutrophication** refer to an excess of nutrients in the water leads to overgrowth of algae and plants

About Freshwater Landscapes

- **Status**: These are home to 10% of all known species on Earth.
- **Significance**: Provides safe drinking water, livelihoods, flood control and climate change mitigation.

- **Threat Faced**:
  - **Pollution:** Mainly from agriculture and forestry.
  - **Degradation:** E.g. land conversion for agricultural use, water extraction and the construction of dams.
  - **Other:** Overfishing and the introduction of invasive alien species.

5.6.10. SUSTAINABLE NITROGEN MANAGEMENT

Food and Agriculture Organization (FAO) published report on **sustainable nitrogen management in Agrifood Systems.**

- The report provides a **comprehensive overview of nitrogen use, resulting challenges in agrifood systems, and offers recommendations for sustainable nitrogen use.**

Key Highlights of Report

- **Alteration in Nitrogen Cycle:** Humans currently add approximately **150 teragrams (Tg) of reactive nitrogen** to the Earth's land surface each year through agriculture and industry.
  - Climate change could raise this to 600 Tg per year by 2100, **increasing nitrogen loss into the environment**.
- **Nitrogen Loss:** It occurs through:
  - Emissions of **ammonia (NH_3) and nitrogen oxides (NO_x),** which lead to air pollution,
  - **Nitrous oxide (N_2O)**, a potent greenhouse gas (GHG), and
  - Leaching of **Nitrates (NO_3^-)** in soil and water bodies, causing eutrophication and acidification, harming ecosystems.
- **Role of Agrifood Systems:** About one-third of anthropogenic nitrogen emissions are contributed by **livestock sector**.
  - In it, **synthetic fertilizers, land-use change, and manure emissions** are main causes of nitrogen pollution.
- **Dual impact of Nitrogen Usage:**
  - **Judicious use** in agriculture helps prevent soil degradation and nutrient depletion while increasing crop yields.
  - **Excessive use** exacerbates global warming, degrades air and water quality, and depletes stratospheric ozone.

Sustainable Nitrogen Management (SNM)

SNM seeks to **minimize external nitrogen inputs and losses** and **increase recycling of nitrogen** within the production system.

Recommendations for SNM:

- **Increasing Nitrogen Use Efficiency (NUE)** through improved fertilization strategies, minimizing nitrogen excretion through manure, and integrating livestock systems with crop production.
  - NUE is ratio of nitrogen recovered in the final output to the total Nitrogen used as input.
- **Encourage Biological Nitrogen fixation** using leguminous crops (eg. Soybean, alfalfa) in crop rotations.
- **Set national commitments** to reduce nitrogen pollution.

5.6.11. KAMPALA DECLARATION

African Union (AU) Extraordinary Summit on the Post-Malabo Comprehensive Africa Agriculture Development Programme (CAADP) adopted the **10-year CAADP Strategy and Action Plan**, and the **Kampala CAADP Declaration on Building Resilient and Sustainable Agrifood Systems in Africa**.

About Kampala Declaration

- Kampala declaration is the **successor to the Malabo Declaration** on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods, adopted in **2014**.
- Implementation period will be **2026-2035**.
- It **set forth six commitments** that should transform and strengthen the agri-food system on the continent.

5.6.12. MANUFACTURED SAND (M-SAND)

Recently, Rajasthan government introduced the **M-Sand, 2024** policy for sustainable construction and infrastructure.

About M - Sand

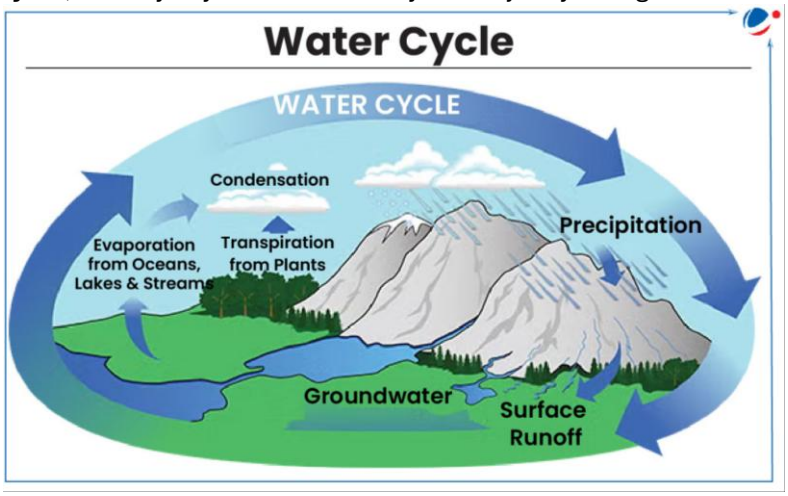
- **About:** It is **produced by crushing rocks or quarry stones, serving as a substitute for river sand in concrete construction.**
- **Advantages:**
  - **Better Workability:** It **does not contain organic and soluble compounds** that affect the setting time and properties of cement.
  - **Higher Strength:** It does not have the presence of impurities such as clay, dust and silt coating.
  - **Eco-Friendly:** Prevents **dredging of river beds** leading to environmental disaster like ground water depletion, water scarcity, etc.

5.6.13. GLOBAL WATER MONITOR 2024 REPORT

Global Water Monitor Consortium released 'Global Water Monitor 2024 Summary Report'.

- The report summarises the **state of global water cycle**, identify key trends and analyses major hydrological events.

Water Cycle



- Water cycle is the **movement of water in all its phases** — solid, liquid and gas — within the Earth and atmosphere.
- Liquid water **evaporates** into **water vapor**, **condenses** to form **clouds**, and **precipitates** back to earth in the form of **rain and snow**.

Key Findings (State of Water Cycle)

- In 2024, **Water-related Disasters** caused over 8,700 deaths, displaced 40 million people, and inflicted more than US$550 billion in damages.
- **Soil water** showed strong **regional contrasts**, with extreme dryness in South America and Southern Africa and wet conditions in West Africa.
- **Lake and reservoir water storage** worldwide declined for the fifth year in a row.

Impact of climate change on water cycle

- **Intensification:** Climate change had **intensified water cycle by up to 7.4%**.
- **Severe Storms:** Warmer air can hold more water vapour (7% more moisture for every 1 degree Celsius temperature rise), **increasing precipitation intensity, duration and frequency**.
- **Droughts**: Temperature rise **causes more evaporation**, drying out soils, increasing drought risks.
  - **Extremely dry months have become increasingly common** in recent decades.
- **Sea-level rise:** Thermal expansion and melting ice is contributing to sea level rise, resulting in **oceanic acidification and affecting marine life**.

5.6.14. WEF GLOBAL PLASTIC ACTION PARTNERSHIP (GPAP)

New members including **Angola, Bangladesh, Gabon, Guatemala, Kenya, Senegal & Tanzania** joined GPAP.

About Global Plastic Action Partnership

- **Launched:** During Sustainable Development Impact Summit in 2018 of the World Economic Forum (WEF).
  - It acts as a **plastic pillar** of the Platform for **Accelerating the Circular Economy** and **Friends of Ocean Action.**
- **Present members**: **25 (**including **Maharashtra State** from **India)**
- **Objectives: accelerate global response to plastic pollution crisis (**by bringing together governments, businesses, civil society), advance **circular plastics economy to reduce emissions & protect land and ocean ecosystems.**
- **Key activities:** Helps countries in developing **National Action Roadmaps** & **Investment Mobilization** for waste management

Challenges related to handling of Global Plastic Waste

- **Scalability**: Globally, **plastic waste has more than doubled** since 2000 (OECD's Global Plastic Outlook Report, 2022).
  - In 2024, **India became the world's largest plastic emitter country**
- **Limited Recycling:** Only 9% of plastic waste was ultimately recycled, while 19% was incinerated and almost 50% went to sanitary landfills.

Impact of Plastic Waste

- **On Environment:** It affects all land, freshwater, and marine ecosystems. It leads to biodiversity loss, ecosystem degradation and contributes to climate change.
  - Plastic pollution is responsible for an estimated **1.8 billion tonnes of greenhouse gas emissions annually, especially Methane** from landfills.
- **On Health:** Plastics in the form of **microplastics** damages animal and human health by **entering the food chain.**
- **On Economy**: leads to decline in income of sectors such as **tourism, fisheries, agriculture,** and water safety.

To know more about Plastic Waste, refer to Article 5.1. Plastic Waste Management in March 2024 Monthly Current Affairs Magazine.

5.6.15. GLOBAL ENERGY ALLIANCE FOR PEOPLE AND PLANET (GEAPP)

The GEAPP and the **International Solar Alliance (ISA)** signed an agreement to establish a $100 million fund to support high-impact solar energy projects.

- **Additional Initiatives Announced**:
  - Digitalization of Utilities for Energy Transition (**DUET)**
  - Energy Transitions Innovation Challenge **(ENTICE 2.0)**

About Global Energy Alliance for People and Planet (GEAPP)

- GEAPP is a **global, public-private initiative** focused on accelerating the **clean energy transition in developing countries.**
- **Goals:** 1 billion people with energy access, 150 million green jobs, 4 billion tons of emissions avoided.
- **Focus Areas:** Distributed renewable energy solutions, energy poverty alleviation, sustainable development.

5.6.16. COMPRESSED AIR ENERGY STORAGE (CAES) SYSTEM

Recently, the **world's largest CAES facility commenced full operation in China.**

Compressed Air Energy Storage

- **About:** It is a technology used to **store energy** by compressing air into sealed locations often in underground **mines or caverns created inside salt rocks**.
  - Stores electrical energy in the form of **potential energy (compressed air).**
  - Energy is stored during off-peak hours and is **released back** to the grid when the demand is high.

5.6.17. END-OF-LIFE VEHICLES RULES, 2025

Ministry of Environment, Forest & Climate Change (MoEFCC) **notified Environment Protection (End-of-Life Vehicles) Rules, 2025.**

- Notified under **Environmental Protection Act, 1986**, the rules will come into force from **1st of April, 2025.**
- **End-of-Life Vehicles (EoLV)** means all **vehicles which are no longer validly registered or declared unfit through Automated Fitness Centres** or their registrations have been cancelled.

Key Highlights

- **Applicability**: Apply to **producer, registered owner of vehicles**, **Registered Vehicle Scrapping Facility (RVSF), automated testing stations** etc. involved in testing of vehicles, handling, processing and scrapping of EoLV.
- **Exception**: Not apply to
  - **Waste batteries** covered under **Battery Waste Management Rules, 2022**.
  - **Plastic packaging** covered under **Plastic Waste Management Rules, 2016**.
  - **Waste tyres and used oil** covered under **Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.**
  - **E-waste** covered under **E-Waste (Management) Rules, 2022**.
- **Responsibilities of Producer: Fulfil Extended Producer Responsibility (EPR)** either through purchase of EPR certificate generated by its own RVSF or by any entity having RVSF.
- **EPR certificate**: Issued by **Central Pollution Control Board** through **centralised online portal** in favour of RVSF.
- **Responsibilities of registered owner and bulk consumer**: They must **deposit EoLV** at any of the **producer's designated sales outlet** or **designated Collection Centre** or **RVSF** within **180 days**.
- **Implementation Committee**: Constituted by Central Government and **chaired by CPCB Chairman** for effective implementation of rules.

To know more about Vehicle scrapping policy in India, refer to Article 3.7. Voluntary Vehicle Modernization Program in September 2024 Monthly Current Affairs Magazine.

5.6.18. WORLD'S FIRST CRYO-BORN BABY CORALS

World's First Cryo-Born Baby Corals Successfully Settled on the Great Barrier Reef

- This groundbreaking advancement **in coral conservation** and **restoration** is a collaborative effort led by Australian researchers.

About Cryo-born coral

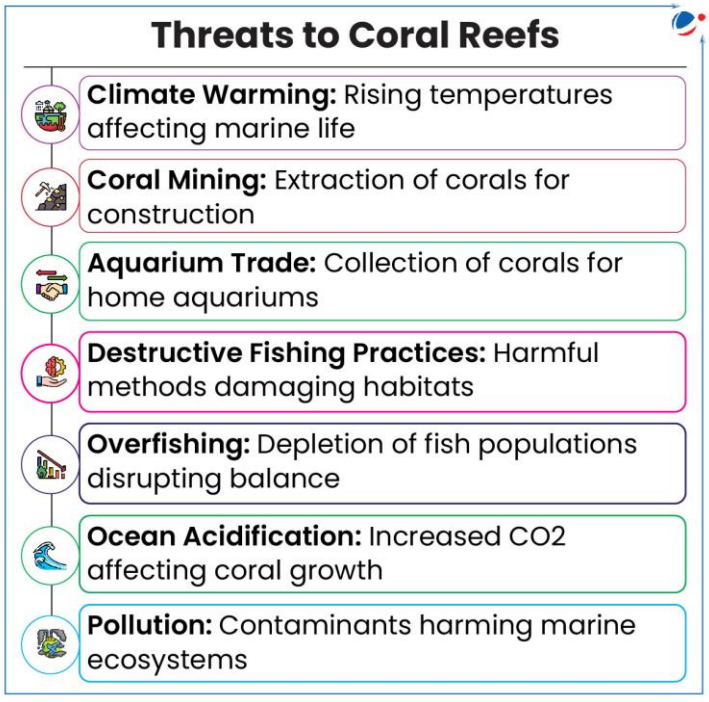
- **Cryo-born corals:** They are created using cryopreservation techniques, which involve freezing coral cells and tissues at very low temperatures.
- **Cryopreservation Process:**
  - **Coral cells and tissues contain water**, which forms damaging ice crystals when frozen.
  - **Cryopreservation uses cryoprotectants to** remove water from cells during freezing & Support cell structures when thawed.

Significance of the Breakthrough

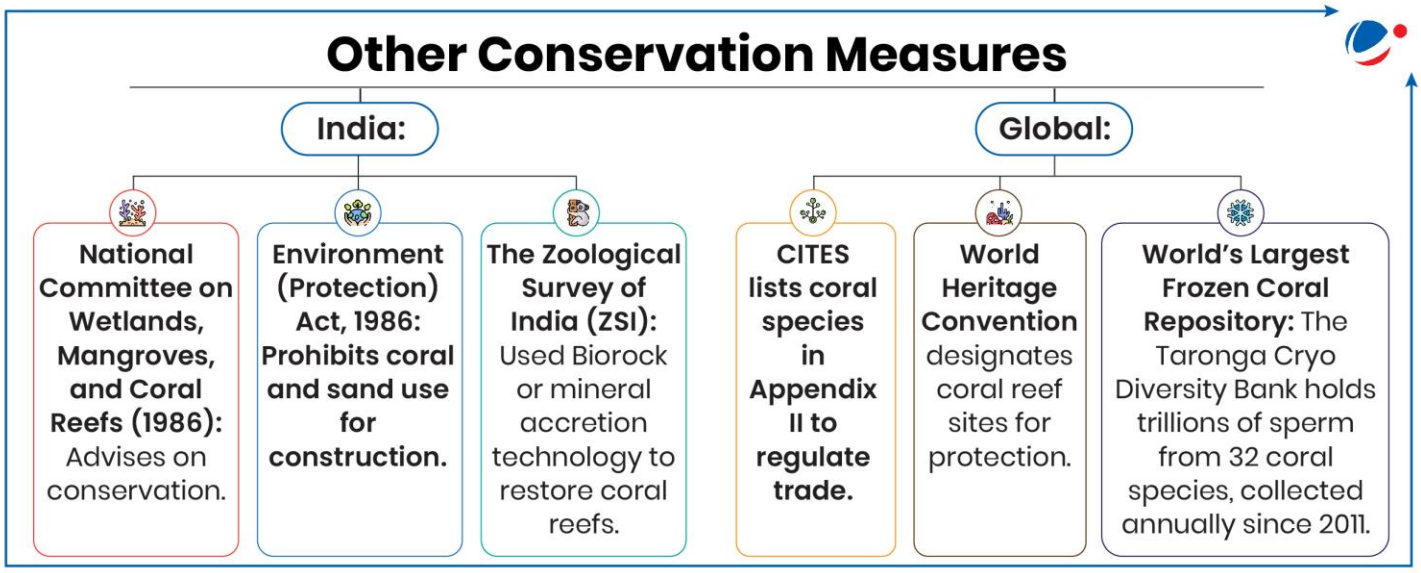
- **Climate Change Resilience:** The project aims to **deploy millions of heat-tolerant corals** onto the **reef annually** to combat the **effects of climate change.**
- **Selective Breeding:**
  - **Cryopreservation allows** researchers to bypass **the limitations of natural coral spawning**, which occurs **only once a year.**
  - It **enables selective breeding** and the **use of colonies for reproduction multiple times**.

About Coral Reefs

- **Corals are invertebrates from the class Anthozoa, phylum Cnidaria.**
- **They form reefs through colonies of polyps that secrete limestone skeletons and rely on symbiotic algae (zooxanthellae) for nutrition.**



- **Distribution:** Mainly found in shallow, sunlit waters between 30°N and 30°S latitude, with a preferred temperature range of 16-32°C.
    - **Depth:** They typically grow at depths less than 50 meters, where light levels are high.

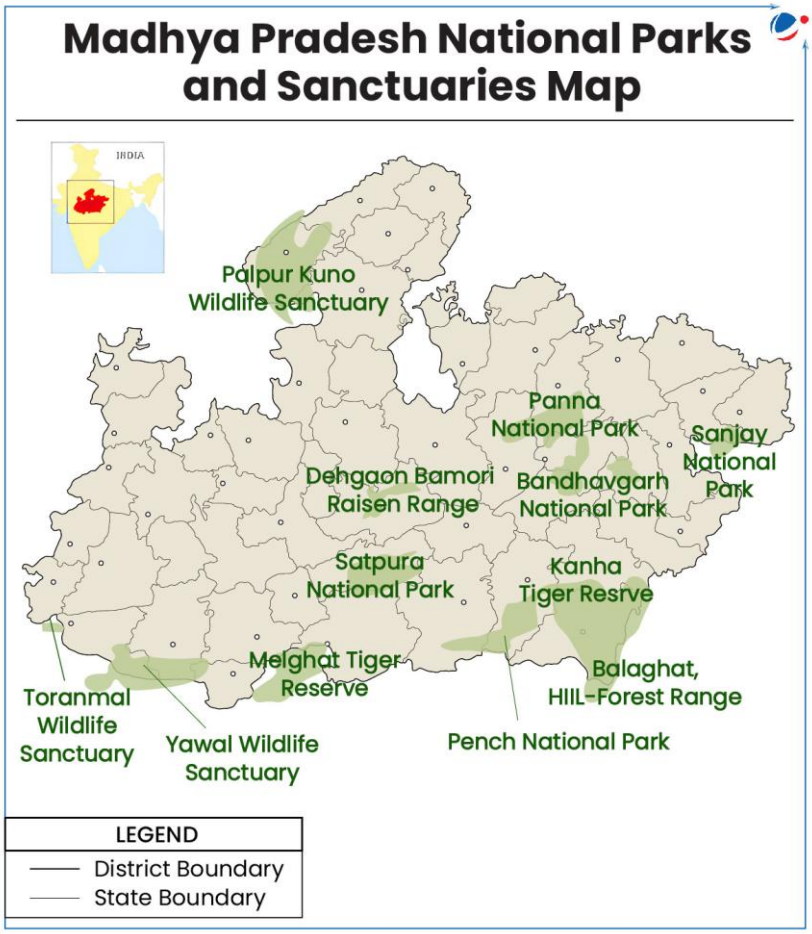


To know more about Corals, refer to Article 5.4. Coral Bleaching in May 2024 Monthly Current Affairs Magazine.

5.6.19. TRANSLOCATION OF TIGERS

Madhya Pradesh to translocate 15 Tigers **to Rajasthan, Odisha and Chhattisgarh**

- The tigers will be translocated from **Bandhavgarh**, **Panna**, **Kanha**, and **Pench tiger reserves**.
- Translocation would be done under the **animal exchange programme**.
- It would be the **biggest relocation** of big cats from any state.
- Madhya Pradesh is facilitating this project because it has the largest tiger population (785) in the country.



About Inter-state Tiger Translocation Projects

- **Objective**:
    - **Re-introduction** of a tiger population in an area once part of its historical range, but from which it has been extirpated or become extinct.
    - **Reinforcement/Supplementation** of tigers to an existing population to enhance its long-term viability.
- The **first tiger relocation project** was initiated in 2018 wherein two big cats, from Kanha Tiger Reserve and Bandhavgarh, were relocated to **Satkosia Tiger Reserve** (Odisha).
- **National Tiger Conservation Authority (NTCA)** is key in facilitating such projects.

Benefits of Translocation

- **Ecological Balance**: Restores **predator-prey dynamics** in underpopulated reserves.
- **Human-animal Conflict Mitigation**: Reduces human-tiger conflicts in overcrowded reserves.
- **Rewilding Landscapes**: Revives areas where tigers were locally extinct.

Concerns associated with Translocation

- **Protests from local communities:** Villagers living near tiger reserves fear that the tiger will endanger their lives, etc.
- **Territorial disputes with existing Tigers:** This pushes new tigers into human-dominated areas.
- **Other: Poor forest management** such as **prey augmentation**, etc.

