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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

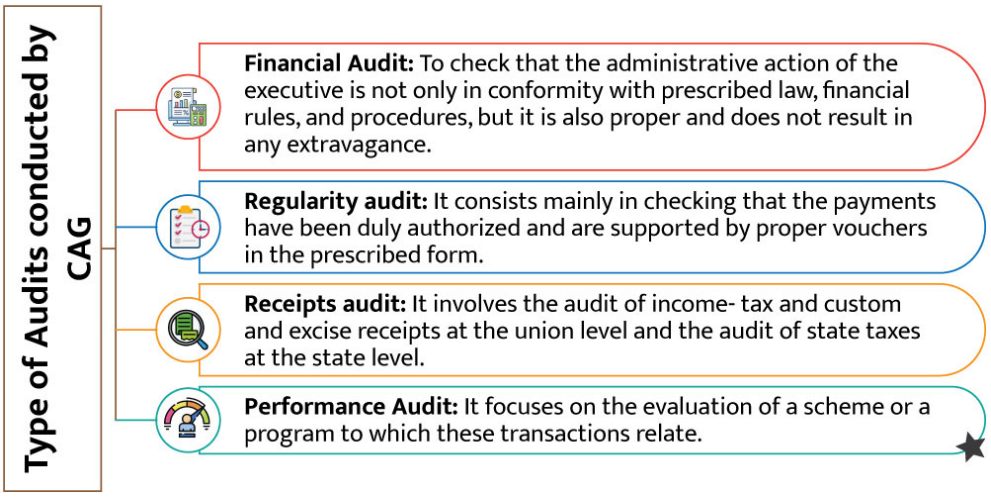
1.1. AUDIT DATA STANDARDISATION

Why in the news?

Recently, Comptroller and Auditor General of India (CAG) said that the government must adopt **audit data standards.**

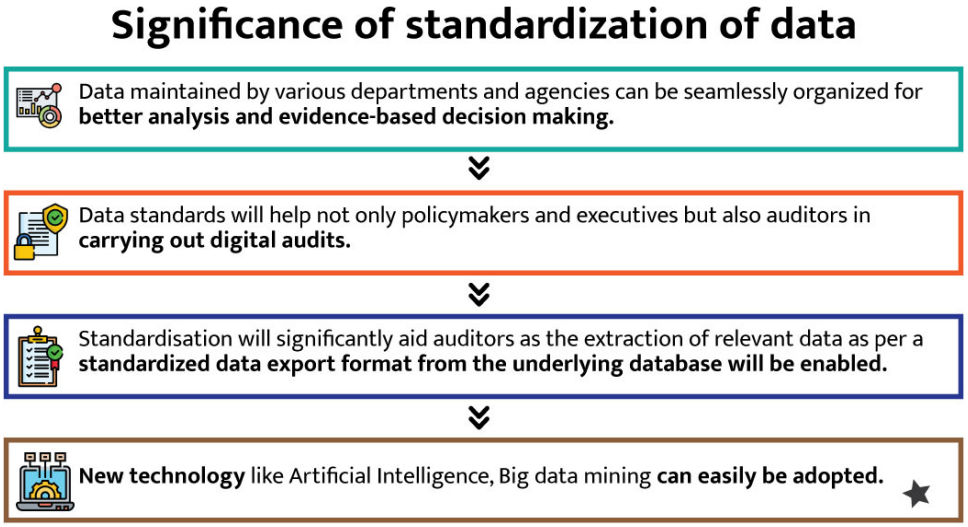
More on News

- The CAG said that such **standards will ensure that the data/information maintained by various departments and agencies can be seamlessly organised for better analysis**.



The present system of Audit

- **Statutory Audit**: It refers to the audit conducted by the **CAG through the agency of the Indian Audit and Accounts Department.**
  - As per the **Constitution as well as by the Duties, Power, and Condition of service Act, 1971,** it is the function of the Comptroller and Auditor General to
    - ✓ Audit all expenditures from the Consolidated Fund of India, States and UTs with Legislature.
    - ✓ Audit all transactions of the Union and of the states **relating to the contingency funds and public accounts**.
    - ✓ The CAG is empowered to inspect **any office connected with the transaction to which his/ her authority extends.**
- **Internal Audit:** It is internal to the organization.
  - An internal audit is conducted by an **agency or department created by the management of the organization.**
    - ✓ It is an integral part of the organization and functions **directly under the Chief Executive.**
    - ✓ The extent of CAG is limited to **test checking of internal audit work**.



Issues with the existing Audit system

- **Lack of audit standardization**
  - Large volumes of data collected by **different government agencies and departments are not shared**, even among the departments.
  - The data shared is often **not available in a machine-readable** format.
  - It cannot be integrated with data from other sources to help develop multi-dimensional insights.
  - **There is over-reliance on data collection through surveys**. These are released at a considerable lag, which diminishes their usefulness
  - There is a considerable **lack of awareness regarding** currently available data sources.

- **Other Issues**
  - **No Powers to Enforce Audit Findings:** While the audit notices a systematic violation of law, rules, and regulations by departmental officers, it is unable to take effective action to prevent them.
  - **Chaotic accounts of state companies:** Out of about 900 State government companies, the Annual Accounts of about 700 companies are in arrears for periods as long as ten to twelve years.
  - **Shortcoming in the Act:** Comptroller and Auditor General's Act is **silent on the issue when a public official spends money that** is not legally available.
  - **Unitary function:** The appointment of CAG is not upholding the **federalism principle**. The center appoints CAG without any consultation with the state government.

Controller and Auditor General (CAG)

- CAG is an **independent authority under Article 148** of the Constitution of India.
- CAG is the Head **of Indian Audit and Accounts** and **guardian of the public purse and supervises the whole financial system** of the country at both the Central and state levels.

Role of Comptroller and Auditor General

- **Financial Administration:** The role of CAG is to uphold the Constitution of India and the laws of Parliament in financial administration.
- **Uphold the Accountability:** The audit reports of the CAG secure accountability in the sphere of financial administration of the executive.
- **Agent of Parliament:** The CAG is responsible only to the Parliament because he acts as an agent of the Parliament and conducts audits of expenditures on behalf of the Parliament.

The reform required in the functioning of CAG

- **Qualification for CAG** should be laid down.
- **Constitutional status** to the state accountant general.
- All publicly funded bodies should fall **under the ambit of CAG**.
- **Quasi-judicial power** should be given.

Ways for Data standardization and evidence-based decision making

- **Data integration and quality assurance:** Most of the administrative and survey data are generated at the state level.
  - It is recommended that **after going through the process of quality assurance, where discrepancies are removed, and formats** are standardized, the data should be **integrated into a state data repository.**
  - Here, the implementation of the **Draft National Data Governance Framework Policy for modernisation of data collection and management** can be fast tracked.
- **Interoperability of data:** Enable data sharing in real-time through Application Programming Interfaces (API) between data stored across different databases and across ministries in a central location for easy access by the public.
- **Adoption of technology:** Both administrative and survey data need to be collected in digital formats across various sectors in real time to move from paper-based to digitally driven operations.
- **Localisation of Data**: Ensure availability of data at a more granular level – village/block/district.
- **Role of tertiary big data:** For better governance and evidence-based policymaking, it is recommended that tertiary big data collected by private third parties should be used.
- **Skill development and restructuring:** Data scientists with multiple skills in the areas of statistics, analytics, computer science, and programming should be incorporated into the Indian government.

Related news

The International Labour Organization (ILO), Geneva has chosen the Comptroller and Auditor General of India (CAG) to serve as its external auditor for a four-year term from 2024 to 2027.

- The CAG provided specifics, stating that ILO had established a panel for the nomination of an external auditor and had requested proposals from **the Supreme Audit Institutions (SAIs).**
  - **SAIs** are public bodies responsible for auditing government revenue and expenditure.
  - Nearly every SAI from UN-member country is a member of the INTOSAI.
  - **The International Organization of Supreme Audit Institutions (INTOSAI)** is a voluntary, non-political organization that works to promote auditing standards, good governance of SAIs, and SAI independence, among other work.
    - ✓ **There are seven INTOSAI Regional Organizations**.
    - ✓ The regions are AFROSAI (Africa), ARABOSAI (Middle East and North Africa), ASOSAI (Asia), CAROSAI (Caribbean), EUROSAI (Europe and Eurasia), OLACEFS (Latin America) and PASAI (Oceania).
  - CAG has been elected as the **Chairman of ASOSAI from 2024-2027**.
- **The World Health Organization** (2020-2023), **Food and Agriculture Organization** (2020-2025), **International Atomic Energy Agency** (2022-2027), **Organization for the Prohibition of Chemical Weapons** (2021-2023), and **Inter-Parliamentary Union** are currently being externally audited by the Comptroller and Auditor General of India (2020-2022).

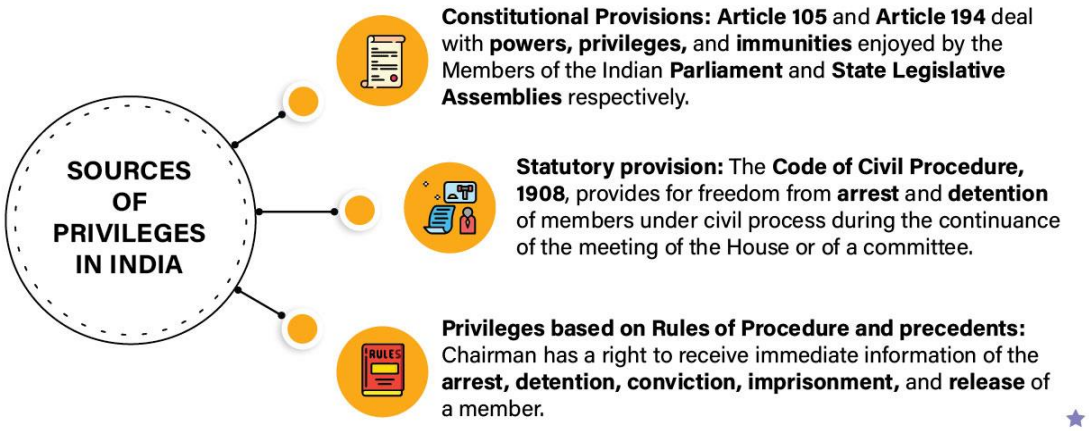
1.2. PARLIAMENTARY PRIVILEGES

Why in the news?

Recently parts of the leader of the opposition speech on the motion of thanks on the President's Address were expunged.

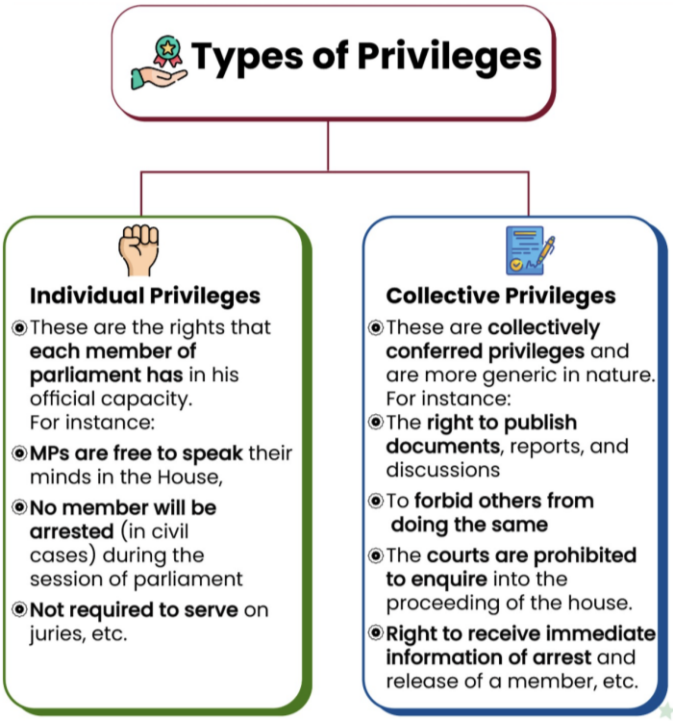
More on News

- Experts point out that **this is against the Parliamentary Privileges of the MP** enjoyed under **Article 105** of the Constitution.



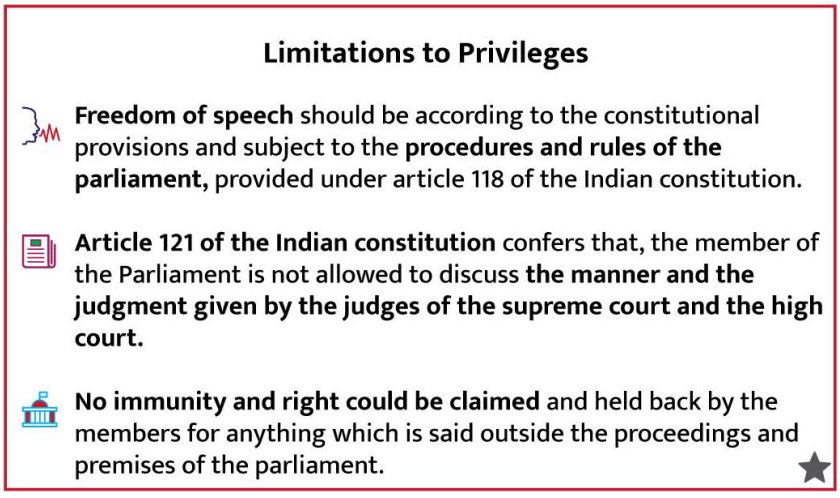
About Parliamentary Privileges

- Parliamentary privileges are a **legal immunity enjoyed by members of legislatures, in which legislators are granted protection against civil or criminal liability** for certain actions done or statements made in the course of their legislative duties.
- **Parliament is the sole authority to ascertain** if there has been a breach of privilege or contempt of the House— no court is entrusted with this power.
  - If the **presiding officer gives consent, the Council can either consider the question and come to a decision or refer it to the Committee of Privileges** — a 10-member panel in the Rajya Sabha and a 15-member panel in the Lok Sabha.



Significance of Parliamentary Privileges

- **Freedom of Speech and Expression:** Without Parliamentary Privilege, MPs would not be able to fully represent their constituent's interests and MPs would not be able to scrutinize the Government without fear.
- **Ensure independence of MPs:** Parliamentary Privilege is an important principle that protects the ability of MPs to carry out their role **without fear of legal repercussions**.
- **Ensure collective rights of parliamentarians**: It gives MPs a great chance to carry out their duties **effectively and independently** to give them some rights to exclude strangers, to punish members and outsiders for breach of their privileges, etc.
- **Reduce undue influence:** It assists in ensuring the efficacy of the activities done by legislators and their independence, shielding them from unwarranted criticism.



Challenges associated with Parliamentary privileges

- **Against Natural justice:** The 'breach of privilege laws' often indicates the faults for allowing politicians to become judges in their cause.
  - This raises concerns of conflict of interest and violating basic fair trial guarantees.
- **Legislators can become the sole arbiters of their privileges:** They decide what constitutes a breach, and the appropriate sanction in the event of a breach.
- **Against constitutionalism or the doctrine of limited power**: The absence of codified privileges gives unlimited power to the house to decide when and how a breach of privilege occurs.
- **Discredits separation of power**: As the presiding officer acts as a complainant, advocate, and judge. Used as a substitute for a legal proceeding.

Supreme court judgment regarding privileges

- **In 'P V Narasimha Rao vs. State' stated that** members need the wider protection of immunity against all civil and criminal proceedings that bear a nexus to their speech or vote.
- **In the M.S.M. Sharma** case stated whenever there is a condition of imbalance between the provision of part V , Article 194(3)(privileges) and fundamental rights conferred by part III, the fundamental right will remain supreme over the others.

Codification of parliamentary privileges

The question of the codification of privileges is very old. It was argued in Constituent Assembly regarding codification, but it was voted out on the ground that when a new situation arises, it will not be possible to adjust to the same.

Need for codification

- **Will be consistent with fundamental rights.**
- Will bring them under the ambit of **judicial review** and
- Will remove arbitrariness in their application.

The argument against the codification of privileges

- More advantage would **flow to persons bent on defaming Parliament**.
- The courts will be called upon more and more to intervene.
- It would make the evolution of **new privileges not possible.**

Way forward

- **Amending Article 19(2):** Wherein the expression **'Contempt of Legislature'** should be added. This course of action would remove some uncertainty from the area while at the same time, the Houses would not lose its flexibility of approach.
- **The Committee of Privileges should be given separate independent status:** It is usually observed that the members of the Committees do not have a non-political approach while performing their duties.
- **Collective decision:** The Committee headed by the Speaker or the Chairperson as the case may be, should be empowered to decide and investigate the contempt proceedings.
- **Transparency:** There should be a relaxation of the rules **against reporting of proceedings before Parliamentary Committees.**
  - The general principle should be that the proceedings should be open and reportable unless the public interest clearly requires otherwise.

Conclusion

A modern doctrine of Privilege should not rely on an old statute whose main purpose was to assert Parliament's rights. A separate committee should be constituted consisting of members of Lok Sabha, Rajya Sabha, and the Judiciary (retired or acting) to work on the codification of the parliamentary privileges.

1.3. OFFICE OF MAYOR

Why in the news?

Recently, The Supreme Court said the Constitution does not allow nominated members of a municipality the right to vote for selecting the post of mayor.

About Indian system for Mayor

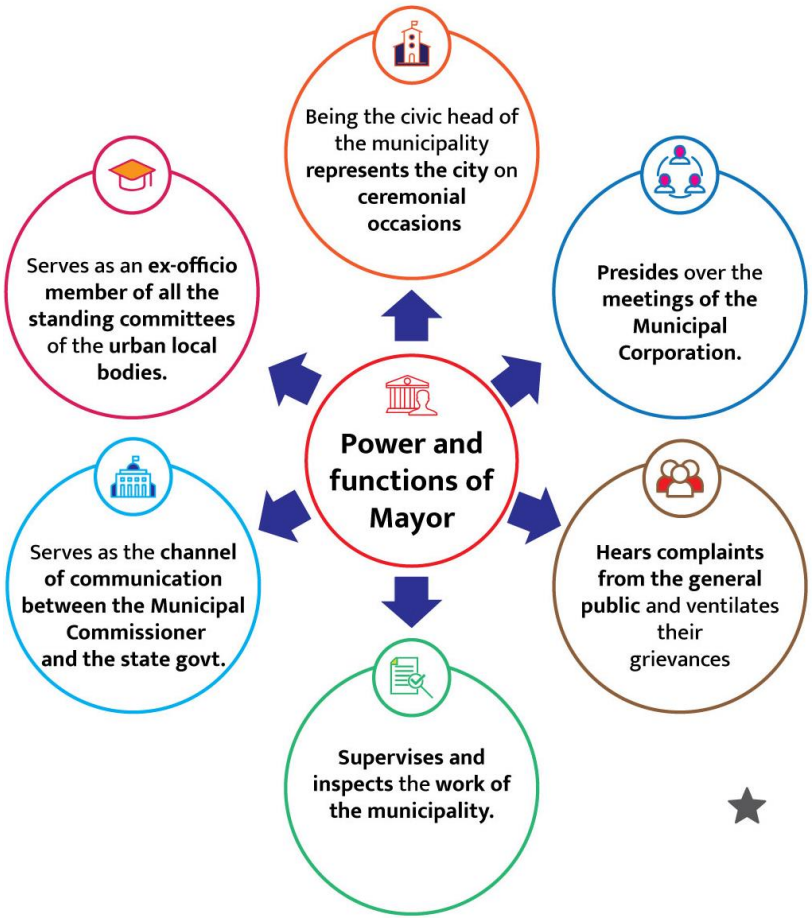
- The Mayor in the Municipal Corporation is usually chosen **through indirect election by the councillors from among themselves.**
- **Councillors act by committee,** the most powerful being the Standing Committee with its role of the steering committee exercising executive, supervisory, financial, and personnel powers.

The Kolkata model

An alternative model to the prevailing Commissioner model is the one implemented in Kolkata, West Bengal.

- This model was introduced in 1984 and is known as the **Mayor-in-Council form of city governance**
  - It can be described as a cabinet government replicating the formula operating at the state and national levels.
- This system is composed of **a Mayor and a ten-member cabinet** with individual portfolios chosen from among the elected councillors.
- The Municipal Commissioner serves as the Principal Executive Officer subject to the control and supervision of the **Mayor as the Chief Executive Officer in this model.**

- **The Municipal Commissioner is the chief Executive Officer** and head of the executive arm of the Municipal Corporation.
    - All executive powers are vested in the Municipal Commissioner.
- The 1992 Act provides for **elected and nominated councillors.** Nominated councillors are to be chosen by the elected councillors for their special knowledge or experience in municipal administration.



Challenges with Mayor System

- **No real power:** The mayor is merely a ceremonial authority, and executive decisions are carried out by the municipal commissioner appointed by the state government.
- **Lack of clarity:** 74th amendment did not prescribe the manner of election, tenure, or powers of the Mayors/Chairpersons of Urban Local Bodies.
- **Non-uniformity in tenure:** Their tenure is also not uniform. In different states, they have different tenures, even as low as just one year.
- **Lack of harmony between the mayor and bureaucrats:** The existing municipal governance structure turns the entire democratically elected councillor against the chief executive, a state-appointed bureaucrat which leads to inefficiency.
- **Lack of Political Will: State governments do not wish to delegate more authority to city-level institutions**. Often, urban resources are transferred to rural areas in the name of development.

Way forward

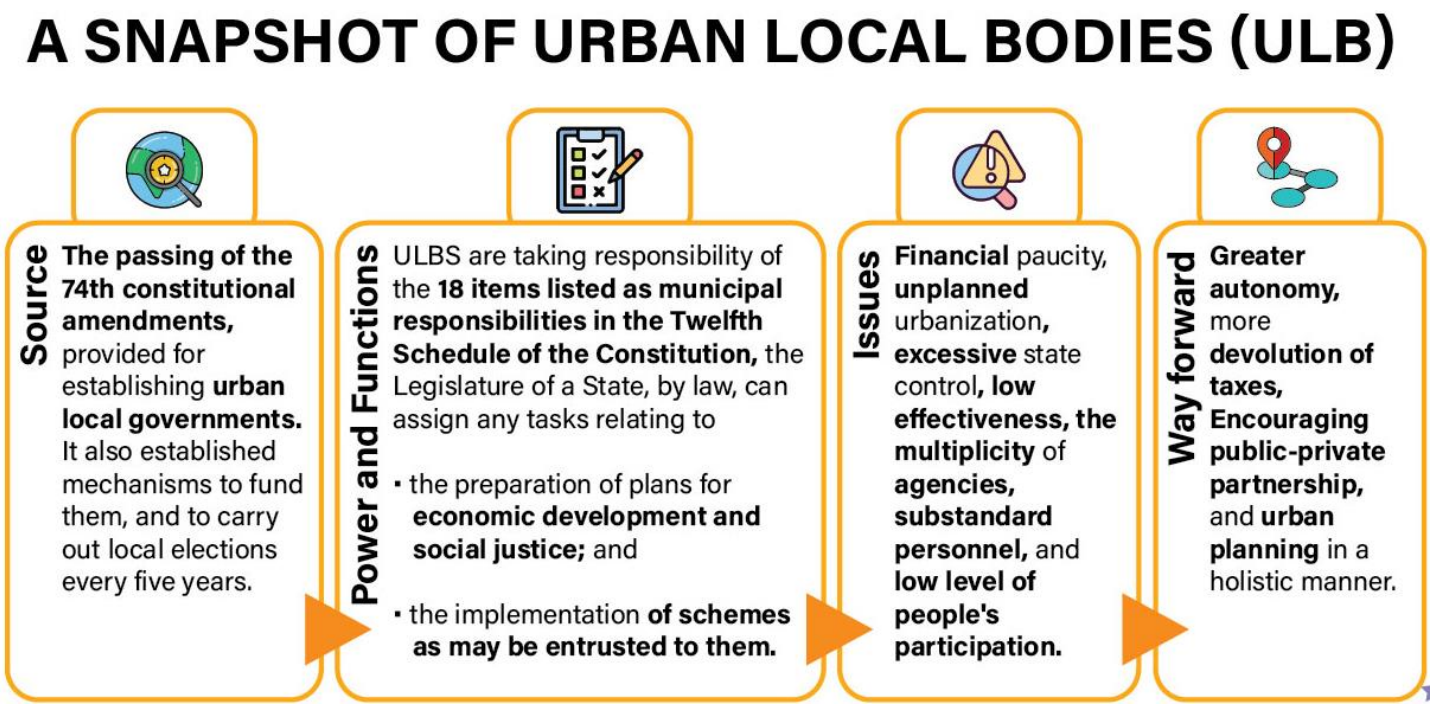
- **ARC Recommendations: Second Administrative Reforms commission has recommended that**
    - **Direct election** of Mayor with a **fixed tenure of 5 years.**
    - **Mayor should be the chief executive of a city** or urban government, and the city government should have the power to appoint all officials including the commissioner.
    - In municipal corporations and metropolitan cities, the **mayor should appoint the mayor cabinet**.
    - The **mayor should choose the cabinet members** from the elected corporators.
    - The **cabinet will exercise executive authority on matters entrusted** to them by the mayor under his overall direction and control.

The case for direct election

In India, the mayoral electoral process has undergone some experimentation in recent decades.

- **Today, six states** – Uttarakhand, Chhattisgarh, Jharkhand, Madhya Pradesh, Uttar Pradesh, and Tamil Nadu – **have mayors who are elected directly.**
- **Benefits**
    - Can speed up the **decision-making process** because the system will be action-oriented.
    - Mayors will have a personal democratic mandate to 'deliver change'.
    - This model can strengthen democratic politics and bring **fresh life to local engagement.**
    - There is evidence to show that directly elected mayors have **improved accountability, and clarity.**
- **Demerits**
    - **Difficult to remove the mayor if her/his behaviour is arbitrary** or corrupt.
    - **Reduce the role of the elected** councillors.
    - **'Presidentialisation' of mayoral leadership** will be paradoxical in a system based on collective decision-making.

- **Mayor-in-Council:** In its study McKinsey Global institute has opined that India should consider a political executive in the form of a **Mayor- in -Council** at the municipal level.



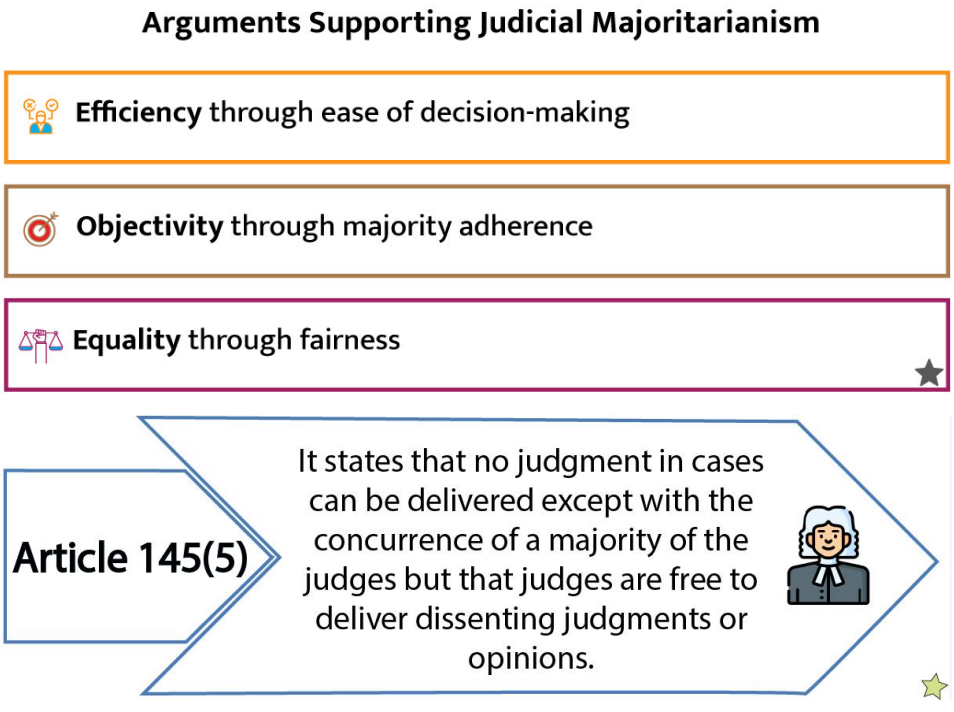
1.4. JUDICIAL MAJORITARIANISM

Why in news?

Recently the Constitution bench of the Supreme Court in a majority opinion (4-1) **upheld the Government's demonetization order.**

More on News

- **Experts have pointed out that some of the most important legal questions** have been decided by a bare majority 5–4 vote of the Supreme Court Judges.
  - **Such cases include legal status of same sex marriage (Supriyo v. Union of India, 2022), electoral finance (ADR vs Union of India, 2021), etc.**
- In judicial terms this way of majority decision making is **known as Judicial Majoritarianism**.



About Judicial Majoritarianism (JM)

- **Constitutional Basis**: The requirement for a majority consensus flows **from Article 145(5) of the Constitution**.
  - Numerical majorities are of particular importance to cases, **which involve a substantial interpretation of constitutional provisions.**
  - In such cases, Constitutional Benches, consisting of five or more judges, are set **up in consonance with Article 145(3) of the Constitution**.

Concerns related to judicial Majoritarianism

- **Personal misinterpretation:** It is entirely possible that the majority may fall into methodological errors.
  - All judges on a particular Bench give their rulings **on the same set of facts, laws, arguments, and written submissions.**
  - In light of the same, any differences in judicial decisions can be attributed to a difference in either the **methodology adopted or the logic applied** by the judges in their interpretation.
- **Avoidance of meritorious dissents:** A meritorious minority decision, irrespective of the impeccability of its reasoning receives little weightage in terms of its outcomes.
  - For example, the dissenting opinion in **A.D.M. Jabalpur v. Shivkant Shukla (1976)** upholds the **right to life and personal liberty** even during situations of constitutional exceptionalism.
  - Another example is the dissenting opinion in the **Kharak Singh v. State of U.P. (1962)** case **upholding the right to privacy.**
- **Dissent due to influence**
  - The rate of judicial dissent during Emergency in 1976 was 1.27% as opposed to 10.52% in 1980.
  - The rate of dissent where the Chief Justice was a part of the Bench was lower than in those cases where the Chief Justice was not on the Bench.

Way forward

- **Exploring Alternatives to Judicial Majoritarianism**
  - **Supermajority Decision (SD):** It requires more than a simple majority of the court to agree upon a result to render a decision for the court.
    - ✓ For example, on a 9-member court, while JM would allow a 5–4 decision to prevail, SD requires a higher vote tally—6–3, 7–2, 8–1, or 9–0.
  - **Panel Majority Decision:** The setup is that there is a larger set of judges from which smaller, subset panels (consisting of an odd number of judges) are chosen. The subset panels then decide cases using majority voting among the judges on the panel.
  - **Weightage on the basis of majority:** A system that may either give more weightage to the vote of senior judges given that they have more experience or to the junior judges as they may represent popular opinion better.
- **Better analysis of the workings of the Supreme court:** The absence of a critical discourse on judicial majoritarianism represents one of the most fundamental gaps in our existing knowledge regarding the functioning of our Supreme Court.
- **There should be a critical analysis of the premises and rationales** which underlie head-counting in judicial decision-making.
- **Constitutional Matters: As pending Constitutional Bench** matters are listed for hearing and judgments are reserved, we must reflect upon the arguments of judicial majoritarianism on the basis of which these cases are to be decided.

1.5. INTERNET SHUTDOWN

Why in the news?

According to an **Internet advocacy watchdog access report** India imposed by far the highest number of internet shutdowns in the world in 2022.