5.6.20. HOLLONGAPAR GIBBON WILDLIFE SANCTUARY

Recently, the standing committee of **National Board for Wildlife** approved a proposal to carry out oil and gas exploration in the eco-sensitive zone of the **Hollongapar Gibbon Wildlife Sanctuary.**

Hollongapar Gibbon Wildlife Sanctuary

- **Location:** Located at Jorhat district of **Assam.**
  - Officially extends to the Dissoi Valley Reserve Forest, Dissoi Reserve Forest, and Tiru Hill Reserve Forest.
- **Establishment:** 1997.
- **Significance:** Contains India's only gibbons - the **hoolock gibbons** and Northeastern India's only nocturnal primate - the **Bengal slow loris.**
  - Other non-human primates found here are **Capped Langur, Rhesus Macaque, Assamese Macaque, Pigtailed Macaque & Stump tailed Macaque.**

5.6.21. SHIKARI DEVI WILDLIFE SANCTUARY

Government of India has designated areas around Shikari Devi Wildlife Sanctuary as **Eco-Sensitive Zones (ESZs).**

About Shikari Devi Wildlife Sanctuary

- **Location: M**iddle altitudinal range of the **Himalayas** in Mandi District, Himachal Pradesh.
- **Named after the goddess Shikari Devi**, to whom a temple is dedicated in the sanctuary**.**
- **Streams:** Juni Khud, a tributary of Beas River.
- It is recognised as an **Important Bird Area** by Birdlife International.
- **Vegetation:** Alpine pastures and Temperate Deciduous Forest.
- **Fauna:** Asiatic Black Bear, Leopard, Barking Deer, Giant Flying Squirrel etc.

5.6.22. KAWACHAM

Kerala has launched the **Kerala Warnings, Crisis, and Hazard Management System (KaWaCHaM)** for real-time disaster alerts.

About *KaWaCHaM*

- It is **developed** by the Kerala State Disaster Management Authority (**KSDMA**) with support from the **National Disaster Management Authority and the World Bank.**
  - It is supported under the **National Cyclone Risk Mitigation Project (NCRMP).**
- It offers hazard assessment, alert issuance, and threat-based action planning.
  - **Provides updates for extreme weather events** such as **heavy rain etc.**

5.6.23. CALAMITY OF SEVERE NATURE

The Inter-Ministerial Central Team (IMCT) has declared **Wayanad landslides** as a **'calamity of severe nature'.**

Calamity of Severe Nature

- **Legal provision: No specific criterion** is given in the **State Disaster Response Fund (SDRF) or National Disaster Response Fund (NDRF) guidelines** for declaring a natural calamity as a calamity of severe nature.

- However, based on the intensity and magnitude of losses to life and property, the Central government treats it as a calamity of severe nature, mostly based **on the recommendations of the IMCT**.
- **Funding Support:** For a "calamity of severe nature," **additional funding comes from the NDRF** in excess of the balances available in the state's own SDRF.

5.6.24. GARUDAKSHI

Karnataka launched the **'Garudakshi' online FIR system** to curb wildlife crimes.

About Garudakshi

- **It is software to enable an online FIR system** similar to that of the Police Department.
- It will allow the public to register complaints on forest offences using mobile phones or email addresses
- **Developed** in collaboration with the **Wildlife Trust of India.**

5.6.25. INDIA'S COASTLINE RECALCULATED

India's coastline has been recalculated from 7,516 km in 1970 to **11,098 km** in 2023-24, reflecting a **48% increase** over the past 53 years.

- Upward revision is attributed to a new methodology to measure India's maritime established by **National Maritime Security Coordinator**.
  - It **measures complex coastal formations** like bays, estuaries, and inlets, unlike **older methods that used straight-line distances.**

Key Findings

- **West Bengal recorded highest** percentage increase (357%) while Kerala (5%) reported the smallest increase.
  - **Puducherry's coastline contracted by 4.9 km.**
- **Gujarat retains its position** as the state with the longest coastline followed by **Tamil Nadu** which **overtaken Andhra Pradesh** (now 3rd).

5.6.26. HYDROCLIMATIC WHIPLASH

Experts attribute the severity of the wildfires in USA to hydroclimate whiplash, a phenomenon intensified by climate change.

About Hydroclimate whiplash

- It is a **rare meteorological Hydro climatic volatility condition** wherein an extremely wet season is succeeded by an extremely dry season.
- **Impact**
  - **Amplification of hazards** like flash floods, wildfires, landslides, disease outbreaks etc.
  - **Affect water quality** via harmful algal blooms or the influx of excess organic and/or mineral content.
  - **Affect food security** through decreased plant productivity, crop failures, livestock mortality etc.

5.6.27. POLAR VORTEX

The ongoing extreme cold spell in USA & Canada is attributed to **arctic blast** due to **southward expansion of the polar vortex.**

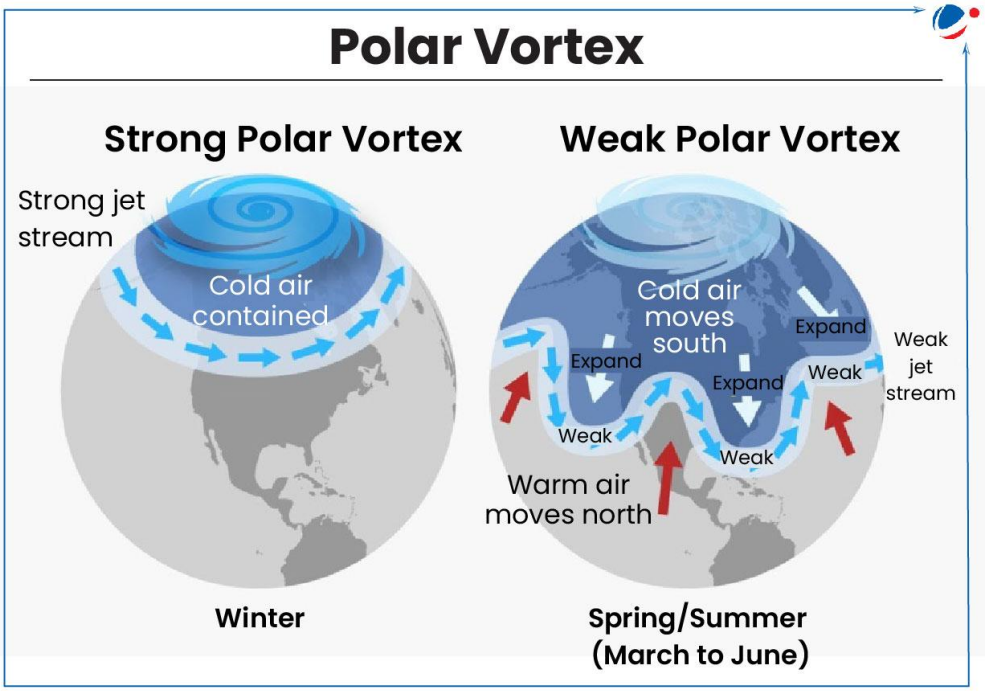
What is Polar Vortex?

- **Definition:** It is a large **area of low-pressure and cold air** that swirls like a wheel (counter-clockwise) around both of the **Earth's poles**.
- **Types:**
  - **Tropospheric Polar Vortex:** It forms in the **lowest atmospheric layer**,
  - 10-15 km.
  - **Stratospheric Polar Vortex:** It forms at around 15 km to 50 km high.

> Unlike tropospheric polar vortex, the **stratospheric polar vortex disappears during summer** & is strongest during the autumn.

Impacts of Polar Vortex

- **Arctic Blast:** It is **sudden and intense surge of cold air in US** due to disruptions in the **polar vortex**, which usually **keeps cold air confined to the Arctic region**.
- **Extreme Weather Events:** A **weakened vortex** can cause the **jet stream to dip southward**, bringing cold Arctic air to lower latitudes & triggering extreme weather events.
- **Ozone Depletion**: The trapped cold air in the vortex **accelerates ozone depletion**, particularly over Antarctica, leading to the **ozone hole.**



- **Impact on India**: A **weakened polar vortex** results in **more western disturbances**, bringing heavy **snowfall to the western Himalayas** and **colder temperatures** to northern India.

5.6.28. ARTESIAN CONDITION

Artesian condition was recently observed in a village in Jaisalmer, Rajasthan.

Artesian Condition

- The word **"artesian"** is specifically used when water is **"confined under pressure below layers of relatively impermeable rock."**
  - It is **located deeper below** the earth's surface surrounded by **poorly permeable rocks** that result in high pressure underground.
- **Artesian Conditions** occur due to the **movement of groundwater** from a recharge area to a **point of discharge** at a lower elevation. E.g., natural spring, drilling industry, etc.
  - It is different from water flowing normally through tube wells or wells as the artesian water can **sprout from underground on its own**.

5.6.29. MUSI RIVER

Musi River historic buildings have been kept on World Monuments Watch 2025

- **World Monuments Watch** is a biennial program which aims to raise awareness and mobilize action for the preservation of cultural heritage worldwide.

About Musi River

- **Origin**: **Ananthagiri hills, Rangareddy district (Telangana).**
- It is one of the major tributaries of **Krishna river** and flows into the **Osmansagar and Himayatsagar reservoirs.**
- It consists of 2 **rivulets Esi (8 kms) and Musa (13 kms)** which then converge into Musi River.
- **Importance**: major water sources for **Hyderabad.**

5.6.30. MOUNT IBU

Indonesia's Mount Ibu, on the remote island of Halmahera, **erupted 1,000 times this month.**

About Mount Ibu:

- As an active volcano**, Mount Ibu is part of the Pacific Ring of Fire**, a region known for frequent volcanic activity and earthquakes.
  - The Ring of Fire, also called the **Circum-Pacific Belt**, is a **path along the Pacific Ocean** characterized by numerous active volcanoes and seismic activity.
- **Indonesia has numerous volcanoes** due to its location on **converging tectonic plates**, particularly the Pacific, Eurasian, and Australian plates.
- **Other Recent Eruptions in Indonesia**: Mount Sinabung and Mount Merapi.

QUIZ **SMART QUIZ**	You can scan this QR code to practice the Smart Quiz of Environment at our open test online platform for testing your understanding and recalling of the concepts.	

6. SOCIAL ISSUES

6.1. OXFAM REPORT ON WIDENING GLOBAL ECONOMIC INEQUALITIES

Why in the news?

Recently Oxfam released report titled '**Takers Not Makers: The Unjust Poverty and Unearned Wealth of Colonial Inheritance**'.

Key Findings of Report

- **Deeply Unequal World**: Today, **44% of the world's population lives below the World Bank's poverty line** of $6.85 (PPP). Meanwhile, the **richest 1% control 45% of global wealth**.
  - **Age of billionaire colonialism:** In 2024, billionaires' **wealth increased by a rate three times faster than 2023**.
  - **Most billionaire wealth is taken, not earned:** 60% of billionaire wealth comes from **inheritance, cronyism and corruption or monopoly power**.
- **Colonial Inheritance:** Unearned nature of much of **extreme wealth of ultra-rich** is arguably a **result of colonialism** which is both a historical and a **modern-day phenomenon.**
  - **Historical colonialism**: It is the period of **formal occupation and domination by rich countries** that largely came to an end with the national liberation struggles waged in the decades after World War II.
  - **Modern-day Colonialism (Neo-colonialism)**: Predominantly the rich countries of the **Global North** continue to **exercise power and control over the countries of the Global South**. **Colonial Legacy in Contemporary Times**
    - **Digital colonialism:** By controlling digital ecosystem, **Big Tech corporations from north** control computer-mediated experiences, giving them direct power over political, economic and cultural domains of life.
    - **Exploitative corporate structures**: **Multinational corporations (MNCs)** of Global North dominate global supply chains, benefitting from cheap labour and the continued **extraction of resources from the Global South.**
      - ✓ **Between 1995 and 2015**, **US$242 trillion** (in 2010 US$) was extracted by the Global North in this way.
    - **Unequal power in institutions that govern our world**: **Global governance institutions** are informally **dominated by Global North**.
      - ✓ E.g., **G7 countries still hold 41% of the votes in the IMF and World Bank,** despite having less than 10% of the world's population
- **Impact of Historical Colonialism on Present-day Inequality:**
  - **Exploitation and Profound economic Inequality**, Border Conflicts due to arbitrary colonial partitions etc.
    - Lower-income countries' **tax losses (US$47bn)** due to global tax abuse are equivalent to half (49%) of their public health budgets.
    - **Low- and middle-income countries** spend **48% of their budgets on debt repayment**, mostly to wealthy creditors north.
  - **Social Divisions** (E.g. Racism), **concentration of landholdings in the Global South**, **Poor health** Indicators in global south, **global disparities in research** and funding etc.
  - **Gender Inequality:** Colonialism disrupted traditional gender roles, diminishing women's economic autonomy.
    - The introduction of **cash crops marginalized women's agricultural contributions**, relegating them to **unpaid labor** and excluding them from the global marketplace.

Economic Inequality in India

- **Wealth Inequality:** In India, the **richest 1% control more than 40% of total wealth**, while the **bottom 50% own merely 3%** (**Oxfam's Report - Survival of the Richest: The India Story**)
- **Income Inequality:**
  - **Rural-Urban Divide:** Average Monthly Per Capita Expenditure (MPCE) is Estimated Rs. 4, 122 (Rural) and Rs. 6,996 (Urban) (Household Consumption Expenditure Survey 2023-24).
  - **Gender Pay Gap:** In India, men earn 82 % of the labour income, whereas women earn 18 % of it (World Inequality Report 2022).
- **Wealth Drain during Colonial Period:** Between 1765 and 1900, **UK drained $64.82 trillion from India**, with $33.8 trillion going to the top 10%.

Drain of Wealth from India During Colonial Period

- **Dadabhai Naoroji** first highlighted in 1867 in his paper **'England's Debt to India',** that Britain was bleeding India by extracting and appropriating more than one-fourth of India's revenue.
  - He developed his arguments further in a paper on the **'Poverty of India' in 1873** and in 1901 he wrote **Poverty and Un-British Rule in India.**
- According to **Dadabhai Naoroji's** "**Drain of Wealth" theory**, followings were components of drain of wealth from India:
  - **High Taxes**: Excessive land revenue drained agricultural income.
  - **Trade Exploitation**: India supplied raw materials and bought British goods, collapsing local industries.
    - In 1750, India contributed 25% to global industrial output, but by 1900, this fell to 2%.
  - **Other components**: **Home Charges** (Indian revenue funding British administration), sending **profits** back to Britain, **Currency Manipulation** etc.
- At the beginning of the twentieth century **R.C. Dutt** estimated the drain at **twenty million pounds a year.**

Way Forward (Recommendations of the report)

- **National Targets:** All Countries should establish **National Inequality Reduction Plans** with specific timelines to decrease economic disparities.
  - Formerly colonized countries should work to **reform or remove inherited institutions** that have a **colonial history and perpetuate inequality.**
- **Reformation of Global Governance**: **Changing voting powers** in institutions like World Bank and IMF, allowing **Global South countries more influence over policies** that directly affect them.
  - The IMF & World Bank should **avoid imposing economic conditions** based on fiscal consolidation, or deregulation when **issuing loans and grants**.
- **Abolition of UN Security Council Veto Power & restructuring its membership**: To include **permanent seats for Global South nations can promote equity**.
- **Taxation of the Super-Rich**: Governments need to implement reforms to tax the income and wealth of ultra-rich individuals.
  - It's essential to tackle **tax avoidance and evasion**, and eliminate **tax havens** that enable elites and large corporations to evade taxes.
- **Dismantling Monopolies:** Breaking up private monopolies and **regulating corporations** ensures they pay **living wages** and commit to **climate and gender justice**.
  - **Democratization of Knowledge** (**ending monopolies over knowledge)** by reforming trade and patent rules, such as those exploited by Big Pharma, can reduce inequality.
- **Promotion of Global South-South Cooperation**: Countries should foster collective development in Global South nations by **sharing knowledge, technology, and resources**.
  - **Strengthening Global South Institutions** enables these countries to play a more active role in implementing policies aimed at reducing inequality.
- **Former colonial powers should pay reparations** and support the cancellation of unsustainable debt, actively working to **dismantle the Global North's dominance** of the global economy.

6.2. INDIA'S DIGITAL HEALTH

Why in the news?

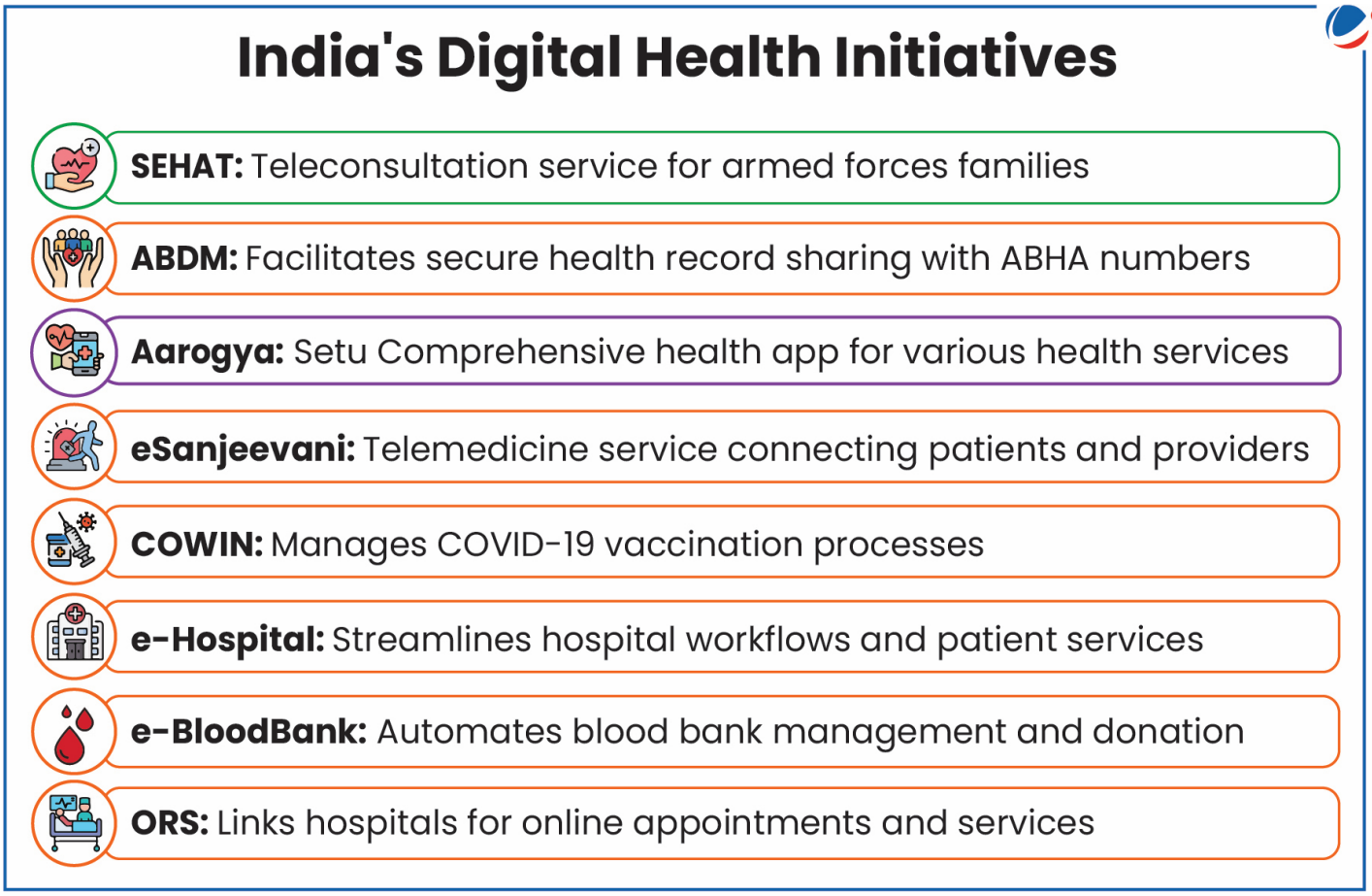
World Economic Forum's (WEF) article 'India Can Be a Global Pathfinder in Digital Health', **highlighted India's potential in building a global resilient digital healthcare** ecosystem.

More on the news

- **India's healthcare landscape** is **evolving** to **bridge gap between urban and rural** healthcare services, leveraging telemedicine, electronic health records (EHRs), **artificial intelligence (AI) driven diagnostics** etc.
- This **proactive approach to digital health, characterized by robust digital public infrastructure (DPI) and innovative private sector**, positions India as a global leader in developing adaptable healthcare solutions.

What is Digital Health?

- **Definition:** As per **World Health Organisation** (WHO), digital health is the **field of knowledge and practices associated with the development and use of digital technologies to improve health**.
- **Components:**
  - **Digital health applications:** E.g., **EHRs**; **telemedicine**; **wearable devices** to monitors health aspects; health information system for managing, storing, exchanging health information etc.
  - **Digital health technologies:** E.g., **AI and Big Data** to analyze patterns in large volumes of data; **Internet of Medical Things** (interconnected medical devices); **Augmented Reality** to make medical procedure more efficient etc.



Prominent features of India's digital healthcare highlighted by WEF

- **Interoperability and standardization:** Ensuring **seamless data exchange** between stakeholders.
  - E.g., **Ayushman Bharat Digital Mission** (ABDM) aims to create a **nationwide digital health ecosystem** by integrating healthcare service providers and patients **through Unique Health IDs**.
  - E.g., **CoWIN Platform** revolutionized vaccination campaigns, managing over 2 billion doses setting global **benchmarks for large-scale digital health system standardization**.
  - **Other examples include: U-Win Portal**, **Aarogya Setu App**, **e-Hospital application** etc.
- **Public-private collaboration:** Encouraging **partnerships for innovation** and expansion.
  - E.g., **under National Digital Health Mission** (NDHM), a **Health Facility Register** (HFR), repository of health facilities, is centrally maintained and facilitates **standardized data exchange of private and public health facilities** across India.
- **Focus on affordability and accessibility:** Leveraging digital tools to **make healthcare inclusive**.
  - E.g., **e-Sanjeevani Telemedicine Service** connects remote areas to healthcare through telemedicine, enabling millions of consultations.

- E.g., **National Tele Mental Health Programme** (**Tele MANAS**) aims to improve access to quality mental health counseling and care services in the country.

- **Global Influence:** India's digital health models could serve as templates for other developing nations.
  - E.g., **India's digital health infrastructure** and large population base provides an **ideal testing ground for developing global healthcare solutions**, and can **address universal healthcare challenges** such as rising costs, unequal access, chronic disease burdens etc.
  - Also, successful models like **cross-sector partnerships, PPP**, etc., **can be adapted for other regions**, especially low- and middle-income countries facing similar healthcare challenges.

Concerns associated with digital healthcare

- **Lack of standardization in digital Cards:** India struggles to standardize coverage and quality of existing digital health cards (e.g., ESIC card, PM-JAY card etc.), leading to data migration and transfer issues.
- **Equity and access issues:** Unequal access to digital health technologies, digital literacy skills etc., can exclude vulnerable populations particularly in remote and rural areas.
  - E.g., **National Health Authority** (NHA) reports that **nearly 30 per cent of healthcare institutions in India suffer from poor data connectivity**, impacting medical treatments.
- **Privacy and security issues:** Unauthorized data access and breaches can compromise patient privacy and lead to identity theft.
  - E.g., in **November 2022**, **AIIMS experienced a cyber-attack** that led to server downtime, disrupting the functioning of the outpatient department (OPD), **withholding around 4 crore patients' sensitive data and medical records** etc.
- **Algorithmic bias:** Technologies such as AI can result in unfair or discriminatory treatment, which might lead to racial and ethnic disparity in healthcare.
  - E.g., **AI in US health systems exhibited bias by prioritizing healthier white patients over sicker black patients for additional care** due to AI's training on cost data, instead of care needs.

Conclusion

India's **digital healthcare infrastructure** holds **immense potential to enhance healthcare accessibility and efficiency**. At the same time, with **continued policy support** (e.g., through **enhanced cyber security frameworks** etc.), **infrastructure development** (e.g., through **BharatNet**, **Blockchain-based health records** etc.), more **public-private collaborations**, technological advancements etc., India's healthcare system is **expected to evolve into a globally recognized model** for digital health transformation, setting benchmarks for other nations.

To know more about Digital Health, refer to Article 6.5. Digital Health in October 2024 Monthly Current Affairs Magazine.

6.3. NEWS IN SHORTS

6.3.1. ROLE OF DIGITAL PUBLIC INFRASTRUCTURE (DPI) FOR CHILDREN EXPLORED BY UNICEF REPORT

UNICEF's 'Global Outlook 2025: Prospects for Children' **deals with the transformative role that DPI can play in** delivery of digital public services for children.

What is meant by DPI?

- It is a **set of shared digital systems** that deliver and provide **equitable access to public and/or private services at societal scale.**
- Its ecosystem comprises technology, markets and governance.

Role of DPI in children's well-being

- **Equitable access to essential services: E.g. Digital IDs** connected to **civil registration systems** enable lifelong access to essential services.
  - **Education:** E.g. India's national digital education platform, **DIKSHA,** bridges **educational gaps.**

- **Health:** Facilitates electronic health records. E.g. Electronic Immunization Registry in Jamaica improved childhood vaccination rate.

- **Foster financial literacy and inclusion** by enabling children to participate in the digital economy
- **Enhances social protection systems** by enabling targeted delivery of benefits and improved **data sharing for better child services**.

Challenges associated with use of DPI

- **Poor connectivity and digital inequality:** E.g.- Only 43.6% of Indian rural youth aged 15-24 can send emails.
- **Poor integration of Civil Registration and Vital Statistics (CRVS) systems into national ID:** It restricts universal coverage.
- **Others: Lack of data interoperability and harmonization** across systems, data protection, security and surveillance issues, etc.

Recommendations

- **Digitize CRVS systems** to serve as a basis for digital IDs.
- **Enable seamless, safe and secure data exchange** between health, education and social services
- **Empower children, youth and their families through digital financial inclusion and literacy,**
- **Children's input** must be included when designing digital infrastructure that affects them.

To know more about DPI, refer to Article 3.1. Digital Public Infrastructure (DPI) in July 2024 Monthly Current Affairs Magazine.

6.3.2. UDISE+ 2023-24 REPORT ON SCHOOL EDUCATION

Ministry of Education releases Unified District Information System for Education Plus (UDISE+) 2023-24 Report on School Education.

- In UDISE+ 2023-24 for the first time, at **national level individual student wise data has been collected** from all recognized schools in country through UDISE+ since 2022-23.
- It is aligned with recommendations of NEP 2020.

Key findings of UDISE+ 2023-24

- **Student Enrolments: Overall dip in school enrolments** as well across country, falling from 25.18 crore in 2022-23 to **24.8 crore in 2023-24**.
  - This represents a **drop of about 1.55 crore students** (nearly 6%) from 2018-19 to 2021-22.
- **Dropouts**: **Zero-dropout rate at Foundational level** (pre-primary to Class 2) is due to admission of students from Anganwadi, standalone private pre-primary school directly to Class I in recognized schools.
  - **Maximum dropout rates** were at **Secondary level (Classes 9 to 12)**.
  - **Bihar, Uttar Pradesh and Maharashtra** saw among **highest drop in enrolments**.
- **Retention rate**: Higher at elementary level.
- **Gross Enrollment Ratio (GER):** Minor **dip at all levels except at the secondary level.**
  - GER compares **enrolment in a specific level of education to population of age group** that is age-appropriate for that level of education.
- **School infrastructure:** Assam, Odisha, and Karnataka face underutilised infrastructure due to low student-to-school ratios.

About UDISE+

- UDISE+ system of **online data collection from schools** was **developed by Department of School Education & Literacy** in the 2018-19 to overcome the issues related to erstwhile practice of manual data filling in paper format.
- UDISE+ collects information through an online Data Collection Form on parameters ranging from school, Infrastructure, teachers, enrolments, examination results etc.

6.3.3. EMPOWHER BIZ

The Women Entrepreneurship Platform (WEP) of NITI Aayog has launched EmpowHER Biz – Sapno Ki Udaan.

- WEP, incubated in NITI Aayog in 2018 as an aggregator platform have transitioned into a **public-private partnership** in 2022 **EmpowHER Biz**
- **Objectives**
  - Empower women entrepreneurs by equipping them with the skills and resources needed.
  - It will offer mentorship covering retail management, digital tools, financial literacy and business development to aspiring women entrepreneurs.

QUIZ **SMART QUIZ**	You can scan this QR code to practice the Smart Quiz of Social Issues & Social Schemes at our open test online platform for testing your understanding and recalling of the concepts.	

7. SCIENCE AND TECHNOLOGY

7.1. GENOME INDIA PROJECT

Why in the News?

Genome India Project (GIP) has achieved a significant milestone by making the genomic data of 10,000 individuals publicly accessible.

More about News

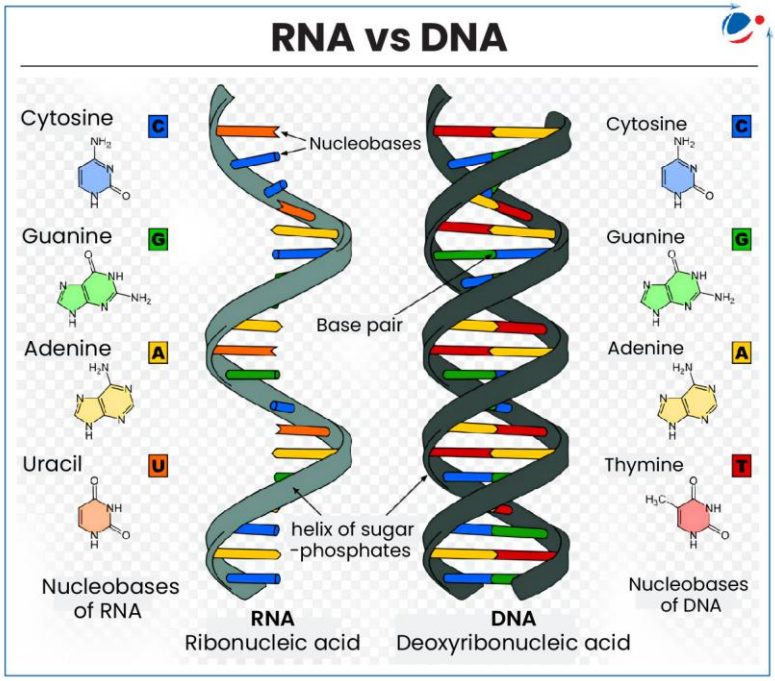
- Whole genome sequencing data for 10,000 individuals have been archived at **Indian Biological Data Centre (IBDC).**
  - **IBDC, Faridabad** is India's **first national life science data repository**, mandated to archive publicly funded research data. It is supported by Department of Biotechnology**.**
- Framework for **Exchange of Data Protocols (FeED)' and the IBDC Portals** were also launched at **Genome India Data Conclave.**
  - **'Framework for Exchange of Data (FeED)' Protocols** is under **Biotech-PRIDE Guidelines** and it ensures high-quality, nation-specific data sharing in a transparent, fair, and responsible manner.

Genome India Project

- It was **initiated in 2020** by Department of Biotechnology (DBT), Government of India with **collaborations of 20 institutions** to map **India's genetic diversity.**
- **Primary objective:** Build a **comprehensive catalogue of genetic variations** that reflect unique diversity of Indian population.
- **Key Achievements:**
  - **20,000 samples collected** from 83 diverse populations, establishing a bio bank.
  - **10,000 genomes sequenced** in first phase, creating a reference genome for India.

Know the term

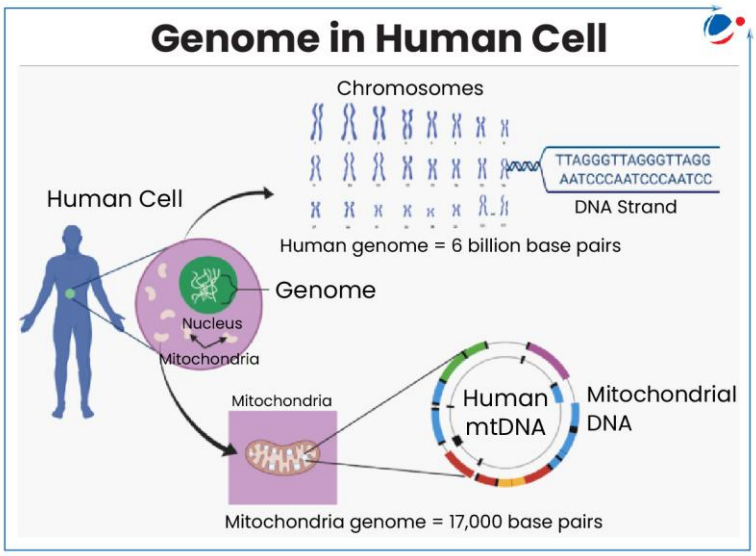
- **Whole Genome Sequencing:** It determines the entire DNA sequence of an organism's genome and covers both **coding (exons)** and **non-coding (introns, regulatory regions) regions** of DNA.
- **Exons:** Region of the genome that ends up within an mRNA molecule which **helps synthesizes proteins.**

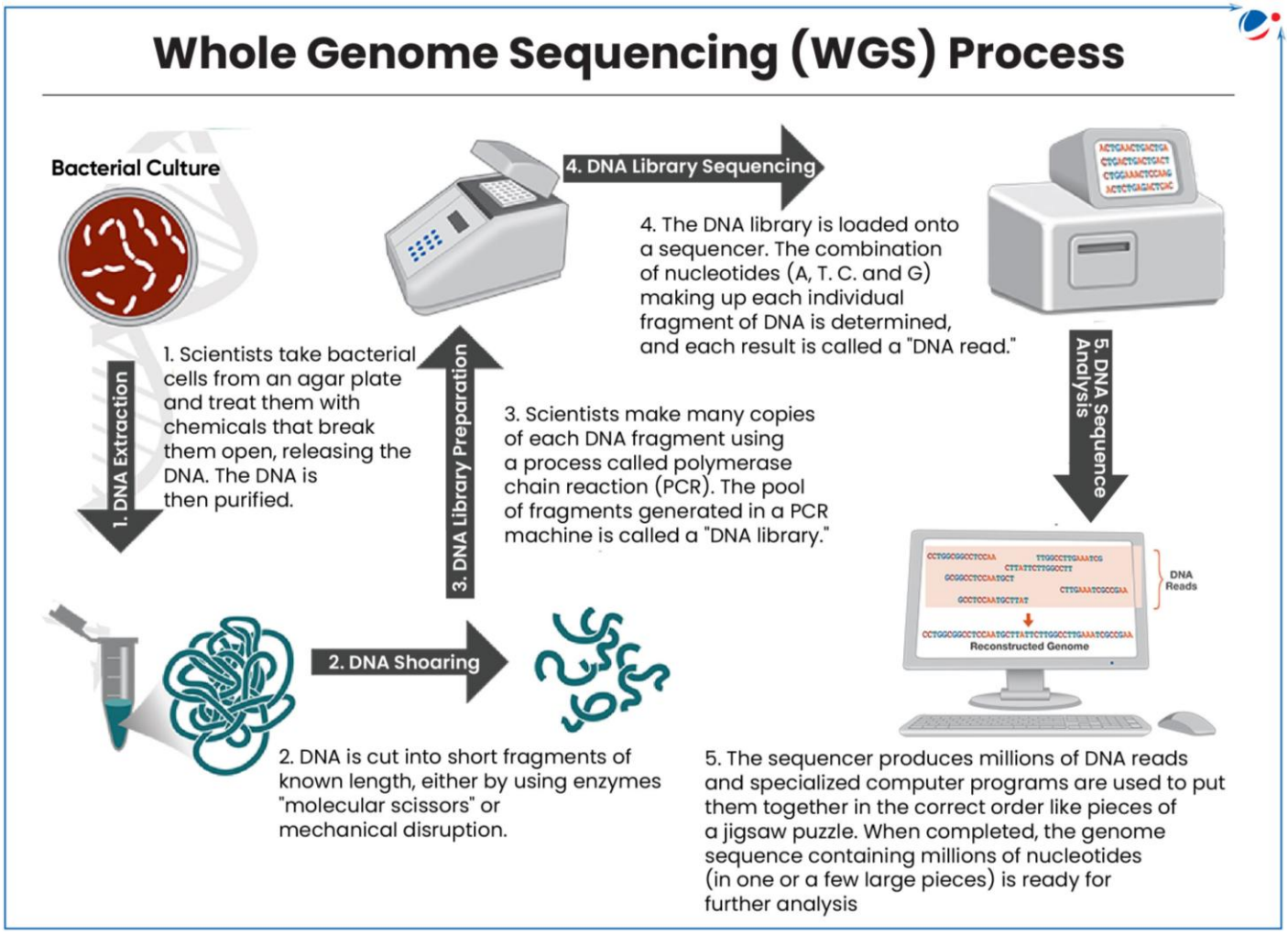


What is Genome Sequencing?

- **What is Genome:** It is entire set of **genetic material i.e. DNA/RNA (DNA in most organisms**) present in an individual or species.
  - It **contains all information** necessary for **development, functioning, and maintenance of that organism.**
- **Genome Sequencing:** It is process of determining **complete genetic material sequence of** an organism's **genome.**
  - It determines the **precise sequence of nucleotide bases in DNA/RNA strand**.
  - **Sequence of bases** (often referred to by first letters of their chemical names: A, T, C, G and U) encodes **biological information** that cells use to **develop and operate.**
- **Applications:**
  - **Healthcare and Medicine:**
    - **Medical Research:** Genome sequencing aids in identifying genetic disorders and **Enhances disease research** by linking genetic variations to prevalent health conditions.

- > **Other Applications:** Facilitates precision medicine, early detection of diseases, aids in cancer research etc.
- **Public Health & Epidemic Control:**
  - > **Epidemiology:** Tracking pathogens during outbreaks allows for better public health responses.
  - > **Vaccine Development:** Helps in designing vaccines against infectious diseases.
- **Agricultural Science:** It helps in improving crop varieties and livestock through genetic insights.
- **Biodiversity Conservation:** Helps in cataloging species and understanding evolutionary links.





Other Projects on Genome Sequencing

- **IndiGen program:** Genomics initiative by the Council of Scientific and Industrial Research (CSIR) to sequence the genomes of Indians from various ethnic groups.
- **'One Day One Genome' initiative by DBT:** Will highlight the unique bacterial species found in our country and emphasize their critical roles in environment, agriculture and the human health.

- **Human Genome Project (HGP):** An international collaboration that aimed to map and sequences the entire human genome. It began in 1990 and was completed in 2003, with a final gapless assembly achieved in January 2022.
- **100,000 Genomes Project:** England's very first initiative sequencing 100,000 genomes from around 85,000 NHS patients affected by rare disease or cancer.
- **International HapMap Project:** Analyzing over a million variants in African, Asian, and European ancestry groups, it helps identify genetic links to diseases, aids in diagnostic tool development, and improves therapeutic targeting.

Challenges related to Genome Sequencing

- **Data Accuracy and Error Correction:** Despite advancements, sequencing technologies still grapple with errors, particularly in long-read sequencing.
- **Lack of Data Protection and Regulation:** Many Indian genomic samples are sent abroad for sequencing, as existing regulations allow commercial export of biological samples. This raises concerns about data security and privacy.
- **Ethical Issues:** Raises ethical concerns like potential for genetic discrimination, question of Informed Consent, issues of eugenics etc.
- **Inequity and low diversity:** Unregulated market forces may create barriers to better healthcare access, especially for the poor and ethnic minorities.
- **Cost and Accessibility:** While sequencing costs have dropped significantly, large-scale projects remain expensive, limiting accessibility in low-resource settings.
- **Fragmentation of genetic data:** With a number of organizations providing genetic testing services, the data remain in silos.
    - Without a framework for collecting well aggregated summary data, the data remains inaccessible for public health decision-making.

Way Forward

- **Advancements in Sequencing Technologies**: Continued innovation in sequencing platforms e.g. improvements in long-read accuracy to detect complex genomic rearrangements, using next generation sequencing (NGS) etc.
    - NGS is a **high-throughput DNA sequencing technology** that allows for rapid and parallel sequencing of millions of small DNA fragments simultaneously.
        - NGS enables sequencing entire genomes **much faster and at a lower cost** compared to traditional sequencing methods like Sanger sequencing.
- **Ethical Frameworks and Policy Development:** Establishing clear ethical guidelines and policies for genome sequencing applications, particularly in population screening, is essential.
- **Global best practices** can be followed for curbing various ethical and privacy related issues e.g. Genetic Information Non-discrimination Act (GINA) of US.
- **Cost Reduction and Global Accessibility:** Efforts to further reduce sequencing costs and simplify workflows will make genomic technologies more accessible worldwide.

To know more about One Day One Genome, refer to Article 7.1. One Day One Genome in November 2024 Monthly Current Affairs Magazine.

7.2. GENETICALLY MODIFIED (GM) CROPS

Why in the News?

Ministry of Environment, Forest and Climate Change issued Draft Manufacture, Use, Import, Export, and Storage of Hazardous Micro-Organisms/Genetically Engineered Organisms or Cells (Amendment) Rules, 2024.

More about News

- This draft proposes amendments to the **Manufacture, Use, Import, Export, and Storage of Hazardous Micro Organisms/Genetically Engineered Organisms or Cells Rules, 1989,** under the Environment (Protection) Act, 1986.