More on News

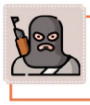
- **India topped the internet shutdowns list for the fifth successive year**. Although fewer than 100 shutdowns in India for the first time since 2017.
- **Jammu and Kashmir accounted** for the highest number of internet shutdowns followed by Rajasthan and West Bengal.

Internet Shutdown

Rationale Behind Usage of Internet Shutdown

Maintaining peace: Misinformation and rumours can lead to deterioration in law and order in an area.

Containing fake news: The Internet provides a faster medium to spread fake news and it became essential for the government to ban the spread of audio and videos through apps like Twitter, WhatsApp, etc.



Against terrorism: To defeat the nefarious designs from across the border to propagate terrorism.

National Security: National security is the most frequently cited justification for internet shutdowns globally.

Exams: An increasingly popular form of shutdown aims at stopping students from cheating on exams.

Techniques used to shut down the internet

DNS Tampering: officials can "deregister" a domain that is hosting nefarious content. this makes the website invisible to the browsers of users seeking to access the site because it prevents the translation of domain names to site IP addresses.

IP Blocking: Governments with control over internet service providers can blacklist certain IP addresses of websites they do not like.

URL filtering: This mechanism scans the requested Uniform Resource Locator (URL) string for target words. If the URL includes forbidden terms, the connection will be reset.

Less Common Strategies: These strategies include IP blocking, and keyword filtering—which are the most common methods used to implement wide-ranging internet censorship.

Impact of Internet Shutdown

Economic Impact: In a study quoted by UN, it was suggested that shutdowns in 46 countries between 2019 and 2021 had led to losses amounting to $20.54 billion.

Impact on health: Supply chains and the flow of information critical to the delivery of goods and services can be disrupted.

Disrupts political transparency: Such disruptions undermine or eliminate access to digital tools that are critical for campaigning, promoting public discussion, conducting voting, and overseeing the electoral processes.

Risk to privacy: For example, when people turn to untrustworthy VPNs in order to route around restrictions, their personal data is at risk.

Impact on education: They undermine pedagogical outcomes and interfere with education planning and communication among teachers, school administrators, and families.

Impact on journalism: An internet shutdown can hamper the reach of on-the-ground reporting and cause underreporting of local issues.

Social impact: In societies, most people rely on the social media internet for basic communication, which can affect the family's smooth running.

Impact on fundamental rights: the fundamental rights to speech, conduct business, access healthcare, express dissent, and movement of the people in a state, are compromised.

Way forward

- **Principles: The UN Human Rights Office provides that six principles should be followed by imposing internet shutdown.**
  - Clearly grounded in unambiguous, publicly available law.
  - Necessary to achieve a legitimate aim.
  - Proportional to the legitimate aim and the least intrusive means to achieving that end.
  - Subject to prior authorization by a court or another independent adjudicatory body.
  - Communicated in advance to the public and telecommunications or Internet service providers.
  - Subject to meaningful redress mechanisms accessible to those whose rights have been affected by the shutdowns
- **Selective banning:** Certain apps or websites could be banned, such as WhatsApp, where the possibility of rumours being widely circulated is high, while other Internet services could remain available to users.
- **Role of internet companies:** Internet companies should engage and collaborate with stakeholders including government and civil society to prevent disruption due to shut down.
- **Defining terms like 'public emergency'** to avoid their usage without due cause.
- **Improving digital literacy:** Efforts to improve digital media literacy should be expanded, and international partners should invest in digital literacy, including access to basic digital security skills.

Provision for the internet shutdown

- **Currently, the suspension of telecom services (including internet shutdowns) is governed by Temporary Suspension of Telecom Services (Public Emergency & Public Safety) Rules, 2017**, notified under Indian Telegraph Act, 1885.
- 2017 Rules provide for a temporary shutdown of telecom services in a region on **grounds of public emergency** (up to 15 days at once).
- Such directions can be issued **by Secretary to the Government of India in the Ministry of Home Affairs in the case of Government of India** or by the **Secretary to the State Government in-charge of the Home Department** in the case of a State Government.

Parliamentary panel recommendations on internet shutdowns

The Standing Committee on Communications and Information Technology report on **"Suspension of Telecom Services and Internet and its impact"** has recommended-

- Asked the DoT to lay down a clear-cut **principle of proportionality and procedure** for lifting of shutdown in coordination with the home ministry.
- **Rejected the logic of the DoT and MHA for not maintaining the record of the shutdown,** saying it cannot simply take the plea that police and public order are essentially state subjects.
- **A centralized database of all internet shutdowns** by the states can be maintained either by DoT or MHA.
- DoT should expand the review committees that review the **order of telecom services suspension under the Telecom Suspension Rules, 2017.**
- A study should be commissioned by the government of India so as **to assess the impact of the internet shutdown on the economy.**

1.6. NEWS IN SHORTS

1.6.1. APPOINTMENT OF JUDGES TO SUPREME COURT

- Accepting the recommendations made by Supreme Court (SC) collegium, President appointed 5 new Judges to SC.
  - With these appointments, **working strength of SC will rise to 32** against **sanctioned strength of 34.**
  - Sanctioned strength is prescribed by **law made by Parliament (Article 124 (1)).**
- Chief Justice of India (CJI) and Judges of SC are **appointed by President** under **Article 124 (2) of Constitution** with the help of collegium system.
- **Collegium system** is the way by which judges of SC and HC are appointed and transferred.
  - **SC collegium** is a **five-member body**, which is headed by **incumbent CJI and comprises four other senior-most judges** of the court at that time.
  - **HC collegium** is led by **incumbent Chief Justice** and **two other senior-most judges** of that court.
- **Collegium system has evolved with Three Judges case**
  - **First Judges Case, 1981 (S P Gupta Case)**: SC ruled that recommendation made by CJI to President can be refused for "cogent reasons", thereby giving greater say to executive.
  - **Second Judges Case, 1993 (SC Advocates on Record Association (SCARA) vs Union of India):** CJI only need to consult **two senior-most judges** over judicial appointments and transfers.
  - **Third Judges Case, 1998**: CJIs should consult with **four senior-most SC judges** to form his opinion on judicial appointments and transfers.

1.6.2. ECI DECIDES ON PARTY NAME AND SYMBOL

- **Article 324 read with Election Symbols (Reservation and Allotment) Order, 1968 empowers** Election Commission of India (ECI) to recognise political parties and allot symbols.
  - Under Paragraph 15 of the Order, it **can decide disputes among rival groups or sections of a recognised political party** staking claim to its name and symbol.
- **In Sadiq Ali Case** (1971), **Supreme Court upheld ECI's authority** to decide issues on a dispute or a merger and **prescribed 3 tests to arrive at a decision:**
  - Test of Aims and Objectives of the Party Constitution.
  - Test of party constitution
  - Test of Majority
- **In line with Sec 29A of Representation of the People Act, 1951 and Conduct of Election Rules,1961, ECI** recognizes a Political Party and **allocates symbol to it.**
  - **National Parties:** These parties are **allocated with a symbol, which can be used across the whole country in all elections**. No other parties can use them.
  - **State Parties:** These parties are **allocated with an exclusive symbol within the state**.
  - **Independent Candidates:** They **can choose 3 Symbols in order of their preference**(other than national and state party's symbol) and **ECI grants one among the three.**

1.6.3. COMMONWEALTH PARLIAMENTARY ASSOCIATION (CPA)

- **Annual conference of 19th CPA India Region** Zone III was **inaugurated by Lok Sabha Speaker** (ex-officio chairman).
- CPA, established in 1911, is **made up of over 180 legislatures** (or Branches) divided up between **nine geographic regions of the Commonwealth.**
  - Commonwealth is **an association of 56 member states**, majority of which are **former territories of British Empire.**
- **After Africa** Region, **India has the largest** number of member **Branches of CPA**.
  - **CPA India Region** is divided **into 4 zones.**

QUIZ

SMART QUIZ

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

2. INTERNATIONAL RELATIONS

2.1. INTERNATIONAL FINANCIAL ARCHITECTURE (IFA)

Why in News?

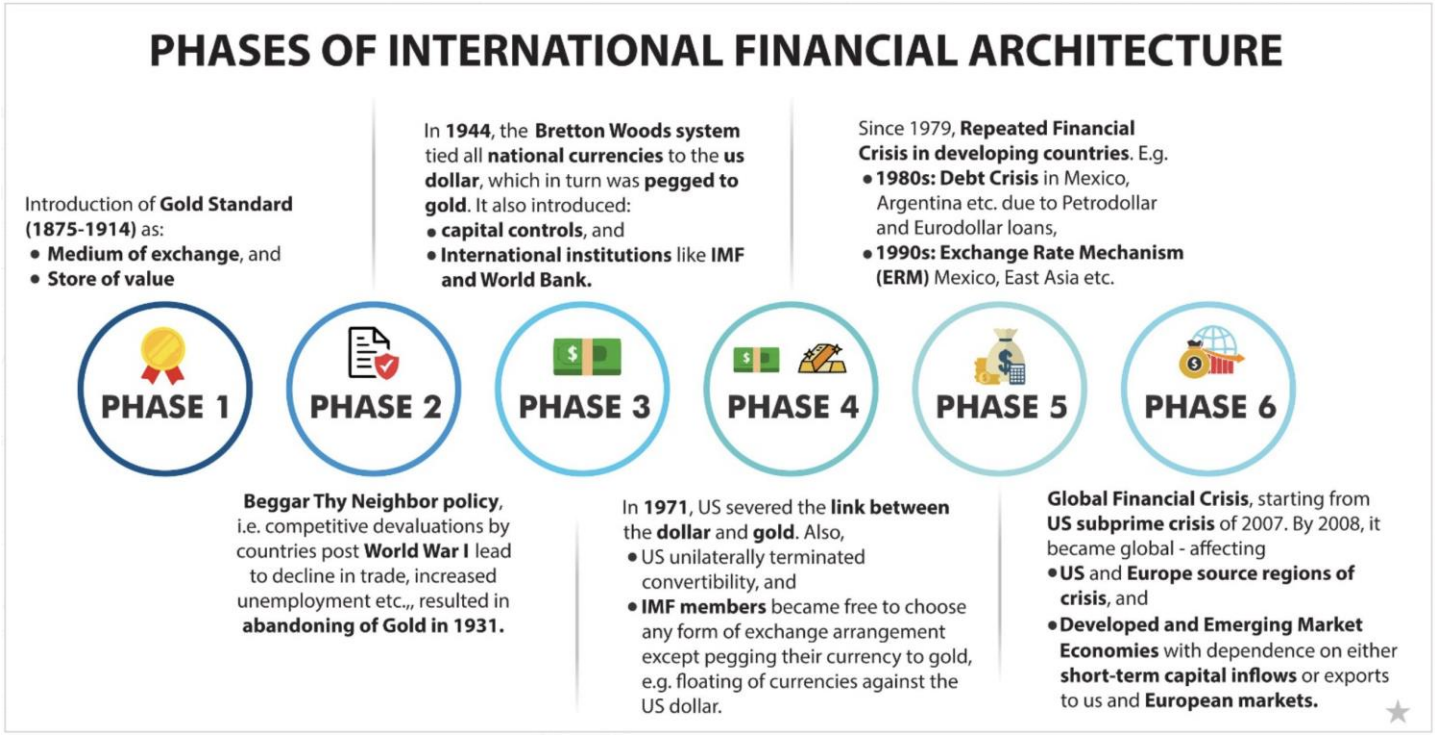
The **International Monetary Fund (IMF)** has called on the **G20 nations** to strengthen **International Financial Architecture** (**IFA**) at **1st G20 Finance Ministers and Central Bank Governors (FMCBG)** meeting under the India's G20 **Presidency**.

International Financial Architecture (IFA): Meaning, Objectives and its Phases

- **IFA refers to 'the collective governance arrangements at the international level** for safeguarding the effective functioning of the **global monetary and financial systems'**. This includes:

Lender countries	This includes countries and **international groups like G7 and G20** due to their role in international financial management and governance.
IMF	• **Provides loans** (including emergency loans) to member countries experiencing actual or potential balance of payments problems. • **Monitors international monetary system and global economic developments** to identify risks and recommend policies for growth and financial stability. • **Provides technical assistance and training** to governments for capacity development.
World Bank	Provides **financial** and **technical assistance** for **development.**
World Trade Organisation	Operates the **global system of trade rules** and helps developing countries to **build trade capacity.**
Bank for International Settlement (BIS)	**Supporting central banks'** in monetary and financial stability, and acts as a **bank for central banks**
OECD	**Organization for Economic Co-operation and Development** promotes economic cooperation, developing global standards and providing policy support

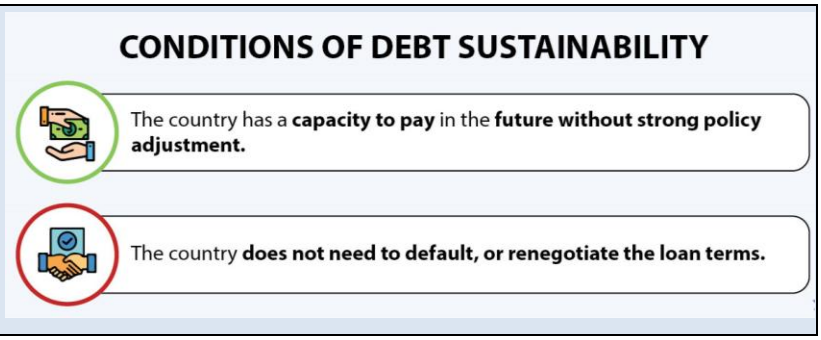
- **IFA Objective:** To promote **economic growth** while ensuring **financial stability**.
  - This involves steps to **reduce the probability of a crisis**; **contain** the **severity of crises** when they **occur**; and to **insulate the global economy** from **contagion**.
- The present **IFA** has emerged after going through several phases, starting from the introduction of the **Gold Standard** in the 1870s (refer image).



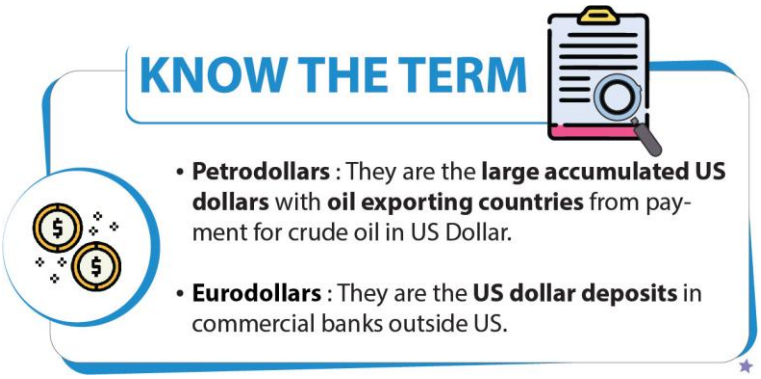
- The current **Sovereign Debt Vulnerability** of low and middle-income countries could be another phase of IFA as it demands global cooperation to strengthen IFA.

Sovereign Debt Vulnerability and Debt Sustainability

- **Sovereign Debt Vulnerability** refers to 'the risk that a country will violate the solvency and liquidity conditions and enter a crisis'.
  - Each country has its own **debt vulnerability threshold** based on **factors** such as - **current debt, economic policies, governance strength, loan terms** etc.
- A debt is considered **sustainable** if it meets the conditions as given in **image**.



Reasons behind Current Debt Unsustainability and its impact



- **High Debt Exposure of countries,** especially the **low and middle-income countries**, leading to **sovereign debt vulnerability**.
  - As per **IMF World Economic Outlook, January 2023 – 15% low-income countries are in debt distress**, additional 45% at high risk and 25% emerging market economies also at high risk.
- **Slowdown of Global Growth in 2023**- It can leave too many people in too many countries struggling to make ends meet.
- **Resurgence of the Covid-19 pandemic**, especially in China in 2022, dampening **global growth**. Covid-19 is estimated to push over **100 million people** into **extreme poverty**.
- **Elevated Inflation**, especially sharp **increase in food** and **energy prices**, since the **Russia-Ukraine war** has resulted into the **Cost of Living Crisis**.
  - **Global inflation** was **8.8%** in **2022**, well above the pre-pandemic (2017–19) levels of about **3.5%**.
- **Rise in Central Bank Rates**, tightening of the financial conditions.
  - The problem is more severe in developing and low-income countries due to their **limited policy space** and **huge development needs**.