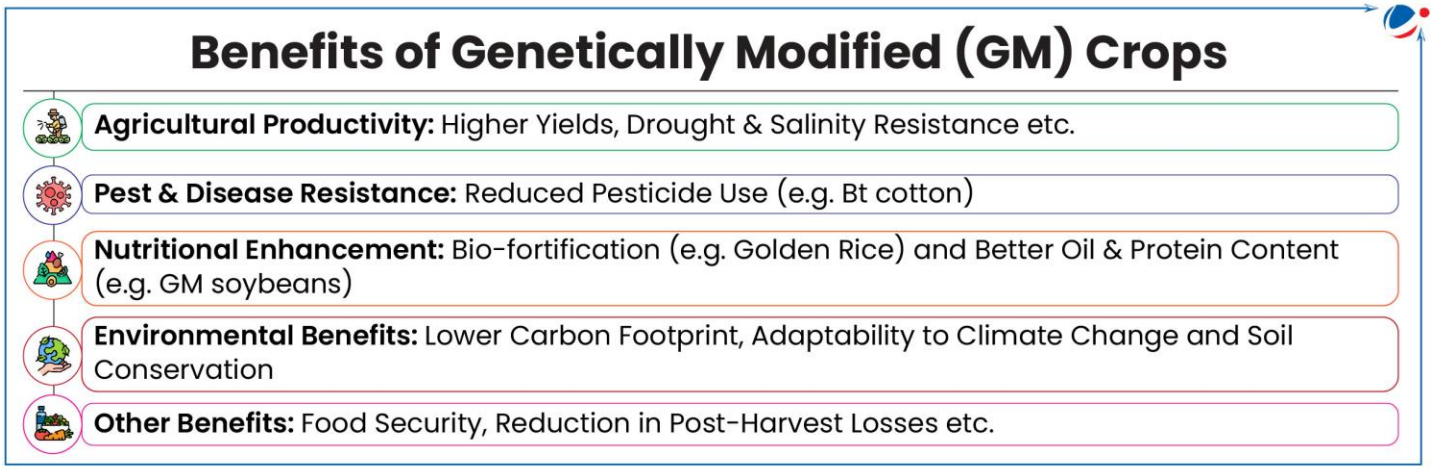
- These amendments aim to enhance transparency and accountability in decision-making processes involving GMOs, as directed by the **Supreme Court of India (Gene Campaign & Anr. Vs. Union of India & Ors.).**
- Draft notification proposed amendments in rules to ensure greater transparency in the **decision-making process of the Genetic Engineering Appraisal Committee (GEAC).**

Genetically Modified (GM) Crops:

- Plants, bacteria, fungi and animals whose **genes have been altered by manipulation** are called Genetically Modified Organisms (GMO).
    - Similarly GM crops are developed by using **genetic engineering techniques** to **introduce specific genes** from other organisms into a plant's DNA.

How GM Crops are developed?

- **Development of GM crops begins with identifying and isolating the gene of interest from a host organism. This gene is then inserted into the DNA of the crop plant using following laboratory-based methods.**
    - **Gene Gun Approach: DNA-coated metal particles are bombarded into plant cells**
    - **Agrobacterium Approach:** Bacterium **Agrobacterium tumefaciens** transfers the desired gene into plant cells.
    - **Electroporation:** Used when the plant tissue does not contain cell walls. In this technique, electric pulses are used to create miniature pores in the plant cell through which the DNA enters.
    - **Microinjection:** Used to directly inject foreign DNA into cells.



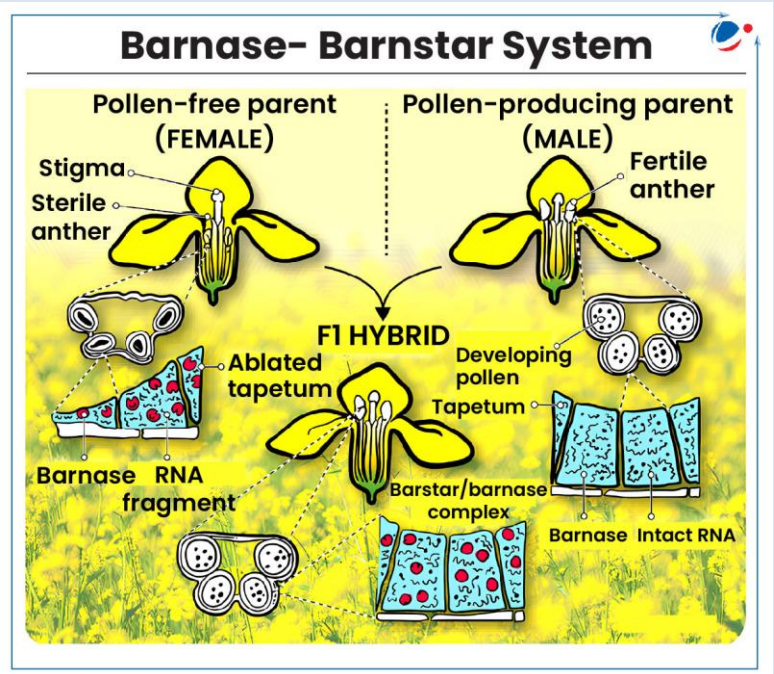
GM Crops in India

- **Bt Cotton:** The only GM crop approved for commercial cultivation in India (since 2002). It is resistant to **cotton bollworm.**
    - In it, insertion of the **genes from soil bacterium B. thuringiensis** causes cotton plant cells to produce crystal insecticidal proteins, **often referred to as Cryoproteins.**
- **Bt Brinjal:** Approved by GEAC in 2009 but later faced moratorium.
    - Bt brinjal contains a **'cry1Ac' gene** isolated from the soil bacterium Bacillus thuringiensis. The gene codes for a toxic protein making it **resistant to insects.**
    - Government permitted Biosafety research field trials for **two new transgenic varieties (Janak and BSS-793)** in eight states.
- **GM Mustard Crop (DMH-11):**
    - Developed by Centre for Genetic Manipulation of Crop Plants (Delhi University).

- GM mustard **has not been released** for commercial cultivation yet.
- It is a result of a **cross pollination** between **two mustard varieties** ('Varuna' and East European 'Early Heera-2').
  - Cross pollination is difficult in **conventional mustard breeding** because mustard is self-pollinating, i.e., pollen from the male part pollinates and fertilizes female part of **same plant.**
  - This cross was done by introducing **barnase and barstar gene** from soil bacterium **Bacillus amyloliquefaciense** into both mustard varieties.
    - ✓ **Barnase in Varuna** induces a **temporary sterility** because of which it can't naturally self-pollinate. **Barstar in Heera blocks** effect of barnase allowing seeds to be produced.

Barnase-Barstar system:

- DMH 11 uses three transgenes – **barnase, barstar, and bar**
- **Aim of these Three Trans genes:**
  - **Barnase:** It is used to **create male-sterile plants** by **destroying the tapetum cell layer**.
    - Such transgenic parental line is then **used as a female parent** and **fertilised by another parent (Containing Barstar gene)** to develop the hybrid.
      - ✓ Tapetum cells are a **layer of cells** in the **anther of flowering plants** that **provide nutrients** to developing **pollen grains.**
  - **Barstar:** It completely **negates effect of Barnase protein**; as a consequence, hybrid seed between two lines is fully fertile and farmers can reap benefit of higher yield from hybrid.



  - **Bar:** Bar gene confers **resistance to herbicide Basta** and is needed for selecting the transformed lines.
    - Bar gene was originally isolated from **soil bacterium Streptomyces hygroscopicus.**

Regulation of GMOs in India

- **Regulatory & Approval:**
  - **Genetic Engineering Appraisal Committee (GEAC) –** Approves large-scale use and release of GMOs.
  - **Review Committee on Genetic Manipulation (RCGM) –** It is established under the **Department of Biotechnology, Ministry of Science and Technology**. It monitor the safety of on-going research projects and activities (including small scale field trials, import, export etc) involving genetically engineered organisms.
  - **Institutional Biosafety Committee (IBSC) –** Ensures biosafety at institutional levels.
- **Advisory:**
  - **Recombinant DNA Advisory Committee (RDAC) –** Recommends policies and safety regulations.
- **Monitoring:**
  - **State Biotechnology Coordination Committee (SBCC) –** Inspects and enforces regulations at the state level.
  - **District Level Committee (DLC) –** Oversees local GMO use and safety compliance.

Genetic Engineering Appraisal Committee (GEAC)

- **About:** Statutory committee constituted under "Rules for the Manufacture, Use/Import/Export and Storage of Hazardous Micro Organisms/Genetically Engineered Organisms or Cells (Rules, 1989)"
- **Statutory Basis:** Environment (Protection) Act, 1986
- **Ministry:** Ministry of Environment, Forest and Climate Change (MoEF&CC).
- **Composition:**
  - **Chairman:** Special Secretary/Additional Secretary of MoEF&CC.

- **Co-Chairman:** Department of Biotechnology Representative.
- **Functions:**
  - To appraise activities involving large scale use of hazardous microorganisms and recombinants in research and industrial production from the environmental angle.
  - To appraise proposals relating to release of genetically engineered organisms and products into environment including experimental field trials.
  - Committee or any persons authorized by it has powers to take punitive action under Environment Protection Act.

Concerns of GM Crops

- **Ecological Concerns:** GMOs may cause genetic contamination in natural ecosystems and increase chemical dependence. **Example:** Bt Corn potentially harms **Monarch butterflies** feeding on wild milkweed.
  - Weeds have developed a **resistance to the herbicides. E.g. Glyphosate (A pesticide)** use has surged, and **pest resistance** (pink bollworm, whitefly in India) has **led to higher pesticide dependence** instead of reduction.
- **Biodiversity Loss:** Use of GM crops may cause leakage of **GM proteins into the soil** that will affect the useful bacteria, microbes and beneficial interactions in soil. It will also lead to **inadvertent toxicity** to benign **flora and fauna.**
- **Economic Issues:** Yield claims often fail; e.g. according to some experts Bt Cotton in India showed stagnated yields despite GM adoption.
  - **Market Monopoly:** GM crops are **controlled by corporations with IP rights**, risking food security dependence on a few suppliers.
- **Ethical Issues:** Unpredictable effects of GMOs on ecosystems raise moral concerns.
- **Allergenicity:** There is a possibility that introducing a gene into a plant may create an allergic reaction in susceptible individuals.

Way Forward (By Parliamentary Standing Committee Report on 'GM Crops and its impact on Environment')

- **Regulatory Reforms**: Strengthen **GEAC's transparency** and safety measures, include **MPs in District-level committees**, and mandate **independent impact assessments** instead of relying on applicant data.
- **Scientific Evaluation:** Conduct **controlled field trials**, assess **actual yield improvements** (e.g., Bt cotton stagnation), and **study the impact on pesticide usage, soil, water, and biodiversity** before approvals.
- **Mandatory GM Food Labeling:** The immediate implementation of clear labeling for GM products in India is necessary to ensure consumer awareness.
- **Animal Health Impact Study:** The Department of Animal Husbandry must conduct long-term feeding trials on livestock and fish to assess GM crops' impact on animal health.
- **Formulating a national policy:** With regard to GM crops for research, cultivation, trade and commerce in the country.

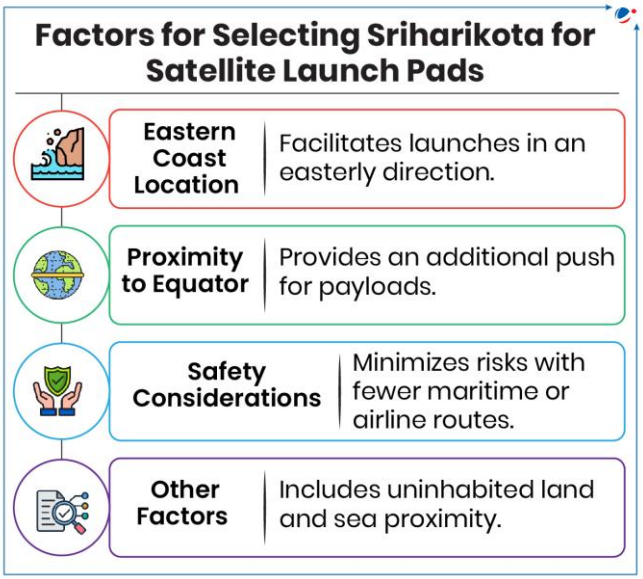
7.3. THIRD LAUNCH PAD

Why in the News?

Union Cabinet approved the establishment of 'Third Launch Pad' (TLP) project at **Satish Dhawan Space Centre of ISRO** at Sriharikota, Andhra Pradesh.

About TLP

- **Key Features:** Configured to support Launch of **Next Generation Launch Vehicles (NGLV)** and **Launch Vehicle Mark-3 (LVM3)** with Semi cryogenic stage as well as scaled up configurations of NGLV.
- **Timeline:** To be established within 4 years.



- **Significance of TLP**
  - **Capacity augmentation**: Enables **higher launch frequencies** and enhances the launch capacity for future human spaceflight & space exploration missions, etc.
  - **Expanded vision of Indian Space Programme:** Bharatiya Antariksh Station (BAS) by 2035 and an Indian Crewed Lunar Landing by 2040 require a next generation of heavier launch vehicles with new propulsion systems.
  - **Future Transportation:** It is highly essential so as to meet the evolving space transportation requirements for another 25-30 years.

Existing Launch pads in India

- Currently, ISRO relies on **2 launch pads located at Shriharikota:**
  - **First Launch Pad** provides launch support for **Polar Satellite Launch Vehicle (PSLV)** and **Small Satellite Launch Vehicle** (**SSLV)**.
  - **Second Launch Pad** was established primarily for **Geosynchronous Satellite Launch Vehicle (GSLV) & LVM3** and also functions as standby for PSLV.

Conclusion

The expeditious establishment of a Third Launch Pad to cater to a heavier class of Next Generation Launch Vehicles and as a stand by for SLP is highly essential so as to meet the evolving space transportation requirements.

Next Generation Launch Vehicles (NGLV) Programme

- **About:** It aims to develop a new rocket (also known as **Soorya Rocket**) to launch satellites, spacecraft, and other payloads.
- **Features**
  - **3 stage vehicle** with reusable first stage. **Reusability** results in low-cost access to space and modular green propulsion systems.
  - The booster stages will use **semi-cryogenic propulsion**, using refined kerosene as fuel and liquid oxygen (LOX) as oxidizer.
  - It will have **3 times the present payload capability** with **1.5 times the cost** compared to **LVM3.**

Other Launch Vehicles of the ISRO

- **Polar Satellite Launch Vehicle (PSLV):** It is the third generation launch vehicle of India.
  - It is a 4 stage launch vehicle with 1st & 3rd stages being solid rocket motors and 2nd & 4th being liquid engines.
- **Geosynchronous Satellite Launch Vehicle (GSLV):** It is operational **fourth generation launch vehicle with 3-stage** and four liquid strap-on motor.
  - It is used to launch **communication satellites in geo-transfer orbit** using cryogenic third stage.
- **Small Satellite Launch Vehicle (SSLV):** It is a 3 stage Launch Vehicle configured with three Solid Propulsion Stages and liquid propulsion based Velocity Trimming Module (VTM) as a terminal stage.
- **Geosynchronous Satellite Launch Vehicle Mk-III (LVM3):** LVM3 is configured as a **three stage** vehicle with two solid strap-on motors (S200), one liquid core stage (L110), and a high thrust **cryogenic upper stage** (C25).

7.4. SCRAMJET ENGINE

Why in the News?

Defence Research and Development Laboratory (DRDL) successfully conducted a 120-seconds ground test of an **active-cooled Scramjet combustor** for the first time in India.

More on the News

- Indigenous **endothermic scramjet fuel, jointly developed** by DRDL (Hyderabad based laboratory of **Defence Research and Development Organisation (DRDO)**) and Industry was used.
  - An **endothermic fuel** absorbs heat from its surroundings when it undergoes a chemical reaction.
  - It offers dual benefits of significant **cooling improvement** and **ease of ignition**.
- Another key achievement is the **development** of **state-of-art Ceramic Thermal Barrier Coating (TBC)**, designed to withstand **extreme temperatures** encountered during hypersonic flight.

- **Ceramic TBC** has high thermal resistance & is capable of operating beyond **melting point of steel.**
- It has been jointly developed by DRDL and **Department of Science & Technology (DST) Laboratory**.

- The test marks a crucial milestone in developing **next-generation hypersonic missiles**.
  - India is part of **elite club of nations** that have successfully tested scramjet engines which includes the **USA, Russia, China,** etc.

About Scramjet Engine

- A scramjet engine means a **Supersonic Combusting Ramjet engine**.
  - It is an improvement over the **ramjet engine** as it efficiently operates at **hypersonic speeds** and allows **supersonic combustion**.
    - > A **ramjet** is a form of **air-breathing jet engine** that uses the **vehicle's forward motion** to **compress incoming air** for combustion without a **rotating compressor**.
    - > **Dual Mode Ramjet (DMRJ)** is also a variant of an air-breathing engine.

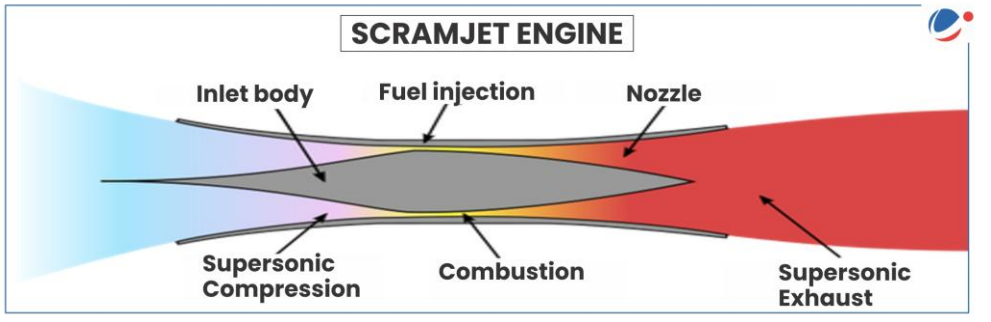
Know the term

- **Jet engine:** Jet engine is an **internal-combustion engine** that propel aircraft by **discharge** of a **jet of fluid**, usually **hot exhaust gases** generated by burning fuel with air drawn in from the atmosphere.
  - It is called **gas turbines.**
  - And, it works **only within** the **atmosphere.**
- **Dual Mode Ramjet (DMRJ)**: A type of jet engine where a ramjet transforms into **scramjet** over Mach 4-8 range, which means, it can efficiently operate both in **subsonic** and **supersonic combustor** modes.

- **Key Features**:
  - **Uses flame stabilisation technique:** This holds **continuous flame** inside the combustor with air speed in excess of 1.5 km/s.
    - > Ignition in it is like '**keeping a candle lit in a hurricane'**.
  - **Depends on assisted take off**: Both ramjets and scramjets **cannot produce thrust** at **zero airspeed**, which means they cannot move a space craft from a standstill.
    - > Therefore, a **scramjet-powered vehicle** requires an **assisted take off** by a rocket to accelerate it to a speed where it begins to produce thrust.

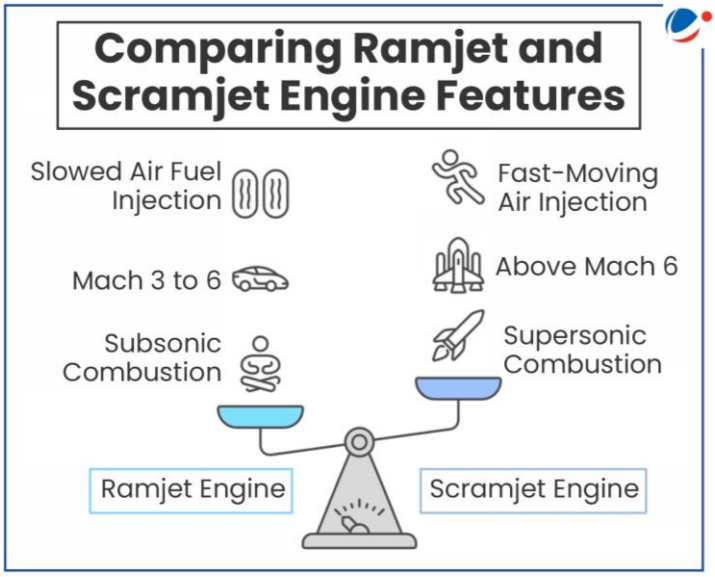
How does the Scramjet engine work?

- **Air Intake:** Vehicle must already be moving at supersonic speeds (above Mach 3).
- **Compression:** Incoming air is compressed due to the high velocity of the aircraft.
- **Combustion:** Fuel (typically hydrogen) is injected into the compressed air and ignited while maintaining supersonic airflow.

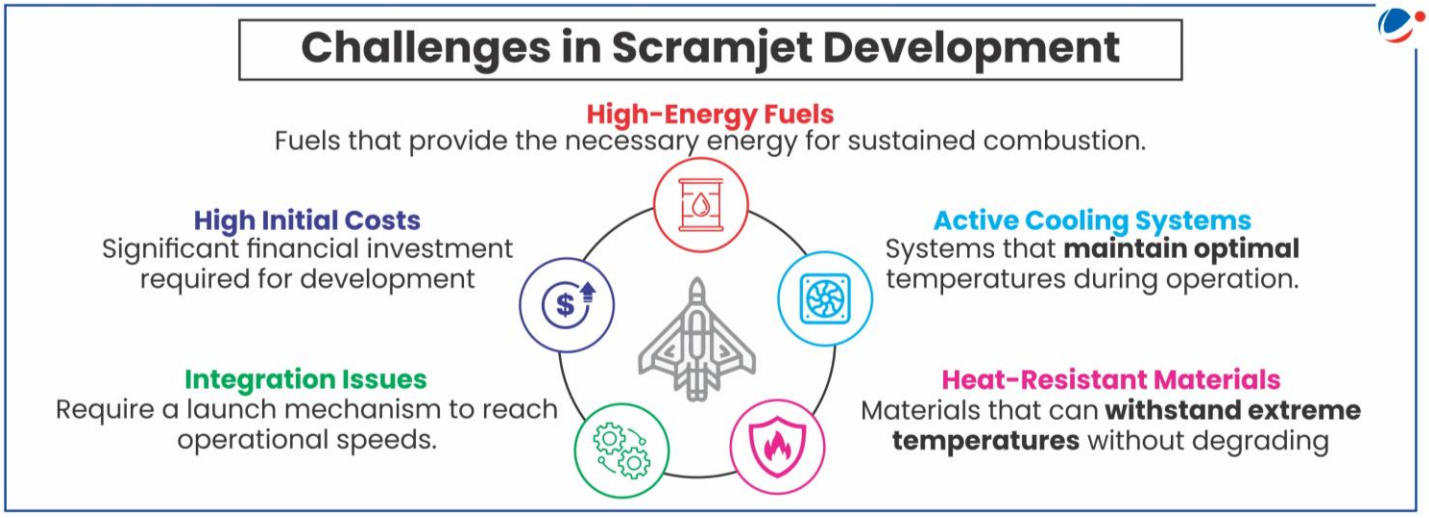


- **Thrust Generation:** The expansion of hot gases produces thrust, propelling the vehicle at hypersonic speeds (based on **Newton's third law**).
  - **Newton's Third Law** states that for every action (force) in nature there is an equal and opposite reaction.

Advantages of Scramjet Technology



- **Increased Efficiency:** It is a more **efficient propulsion system** than a rocket.
  - A **rocket engine** carries both fuel and oxidizer, while a **jet engine** relies on **atmospheric oxygen** for combustion.
  - Nearly 70% of the **propellant** (fuel-oxidiser combination) carried by today's launch vehicles consists of oxidiser.
- **Enhanced Space Access:** It will reduce the cost of space missions as jet engines are re-usable.
  - Also, rockets fitted with **scramjet engines** will be able to carry heavier satellites.
  - An ISRO project called **AVATAR** is aimed at developing a rocket to launch the **ramjets** and **scramjets** engine.
- **Higher Speeds:** Capable of reaching speeds Mach 6 and beyond.
- **Increases Deterrence Power:** Enables the development of hypersonic missiles and reconnaissance aircraft.



Conclusion

Despite technological challenges, scramjet technology holds immense potential for defense and space applications, enhancing deterrence and reducing space access costs. Continued research and innovation will be crucial for overcoming limitations and realizing its full potential.

7.5. NEWS IN SHORTS

7.5.1. QUANTUM TELEPORTATION

Researchers successfully teleported a quantum state of light **over 30 kilometers of fiber optic cable.**

- This breakthrough shows **the potential for quantum and classical networks to share the same infrastructure.**

About Quantum Teleportation

- It is a method for **transferring quantum information between two points using entangled states & preserving their identities across distances.**
  - This entanglement links two particles in a way that changes to one particle instantly affect the other, even over long distance.

- **Significance:** It paves the way for a quantum internet, offering benefits like faster encryption, improved sensing, and global connectivity for quantum computers.

To know more about Quantum Technology, refer to Article 7.1. Quantum Science and Technology in June 2024 Monthly Current Affairs Magazine.

Scan the QR code to know more about **Quantum Technology**

Weekly Focus #69 – Quantum Technology in India: Exploring the possibilities ahead

7.5.2. ATOMIC CLOCK

Quantum-based atomic clock has been developed in United Kingdom.

About Atomic clock

- Atomic clock, type of clock that uses certain **resonance frequencies** of atoms (usually cesium or rubidium) to keep time with extreme accuracy.
  - It is claimed that Quantum**-based atomic clock** will lose less than one second over billions of years, allowing scientists to measure time at an unprecedented scale.

Benefits of Quantum-based atomic clock:

- Increasing accuracy of **Global Navigation Satellite Systems (GNSS)**,
- Enhance the accuracy of **advanced weapon systems**, like guided missiles etc.

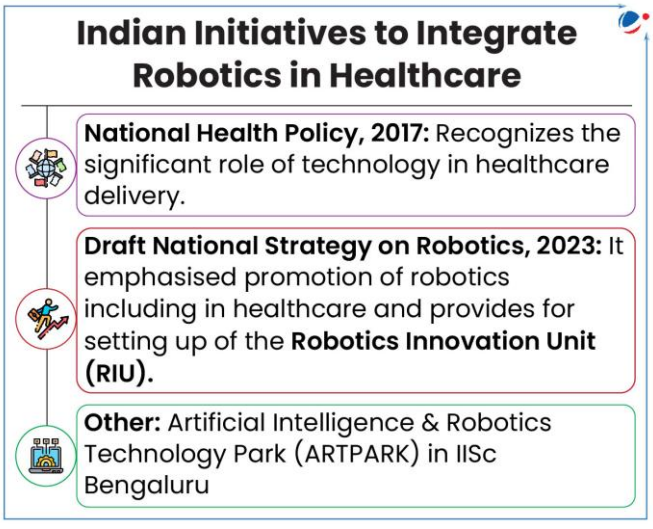
7.5.3. INDIA'S FIRST ROBOTIC SYSTEM PERFORMS TELESURGERIES

India's indigenous Surgical robotic system, **SSI Mantra**, performed two **world-first robotic cardiac telesurgeries** with latency of only 40 milliseconds.

- **Telesurgery** uses robotics and cameras to allow surgeons to perform operations from any location with a high-speed data connection.

About SSI Mantra

- It is the **only robotic system worldwide to receive regulatory approval** for telesurgery and tele-proctoring.
  - Recently, it was approved by the **Central Drugs Standard Control Organization (CDSCO)**, central regulatory body under the Drugs & Cosmetics Act, 1940.
- It performed the robotic beating heart **Totally Endoscopic Coronary Artery Bypass (TECAB)**, considered one of the most complex cardiac surgical procedures.



Other Key Applications of Robotics in Healthcare

- **Safety & Monitoring Robots**: Telepresence systems use computer vision technology to monitor the patient's vitals
- **Robotic Prosthetics:** Advanced robotic prosthetics improve mobility and functionality for amputees. E.g. Robotic limbs and exoskeletons
- **Sanitation and Disinfection Robots:** Utilises **ultraviolet-C (UV-C) light** or hydrogen peroxide vapour (HPV) for cleaning identified areas.
- **Medical Transportation Robots:** Deliver supplies, medications, and meals to patients etc.

Associated Challenges: High initial cost, skill and training gap to operate intricate robotic systems, ethical concerns (who will be accountable for potential errors), Patient trust, etc.

7.5.4. FRAMEWORK FOR ARTIFICIAL INTELLIGENCE DIFFUSION

Recently the US Administration released **'Framework for Artificial Intelligence Diffusion',** which aims to establish export and security regulations for the **global AI market.**

- Under the framework, **certain restrictions are imposed on India for import of GPUs** unless the computing power is hosted in secure environments.

About the Framework for AI Diffusion

- It **seeks to control the spread of advanced AI technology** in a manner that promotes its potential economic and **social benefits, while also protecting U.S. interests.**
- **Built on 3-part strategy:**
  - **Exceptions for certain allies and partners** for the export, re-export to certain set of allies;
  - **Exceptions for supply chains** to allow export of advanced computing chips;
  - **Low volume exceptions** to allow limited amounts of compute to flow globally, except to arms-embargoed countries.

7.5.5. NANOPORE TECHNOLOGY

Scientists have developed a **nanopore based tool** that could **help diagnose illnesses much faster and with greater precision** by analyzing signals from individual molecules.

About Nanopore Technology

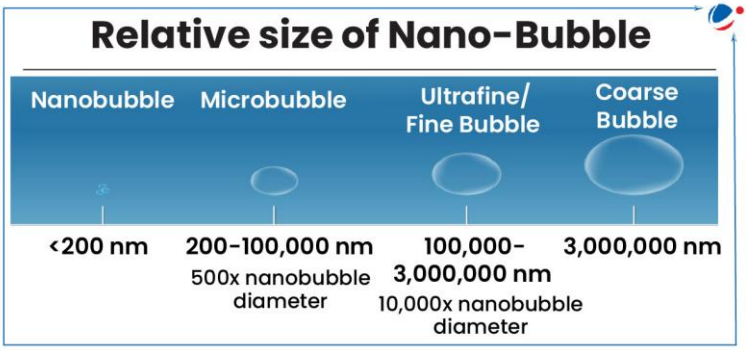
- Refers to **nano-scale holes embedded in a thin membrane structure** to detect potential change when charged biological molecules smaller than nanopore pass through hole.
- It makes **possible to sequence nucleic acids** - DNA (deoxyribonucleic acid) or RNA (ribonucleic acid) - directly **from biological samples in real time**.
- It has **potential application** value for **detection of disease markers**, and non-invasive **early diagnosis of cancer.**

7.5.6. NANO BUBBLE TECHNOLOGY

Union Minister of State for Environment launched 'Nano Bubble Technology' for cleaning and purifying water of National Zoological Park, Delhi.

About the Nano Bubble Technology

- **Nanobubbles:** They are 70-120 nanometers in size, **2500 times smaller than a single grain of salt.**
  - Nanobubbles have a **strong negative surface charge** that prevents them from **coalescing** and
    - It also **enables them to physically separate small particles** and droplets like emulsified fats, oils, and grease from water.
  - Hydrophobic nature of nanobubbles combined with their surface charge **enable lifting organic and inorganic materials off surfaces** similar to surfactants.



Applications of Nano Bubble Technology

- **Water Purification, Agriculture (**Enhance oxygenation of irrigation water), Healthcare, food industry, Industrial cleaning etc.

7.5.7. ATOMIC ENERGY COMMISSION (AEC)

The Union government has re-constituted the **Atomic Energy Commission (AEC)**.

About AEC

- **Establishment:** First set up in August 1948 within the Department of Scientific Research, later it was brought under the Department of Atomic Energy (DAE)
- **Mandate:** To plan and implement the various measures required for the expansion of the atomic energy programme and responsible for formulating the policy of the DAE.

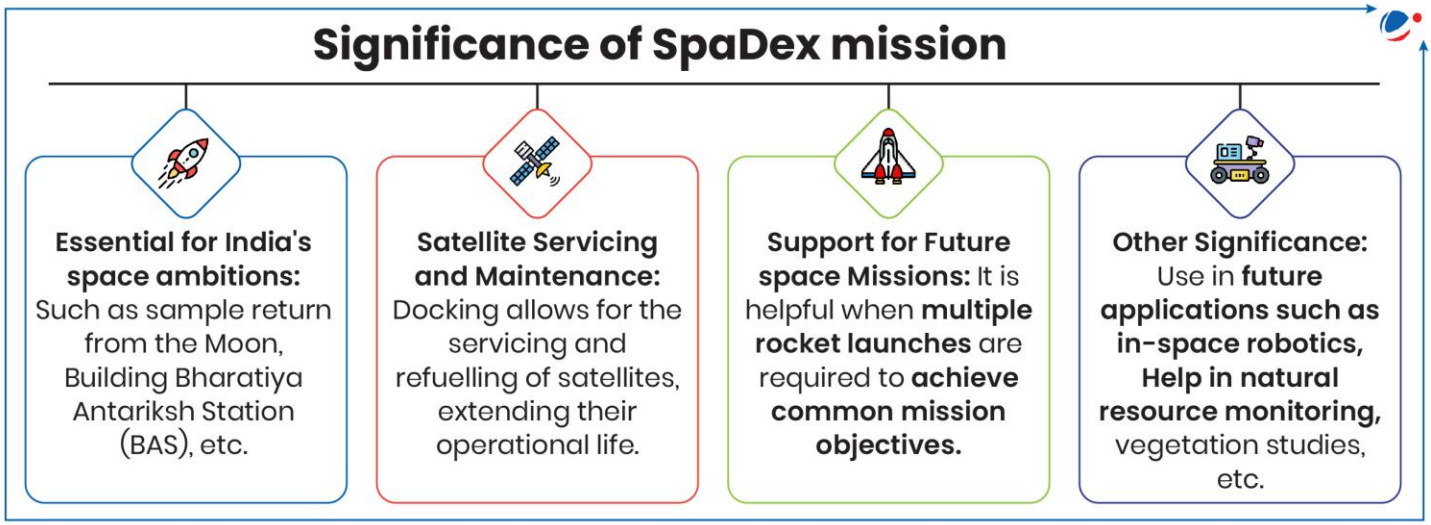
7.5.8. INDIA BECOMES 4TH COUNTRY TO ACHIEVE SPACE DOCKING

Space docking (joining of two fast-moving satellites in space) was performed by using two small spacecraft i.e. **SDX01 (Chaser), and SDX02(Target)** of the **Space Docking Experiment (SpaDeX) mission.**

- The US, Russia, and China are the other three countries to perform space docking**.**

About SpaDex mission

- **Background:** SpaDeX and 24 PS4-Orbital Experiment Module (POEM-4) payloads were launched by ISRO via PSLV-C60 from the Sriharikota space centre in December 2024.
- **Mission Goal:**
  - **Develop and demonstrate technology** for rendezvous and Autonomous docking using two small spacecraft **(SDX01 and SDX02).**
  - Once docked, the mission will evaluate the **combined system's controllability.** This includes maintaining stability, **maneuvering the docked spacecraft as a single entity.**
  - Demonstrate the potential for **extending the life of the target spacecraft**.
  - Test **power transfer between docked spacecraft**.
- **Mission Life:** Up to two years post-docking operations.
- **Use of Indigenous technologies:**
  - **Inter-satellite communication link (ISL)** for autonomous communication between spacecraft.
  - **GNSS Based Novel Relative Orbit Determination and Propagation (RODP) processor:** To determine relative position and velocity of other spacecraft.
  - **Other indigenous technologies developed for enabling this mission:** Docking mechanism, Sensor Suite, autonomous rendezvous and docking strategy etc.



To know more about Space docking, refer to Article 7.5. Space Docking Experiment (SPADEX) in October 2024 Monthly Current Affairs Magazine.

7.5.9. INDIA'S FIRST PRIVATE SATELLITE CONSTELLATION 'FIREFLY' LAUNCHED

Indian private space-tech company Pixxel launched India's first private satellite constellation 'Firefly'

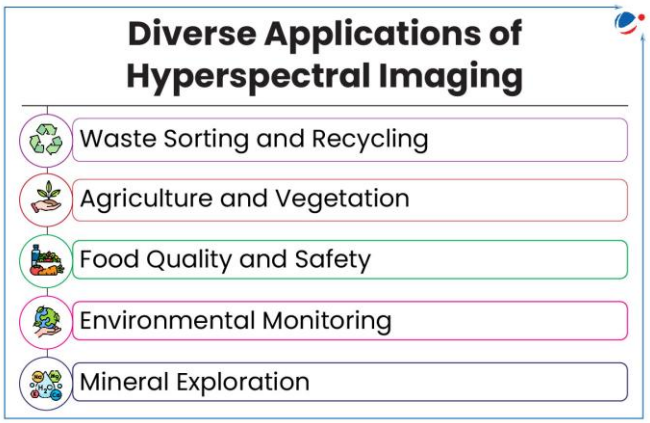
- First three satellites of the Firefly constellation were successfully launched aboard **SpaceX's Transporter-12 mission** from Vandenberg Space Force Base, California.
- Firefly is Pixxel's flagship **Hyperspectral Imaging (HSI) satellite constellation**, featuring **six of the highest-resolution commercial hyperspectral satellites** to date.

About Hyperspectral Imaging (HSI) Satellites

- HSI **analyses a wide spectrum of light** instead of just assigning primary colours (red, green, blue) to each pixel, **effectively spectrally fingerprinting the Earth**.
- HSI provide **more information on what is imaged**. For instance, while a **typical satellite can identify a forest** from space, **HSI can distinguish between different types of trees** and determine health of each individual tree.

About Satellite Constellation

- It is a network of **identical artificial satellites** with the same purpose and shared control, designed to work as a system.
  - They communicate with global ground stations and, at times, **interconnect to complement each other's functions**.
- **Starlink**, with 2,146 active satellites, is the **largest satellite constellation**.
- **Types:** Based on **orbital altitude** there are three types:
  - **Geostationary orbit (GEO):** At an **altitude of 36,000 km**, it synchronizes with Earth's rotation.
  - **Medium Earth Orbit (MEO): At altitude of 5,000 to 20,000 km,** traditionally serving navigation purposes.
  - **Low Earth Orbit (LEO):** At altitude of **500 to 1,200 km,** primarily support research, telecommunication and Earth Observation needs.



7.5.10. CROPS EXPERIMENT

ISRO achieved a milestone as cowpea seeds aboard PSLV-C60's CROPS experiment sprouted leaves in space within four days.

- It was ISRO's first biological experiment in space and part of CROPS (Compact Research Module for Orbital Plant Studies).

About CROPS Experiment

- It is an **automated platform** designed to **cultivate and sustain plant life in microgravity** environment of space.
- Developed by the **Vikram Sarabhai Space Centre**
- Current accomplishment not only **demonstrates ISRO's capability to grow plants in space** but also provides **valuable insights for future long-duration missions.**

7.5.11. KODAIKANAL SOLAR OBSERVATORY

International solar conference celebrates **125th anniversary** of the Kodaikanal Solar Observatory.

About Kodaikanal Solar Observatory

- **Genesis:** Currently owned & operated by Indian Institute of Astrophysics, it was established in 1899.
- **Location:** Kodaikanal, Palani range of hills (Tamil Nadu).
  - Kodaikanal was chosen for its **proximity to equator** & its dust-free high-altitude location.
- **Objective:** It was set up to obtain more data on how the sun heats up Earth's atmosphere and to understand monsoon patterns.

7.5.12. MISSION SCOT

The Prime Minister congratulated the **Digantara** team for the success of **Mission SCOT.**

About Mission SCOT (Space Camera for Object Tracking)

- **Aim**: Creating maps for space by tracking object,
- **Benefits**:
  - precise object tracking and imaging in Low Earth Orbit (LEO).
  - Better tracking accuracy of satellites
- **Contribution**: growing Indian space industry towards enhancing space situational awareness.

7.5.13. METHYLCOBALAMIN

FSSAI provided **clarification in Guidelines** for usage of **Methylcobalamin in health supplements, medical purposes and nutraceutical products** under certain conditions.

- FSSAI had **banned Methylcobalamin in 2016** and **lifted** the ban in **2021** but is yet to notify the same

About Methylcobalamin

- It is an **activated form of Vitamin B12** essential to **regulate vital bodily functions** like **cell multiplication, blood formation and protein synthesis.**
  - **Vitamin B12** is a **water-soluble vitamin** integral to **DNA synthesis**, **RBC production,** and **neurological function**.
  - Other forms of Vitamin B12 are **cyanocobalamin and hydroxocobalamin.**
- **Source: Milk Products**
- **Uses**: Pain alleviation in diabetic neuropathy,treatment of anaemia, Alzheimer's disease.

7.5.14. HUMAN METAPNEUMOVIRUS (HMPV)

China experienced a surge in HMPV cases, particularly in children under 14 years of age.

About HMPV

- A **respiratory virus** that causes **mild infections** similar to that caused by a common cold.
  - Discovered in **2001,** it belongs to the **Pneumoviridae family** along with **respiratory syncytial virus (RSV).**
- **Transmission:** Spreads from person to person or surfaces to person.
- **Symptoms**: Cough, fever, nasal congestion, and shortness of breath.
- **Treatment:** Currently, **there is no specific antiviral therapy** to treat HMPV and **no vaccine** to prevent HMPV.

7.5.15. NOROVIRUS

US Centers for Disease Control and Prevention has reported significant surge in Norovirus cases.

About Norovirus

- It is a **highly contagious virus** that causes gastroenteritis, commonly known as **"stomach flu.**"
- **Symptoms** include nausea, vomiting, diarrhea, etc.
- Noroviruses are **relatively resistant in environment** as they can su**rvive freezing as well as high temperatures** (up to 60°C).
- Transmitted primarily through **faecal-oral route, either by consumption of contaminated food** or **water**, or by spreading directly from person to person.
- There's **no specific medication** for norovirus.

7.5.16. CAR T-CELL THERAPY

Central Drugs Standard Control Organisation (CDSCO) has approved **2nd Living drugs**, **Qartemi**, a **Chimeric Antigen Receptor (CAR) T-cell therapy** for treating blood cancer.

- A **"living drug"** is a therapy that involves **extracting a patient's cells, modifying them, and then reintroducing** them into the patient's body.

About CAR T-cell Therapy

- CAR T-cell therapy is an innovative form of **immunotherapy where a patient's T-cells are genetically engineered t**o target and attack cancer cells.
  - **T-cells are special cells** (types of white blood cells) whose primary function is **cytotoxic, meaning killing other cells.**
- T cells are **taken from patient blood a**nd are changed in the lab **by adding a gene for a man-made receptor (called CAR).**
  - **CARs are proteins that assist the T-cells** to recognise and attach to a specific protein present on cancer cells.
- CAR-T cells are then given back to the patient **to recognise the cancer cells and kill them.**

7.5.17. BODY MASS INDEX (BMI)

Endocrinologists from the Diabetes Foundation India u**pdated India's obesity guidelines** after 15 years, **replacing "overweight" with Obesity Grades I and II.**

- The **2009 guidelines were based solely on BMI criteria.**

About BMI

- It is a **statistical index** used to determine a **person's healthy weight range for their height**.
- It is **calculated** by taking a person's weight (in kilograms) divided by their height (in m2)
- **Limitations**:
  - Does **not differentiate between lean body mass and fat mass**, based on **gender** despite **physiological differences**.
  - Does **not measure the distribution of body fat**.