Weaknesses in the current IFA

A number of initiatives were taken, since Covid-19 pandemic, to address current **Sovereign Debt Vulnerability** (refer image). But their limited success highlights some of the existing weaknesses of IFA such as:

- **Regulatory and Supervisory Deficiencies** which limit the IFA success in ensuring **global monetary** and **financial stability**, i.e., avoiding the repeat of crisis.
- Lack of a **comprehensive** and **reliable early warning system**.
- **Issues in Global Financial Safety Net** or **Debt Architecture** such as –
  - **Delays and inadequacy of Financial Assistance** from **Multilateral Institutions**, especially IMF due to heavy **negotiations** at the **bilateral** and **multilateral levels**. E.g. Sri Lanka and Pakistan yet to get a bailout package from the IMF despite **acute economic stress**.
- **Absence of an Effective Debt Resolution Mechanism** due to absence of an effective mechanism to involve the private lenders in resolving crises. E.g., only one private creditor participated in the DSSI initiative.

- **Use of 'one-size fits-all' policy recommendations** and the **accompanying conditionalities** by multilateral lending institutions.

The problem is further aggravated by the **weak institutions and Volatility** in many Emerging Market and Developing Economies (EMDEs).

Weaknesses identified from economic crisis of the Past

- **Exchange Rate Mechanism (ERM) crisis** highlighted **speculator's ability to hasten a crisis** and **foreign exchange reserves limitations** in stopping run on a currency in volatile capital flows.
- **Asian Financial Crisis (1997)** highlighted that financial crises are contagious, and IFA is weak on the **preventive requirements**, **surveillance system** and **crisis resolution measures**.
- **Global Financial Crisis** highlighted lapses of **financial deregulation, absence** of a **cooperative international system** to **manage exchange rate fluctuations** etc.

Way Forward

- **Creating a strong** and **effective Global Financial Safety Net** with a strong, quota-based, and adequately resourced IMF at its Centre.
- **Building long-term resilience** of the IFA, including by **promoting sustainable capital flows** and **developing local currency capital markets**.
- **Expand the Common Framework's eligibility requirements**, to cover more highly indebted and vulnerable lower-middle-income countries.
- **Boost Multilateral Development Banks (MDBs)** lending resources, knowledge support etc. based on their involvement in development financing.
- **Ensure a transparent** and **stable** global financial system to minimize the risks of crisis.

INDIA'S ROLE AS VOICE OF GLOBAL SOUTH

Encourage **sound macroeconomic policy-making** based on international standards and best practices

Prudent financial regulation and supervision along with institutional market infrastructure on **insolvency, corporate governance, accounting, auditing** etc

Assistance in broadening of tax base to ensure adequate reserves in case of economic crisis

Work towards an **effective, powerful "systemic stability regulator"** for crisis prevention, management and resolution

- **Conduct a fair, objective** and **in-depth analysis** of the reasons for the current crisis.
- **Involve Private Sector** in crisis prevention and resolution mechanism for an equitable burden sharing between the sovereign debtors and the lenders in the event of crises.
- **Strengthen IMF surveillance system** for an **early detection** of financial risks and **proactive management** of distressed loans.

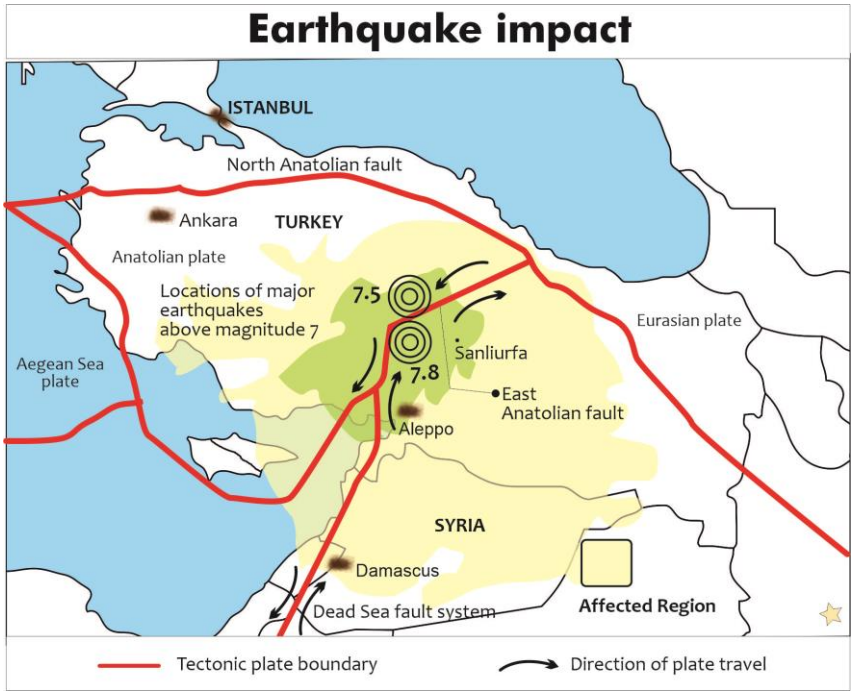
2.2. DISASTER RELIEF DIPLOMACY

Why in News?

India launched **Operation Dost** for life-saving **Humanitarian Assistance and Disaster Relief (HADR)** operations in earthquake hit **Türkiye** and **Syria**.

More on news

- The region was hit initially by a **magnitude 7.8 earthquake, dozens of aftershocks followed the initial quake.**
- Region where earthquake has struck lies along **a seismic fault line called Anatolia tectonic block that runs through northern, central, and eastern Turkey.**



- **Seismicity in this region is a result of interactions between African, Eurasian, and Arabian plates.**
- **One of the largest strike-slip earthquakes** to occur in recent times, it struck along East Anatolian Fault Zone.
  - **Strike-slip faults are vertical (or nearly vertical) fractures where blocks have mostly moved horizontally.**
  - **In these faults, two plates move parallel but in opposite direction from one another.**

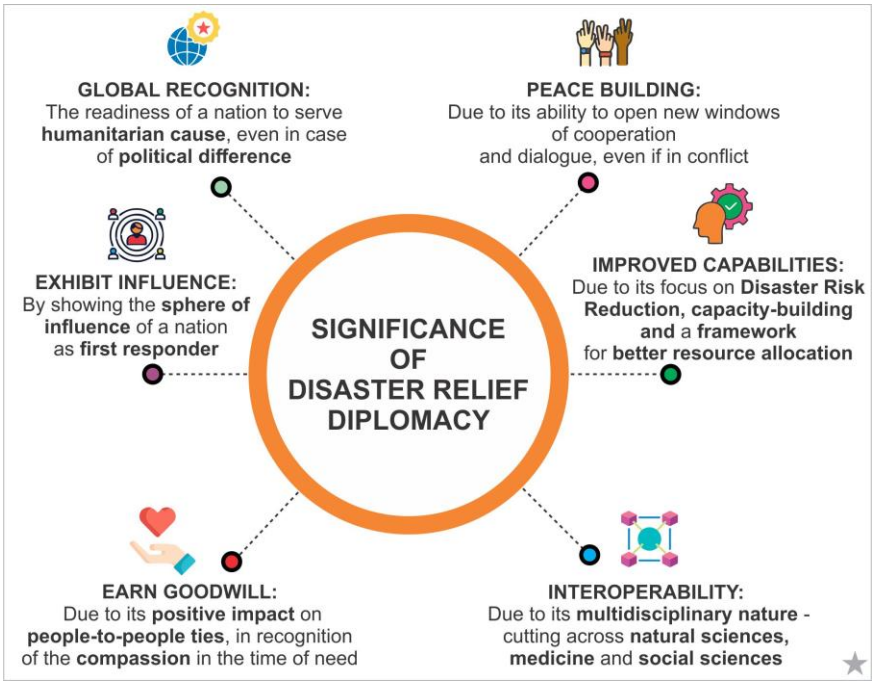
Disaster Relief Diplomacy: Meaning and its Guiding Principles

- **Disaster Relief Diplomacy**, also known as **HADR Diplomacy**, refers to 'a country's efforts to provide aid and support to other countries affected by natural disasters or conflicts'.
  - It includes **sharing of expertise** and **resources** or **deployment** of **human resources** as assistance to those in need due to **sudden accident** or a **natural catastrophe**.
- **HADR has emerged as a sophisticated diplomatic tool** for **strategic competition**. E.g.
  - In the **Bosnia crisis** (1990s), only **16 donor governments** officially pledged support.
  - Whereas, during the **Indian Ocean Tsunami** (2004), **92 countries** pledged their support.
- **Oslo Guidelines:** Guidelines on "The Use of Foreign Military and Civil Defence Assets in Disaster Relief" in **1994**, re-launched in **2006**, sets the guiding principles of humanitarian assistance for **UN humanitarian agencies** (refer image).

India's Disaster Relief Diplomacy

Guided by India's **civilizational ethos,** its philosophy of **Vasudhaiva Kutumbakam** and the principles and purposes of the UN, India's humanitarian interventions started soon after its independence.

- **Contribution:** Over **200,000 Indians** have served **49** of the **71 UN Peacekeeping missions** established since **1948** including the missions in **Korea**, **Congo** etc. (This includes disaster relief operations as well).
- **Other major disaster relief operations-**
  - **Operation Castor** and **Operation Rainbow** were launched in **2004** to help the Tsunami hit **Maldives** and **Sri Lanka** respectively.
    - ✓ Present day **Quadrilateral Security Dialogue** (**Quad**) between **India, Japan, Australia** and **USA** is has its genesis in an **ad-hoc Tsunami Core Group** created in response to the **Indian Ocean Tsunami, 2004**.
  - **Vaccine Maitri**, starting from India's immediate neighborhood, it supplied Covid-19 vaccines around 94 countries.

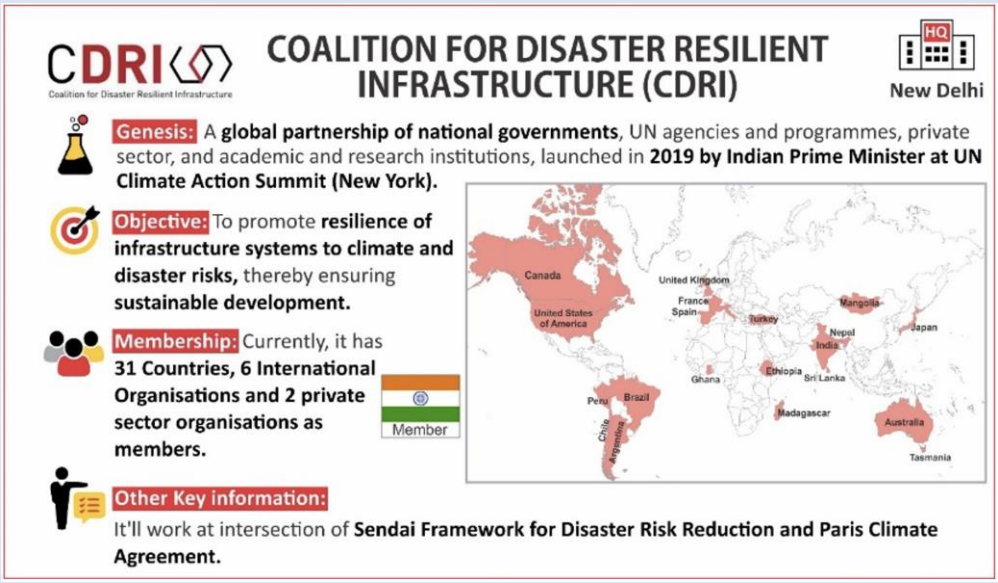


- **Disaster relief devoid of geopolitics:** The help to **Türkiye**, despite its unsolicited comments on India's internal matters, is part of India's **consensus Approach** to conflict management; helping India to **focus** on **what unites** it **with others** rather than **what divides the two**.

- **India's HADR initiative follows direct government to government aid** to keep it apolitical and respect countries sovereignty.
    - This can facilitate **bilateral dialogue** between the **affected nation** and **donor nation**.

India as part of Global efforts in Disaster relief diplomacy

- **Coalition for Disaster Resilient Infrastructure (CDRI):** CDRI has launched '**Infrastructure for Resilient Island States**' initiative to support Small Island Developing States (SIDS) to achieve sustainable development in infrastructure.
- **BIMSTEC Weather and Climate Centre at National Weather Forecasting Centre (Noida)** was launched by India to help **BIMSTEC countries** in **Environment and Disaster Management.**
    - BIMSTEC stands for **Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation** – comprising **Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka,** and **Thailand**.



Limitations/Risks of Disaster Relief Diplomacy

- **Limited Human and Technological Resources** which leads to **heavy dependence/use** of Armed Forces in disaster relief efforts.
- **Limited long-term impact** as its influence is short-lived. E.g., India-Nepal ties became strained soon after the **2015 relief operations**.
- **Political and Financial Conflict supersede disaster-related activities** as no example of its significant influence in conflict resolution. E.g.
    - The assistance between **Türkiye** and **Greece** post 1999 earthquake succumbed to old political enmity patterns due to prevalent lack of trust.
- **Risk of Refusal** from affected countries due to old enmity. E.g.
    - Cuba refused American aid during the 1998 drought.
    - Similarly, Pakistan refused India's humanitarian aid post 2022 floods.
- **Threat of conditional or tied bilateral aid**, i.e., strings attached to the help in the form of economic ties or security cooperation in the future.

Way Forward

India's efforts under **Operation Dost** demonstrated India's ability of **fast** and **capable** response. With disaster relief emerging as a standard practice in international relations, especially in the Indo-Pacific, the scope and importance of disaster relief diplomacy will only increase. Therefore, it needs to be further strengthened by:

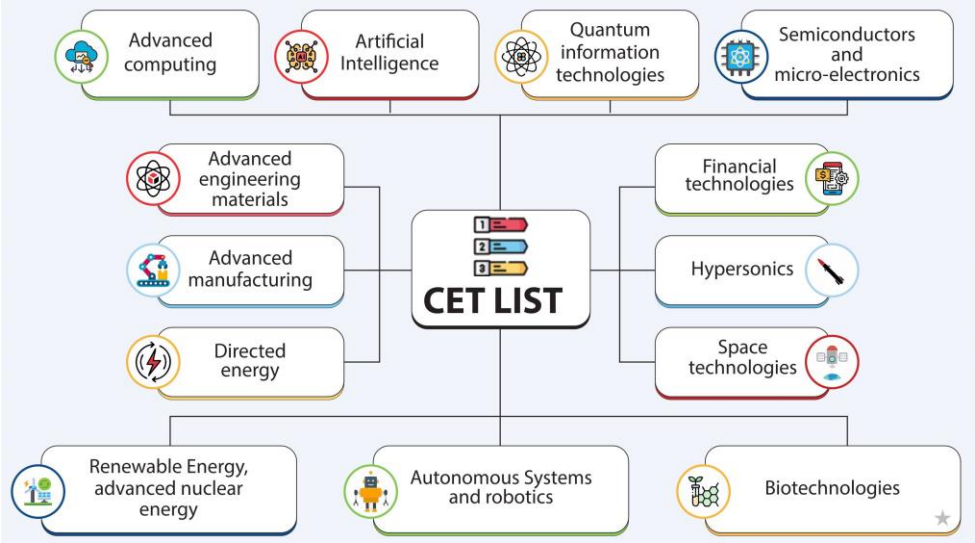
- **Capacity-building**, i.e., providing enough manpower and technology to National Disaster Response Force and other concerned organizations through international collaboration.
    - Japan has advanced sensors on earthquake and Tsunami early warning systems and the US has advanced technology on mapping disaster vulnerability.
    - The 2024 launch of **NASA-ISRO SAR (NISAR) Mission** holds significance in this regard.
- **Developing long-term multilateral framework on disaster relief** for effective cooperation between Indo-Pacific countries on all phases of disaster management.
    - The **Disaster Risk Reduction and Management Pillar** of **Indo-Pacific Oceans Initiative (IPOI)** can be of great help in building a **long-term support mechanism**.