7.5.18. GLOBAL ANTIBIOTIC RESEARCH AND DEVELOPMENT PARTNERSHIP (GARDP)

WHO and GARDP jointly released report on policy and regulatory interventions to address antibiotic shortages in low and middle-income countries.

About GARDP

- **Genesis:** GARDP is a not-for-profit organization established in 2016 by the WHO and the Drugs for Neglected Disease initiative (DNDi). It was legally formed as a Swiss foundation in 2018.
- P**urpose:** To deliver on WHO's **Global Action Plan on Antimicrobial Resistance (2015)**
- **Role:** Works with public, private, and non-profit sectors to preserve antibiotics for future generations.
- **GARDP Strategy (2024-2028):** Focuses on developing and ensuring the availability of essential antibiotic treatments globally.

To know more about Anti-Microbial Resistance, refer to Article 7.9. Anti-Microbial Resistance (AMR) in October 2024 Monthly Current Affairs Magazine.

7.5.19. NEUROMORPHIC DEVICE

Indian Scientists have developed a Neuromorphic device.

About Neuromorphic Device'

- **Neuromorphic devices** give ideas about how the **human body senses** and responds to **pain**.
- It is inspired by the **habituation** process of human body.
  - In our bodies, special sensors called nociceptors detect pain and help us respond to harmful situations.
  - Over time, with repeated exposure, one can actually feel pain less intensely through a process called **habituation**.
- **Benefit:** Make wearable tech smarter, and improve human-machine interactions.

7.5.20. TITANIUM

Recently, an Indian firm became **India's first private company** to commission a **Vacuum Arc Remelting (VAR)** furnace for producing aerospace-grade titanium alloy.

- VAR is used to **purify numerous alloys** such as stainless steel, Nickel-based, and Titanium-based alloys under **vacuum conditions** to ensure **superior metallurgical structure** and **uniform alloy composition**.

About Titanium

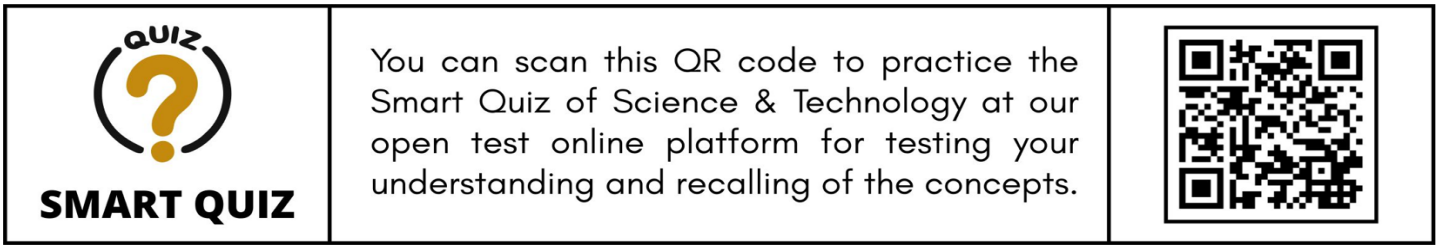
- **Appearance:** Hard, shiny and strong metal.
  - **Ilmenite (FeO.TiO2)** and **rutile (TiO2)** are two chief minerals of titanium.
- **Properties:** Lightweight, low density, corrosion resistance, high melting point, etc.
- **Uses**: **Medical Implants**; **Power plant condensers** (resistance to corrosion in seawater); **Aircrafts** (alloying agent with metals including aluminium), etc.

7.5.21. PINK FIRE RETARDANT (PHOS-CHEK)

Recently, Los Angeles authorities used pink fire retardant to combat wildfires.

About Pink Fire Retardant (Phos-Chek)

- Fire retardant is a **mix of chemicals used to extinguish or slow down** spread of fires.
- Manufactured by Perimeter Solutions company, it is the **most-used fire retardant in world**.
- **Phos-Chek** mostly **contains ammonium phosphate-based slurry**.
  - Typically, it is **made of salts such as ammonium polyphosphate**, which **does not evaporate easily** like water and stays for longer.
  - It is **pink because it most visible** by firefighters against the landscape.
  - Spraying fire retardant using planes is **ineffective, expensive and a growing source of pollution** for rivers and streams.



8. CULTURE

8.1. IRON AGE IN INDIA

Why in the News?

A groundbreaking study has revealed that **the Iron Age may have begun** in **Tamil Nadu as early as 3,345 BCE.**

More on the News

- The report **'Antiquity of Iron: Recent Radiometric Dates from Tamil Nadu'** challenges the belief that iron technology first emerged in the **Hittite Empire (1300 BCE, Anatolia, Turkey)**.
- The report is prepared by the **Tamil Nadu State Department of Archaeology, ASI, and universities**.
- Excavations at **Adichchanallur, Sivagalai, Mayiladumparai, Kilnamandi, Mangadu, and Thelunganur** provided new scientific dates.

Iron Age in India: New Findings

- **Background**
  - Earlier, India's Iron Age was thought to begin in the **1st millennium BCE**, later pushed to the **2nd millennium BCE** with finds from Rajasthan and UP.
  - New evidence from **Tamil Nadu** now dates it back to the **mid-3rd millennium BCE**.
- **Dating Techniques used in study: Accelerator mass spectrometry radiocarbon** (AMS 14C) and **Optically Stimulated Luminescence (OLS) dating**
- **Key Findings**
  - **Tamil Nadu's Iron Age is the oldest recorded globally.**
    - **Sivagalai:** Iron-related finds dated **3345–2953 BCE**, with a burial urn sample at **1155 BCE**. making it the **earliest recorded evidence of iron technology** globally.
    - **Mayiladumparai:** Iron samples from **2172 BCE**.
    - **Kilnamandi:** Earliest-dated sarcophagus burial in Tamil Nadu, from **1692 BCE** marking a significant milestone as the earliest-dated burial of its kind in Tamil Nadu.

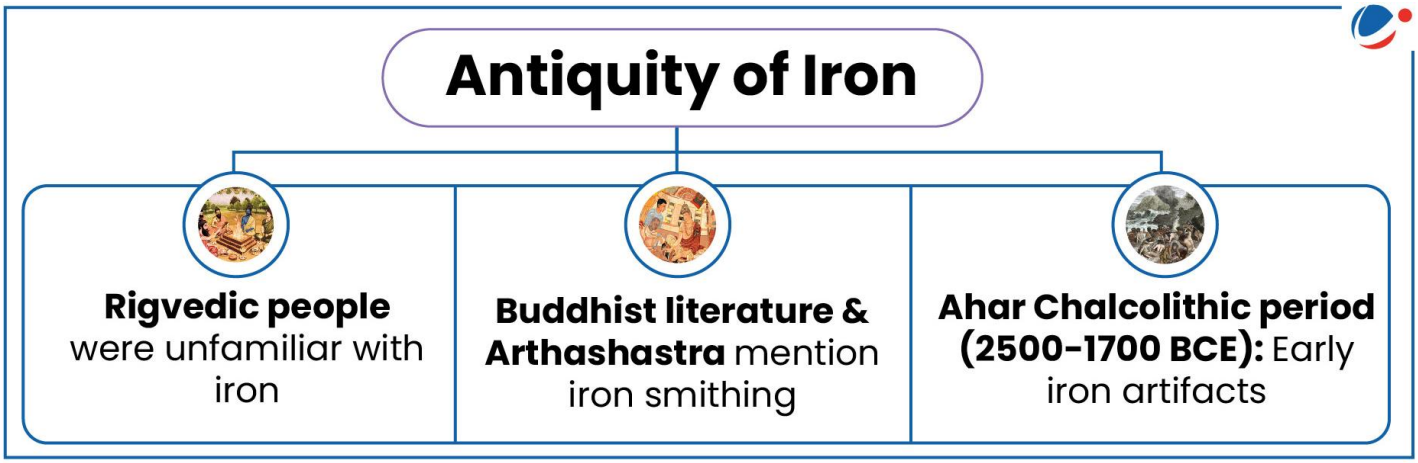
Do you know

- Unlike **copper** which requires **around 1000°C, iron** needs **above 1200°C** which probably **delayed the iron smelting process.**

  - **Advanced Metallurgy reflects human cognitive and technological development:** The sophistication of early Indian metallurgy is evidenced by the discovery of **three distinct types of iron-smelting furnaces** at sites including **Kodumanal, Chettipalayam, and Perungalur.**
    - These furnaces **could achieve temperatures up to 1,300°C,** demonstrating the **advanced pyro-technological understanding** necessary for producing sponge iron.
  - **Copper and Iron Age were contemporaneous:** When cultural zones located **north of Vindhyas** experienced the **Copper Age**, the region **south of Vindhyas** might have entered into **Iron Age** due to the limited availability of commercially exploitable copper ore.

Iron Age in India

While the Harappans belonged to the **Bronze Age**, their successors belonged to the **Iron Age.**



Key Evidences of Iron Age in Different Parts of India

Iron Age in North India	The Iron Age in North India is **archaeologically represented by** assemblages that mainly contain particular pottery types such as **Painted Grey Ware (PGW) and Northern Black Polished Ware (NBPW).**
	• **Key Pottery Types**: Painted Grey Ware (PGW) & Northern Black Polished Ware (NBPW).
	• **Timeline**:
	  ○ **PGW** (800–400 BCE): Found in Ghaggar-Hakra River, Rajasthan, and Ganga-Yamuna Divide. Used **mainly for weapons.**
	  ○ **NBPW** (600–100 BCE): Coincides with the Early Historic period (600 BCE–300 CE) ,Iron use expanded **for specialized purposes.**

Iron Age in South India	In peninsular India, it is essentially the megaliths, sometimes associated with habitation sites that comprise the Iron Age in the region
	• **Megalithic Culture (1000–100 BCE)**: Associated with habitation sites.
	• **Key Sites**:
	  ○ **Naikund, Vidarbha** – Evidence of an iron-smelting furnace.
	  ○ **Paiyampalli, Tamil Nadu** – Large quantities of iron slag found.
	• **Iron Usage**: Technological advancement in **fire control for iron extraction.**

Iron Age in Other Regions	• **Central India (Malwa**): Sites like Nagda, Eran, and Ahar (750-500 BCE). • **Middle & Lower Ganga Valley:** Post-Chalcolithic pre-NBPW sites like Pandu Rajar Dhibi, Mahisdal, Chirand, and Sonpur (~750-700 BCE).

Impact of the Iron Age

- **Technological & Economic Impact**
  - **Metallurgical Advancements:** Improved **agriculture, warfare, and craftsmanship**.
  - **Urbanization:** Led to **India's Second Urbanization (800-500 BCE)**, with town development in the **Ganga Valley**.
  - **Agriculture:** Iron tools like **hoes and ploughshares** boosted productivity, transforming **social & economic structures**.
- **Political & Cultural Influence**
  - **Rise of Mahajanapadas:** Improved food production supported **large kingdoms**.
  - **Art & Architecture:** The **Delhi Iron Pillar (4th century CE)** showcases advanced rust-resistant metallurgy.
  - **Warfare Evolution:** Iron weapons, armor, and chariots transformed **military strategies**.

Conclusion

Gordon Childe's influential framework divided human history into the **Palaeolithic, Mesolithic, Neolithic, Chalcolithic, and Iron Ages,** this sequence has been widely regarded as definitive. **However, human evolution is not linear**—technological advancements vary by region, resources, and environment. History is complex, with **overlapping timelines and fragmented phases, challenging rigid classifications.** It is time to reconsider this linear categorization.

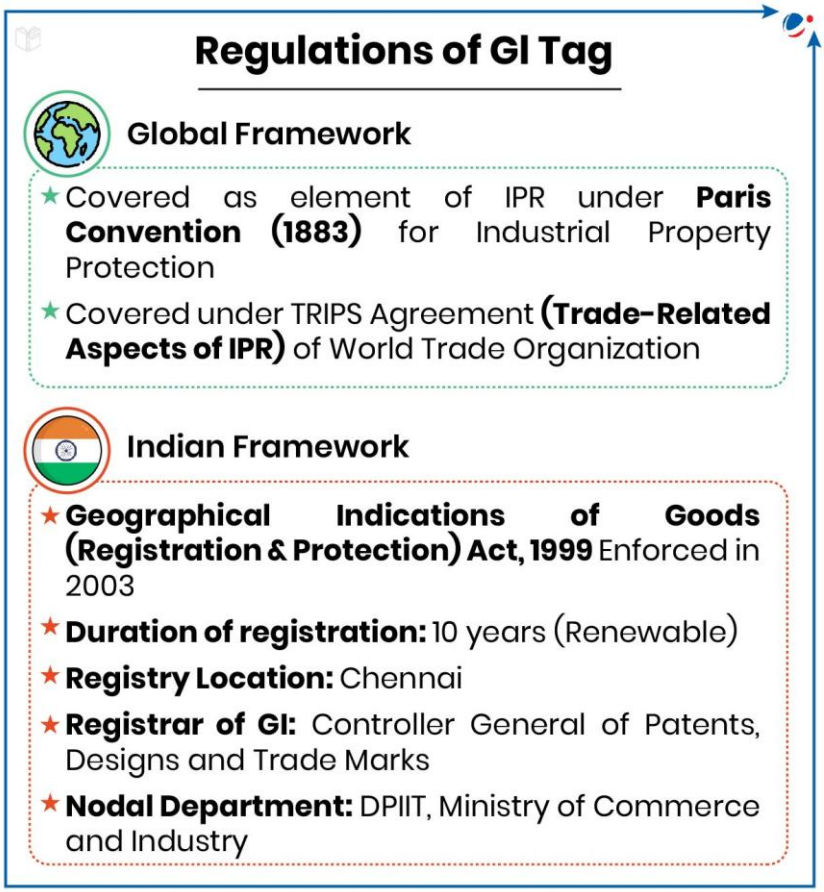
8.2. GEOGRAPHICAL INDICATION (GI) TAG

Why in the News?

Union Minister of Commerce & Industry set a target of reaching 10,000 Geographical Indication (GI) Tags by 2030 at GI Samagam in New Delhi.

About Geographical Indication (GI) Tag

- **Definition:** GI is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin.
- **Application:** GI are typically used for any agricultural, natural or manufactured goods or any goods of handicraft or of industry and includes food stuff.
- **Protection:** GI tagging provides legal protection to the producers preventing others from using the name of the product without permission.



Current status of GI Tags in India:

- The **first GI tag** was given to Darjeeling tea in **2004-05.**
- The number of GI tags issued by the department till July 2024 stands at **605**.
- **Uttar Pradesh** is the leading state in highest number of GI-tagged products followed by **Tamil Nadu.**

Important GI tag goods listed in 2024 are

To be Mapped on India's Map

State/UTs	Goods
Uttar Pradesh	• Pilkhuwa Hand Block Print Textile • Banaras Metal Casting Craft • Bareilly Cane & Bamboo Craft • Tharu Embroidery • Bareilly Zari Zardoji • Banaras Tirangi Barfi
Assam	• Bodo Aronai • Bodo Napham – Fermented Fish • Bodo Ondla • Bodo Gwkha – Gwkhwi, • Bodo Jou Gwran, • Bodo Jou Gishi,

	• Bodo Maibra Jou Bidwi • Bodo Narzi
Andaman and Nicobar Islands	• Nicobari Canoe - Hodi Craft • Nicobari Mat (Chatrai / Hileuoi) • Andaman Karen Musley Rice • Nicobari Tavi-i-Ngaich (Virgin Coconut Oil) • Nguat–Kuk'–'Khawtha' • Padauk Wood Craft
Gujarat	Kutch Ajrakh

Challenges of GI Tags in India

- **Low Registration Rate**: India lags behind nations like **China (9,785 GIs), Germany (7,586), and Hungary (7,290)** (World IP Indicators 2024).
- **Regional Disparity**: States like **Karnataka, Tamil Nadu, and Uttar Pradesh** have more GI registrations than others like **Jharkhand and Tripura**.
- **GI Violations**: Example: **Banarasi silk** is copied in **Surat** using power looms to create cheaper imitations.
- **Lack of Awareness**: Many rural producers are unaware of GI benefits. Example: **Kagga Rice**, a salt-tolerant variety from coastal regions of Karnataka, remains under-recognized.
- **Geographical Disputes**: Multiple states claim GIs for the same product. Example: **Basmati rice** faces ownership claims from different regions.
- **Post-Registration Issues**: Concerns about definition of a producer and the process for claiming authorised user status. Example: Farmers with GI-tagged products often lack knowledge of GI processes.

Initiatives to Strengthen GI Tags in India

- **GI Logo & Tagline**: Tagline **"**Invaluable Treasures of Incredible India" represents the spirit of Geographical Indications of India
- **Promoting GI Exports**. **APEDA** facilitates GI product exports. Examples: **Naga Mircha (**Nagaland**) and Black Rice (**Manipur) **to UK, Assam Lemon to Italy**.
- **One District One Product (ODOP)**: Promotes **one key product per district.** Products are identified under Districts as Export Hubs (DEH), and GI-tagged products.
- **Open Network for Digital Commerce (ONDC)**: Connects **GI-tagged products** with **buyers across India and globally**.

Way Forward to Strengthen India's GI Tag System

- **Increasing Awareness**: Government policies should explicitly highlight **'GI Certified Goods'** to help artisans recognize GI benefits.
- **Strengthening Post-Registration Framework**: Establish clear criteria for **defining producers** and maintaining **authorised user status**.
- **Support for Poor Producers**: Provide **export subsidies** to small producers and artisans to help them compete globally.
- **Resolving State Disputes**: States should collaborate on GI claims. Example: **Kolhapuri Chappals** received GI for both **Karnataka and Maharashtra** due to high demand.
- **Conservation-Centric Approach**: GI products like **Kanniyakumari Matti banana** and **Kashmir saffron** need adaptation strategies to counter climate change.

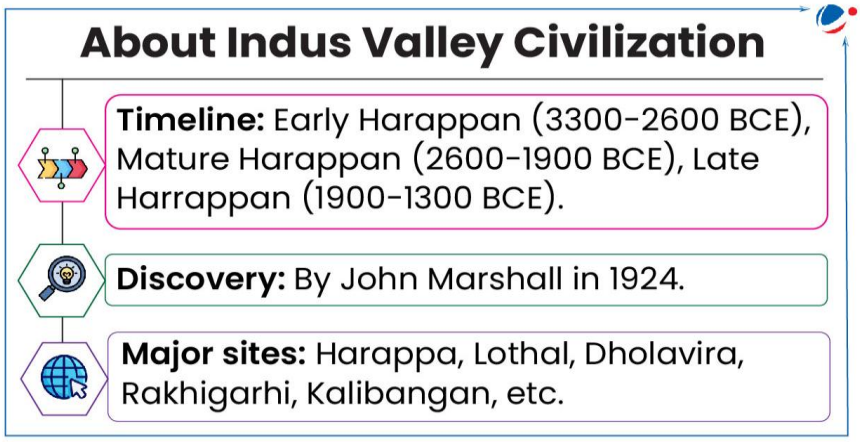
8.3. NEWS IN SHORTS

8.3.1. DECIPHERING INDUS VALLEY SCRIPT

Recently, Tamil Nadu announced $1 Million **prize for experts and organizations for deciphering the scripts of the Indus Valley Civilization**.

About Indus Valley Scripts

- **Distribution and length:** Found at approximately **60 excavation sites**. Currently, ~3500 specimens of this script survive in stamp seals carved in stone, in moulded terracotta and faience amulets, in fragments of pottery.
- **Writing direction and style**: Indus script is an unknown writing system, and the inscriptions discovered are very short, comprising no more than five signs on the average.
  - Generally written **right to left**, longer texts sometimes used **Boustrophedon style (alternating directions between lines).**
- **Composition of the script:** Partially pictographic signs, contains **human and animal motifs,** distinctive **'unicorn'** symbol **etc.**
- **Writing media and methods:** Use of seals, tablets, and copper tablets, Materials included terracotta, ceramics, shell, bone, ivory, stone, metals, and perishable materials like fabric and wood.
  - Applied through **carving, incising, chiseling, inlaying, painting, molding,** and **embossing.**



Significance of Deciphering Indus Valley Script

- **Historical:** Could reveal relationship between Indus Valley Civilization and later Vedic practices and their interaction with other contemporary civilizations.
- **Linguistic and Ethnic connections:** Could establish connections between the languages of the Indus Valley and contemporary languages from Dravidian and Indo-European families.

To know more about Harappan Civilisation, refer to Article 8.1. 100 years of Discovery of Harappan Civilisation in September 2024 Monthly Current Affairs Magazine.

8.3.2. HARAPPAN WATER MANAGEMENT TECHNIQUES

5,000-year-old Water Management Techniques unearthed at Harappan site, **Rakhigarhi (Haryana).**

- The discovery made during an ongoing excavation identified a **water storage area** between mounds, with an estimated depth of 3.5 to 4 feet depicting their **advanced water management techniques.**
- A dried riverbed of the **Chautang (or Drishavati) River,** was also discovered.

Water management practices of the Harappan Civilization

- **Elaborate Drainage:** Underground drains build with precisely laid bricks, connecting houses to wider public drains were found for **sewage disposal** in major cities.
- **Small Bunds:** Built by the local people to store rain water for irrigation and drinking in **Lothal,** Gujarat.
- **Dockyard:** At Lothal**,** near Sabarmati River, is a remarkably lined structure with evidence of channels for inlet and outlet of water.
- **Channels and Reservoirs:** At **Dholavira, Gujarat,** built completely of **stone** for storing fresh water brought by the rains or to store water diverted from the nearby rivulets.
  - They were an example of **advanced hydraulic engineering** for conservation, harvesting and storage of water.
- **Tanks and Wells:** At Mohenjodaro, where rainwater harvested in tanks was brought to the wells of each house through efficient drainage system.
  - The **"Great Bath"** at Mohenjodaro was a large tank made of **brick floor**, probably for mass bathing during religious functions, is a remarkable example of ancient large water tanks.

About Rakhigarhi

- **Location:** One of the oldest and largest cities of Harappan Civilization located in the **Hissar district of Haryana** on the **Ghaggar-Hakra river plain.**
- **Key Findings:** Number of **Archaeological mounds, skeletal remains** which has yielded the only DNA evidence from the Harappan era.
    - Evidence of craft activity areas, residential structures, streets, drainage systems, burial grounds, etc. has also been obtained.

8.3.3. SAINT NARAHARI TIRTHA

Idol of Saint Narahari Tirtha has been discovered in **Simhachalam Temple**, Vishakhapatnam.

About Saint Narahari Tirtha

- Narahari Tirtha was a prominent **Dvaita Vedanta philosopher, scholar, and saint** of the **13th century**.
- Believed to be born in **Chikakolu town (present Srikakulam**, **Andhra Pradesh).**
- He was a **disciple of Madhvacharya**, the proponent of **Dvaita Vedanta philosophy.**
- He introduced **Yaksha Gana and Bayalu Aata** (open theatre drama) as a part of Vaishnava Bhakti Movement.
- He was consecrated near the rock adjacent to Chakratirtha at **Hampi on the banks of river Tungabhadra.**

8.3.4. KALARIPAYATTU

Kalaripayattu has been included in the list of events for demonstration and removed from competition section in **38th national games** to be held in Uttarakhand.

About Kalaripayattu

- Developed in **Kerala**, it is **one of the most ancient martial traditions** (traced to Sangam Period).
- **'Kalari' signifies the training centre** or the place where practice occurs, and **'Payattu' means the fight or rigorous physical practice**.
- **Two main styles:**
    - **Vadakkan or Northern style** practiced in the Malabar region of Kerala.
    - **Thekken or Southern Style** practiced mainly in the Travancore region.

8.3.5. KONDA REDDI TRIBE

Recently, the **Konda Reddi tribe** was in news for **preferring live-in relationship** over marriage due to expensive traditional weddings.

About Konda Reddi Tribe

- They are recognized as a **Particularly Vulnerable Tribal Group (PVTG).**
- **Habitation**: In the hilly and forest tracts of **East and West Godavari in Andhra Pradesh** and **Khammam districts** of **Telangana.**
- **Mother Tongue**: Telugu.
- **Family and Marriage:** Family is **patriarchal and patrilocal.** Monogamy is a rule but polygamous families are also found.
- **Faith and Festivals**: They worship **Muthayalamma** (Village deity), **Bhumi Devi** (Earth Goddess), **Gangamma Devi** (River Goddess) etc., and celebrate festivals like **Mamidi Kotha, Bhudevi Panduga, Gangamma Panduga and Vana Devudu Panduga.**

8.3.6. HATTI TRIBE

Boda Tyohar festival (locally known as **Magho ko Tyohar**), the largest annual celebration for the **Hatti tribes** of the Trans-Giri region in Himachal Pradesh has started.

About Hatti Tribe

- **Notified as Scheduled Tribe** under the **Constitution (Scheduled Tribe) Order (Second Amendment) Act, 2023**.

- Named after their tradition of selling homegrown produce, etc at small markets known as 'Haat' (weekly markets) in towns.
- Often referred to as **trans-Giri due to their location near the Giri and Tons river**
- Live in states of **Uttarakhand** and **Himachal Pradesh**.

8.3.7. HARVEST FESTIVALS OF INDIA

Recently, India witnessed the celebration of harvest festivals.

Harvest Festivals of India

About: Celebrated in diverse forms across the various regions, these festivals show the harmonious relationship with nature.

Major Festivals

- **Lohri (North with roots in Punjab):** Celebrated as the departure of the winter season.
- **Makar Sankranti (North India):** Marks the onset of summer and six months auspicious period for Hindus called Uttarayan, the northward movement of the sun.
- **Pongal (South India):** Four-day event dedicated to the Sun God marks the Sun's journey northward.
- **Bhogali Bihu (Assam)**: Marks the end of harvesting season.

8.3.8. KUMBH MELA

Maha Kumbh 2025 is being held in Prayagraj, Uttar Pradesh.

About Kumbh Mela

- It is the **world's largest public gathering**.
- It is a religious pilgrimage that is celebrated **four times over a course of 12 years.**
- Site keeps rotating between one of the **four pilgrimages**:
  - **Haridwar (Uttarakhand)**, Ganges.
  - **Ujjain (Madhya Pradesh),** Shipra River.
  - **Nashik (Maharashtra),** Godavari River.
  - **Prayagraj** at the confluence of **Ganges**, **Yamuna**, and the **mythical invisible Sarasvati**.
- **Other key Facts**:
  - It has been listed as an **Intangible Cultural Heritage** under **UNESCO** in **2017.**
  - Chinese traveller **Hiuen Tsang** (visited India in the 7th century during the reign of King **Harshavardhana**) was the first to mention Kumbh Mela in his diary.
  - **Saint Shankaracharya** gave Kumbh Mela its final shape in 9th century.

8.3.9. BHARAT RANBHOOMI DARSHAN

Ministry of Defence launches **Bharat Ranbhoomi Darshan website and app** as part of its **'Battlefield Tourism' plan**.

- It will be a **one-stop destination** for information and clearances for **battlefield visits**, featuring virtual tours and historical narratives.
- **Indian Army**, in conjunction with **Ministry of Tourism**, has **shortlisted** some other **border sites** that have witnessed military action in the past
  - These include Kibithoo and Bum La Pass (Arunachal Pradesh), Rezang La and Pangong Tso (Ladakh), and Doklam (site of 2017 conflict).

8.3.10. NATIONAL SPORTS AWARDS

Recently, President of India presented National Sports Award 2024.

6 Categories of National Sports Awards

- **Major Dhyan Chand Khel Ratna Award (1991-92):** Awarded for **outstanding performances in sports spanning over a period of 4 years**.
  - recently, it has been awarded to **Gukesh D (Chess), Harmanpreet Singh (Hockey), Praveen Kumar (Para-Athletics), Manu Bhaker (Shooting).**
- **Arjuna Award** (1961): Awarded **for consistent good performance over a period of 4 years.**
- **Dronacharya Award** (1985): It **is highest sports honour for coaches**.
- **Major Dhyan Chand Award (2002):** India's highest honour for lifetime achievements in sports.
- **Rashtriya Khel Protsahan Puruskar (2009)**: Awarded to **organisations /corporates (private & public)** & individuals for playing a role in area of sports promotion & development **over last 3 years.**

QUIZ **SMART QUIZ**	You can scan this QR code to practice the Smart Quiz of Culture at our open test online platform for testing your understanding and recalling of the concepts.	

9. ETHICS

9.1. ETHICAL CONSIDERATIONS IN CONTEMPORARY FOREIGN AID

Introduction

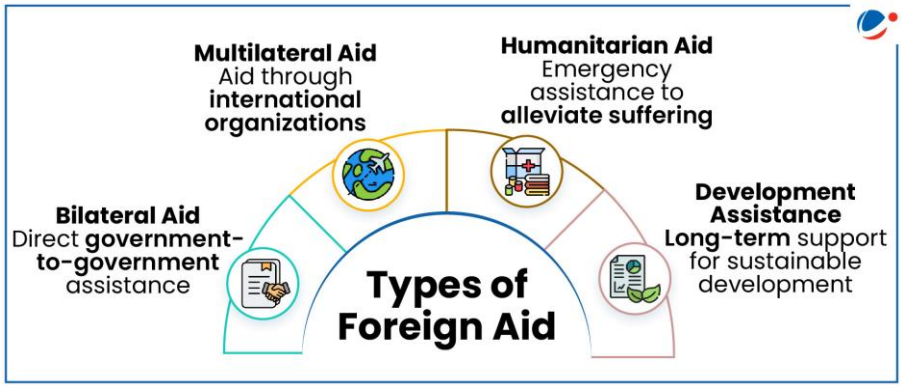
In recent times, the concept of foreign aid has been subject to intense scrutiny, particularly with the United States' actions to suspend the operations of the United States Agency for International Development (USAID) for 90 days. This move has sparked a broader discussion on the ethical implications of how aid is administered, the motivations behind it, and its real-world impact.

About USAID

- **Founded:** In **1961 as an independent agency** by an Act of US Congress as a **platform for providing worldwide civilian aid.**
- **Objective**: Operates in over 100 countries to **promote democratic values abroad, advance a free, peaceful, and prosperous world**, and also enhance U.S. security and prosperity through **projection of soft power.**
- **Sectors of Work**: Economic development, health, education, food security, humanitarian assistance, etc. through **grants, technical assistance, and funding for development projects.**
- **Collaborations**: Works with **governments, NGOs, businesses**, and other international organizations.
- **Flagship Programs:**
  - **PEPFAR (President's Emergency Plan for AIDS Relief):** Focused on combating HIV/AIDS.
  - **Feed the Future**: Aimed at addressing hunger and food security.
  - **Power Africa**: Initiative to expand electricity access in Africa.
  - **Water for the World Act**: Focuses on improving water, sanitation, and hygiene services.
- **Global Contribution**: Contributed **to approximately 42% of all humanitarian aid** tracked by the United Nations in 2024.

About Foreign Aid

- It refers to the **voluntary transfer of resources**—such as money, goods, or services—from one country to another, primarily aimed at benefiting the receiving country or its citizens.
- It can take various forms, **including economic, military, and humanitarian aid**, and is predominantly provided by developed nations to developing ones.



Do you know

> **The United Nations** requires advanced countries to spend **at least 0.7% of their gross national income** on international aid in the form of **Official Development Assistance (ODA).**

Rationales for Foreign Aid

- **Philosophical and Moral Arguments:**
  - **Utilitarianism (**Maximize overall happiness): To give direct aid where it does the **most good for the most people.**
  - **Rights-Based (**Universal human rights**): To ensure rights** are met globally.
  - **Communitarianism (**Importance of community and shared values**):** Should **respect and support local culture** and **community.**
  - **Libertarianism (**Individual liberty and free markets**):** Skeptical of aid; prefers **voluntary or emergency aid.**
  - **Cosmopolitanism (**Global citizenship**):** As part of a broader commitment to **global equality.**
- **National Security**: The foremost rationale historically has been national security, where aid serves **to stabilize regions and prevent hostile influences**. This includes **military assistance** to allies and **economic support** to maintain friendly governments.

- **Economic Development**: Aid is also aimed at promoting economic growth in developing nations **through infrastructure projects**, **health care improvements, and educational initiatives.** This not only helps recipient countries but can also create new markets for donor countries.
- **Humanitarian Concerns**: Humanitarian aid addresses immediate crises such as **natural disasters or conflicts,** focusing on alleviating suffering and supporting recovery efforts.

Ethical Considerations in Contemporary Foreign Aid	
Positive Dimensions	**Negative Dimensions**
• **Sustainable Growth:** Aid can facilitate sustainable development by funding **education, health, and infrastructure projects.** • **E.g., World Bank has acknowledged India's assistance to Bhutan** in developing sustainable infrastructure, particularly hydroelectric power.	• **Dependency:** Long-term aid can lead to permanent dependency, **reducing the incentive for local governance and economic self-sufficiency**. • **E.g.,** Many **African nations** have become aid-dependent, affecting their economic policies.
• **Food Security:** Agricultural aid programs have helped **increase food production** in regions vulnerable to famine. • **E.g., India supports African agriculture** through **training and concessional loans**, improving farming and increasing food production.	• **Corruption:** Aid money often lacks the oversight needed to prevent its diversion by corrupt officials. • **E.g., Sri Lankan economic crisis** due to corruption and mismanagement of foreign aid.
• **Health Improvements:** Effective aid initiatives can drastically reduce the prevalence of disease in underdeveloped nations. • **E.g., India's supply of affordable vaccines** and medicines **during Covid-19.**	• **Cultural Insensitivities:** Imposed solutions **can clash with local customs**, leading to resistance or ineffective implementation. • **E.g.,** In some African and Asian countries, **women's reproductive rights campaigns** face resistance due to cultural or religious beliefs that see them as promoting immorality.
• **Disaster Response:** Quick, efficient aid can save lives and rebuild communities post-disaster. • **E.g.,** India's response to **earthquakes in Nepal (2015) and Turkey (2023).**	• **Political Manipulation:** Aid is sometimes used to further donor countries' political agendas, overshadowing recipient needs. • **E.g.,** China has been weaponizing investment on foreign soil as a part of its **'debt-trap diplomacy'.**
• **Education and Skills Development:** Investments in education can lead to long-term societal benefits. • **E.g., Indian Technical and Economic Cooperation (ITEC)** program offers training and skill development opportunities to individuals from developing countries**.**	• **Environmental Harm:** Some aid projects, like large-scale agricultural initiatives, have led to environmental degradation. • **E.g.,** In many developing countries, **industrialization driven by foreign aid** led to increased emissions of **greenhouse gases and other pollutants.**

Way Forward

- **Increase transparency** in aid allocation, management, and impact evaluation through use of **public dashboards and independent audits** for accountability.
- **Prioritize environmental sustainability** in aid projects, focusing on **climate resilience, renewable energy, and sustainable agriculture.**
- **Engage local communities** to align aid with **cultural contexts**, involving **local NGOs and leaders in project planning.**
- **Shift to recipient-led aid,** aligning with national goals rather than donor agendas.

- **Utilize technology** for efficient aid **distribution, monitoring, and assessment**.
- **Emphasize building local capacities** for long-term independence over short-term relief.

Check your Ethical Aptitude

You are a senior officer in India's Ministry of External Affairs (MEA), overseeing India's foreign aid initiatives under ITEC and Development Partnership Administration (DPA). A developing country that has been receiving Indian aid for infrastructure, healthcare, and food security is now facing political turmoil, corruption allegations, and human rights violations by the local government.

Reports suggest that previous funds were misappropriated, raising concerns over transparency. It is also certain that suspending aid could worsen conditions for vulnerable populations. Finally, withdrawing aid may open space for China's growing influence through BRI loans.

Based on the above case study, answer the following questions:

- What are the ethical principles involved in this case?
- Who are the key stakeholders, and what are their concerns?
- What mechanisms can ensure aid reaches beneficiaries without strengthening corrupt regimes?

10. SCHEMES IN NEWS

10.1. PRADHAN MANTRI FASAL BIMA YOJANA (PMFBY)

Why in the News?

The Union Cabinet approved continuation of the Pradhan Mantri Fasal Bima Yojana and Restructured Weather Based Crop Insurance Scheme till 2025-26.

Objective	Features

• To offer **financial assistance to farmers** who experience crop losses.
• To **stabilize the income of farmers,** ensuring they can continue their farming activities.
• To promote the **adoption of modern agricultural techniques.**
• To **enhance the flow of credit** to the agriculture sector, supporting food security and crop diversification.
• **Promoting innovation & research of insurance and allied products** so-as-to offer expanded choice to the farmers and the State Governments/UT Administrations.
	• **Launch date:** 2016
	• **Ministry:** Ministry of Agriculture & Farmers Welfare
	• **Coverage of Crops**
	  ○ Food crops (Cereals, Millets, Pulses)
	  ○ Oilseeds
	  ○ Annual Commercial / Horticultural crops
	Note: Scheme covers crops **for which past yield data is available** and for which requisite number of Crop Cutting Experiments (CCEs) will be conducted being a part of the General Crop Estimation Survey (GCES).
	Risks Covered
	• **Yield Losses (Standing Crops on Notified Area Basis):**
	  ○ Natural Fire & Lightning
	  ○ Storms, Cyclones, Hurricanes, Tornadoes
	  ○ Floods, Inundation, Landslides
	  ○ Drought, Dry Spells
	  ○ Pests & Diseases
	• **Prevented Sowing (Notified Area Basis):**
	  ○ If adverse weather prevents sowing, insured farmers can claim up to **25% of the sum insured**.
	  ○ The sum insured is the amount that the insurance company pays to the policyholder in the case of an unpredictable event
	• **Post-Harvest Losses (Individual Farm Basis):**
	  ○ Covers up to **14 days after harvesting** for crops left in cut and spread condition against cyclonic/unseasonal rains.
	• **Localized Calamities (Individual Farm Basis):**
	  ○ Covers **hailstorms, landslides, and inundation** affecting specific farms.
	• **Add on:** States may consider providing **add-on coverage for crop loss due to attack by wild animals** wherever the risk is perceived to be substantial and is identifiable.
	• **Exclusions**
	  ○ War, riots, malicious damage, theft.
	  ○ Grazing/destruction by domestic or wild animals.
	  ○ Losses due to preventable risks.
	  ○ Bundled or heaped harvested crops before threshing (for post-harvest losses).
	• **Annual Premium**
	  ○ **Kharif Crops:** 2% of sum insured.
	  ○ **Rabi Crops:** 1.5% of sum insured.
	  ○ **Annual Commercial/Horticultural Crops:** 5% of sum insured.
	  ○ The **difference between premium and the rate of Insurance charges payable by farmers is provided as subsidy** and shared equally by the Centre and State.
	  ○ For North-Eastern States (90:10) from Kharif 2020
	• **Eligibility:** All Farmer having insurable interest can be covered under these scheme **including sharecroppers and tenant farmers**.

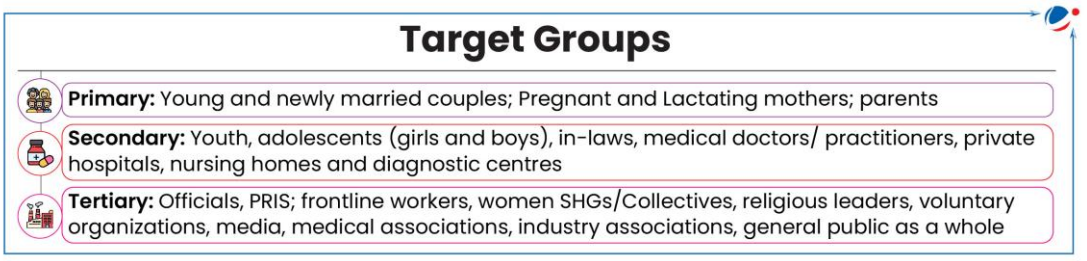
	○ Earlier the scheme was mandatory for farmers availing crop loans/Kisan Credit Card loans for the notified crops and notified areas and optional for others. ○ However, the **Scheme has now been made optional for all farmers** w.e.f. Kharif 2020 season. • Coverage is **not provided for 100% of the crop value**. • PMFBY scheme is **exempted from Goods and Service Tax.** • **Implementing Agency:** Department of Agriculture, Cooperation & Farmers Welfare (DAC&FW), Ministry of Agriculture & Farmers Welfare (MoA&FW) and the concerned State. **Recent Technological Initiatives under the Scheme** • **Fund for Innovation and Technology (FIAT)** ○ **Corpus of ₹824.77 Crore** to enhance technology adoption. ○ Supports **YES-TECH, WINDS, and R&D studies**. • **YES-TECH (Yield Estimation System using Technology)** ○ Uses **Remote Sensing Technology** for **crop yield estimation**. ○ **30% weightage** to technology-based yield estimates. ○ **Implemented in 9 major states**: Andhra Pradesh, Assam, Haryana, Uttar Pradesh, Madhya Pradesh, Maharashtra, Odisha, Tamil Nadu, and Karnataka. ○ **Madhya Pradesh** has adopted **100% technology-based yield estimation**. • **WINDS (Weather Information and Network Data Systems)** ○ Establishes **Automatic Weather Stations (AWS) at block level** and **Automatic Rain Gauges (ARGs) at panchayat level**.

10.2. BETI BACHAO BETI PADHAO SCHEME

Why in the News?

The Union Ministry of Women and Child Development celebrated the 10th anniversary of the Beti Bachao Beti Padhao (BBBP) Scheme on 22 January 2025.