- **Strengthening existing diplomatic endeavors** by using HADR initiatives as catalysts if pursuance of other diplomatic initiatives is not feasible.
- **Improving People-to-People ties** through HADR initiatives by gaining **trust** and promoting **compassion** to overcome political and financial conflicts.

2.3. INDIA-US TECHNOLOGY PARTNERSHIP

Why in News?

Recently, the **National Security Advisors** of India and USA led the inaugural meeting of the **initiative on Critical and Emerging Technology (iCET).**

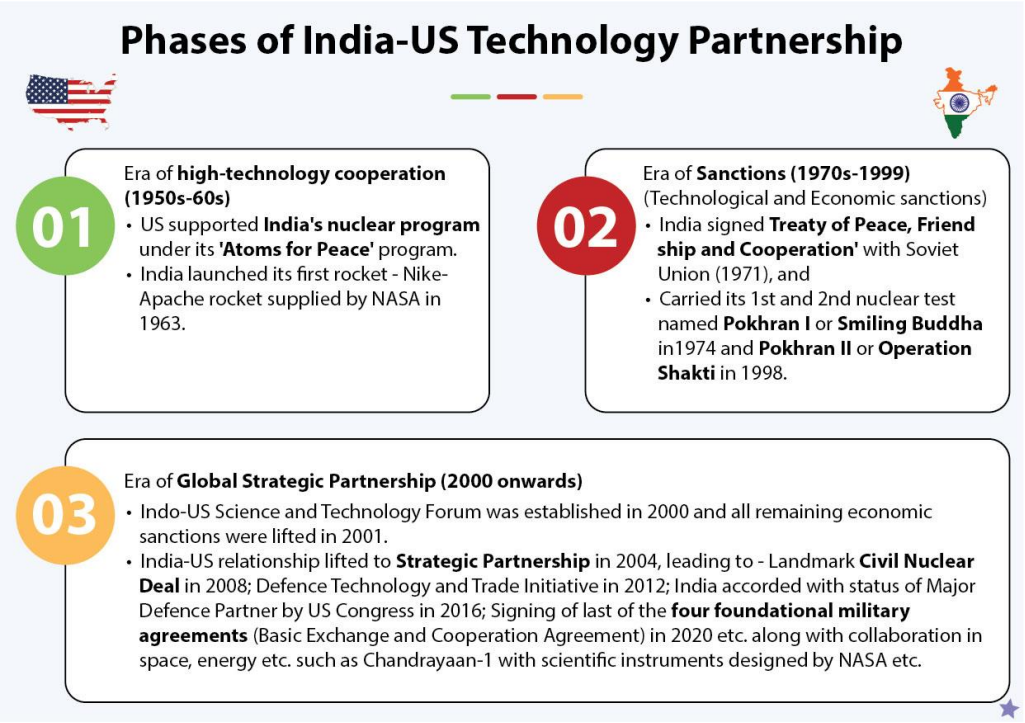


Critical and Emerging Technologies (CETs): Meaning and their Importance

- CETs are a **subset of advanced technologies** that are potentially significant to the **national security** of a nation.
- **This includes a number of fields** (refer image on some of them) with a set of key subfields under them. E.g.
  - Advanced Computing includes **Supercomputing, Cloud Computing** etc.
- These set of technologies help to:
  - **Secure the nation** and its **people**,
  - **Expand economic opportunities** and **prosperity** to all, and
  - **Preserve** and **promote the socio-cultural values** of a democratic nation.

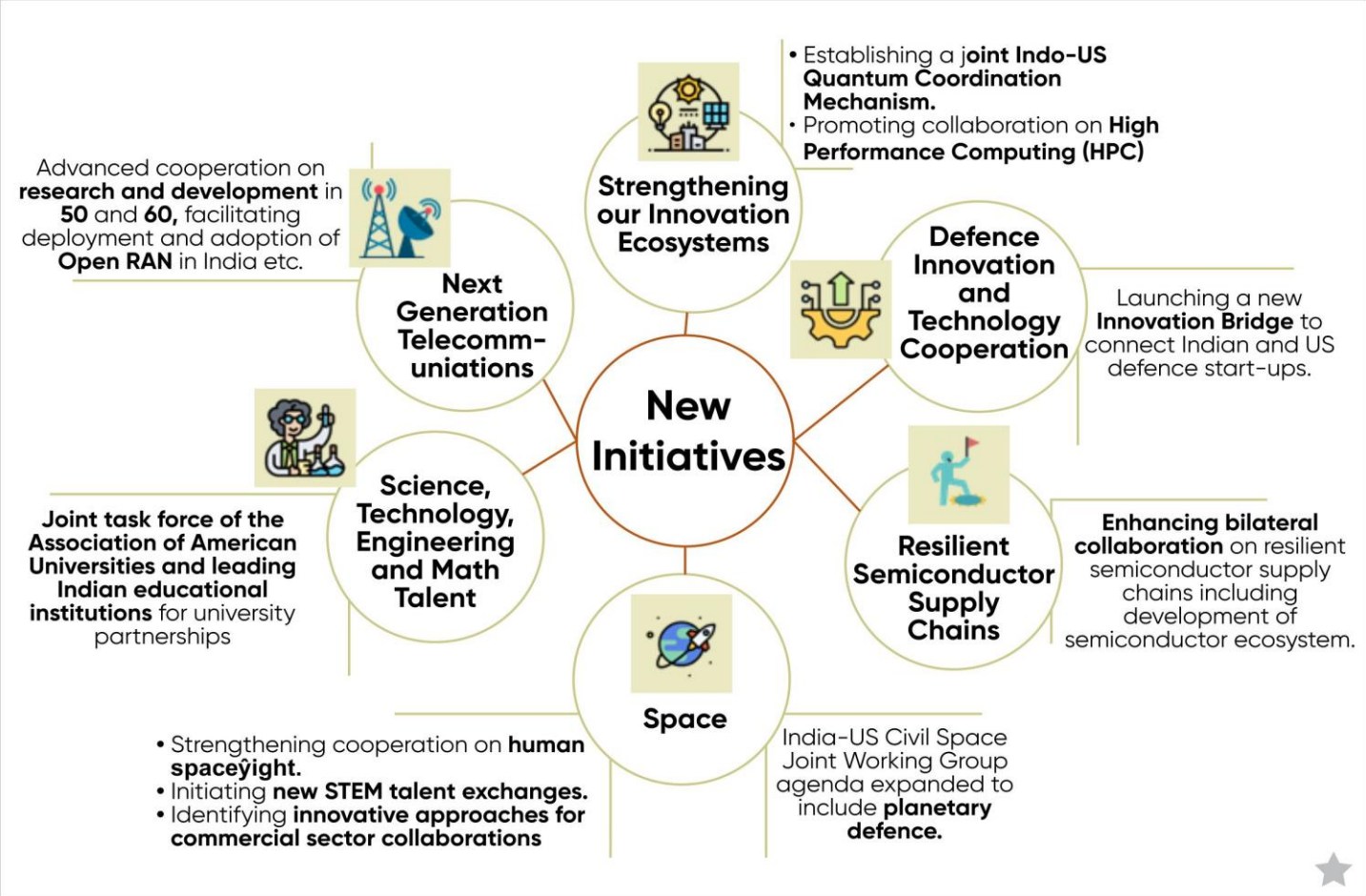
India-US Technology Partnership and iCET

- **Technological Partnership** is an **important aspect** of **India-US relationship** from early days.
- Based on the relationship, It has gone through **three distinct phases** (refer image).
- The **launch of iCET**, first announced in **May 2022**, is touted as the 'Next Big Thing' of India-US ties in the era of **Global Strategic Partnership**.
- **iCET Objectives:** To elevate and expand **India-US strategic technology partnership** and **defense industrial cooperation** between the **governments, businesses,** and **academic institutions** of our two countries.



- At the institutional level, iCET is led by the **U.S. National Science Foundation** and **Department of Science and Technology** of India.

- **ICET aims to:**
  - Position two countries as **trusted technology partners** by building **technology value chains** and support the **co-development** and **co-production of items**.
  - **Address regulatory restrictions**, **export controls** and **mobility barriers**.
  - **Strengthen partnership** between the two countries by **creating an ecosystem** which curates **development** and **deployment** of **advanced technologies**.
- It focuses on **strengthening** the **India-US partnership** on the technologies that will:
  - **Drive global growth**,
  - **Bolster economic competitiveness**, and
  - **Protect shared national security interests**.
- To expand and **deepen India-US technology partnership**, a number of bilateral initiatives were started between governments, industry and academia in the following domains:



Significance of iCET in India-US Technology Partnership

- **Develop Democratic Technological Environment** by influencing the ways in which technology is designed, developed, governed, and used across the world.
- **Guarantee Respect for Universal Human Rights** by helping India-US to coordinate on sustaining a **free, open,** and **secure global economy**.
- **Modernize India's Industrial Base**, especially defence base through indigenously produced jet engines, munition related technologies etc.
- **Open New Cooperation Opportunities** in critical and emerging technologies, co-development and coproduction, and deepen connectivity across our innovation ecosystems.

- **Lend a new strategic depth** and **breadth to India-US relationship** by demonstrating a mutual commitment to investing in CETs.

Challenges to Success of iCET

iCET promises a **long overdue transformation** in India-US technology partnership to **overcome limited success** of the past initiatives. But a **number of domestic** and **foreign challenges** can restrict the progress (or benefits) of iCET such as:

Domestic Challenges	• **Low Public Expenditure** on Research and Development (R&D) ecosystem (around **0.7%** of **GDP**). • **Lack of Skilled Manpower and Resources** to take benefits of the cooperation in designing and building our own CETs. • **India's Defence Industrial Complex** is dominated by government agencies like Defence Research and Development Organisation (DRDO), Defence Public Sector Undertakings (DPSU) etc**., leaving limited room for private sector.**
Foreign Challenges	• **Restrictions on the Recipient State** by **US Arms Export Control Act** even if ownership of technology in the US lies with the private sector. • **Trade Focus of Foreign Industries** against India's focus of **AatmaNirbhar Bharat**; increasing order size to use it as a leverage to gain technology in the arms, energy, civil aviation, nuclear sector etc. • **Intensified Geopolitical Competition/Rivalry** with serious consequences on **regional** and **global technology supply chain security**. E.g. o iCET will **reduce India's dependence** on **Russian military hardware**. o It will **increase India's dependence** on **US military hardware**. • **Limited High-level Engagement** of US decision-makers or policy advocates for far-reaching technology transfer with India.

Way Forward

- **A Special Purpose Vehicle (SPV) can be created** to facilitate and enable greater cooperation between government agencies (DRDO, DPSUs etc.) and private industry, helping in development of the private sector as a repository of defence R&D.
- **Overcoming Administrative Issues** like **limited high-level engagement** etc. by:
  - Creating an **iCET advisory council** or a **steering committee**.
  - **Regular high-level meetings** between National Security Councils (NSCs) of both countries and **design a monitoring mechanism** involving NSCs.
- **Focus on Achieving Outcome Oriented deliverables** by earmarking 4-5 critical areas of cooperation from overall initiatives.
  - E.g., **Defence Innovation and Technology Cooperation** must deliver on **co-creation of advanced weapons**.
- **Augmenting Research and Innovation Ecosystem** of India through increased R&D expenditure.
- **Increase Academic** and **Government research exchanges**, including private sector linkages.

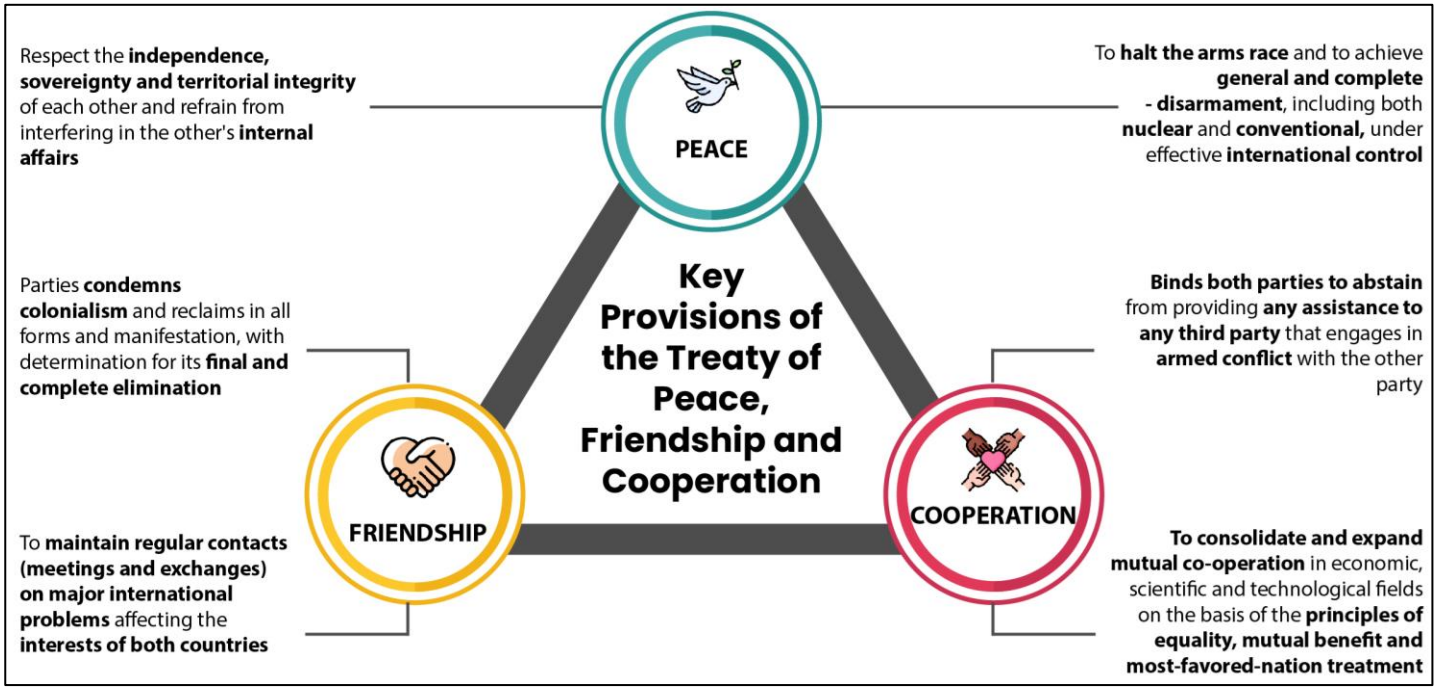
2.4. INDIA-RUSSIA

Why in News?

The **Treaty of Friendship and Cooperation** signed between India and Russia (on **28 January 1993**) completed **30 years**.

More on News

- The **1993** '**Treaty of Friendship and Cooperation**' replaced the **1971 Treaty of Peace, Friendship and Cooperation** between India and the Soviet Union.
  - The **1971 treaty** expired as the **Soviet Union or USSR** ceased to exist in 1991.
- A marked departure from **India's non-alignment**, the **1971 treaty** was a **treaty of non-aggression** or a treaty of peace against war.
- It contained **security clause** (**Article IX**) along with other provisions on **Peace, Friendship** and **Cooperation** (see image); strengthening **India's strategic autonomy** or the **capacity for independent action**.
- The **1993 treaty** is a **modified version of the treaty** and it lacks the **security clause** if any party faces aggression from others.



India-Russia Relationship: its Basis and Development

- The longstanding and time-tested partnership between India and Russia is driven by **shared interests of multilateralism**; and **global peace** and **prosperity**.It follows the principles of:
  - **Mutual trust**;
  - **Respect for each other's territorial integrity** and **core national interests**, and
  - **Alignment of interests** on the most critical **international** and **regional** issues of war and peace.
- Today, the annual summit between India's PM and Russian President serves as the **highest institutionalized dialogue mechanism** in India-Russia partnership.

Major Areas of India-Russia Cooperation and its Significance

Defence and Security Cooperation	• Russia is a **major supplier of defense items** to Indian armed forces and both nations are in **joint research, development and production** of **advanced defence** items. E.g. ○ **BrahMos Missile System**. This is also exported to mutually friendly third countries. • It helps to **maintain regional power balance**.

International/Multilateral Cooperation	• Russia supports **India's bid** for a **permanent seat** in the **UN Security Council** (**UNSC**) and membership of **Nuclear Suppliers Group (NSG)**.
	• Also, both nations have an active engagement at:
	  ○ **International/Multilateral Organizations** (e.g. **BRICS** and **SCO**).
	  ○ **Connectivity projects** such as **INSTC** (International North-South Transport Corridor) etc.
	• It helps to act decisively against **international terrorism** and **cooperate** on matters such as drug trafficking, issues in Afghanistan etc.

Trade and Economic Cooperation	• **Bilateral trade between India and Russia touched $25 billion (2022)** on account of increased purchase of discounted oil from Russia. • **Bilateral investments** between the two countries reached **US$30 billion** in **2018**.

Other Areas of Cooperation	• **Nuclear Energy:** The impeccable **non-proliferation record** of India has strengthened the partnership for peaceful use of nuclear energy.
	  ○ India and Russia have also signed a **tripartite pact** with **Bangladesh** for **civil nuclear cooperation**.
	• **Space Cooperation:** Russia has supported India's space programme since its early days. E.g.
	  ○ The Soviet Union launched India's first unmanned satellite **Aryabhata** in **1975** and today, Russia is supporting India's **1st manned space mission 'Gaganyaan'**.
	• **Science and Technology:** India-Russia relationship extends to the field of basic sciences as well including **Russian-Indian Network (RIN) of Universities, Arctic and Antarctic research** etc.

Challenges to India-Russia Relationship

- **Economic Challenges: High trade deficit** between two nations. The **regulatory impediments** and the use of **phytosanitary standards** and **non-tariff barriers** by Russia add to it. E.g.
  - Russia **classifies** tea as fruit and vegetable, leading to more phytosanitary restrictions.
  - The **increased oil purchases** in **2022** and the strengthening of **Russian Ruble against Indian Rupee** will increase the deficit further.
- **Defence Challenges:** India needs to reduce its **defence supplies** from Russia as part of defence **modernization, diversification** and to avoid **USA sanctions** under CAATSA.
- **Changing World Order:** The **USA-China** rivalry is shifting world order towards a **bipolar world**. It is against **India-Russia** vision for a multipolar world.

About CAATSA

- **CAATSA Act**, also known as **Countering America's Adversaries Through Sanctions Act**, was enacted by USA in 2017 to impose sanctions on three nations, i.e., Russia, Iran, and North Korea.
- It allows **imposition of sanctions** on countries dealing with these three nations.
  - E.g. India was threatened by **CAATSA sanctions** on purchase of **S-400 air defence system** from Russia.

- **Expanding Geo-strategic Interests:** As India grows beyond a **regional power**; its **geo-strategic interests** are expanding beyond Indian Ocean and South Asia. E.g.
  - The **Indo-Pacific Region** and the **Eurasian Region** where India is partnering with countries having stressed relations with Russia.
- **Natural inclination towards West:** Being the biggest democracy of the world, India has a natural affinity towards the **west** (USA and major European nations) due to their democratic set up.

Way Forward

- **Diversification of Trade** to overcome the issues of limited economic relationship with high trade deficit.
  - **Positive outcome** on the recent list of over **500 products** from Russia to India for exports can be a good starting point.
- **Increasing private sector participation** in the economic relationship with removal of barriers to trade and investment.
- **Broaden collaboration** on bilateral and regional issues covering new theatres of cooperation as part of shared common responsibilities on global peace and stability.
- **Modernization of Defence Supplies** from Russia through **joint development and co-production** of advanced weapons, promoting **self-sufficiency** and reduced dependence of India on others for modernization and diversity under **Make in India**.
  - **Joint manufacturing of Spare parts and Reciprocal Logistics Support** for increased defence cooperation can also add to it.
- **Protect Multilateralism** at UN and other forums such as BRICS, SCO etc. for more **rules-based international order**.

2.5. INDIA-QATAR

Why in news?

2023 marks 50 years of establishment of full diplomatic relations between India and Qatar since 1973.

India Qatar Relations

About Qatar

- **Location:** On the **west coast of the Persian Gulf.**
- **Boundaries:** Shares a **border with Saudi Arabia**

50 years of diplomatic relations

In 2002,Qatar first **proposed observer status for India at the Organisation of Islamic Cooperation** (OIC) foreign ministers' meet.

India-Qatar Defence Cooperation Agreement signed in 2008.

Regular cultural exchanges between the two sides, under the provisions of the **Agreement on Cultural Cooperation signed in 2012.**

The year 2019 was celebrated as India-Qatar Year of Culture.

Qatar is **one of the largest suppliers of LNG to India** accounting for major supplier of India's global import of LNG in 2021.

Areas of Cooperation

Geopolitical

Quatar is a signficant actor in **Middle East and an influential voice in Arab world.**

Economic

- **Qatar's key export to India:** LPG, LNG, crude oil; Organic & Inorganic Chemicals; Fertilisers etc.
- **India's key export to Qatar:** Cereals; Mineral fuels; Articles of Iron & Steel etc.

Energy Security

The gas trade the cornerstone of their economic relations.

Cultural Relations

- **Yoga** - Qatar, as a co-sponsor, supported Resolution at the UNGA, declaring 21 June as the International Day of Yoga (IDY).
- **Ayurveda** - Qatar has allowed the practice of complementary medicine, including Ayurveda.

Defence & Security

Biennial Doha International Maritime Defence Exhibition and Conference (DIMDEX)

People to People

Large Indian community (over 8 lakh) in Qatar

Joint Naval Exercise

Zair-Al-Bahr

Economy Trade

$ 15.03 billion
India's bilateral trade with Qatar in 2021-22

India **Qatar**

India's export to Qatar US$ 1.83 billion

India's import from Qatar US$ 13.19 billion (trade deficit).

Challenges in development of India-Qatar Relation

- **Gulf diplomatic crisis (2017-2021):** Eruption of the Qatar diplomatic crisis **complicated India's relations with the Arab Gulf states.**
  - **Saudi and UAE hostility toward Qatar** is likely to persist, casting a long shadow over India's relations with all three countries — each of which is a major trade partner, hosts many thousands of Indian citizens, and constitutes an important source of remittances.
- **Human rights violation:** Qatar has been criticised/accused for the ill-treatment of foreign/Indian workers who built its World Cup facilities.
- **Presence of China: China signed a 27-year deal for LNG supply with Qatar in 2022**, probably the longest in terms of duration in the history of LNG.
  - Their geopolitical orientation and interests seemed to converge on **Afghanistan, Iran, and the larger regional security questions in West Asia.**
- **Other issues:** Long custody (since August 2022) of the **retired Indian Navy personnel** by Qatari authorities for reasons not yet in the public domain is **a test for Indian diplomacy**, & its engagement with the Indian diaspora.

Way forward

- **Protecting diaspora:** India should prioritize negotiations for the protection of Indian expatriate workers in Qatar, many of whom have experienced various forms of labor abuse.
- **Energy transition:** India could seek to collaborate with Qatar on developing a cleaner and more energy efficient environment.
- **Soft power diplomacy:** India should seek to boost its "soft power" influence through additional avenues of cultural exchange.
- **People to people contact:** The bilateral relationship can be further strengthened by continued cooperation in the **education sector**. The presence of many Western universities in Qatar is an attractive feature for Indian students who are looking for quality education abroad without the long distances and high living costs of the West.

Thus, there is scope for the further development of the India-Qatar relationship, which has proven strong and resilient throughout the seemingly intractable diplomatic crisis.

2.6. NEWS IN SHORTS

2.6.1. PROTOCOLS TO AMENDMENTS IN CHICAGO CONVENTION

- Cabinet has **approved ratification to three protocols relating to amendments in Chicago Convention**.
  - Ratification would provide **better opportunity for India to become more instrumental in** matters pertaining to **international civil aviation.**

- **Three Protocols ratified are:**
  - **Protocol to insert Article 3 is** that refrain member States from use of weapons against civil aircraft in flight.
  - **Protocol to amend Article 50 (a)** for raising strength of International Civil Aviation Organization (ICAO) Council from 36 to 40.
  - **Protocol to amend Article 56** raising strength of Air Navigation Commission from 18 to 21.

2.6.2. INDIA-GERMANY

- India and Germany will **enhance cooperation in Innovation and Technology.**
- India- Germany cooperation aims at **benefiting humanity** and is firmly guided by their **shared democratic values and respect for universal human rights.**
  - Their cooperation in technology, research and innovation were **institutionalized** under **intergovernmental agreement on 'Cooperation in**

Scientific Research and Technological Development' in 1974.

- **Flagships of India-Germany Cooperation**

Green and Sustainable Development Partnership (GSDP)	• Agreed in 2022, under this, **Germany will provide additional development assistance of €10 billion till 2030** to support India's green growth plans.
Indo-German Science and Technology Centre (IGSTC)	• **Supports projects on national priority** areas such as Advanced Manufacturing, Embedded System and ICT, Sustainable Energy/Environment, etc.
Triangular Development Cooperation	• Agreed in 2022, it represents development projects in **third countries** by **India** and **Germany**. • Four projects are at an advanced stages of implementation under it with **Cameroon, Malawi, Ghana** and **Peru** as third countries.
Clean technologies	• **Indo-German Green Hydrogen Task Force** was constituted in 2022. • Collaboration between India's Department of Science and Technology (DST) and Germany's Fraunhofer-Gesellschaft (FhG) on **Hydrogen Energy Clusters being set up by DST.** • It focuses on **integrating FhG's technologies with Indian technologies**, and long-term technology development in renewable energy areas.

2.6.3. TRADE AND TECHNOLOGY COUNCIL (TTC)

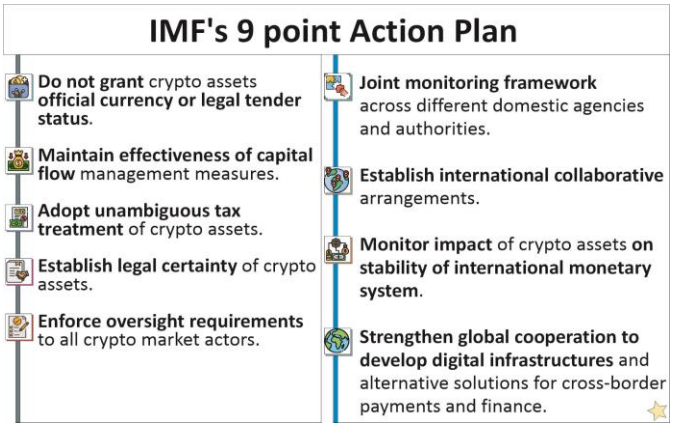
- **Strengthening India-EU relationship** as strategic partners, **three working groups are formed under India-EU TTC** on:
  - **Strategic Technologies, Digital Governance and Digital Connectivity**
  - **Green and Clean Energy Technologies**
  - **Trade, Investment and Resilient Value Chains**
- TTC is a **strategic coordination mechanism** to allow both partners **to tackle challenges** at nexus of **trade, trusted technology** and **security**; deepening India-Eu bilateral relationship in these fields.
  - It is the **first such mechanism for India and second for EU**, after US-EU TTC.
  - **India-EU TTC** was **launched in April 2022.**

2.6.4. FAB 4 OR CHIP 4 ALLIANCE

- U.S.-led Fab 4 semiconductor alliance held its first meeting.
- It is an alliance of **world's top producers of semiconductors: Taiwan, United States, Japan and South Korea.**
- Chip 4 alliance was proposed by US in 2022 to **enhance the "security" and "resilience" of semiconductor supply chains**, including by reducing the world's reliance on chips made in China.

2.6.5. IMF ROLLS OUT CRYPTO ASSETS ACTION PLAN

- International Monetary Fund (IMF) plan provides **guidance for an appropriate policy response** to crypto assets and **operationalizes principles outlined in Bali Fintech Agenda**.
  - **Agenda was launched**, by IMF and World Bank in 2018, **to harness opportunities** of **rapid advances in financial technology.**
- Cryptocurrency is a **type of digital currency** (For ex: Bitcoin, Ethereum) that **uses cryptography** for security and anticounterfeiting measures.
  - Control of each cryptocurrency **works through distributed ledger technology called blockchain.**
- **Concerns related to crypto assets**
  - **Recent failure of various exchanges** within crypto ecosystem, as well as **collapse of certain crypto assets.**
  - Lack of regulation increases **risk to macroeconomic and financial stability**.
  - Unregulated crypto markets **can facilitate money laundering and terror financing**.
- **Status of cryptocurrency in India**
  - Currently, **cryptocurrencies are not regulated in India**.
    - ✓ In 2020, **Supreme Court declared a RBI circular** (that prevented banks from dealing in cryptocurrencies) **as unconstitutional.**
  - **In Budget 2022-23**, Government proposed to levy **tax of 30%** on **transfer of virtual assets including NFTs and cryptocurrencies.**
  - Government also floated **Cryptocurrency and Regulation of Official Digital Currency Bill, 2021** to facilitate a framework for creation of official digital currency and to prohibit all private cryptocurrencies in India.



2.6.6. FATF SUSPENDED RUSSIA'S MEMBERSHIP OVER UKRAINE WAR

- Although suspended, **Russia remains a Financial Action Task Force (FATF) member**. However, it will be barred from **attending meetings** and **accessing documents.**
- Also, **FATF updated its list for Jurisdictions Under Increased Monitoring** (i.e. Grey list) **and High-Risk Jurisdictions** (i.e. Black List).
  - **Myanmar along with Iran and North Korea** continue to be in **Black list.**
  - **UAE, Turkiye, Jordan, South Africa** and 20 other nations are in **Grey List.**
- FATF is **an inter-governmental body** (India a member) that leads global action **to tackle money laundering, terrorist and proliferation financing.**
  - FATF was **established in 1989** and is based in Paris
- **FATF sets international standards**, that aim to prevent these illegal activities and harm they cause to society, **recognised as:** Global anti-money laundering (AML) and Counter-terrorist financing (CFT) standards.
- **About FATF lists**

Grey List	• Countries that are actively **working with FATF to address strategic deficiencies in their regimes** to counter money laundering, terrorist financing, and proliferation financing**.** • **Countries in grey list may face:** Economic sanctions (from IMF, World Bank etc); Problem in getting loans from IMF, World Bank etc.; Reduction in international trade; International boycott etc.
Black List	• Countries that FATF considers **non-cooperative in global effort** to **combat money laundering terrorist financing, and financing of proliferation.**

- Countries are **removed from grey list based** on their progress **on effectiveness of its AML/CFT regime.**

2.6.7. PARIS CLUB

- It is **reported that the Paris Club will provide aid to the debt laiden Sri Lanka**.
- The **Paris Club is an informal group of creditor nations whose objective is to find workable solutions to payment problems** faced by debtor nations.
  - It **has 22 permanent members**, including most of the western European and Scandinavian nations, the United States, the United Kingdom, and Japan.
- **India and China are not its members**.

2.6.8. INCLUSIVE FORUM ON CARBON MITIGATION APPROACHES (IFCMA)

- **Inaugural meeting** of IFCMA (**India also participated**) was held recently.
- IFCMA is a new **forum by Organisation for Economic Co-operation and Development (OECD).**
- IFCMA aims **to help improve global impact of emissions reduction efforts** through better **data and information sharing**, evidence-based mutual learning etc.
- **Objective of IFCMA** is to take **stock of mitigation policy instruments** that countries **use to reduce greenhouse gas emissions** and estimate emissions that these instruments relate to.
- It will **also develop a methodology to assess effects of mitigation policies on emission reductions** at the country level.