Objective	Features
• Improve the child sex ratio • Ensure gender equality and women empowerment • Prevent gender-biased, sex selective elimination • Ensure survival and protection of the girl child • Encourage education and participation of the girl child	• **Launch date:** In 2015 • **Type: Centrally sponsored scheme** with 100% funding by the Central Government in all the districts of the country **under Sambal vertical of Mission Shakti** • **Ministry:** The program is collaboratively managed by three ministries: ○ **Ministry of Women & Child Development (MoWCD)** – Responsible for overall administration, coordinating with stakeholders, advocacy efforts, training, and monitoring activities. ○ **Ministry of Health & Family Welfare (MoH&FW)** – Oversees the Pre-Conception & Pre-Natal Diagnostic Techniques (PC & PNDT) Act, conducts evaluations, and enhances capacity building. ○ **Ministry of Education** – Focuses on ensuring school enrollment, constructing toilets, re-enrolling dropouts, and providing incentives for outstanding girls. • **Scheme Components:** ○ **Advocacy campaigns: L**aunched to address the issue of declining CSR and SBR. ○ **Gender-Critical District Interventions:** Focused actions in 640 districts to enhance sex ratios and improve access to education and healthcare. ○ **Financial incentive-linked scheme:** Sukanya Samriddhi scheme—was launched to encourage parents to build a fund for female children. • **Target Beneficiaries** ○ Girl Child ○ Women ○ Community at large



- **Monitorable Targets**
  - **Improve Sex Ratio at Birth (SRB)** in selected gender critical districts by **2 points in a year.**
  - **Reduce Gender differentials in** Under-5 Child Mortality Rate from 7 points in 2014 (latest available SRS report) to 1.5 points per year.
  - At least **1.5% increase per year of Institutional deliveries.**
  - At least **1% increase per year of First trimester ANC registration.**
  - Provide **functional toilet for girls in every school** in selected districts.
  - **Improve the nutritional status** of girls-by reducing number of underweight and anaemic girls under five years of age.
  - **Ensure universalization of Integrated Child Development Scheme** (ICDS), girls' attendance, and equal care, monitored using joint ICDS NHM Mother Child Protection Cards.
  - **Promote a protective environment for girl children** through implementation of Protection of Children from Sexual Offences (POCSO) Act 2012.
  - **Train elected representatives/grassroot functionaries** as Community Champions to mobilize communities to improve CSR and promote Girl's education.
- **Key Initiatives under the scheme**
  - **Digital Guddi-Gudda Board:** A digital platform for exhibiting gender disparity in birth rates and providing information on schemes and programmes created for safeguarding the girl child
  - **Udaan - Sapne Di Duniya De Rubaru:** Initiative offering girls an opportunity to shadow professionals in fields of their choice
  - **My Aim My Target Campaign:** Recognition programme to felicitate top academic performances by girls in higher secondary schools
  - **Aao School Chalein:** Enrolment campaign involving door-to-door visits and registrations to ensure 100% enrolment of girls in schools.
  - **Bal Cabinet:** Youth leadership programme where girl students simulate government cabinets and ministerial roles to discuss and resolve issues

10.3. SUKANYA SAMRIDDHI YOJANA

Why in the News?

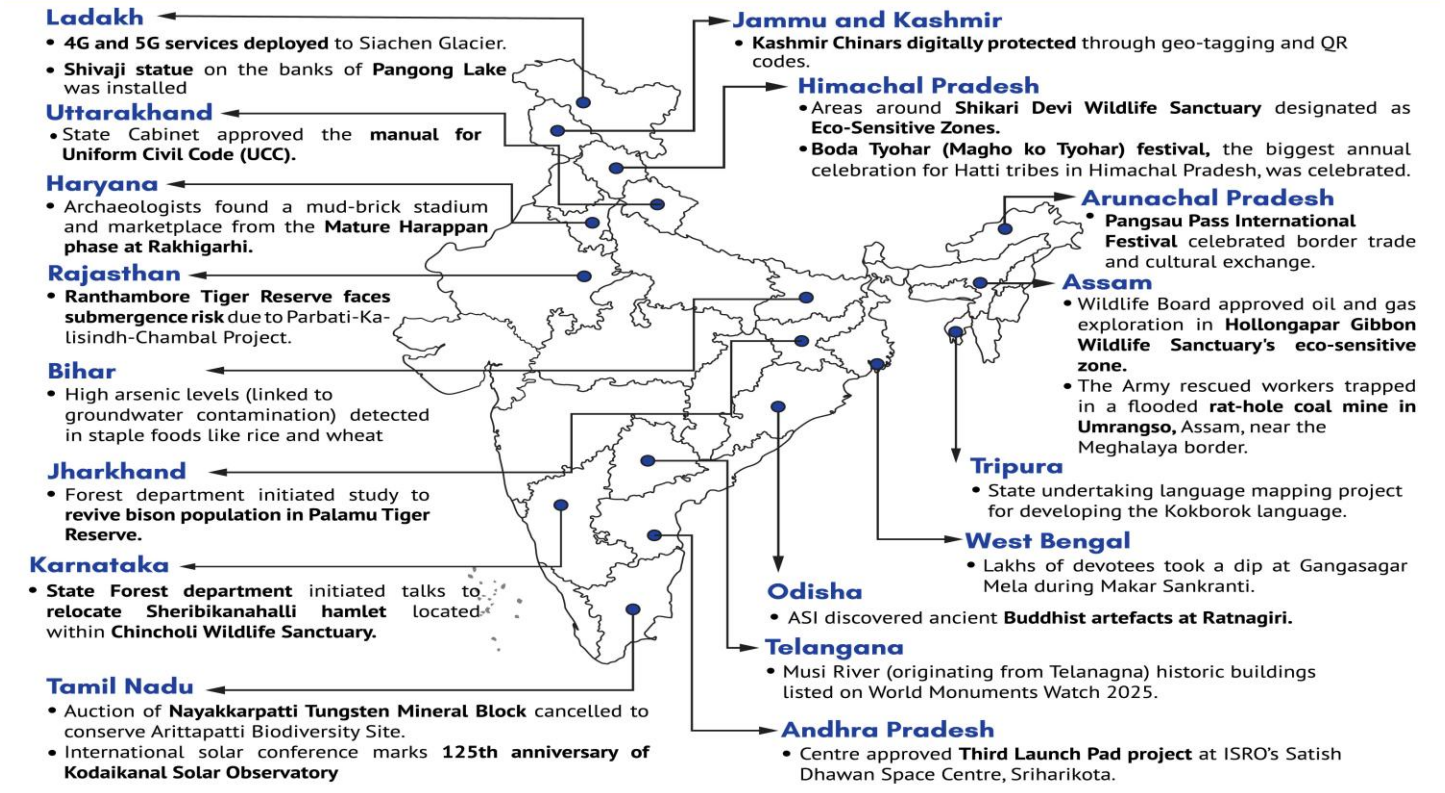
The Sukanya Samriddhi Yojana (SSY) has completed ten years.

Objective	Features
• To promote the welfare of Girl Child. • To help parents build funds for higher education and other expenses for their girl child	• **Launch: 22nd January 2015** as part of the BETI BACHAO, BETI PADHAO CAMPAIGN. • **Eligibility:** ○ The account can be opened **by the natural or legal guardian** for a girl child of age below 10 years. ○ A depositor can open and operate **only one account in the name of a girl child** under the scheme rules. ○ Natural or legal guardian of a girl child is allowed to open the account for **two girl children only.** • **Deposits and contributions** ○ **Minimum deposits:** ₹250

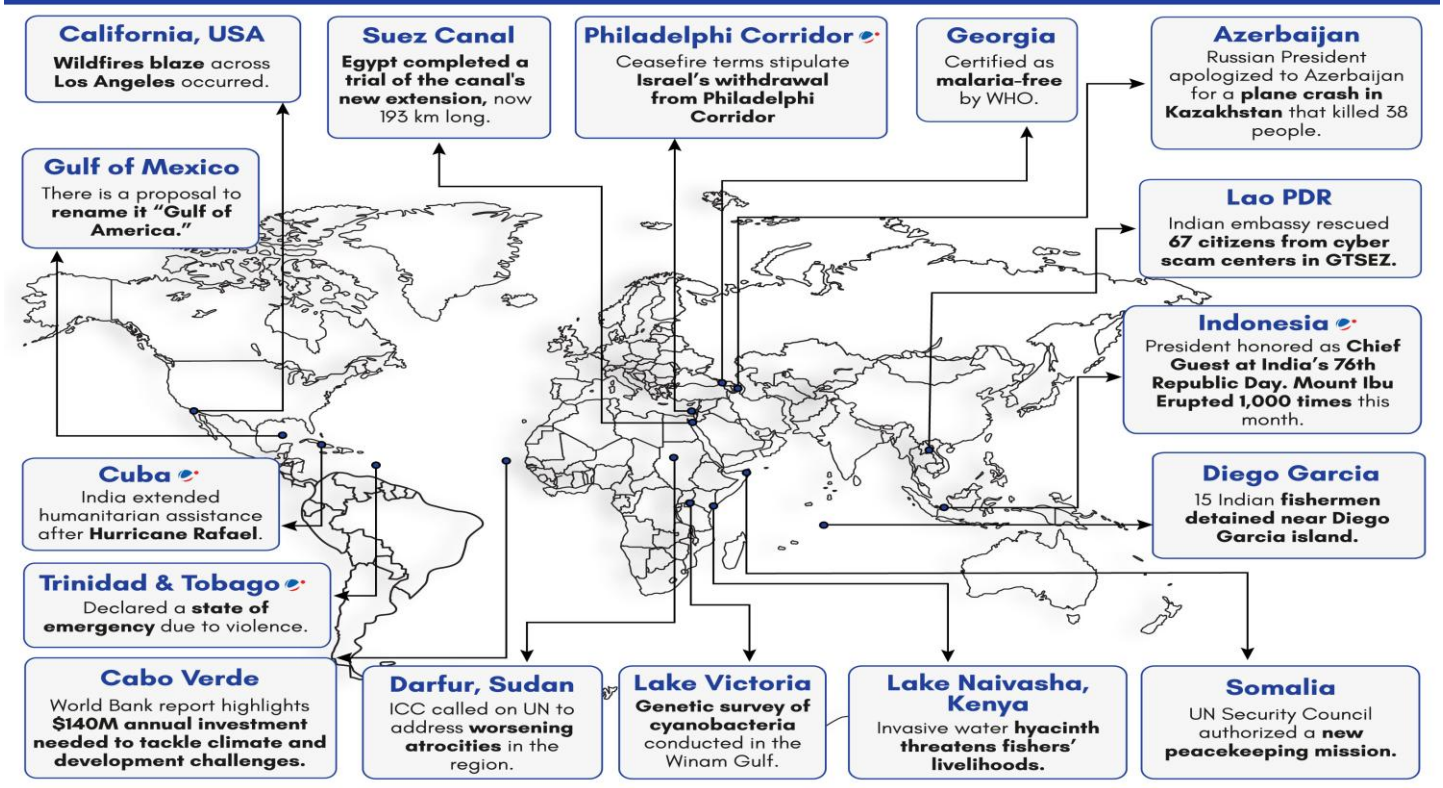
	○ **Maximum deposits:** ₹1,50,000 in a financial year. **Note-** Deposits can be made for a period of up to **fifteen years** from the account opening date. • **Tax benefits:** Contributions, interest earned, and maturity proceeds are exempt under Section 80C of the Income Tax Act, making it a triple tax-free (EEE) scheme. ○ **Interest rate:** The SSY's interest rate is revised quarterly by the Ministry of Finance. ○ **Interest calculation:** Interest is calculated monthly based on the lowest balance in the account between the close of the fifth day and the end of the month. At the end of each financial year, this interest is credited to the account. • **Maturity of the account** ○ The account **matures upon the completion of 21 years of the account holder** from its opening date. ○ Early closure is **permitted for marriage after 18 years**, with required documentation. • **Account Management** ○ The account is managed by the **guardian until the girl child reaches the age of eighteen.** ○ Upon turning eighteen, the account holder can take control of the account herself by submitting the necessary documents. • **Withdrawals for education** ○ An account holder can apply for a **withdrawal of up to 50%. This withdrawal is permissible only after the account holder turns eighteen or completes the tenth standard, whichever comes first.** ○ Withdrawals can be made either as a lump sum or in installments, with a maximum of one withdrawal per year for up to five years. • **Premature closure** ○ In the unfortunate event of the account holder's death, the account can be closed immediately. ○ **In cases of extreme compassionate grounds**: such as the account holder facing life-threatening medical issues or the death of the guardian, the accounts office may allow premature closure. ○ However, no premature closure can occur within the first five years of opening the account.

11. PLACES IN NEWS

India



World



12. PERSONALITIES IN NEWS

Personality	About	Ethical Values exhibited by the Personality
 **Khwaja Moinuddin Chishti (1141-1235)**	The Prime Minister greeted people on 'Urs' of Khwaja Moinuddin Chishti, • Urs is held annually at the shrine of sufi saint to commemorate his **death anniversary.** **About Khwaja Moinuddin Chishti** • Born in 1141 CE in Chishti in **Herat, Afghanistan.** • He is the most famous saint of the **Chishti order of Sufism in the Indian Subcontinent.** • **Chishtiya Order** was founded in India by **him.** ▸ A major feature of the Chishti tradition was **austerity, including maintaining a distance from worldly power.** • **Famous disciples: Khwaja Qutbuddin Bakhtiyar Kaki, Nizamuddin Auliya and Naseeruddin Charagh,** etc. **Key Values** • Communal harmony, spiritual satisfaction to all, Humility	**Communal Harmony and Humility** • He emphasized peaceful coexistence and humanized religion, advocating for unity among different faiths. • His humility and detachment from worldly power reflected his deep spiritual values.
 **Thiruvalluvar**	**Thiruvalluvar** 15th January is celebrated as Thiruvalluvar Day. **About Thiruvalluvar** • He was a great **Tamil philosopher, poet and thinker,** thought to have lived in **Mylapore, Chennai.** • Known for his Tamil literary work **'Tirukkural',** a collection of couplets on **matters like ethics, politics, economics and love.** ▸ Tirukkural has been classified under **three major headings: aram (righteousness), porul (wealth), ibam (enjoyment).** • **Thiruvalluvar Statue** was created by Indian sculptor V. Ganapathi Sthapathi in **Kanyakumari, Tamil Nadu.** • India's **first Thiruvalluvar Cultural Centre** will soon be inaugurated in Singapore. **Values:** Righteousness, Compassion, and Justice.	**Rationalism and social justice** • He wrote the one of first ever books on ethics in human history. • He described the importance of both professional and personal ethics in determining the well-being of an individual and society.

Rani VeluNachiyar (1730 –1796)

Prime Minister paid tribute to Rani Velu Nachiyar on her birth anniversary.

Rani Velu Nachiyar

She was princess of **Ramanathapuram** (Tamil Nadu) and child of ruler of **Ramnad kingdom.**

- Known by Tamils as **Veeramangai.**
- Reinherited **Sivagangai kingdom** of her husband.
- She was **proficient in languages** like French, English, and Urdu.

Contributions

- **Was first queen** to have ever actively opposed the British rule.
- In collaboration **with Hyder Ali and Gopala Nayaker,** waged war against British.
- Went on to **produce first human bomb** and established first army of trained women soldiers.

Values: Bravery, leadership, etc.

Self-Confidence and Leadership

- According to legend, Rani's Self-confidence was so strong that she decided to take Britishers on herself
- Her leadership was demonstrated through her strategic alliances and the formation of a pioneering women's army, reflecting the ability to inspire and mobilize others towards a common goal.

Savitribai Phule (1831 - 1897)

Recently, eminent social reformer andeducationist Savitribai Phule was remembered on her birth anniversary (January 03).

About Savitribai Phule

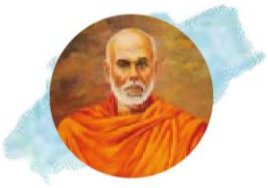
- She was born in **Naigaon, Satara district** (Maharashtra).
- She was the **first headmistress of the country's first school for girls** in Pune.

Key Contributions

- **In 1873,** she, along with her husband Jyotiba Phule, initiated the practice of **Satyashodhak marriage** - a marriage without dowry or a wedding at minimum cost.
  - They also **opposed child marriages** and advocated and organized **widow remarriages.**
- In 1854, she published first collection of poems **Kavyaphule,** making her the **first modern poetess of Marathi.**

Egalitarianism and Justice

- She championed education as a means of empowerment, fighting against caste and gender-based discrimination.
- Her advocacy for widow remarriage and opposition to child marriage reflected her strong commitment to social justice.

	Values: Egalitarianism, Justice, Courage of Conviction, etc.	
 **Sree Narayana Guru (1856-1928)**	IIT Bombay is set to unveil an online archival project dedicated to Narayana Guru this May. • He was a revered **social reformer and spiritual leader** from **Kerala.** **Contribution** • He propagated the idea of **'One Caste, One Religion, One God'.** • He **and Padmanabhan Palpu founded the 'Sree Narayana Dharma ParipalanaYogam' (SNDP)** for upliftment and education of Ezhava community. • He launched the **"Aruvipuram movement,** one of the first moments for equal rights to temple entry. • He lent **support to Vaikkom Satyagraha for temple entry (1924-25) in Travancore.** • **His works include** DaivaDasakam, Anukampadasakam etc.	**Compassion and Integrity** • His life and his contributions are a testament to equality and non-violence. He was a compassionate personality and displayed impeccable integrity and courage in launching various movements.
 **Rash Behari Bose (1886-1945)**	**21st January** marks the death anniversary of Rash Bihari Bose, a pioneer of India's freedom struggle. **About Rash Behari Bose** • He was born in Bardhaman district (Bengal). Inspired by French Revolution of 1789; Left Bengal due to **Alipore Bomb case trials.** **Key Contributions** • Active member of Yugantar group of revolutionaries. • Was involved in **Delhi Conspiracy case** (bomb attack on Viceroy Lord Charles Hardinge), 1912. • **Indian Independence League** (1942) was founded by him in Tokyo. • He was an important figure in the Ghadar **Movement** and in the formation of the **Azad Hind Fauj** (Indian National Army).	**Patriotism and Unity** • His deep commitment to India's independence was evident through his involvement in revolutionary activities and his pivotal role in the formation of the Azad Hind Fauj. He effectively bridged regional divides among revolutionaries, demonstrating his belief in unity and collaboration across different groups for the common goal of India's freedom.

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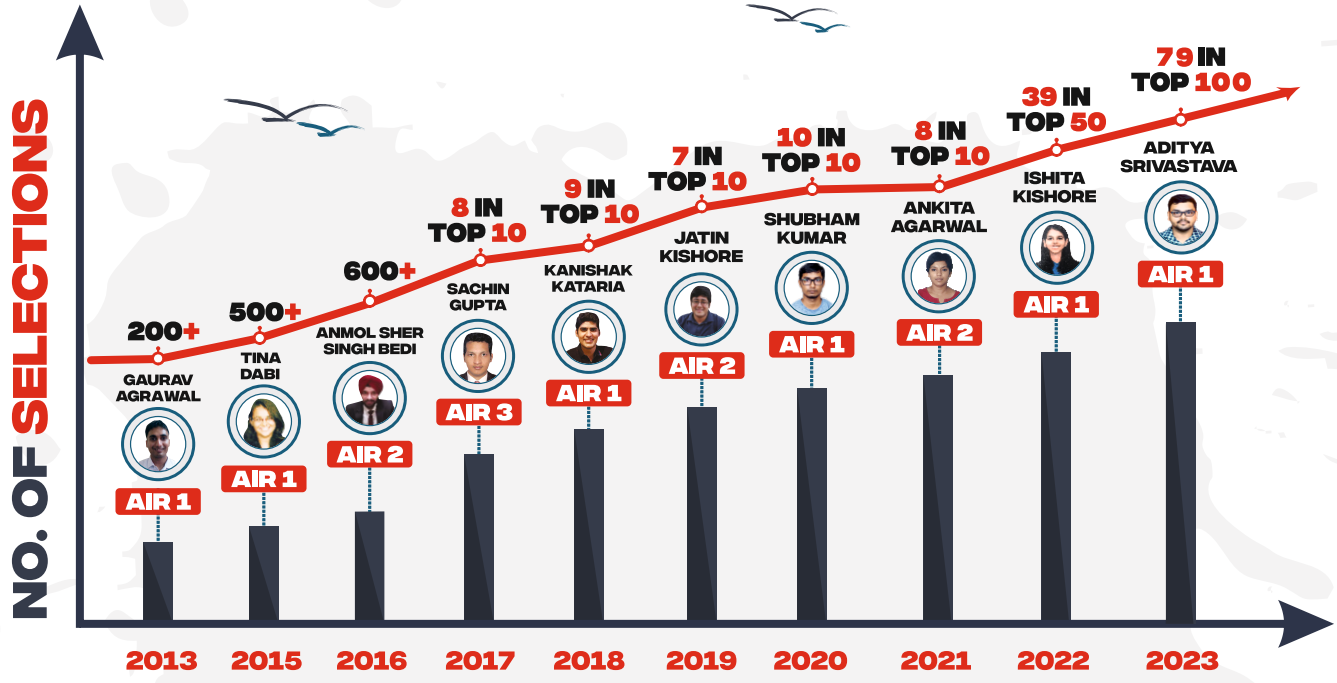

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