2.6.9. GLOBAL INTERNATIONAL BIOFUEL ALLIANCE (GIBA)

- GIBA was **launched by India during India Energy Week 2023.**
- GIBA will help **create a favourable ecosystem for promoting development and deployment of biofuels** with key stakeholders including US, Brazil, EU, IEA etc. **as a clean mobility alternative** under India's G20 Presidency.
- Biofuel is **defined as liquid, solid, or gaseous fuel produced by conversion of biomass** such as bioethanol from sugar cane or corn, charcoal or woodchips, **and biogas from anaerobic decomposition of waste.**

2.6.10. NEW START (STRATEGIC ARMS REDUCTION TREATY)

- **Russia is suspending its participation in New START**, last remaining major military agreement with US.
- New START is a **treaty between US and Russia** for **reduction and Limitation of Strategic Offensive Arms.**
  - It entered into force in 2011, and placed verifiable limits on intercontinental-range nuclear weapons.
  - START-I was signed between US and erstwhile USSR in 1991. It was expired in 2009.
  - **2002 Strategic Offensive Reduction Treaty (SORT, or Moscow Treaty)** entered into force in 2003, **followed by 2010 New Strategic Arms Reduction Treaty (New START),** which entered into force in 2011.

2.6.11. INTERNATIONAL CODE OF SAFETY FOR SHIPS

- International Maritime Organization (IMO) has adopted **a new mandatory International Code of Safety for Ships** Carrying Industrial Personnel.
  - **Code will enter into force on 1 July 2024** and enables cargo ships and high-speed cargo craft to transport and accommodate industrial personnel working offshore.

- IMO is a **specialized agency of United Nations** which is responsible for measures to improve **safety and security of international shipping.**
    - Currently, it has **174 Member States (including India).**
    - It was established by **means of a Convention** adopted under auspices of UN **in 1948**.

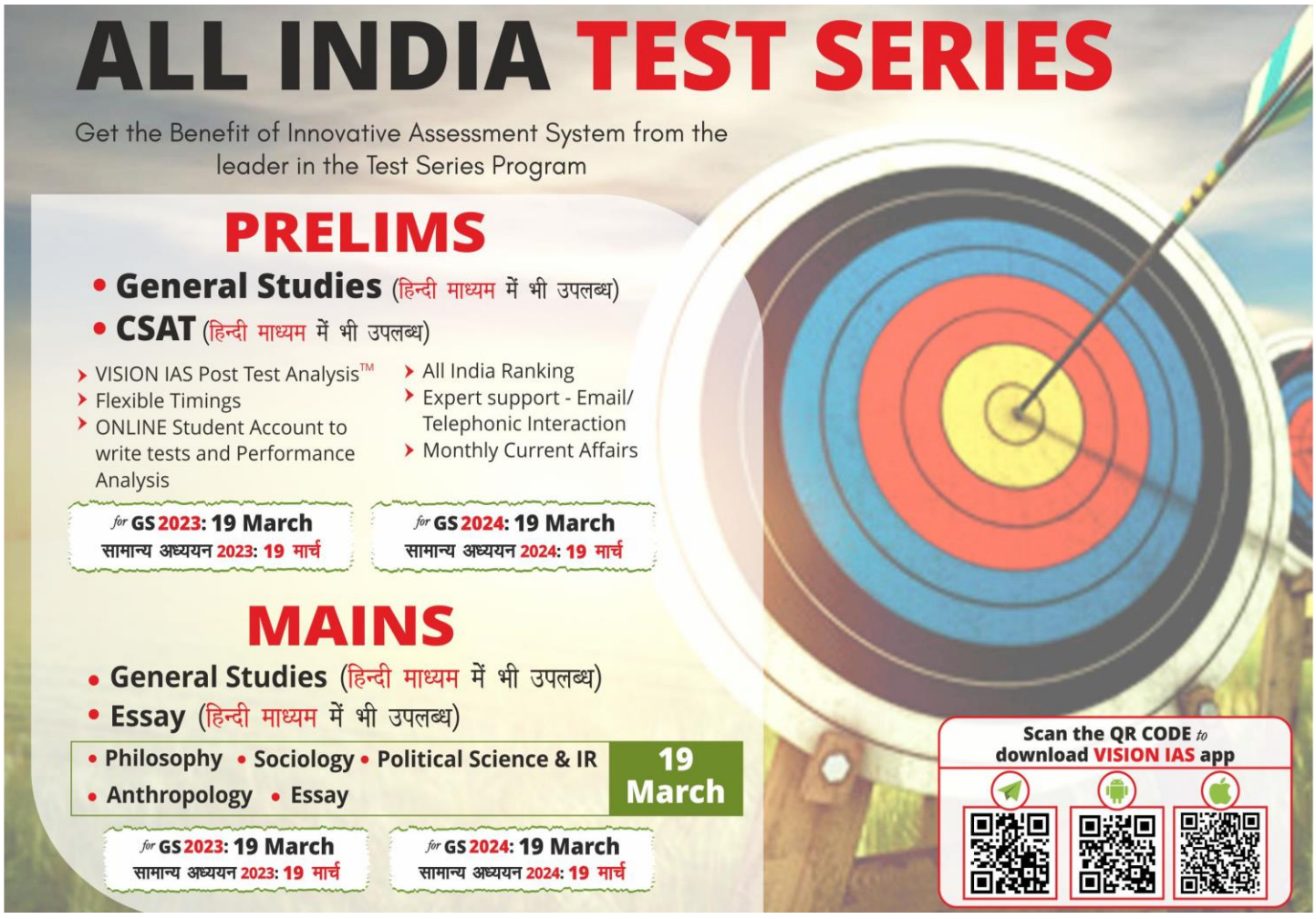
2.6.12. JAIPUR DECLARATION

- **18th UIC World Security Congress**, jointly organized by **Railway Protection Force (RPF)** and **International Union of Railways (UIC),** concluded with **adoption of 'Jaipur Declaration'**.
    - Declaration outlines an **actionable agenda for UIC** to explore **innovative approaches** that can help **global Railway organizations** to achieve their **long-term goal of safety and security.**
    - It also highlighted **the commitment of UIC** to provide **safe and secure rail network across globe**, by activating Asia-Pacific, Latin America and African regional assemblies **by 2025.**
- **UIC (HQ: Paris)** is worldwide professional association representing railway sector for research, development & promotion of rail transport.

QUIZ

SMART QUIZ

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



3. ECONOMY

3.1. REGULATORY FRAMEWORK ON ESG NORMS

Why in News?

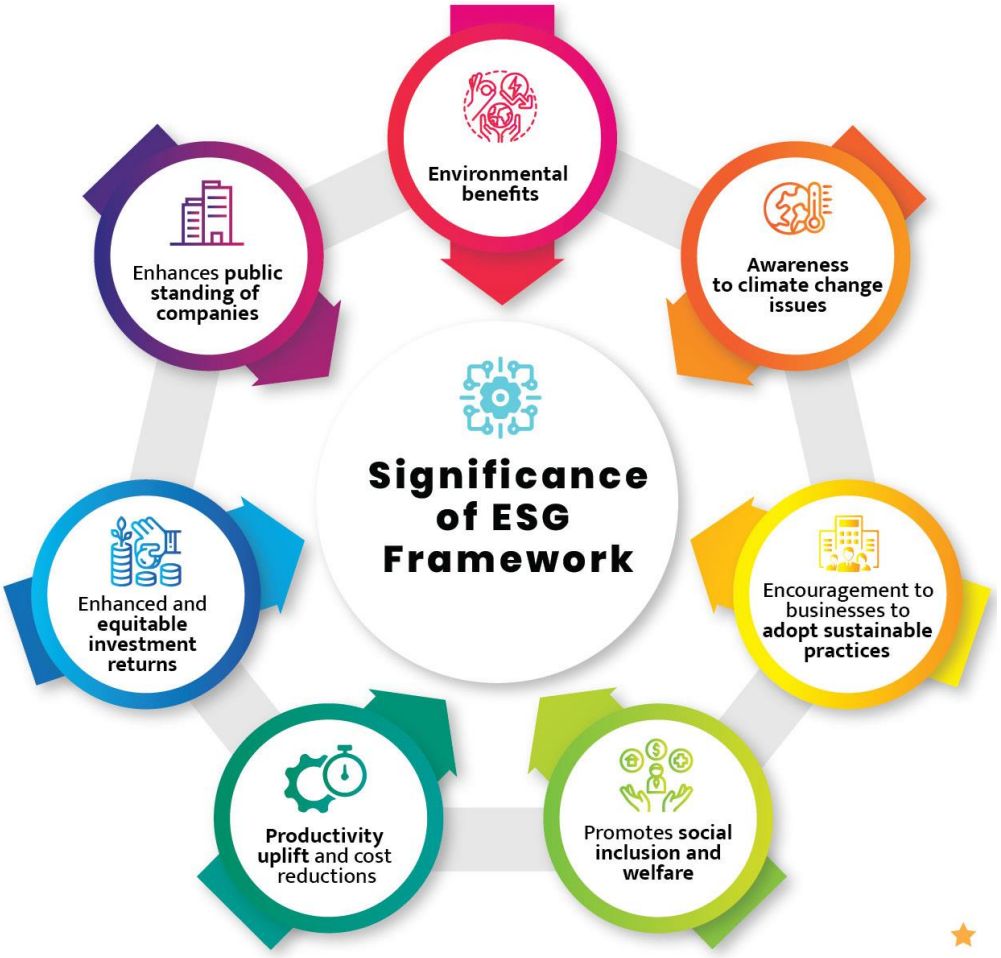
Securities and Exchange Board of India (SEBI) issued a **consultation paper** seeking public comments on **regulatory framework of Environment, Social, and Governance (ESG) norms**.

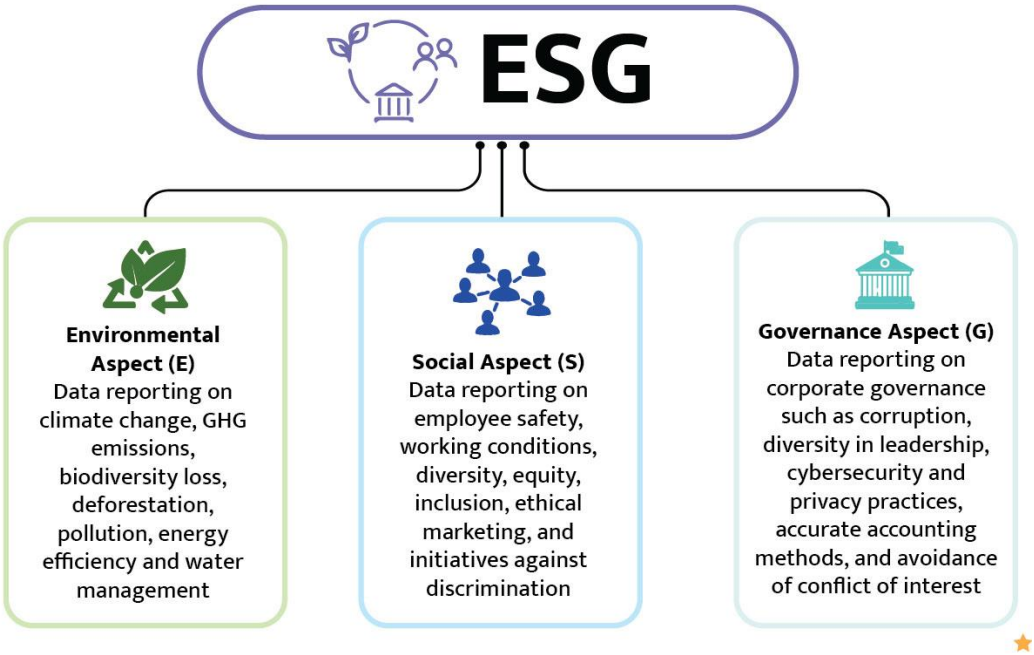
More on News

- SEBI in May 2022 constituted **ESG Advisory Committee (EAC) under Shri Navneet Munot** to make recommendations to streamline regulatory framework for ESG disclosures, ESG ratings and ESG investing.
- Based on the recommendations of this committee, SEBI has also proposed a **regulatory framework for ESG Rating Providers (ERPs)**.

Environment, Social, and Governance (ESG) and its reporting in India

- **ESG:** ESG is a framework that helps stakeholders understand **how an organization is managing risks and opportunities related to environmental, social, and governance criteria.**
- **Introduction of ESG reporting:** ESG reporting in India **started in 2009** with the Ministry of Corporate Affairs (MCA) issuing the **Voluntary Guidelines on Corporate Social Responsibility**.





- **SEBI's regulations:** SEBI through its 'Listing Regulations' in **2012 mandated the top 100 listed entities** by market capitalization **to file Business Responsibility Reports (BRRs)** from an ESG perspective.
  - This was **extended to top 500 listed entities in 2015-16 and then to 1,000 listed entities** from 2022-23.
- **BRSR requirements:** SEBI issued **new sustainability reporting requirements** under the **Business Responsibility and Sustainability Report (BRSR) in 2021**.
  - BRSR were brought out by **amending SEBI (Listing Obligation and Disclosure Requirements) Regulation, 2015** (**LODR Regulations**).
  - BRSR seeks disclosure from listed entities on their performance against the **nine principles of the 'National Guidelines on Responsible Business Conduct' (NGBRCs)**.
  - NGBRC was prepared in 2019 and is **designed for all businesses**, irrespective of their ownership, size, sector, structure or location.

SEBI three-legged proposed framework

ESG Disclosure	• **SEBI mandate:** SEBI has mandated the top 1,000 listed companies by market capitalization to make filings as per BRSR from FY23. • **Constituents of BRSR:** To achieve **twin objectives of improving credibility and limiting the cost of compliance**, **BRSR Core** has been developed. ○ BRSR Core consists of select **Key Performance Indicators (KPIs)** under including change in GHG, water and environmental etc.
ESG Ratings	• **ESG parameters for ratings: 15 ESG parameters** have been identified for ESG ratings including Perform, Achieve and Trade (PAT), Zero Liquid Discharge, Extended Producer Responsibility (EPR), sourcing from MSMEs etc.

ESG Investing	• **Stewardship code:** Presently, Mutual Funds are required to **mandatorily follow a Stewardship Code** in relation to their investments in listed companies. ○ The stewardship code involves having a **clear policy on voting, compulsory voting on resolutions including social and corporate responsibility issues etc.** • **Voting disclosures:** Asset Management Companies (AMCs) should **disclose if the resolution has or has not been supported** due to any ESG reason. Such voting disclosures should be mandated from FY 2023-24.

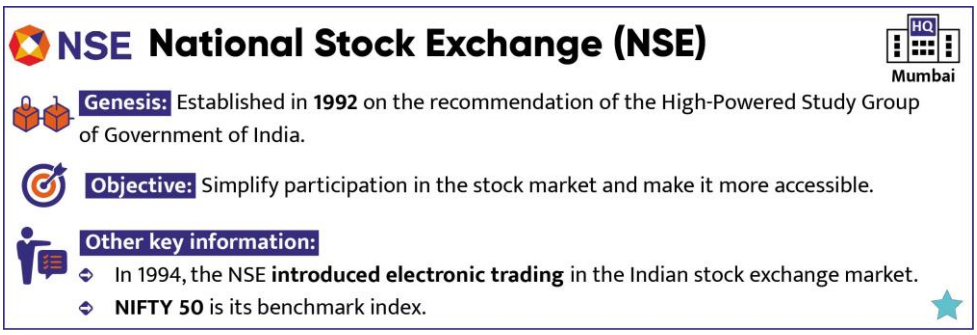
Global Regulations and Best Practices

- **EU standards:** In 2021, the **European Commission adopted Corporate Sustainability Reporting Directive (CSRD)** which introduces mandatory EU sustainability reporting standards for ESG aspects.
- **Practices in Asia:** In Asia, the **Singapore Exchange** has made **climate reporting mandatory** for certain sectors, and all issuers are required to provide climate reporting on a "comply or explain" basis in their sustainability reports.
- **USA regulations:** In USA, the US Securities and Exchange Commission (SEC) proposed rule changes that would require registrants to **include certain climate-related disclosures** in their registration statements and periodic reports.

3.2. MUNICIPAL BONDS

Why in News?

NSE Indices Ltd., an NSE (National Stock Exchange) arm has introduced the **country's first ever municipal bond index**.

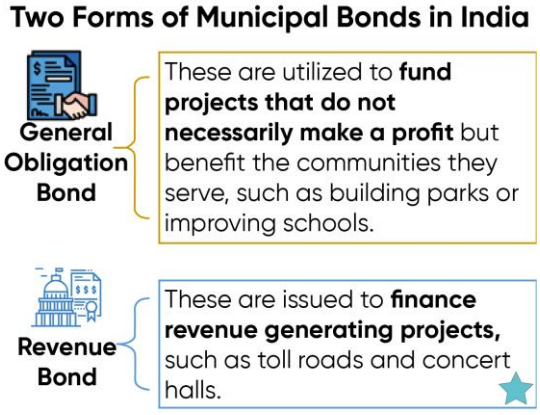


About Nifty India Municipal Bond Index

- **Role of the index:** The new Nifty India Municipal Bond Index will **track the performance of municipal bonds** issued by Indian Municipal Corporations (MCs) across maturities and having investment grade credit rating.
- **Index constituents:** Presently, the index has **28 municipal bonds issued by 10 issuers** all having credit rating in the AA category.
  - The index constituents are assigned weights based on their outstanding amount.
- **Base for Index:** The index has a **base date of January 1, 2021, and a base value of 1,000**.
- **Review:** The index will be **reviewed quarterly**.

Municipal Bonds

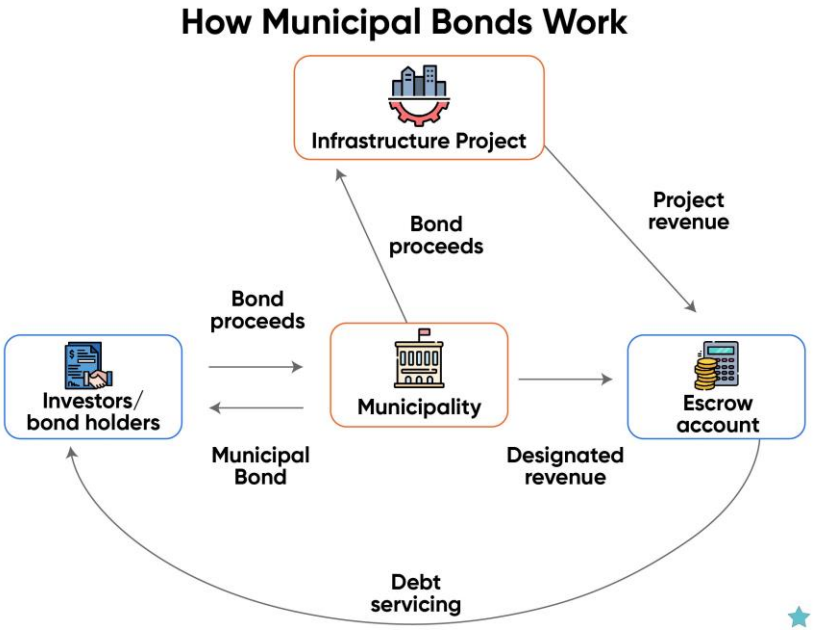
- **Municipal bonds** are **issued by local government bodies**, and **do not carry any government guarantee**.
- **Structured payment mechanism:** The interests and principal repayment for these bonds is done via an escrow account.
  - The municipal corporation has to **periodically move a fixed sum of money (for these payments) from its revenues into the escrow account**. This provides some assurance on the bonds being serviced on time.



Municipal Bond Market in India

- Municipal Bond Market is **regulated by the Securities and Exchange Board of India (SEBI) in India.**
  - The Indian municipal bond market has seen a resurgence of issuances after **SEBI's Issue and Listing of Municipal Debt Securities Regulations, 2015** came into effect.
- **Financial Incentives:** The Government of India has also provided **incentives in the form of a lump-sum grant-in-aid for municipal bond issuances**.
- **Largely investment-grade rating: 59% of municipal bonds** issued received a **rating of investment grade or above**, highlighting the underutilized potential for bond financing by Indian municipalities.

Benefits of Municipal Bonds



- **Financial discipline:** Raising money from capital markets **incentivises municipal corporations** to fund new projects and encourages them to become **financially disciplined** and governance oriented.
- **Filling the urban financing gap:** The municipal bond market can help in **financing the borrowing requirements** of different municipal corporations in India and can contribute to bridging India's urban infrastructure financing gap.
- **Expansion of municipal services:** The proceeds from bonds issued by municipal corporations can be utilised to finance **the expansion of essential municipal services** through growth-driven infrastructure projects.
- **Higher return:** The **interest rates** offered by the Municipal Corporations are **generally higher than the government bonds of similar maturity**, even though they are rated as adequately safe with low credit risk.

Retail Investors Gain Access To India's Municipal Bond Market

On February 14, the **Indore Municipal Corporation (Corp.)** became the **first local government body to raise money from retail investors.**

Basic stats

1st Bond Issue
By Bangalore Municipal Corp. in 1997.

2nd Bond Issue
By Ahmedabad Municipal Corp. in 1998.

Bond Issuances (June 2017-March 2022)
- **₹ 1,940 crore** raised across 12 issues.
- Coupons of **7.15%-10.23%** offered for bonds maturing in 4-10 years.

Take Note
- Municipal bonds are **usually rated AA, AA+ or AA-.**
- These are not **backed by any government** guarantee.
- They are **riskier than g-secs** and state government bonds.
- So far, there have been **no defaults or payment delays** on such bond issues.

Constraints for Municipal Bond Market in India

- **Imposed restrictions:** Municipal laws in India allow Municipal Corporations to borrow**, but with the permission of the respective State government**.
  - Also, these borrowings are constrained by several conditions imposed on the types of instruments, prescribed limits and maximum loan repayment period
- **Lack of secondary market:** The **lack of a secondary market** for municipal bonds has been a critical constraint in attracting a more extensive investor base for these securities.
  - **Not all municipal bonds are available to retail investors**. All municipal bond issues so far except Indore municipal corporation issue have been privately placed.
- **No tax benefits:** Unlike many western countries, there are **no special tax benefits.**
  - **Interest income is taxed** as per the income **tax slab rates**.
  - The **capital gains** arising on the transfer of municipal bonds are **not tax-exempt**.
  - **Tax at source is deducted on interest** as per the rate applicable under the IT Act.

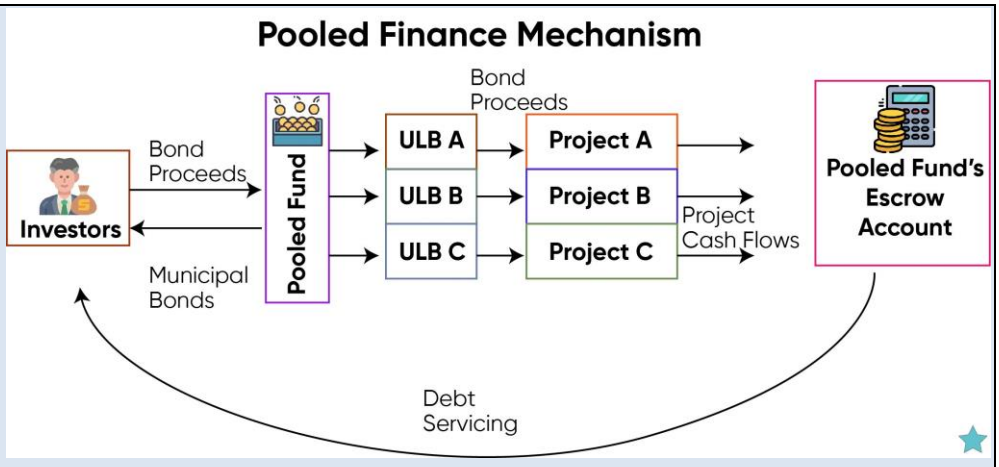
- **Inaccessibility due to high face value:** These bonds have high face value – they come in denominations of Rs. 10 lakh – putting them out of reach of retail investors.
- **Risk factor:** These bonds typically come with AA-, AA, or AA+ ratings, and to that extent, **cannot be considered as low-risk as Government of India or state government bonds**, both of which are backed by central government guarantees.

Way Forward

- **Improving overall policy environment for investment:** This can be done through sound and efficient regulation, greater transparency, and better governance.
  - E.g., **involvement of major credit rating agencies** in the municipal rating space or push from the **Central government in the form of reform-linked financial incentives.**
- **Popularizing the initial successes:** Recent instances of bond issuances have demonstrated that bond financing can be a **viable alternative for raising resources for MCs**. This can be projected to the investors and also State Governments.
- **Developing a secondary market** for municipal bonds by generating awareness, engaging primary dealers and going forward, listing these bonds on stock exchanges as well.
- **Attracting the retail investors:** The denominations of the Bond Market could be brought to the range of the retail investor. For instance, the face value of the bonds can be brought down to Rs. 50,000- Rs. 1 lakh from current median of Rs. 10 lakh.
- **Exploring mechanisms like pooled financing:** The initial cost of bond issuance can be prohibitively high for **smaller Urban Local Bodies** (ULBs). Accordingly, their access to capital market can be enhanced through pooled financing.
  - Under it, a **common bond is issued by pooling the resources** of several local bodies.

Pooled Financing

- **Pooled financing** essentially involves **creation of a State Pooled Finance Entity (SPFE),** which can be registered either as a trust or a Special Purpose Vehicle (SPV).
- **This mechanism has precedence in India**, with Andhra Pradesh, Maharashtra, Karnataka and Tamil Nadu issuing such bonds.
- **The Central government also provided a thrust** to pooled financing by launching the **Pooled Finance Development Fund (PFDF) Scheme in 2006** to provide credit enhancement to ULBs through a State-level pooled finance mechanism.



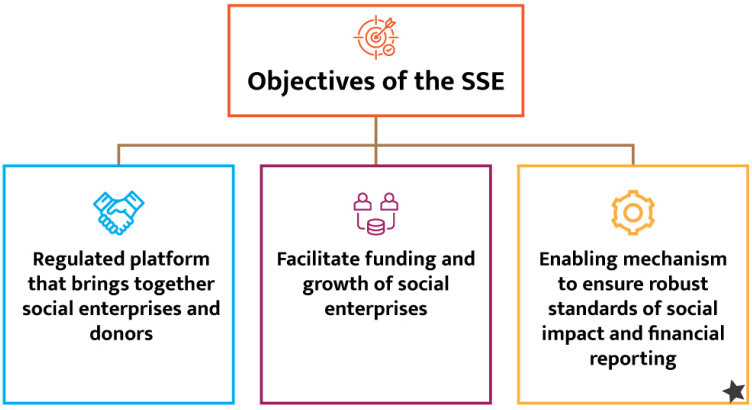
3.3. SOCIAL STOCK EXCHANGE

Why in news?

National Stock Exchange (NSE) has got the final approval from the Securities and Exchange Board of India (SEBI) to launch a Social Stock Exchange.

About Social Stock Exchange (SSE)

- **SSE** is a separate segment of the existing Stock Exchange that can **help Social Enterprise(s) to raise funds from public** through the stock exchange mechanism.
  - SSE identifies social enterprises as the ones engaged in creating positive impact in the society. These are the following two forms of social enterprises:

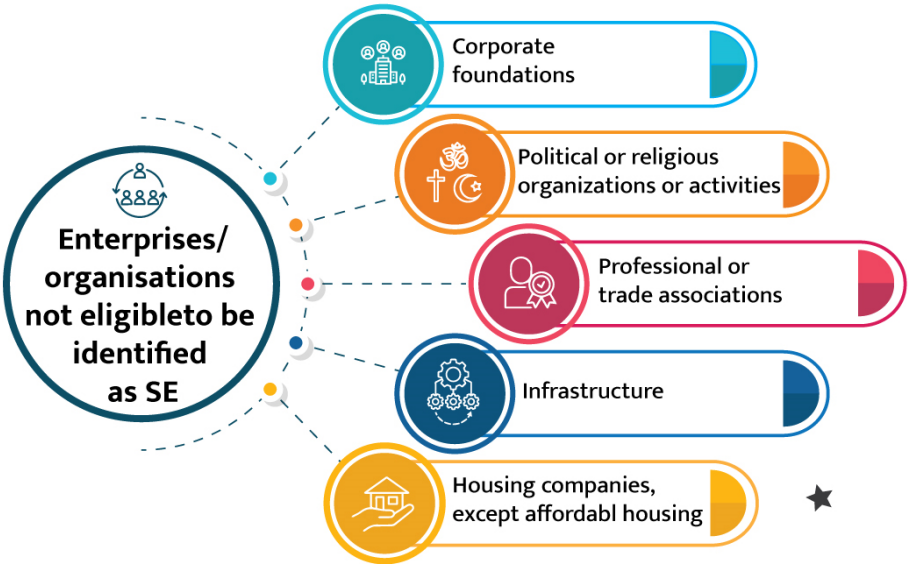


- ✓ Not-for-profit organization
- ✓ For profit social enterprise

- **Eligibility conditions for being identified as social Enterprises**
  - **Predominance of any of the following:**

Social Enterprises		
Revenue	**Expenditure**	**Customer base/beneficiaries**
At least **67% of its revenue** of the immediately preceding 3-year average of revenues comes from providing **eligible activities** to members of the target population.	At least 67% of the immediately preceding **3-year average of expenditure** has been incurred for providing **eligible activities** to members of the target population	Members of **target population** to whom **eligible activities have been provided** constitute at least 67% of immediately preceding 3-year **average of total customer base and/or beneficiaries**

  - Target population refers to **underserved or less privileged** population segments or regions which have recorded **lower performance in the development priorities** of central or state governments.



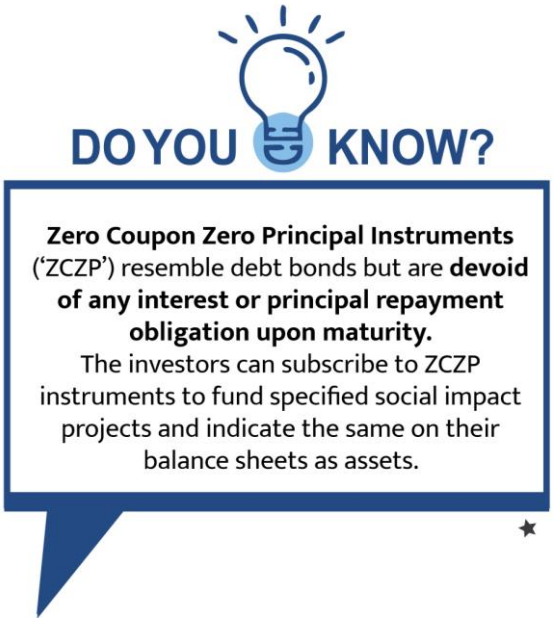
- **Governing council:** Every SSE shall be required to have a **SSE Governing Council** to have an **oversight on its functioning.**
  - Governing Council shall have a **balanced representation** and shall comprise of individuals with **expertise** in concerned field.
- **Eligible activities**: Eligible activities for **demonstrating primacy of Social Impact** include, inter alia:
  - Eradicating **hunger, poverty**, malnutrition and inequality;
  - Promoting **education, employability and livelihoods**;
  - **Disaster management**, including relief, rehabilitation and reconstruction activities;
  - Protection of national heritage, art and culture etc.

Parameters	NPO	FPE
Registration on SSE	**Required (Minimal annual reporting requirement)**	**Not required**
Mechanism to raise funds	➢ Issuance of **Zero Coupon Zero Principal I nstruments** [through private placement or public issuance] ➢ **Donations through Mutual Fund Schemes** ➢ Any other means that SEBI may specify in future	➢ Issue of **Equity Shares** ➢ Issue of **Debt Instruments** ➢ Any other means that SEBI may specify in future

Importance of SSE

- **Improved market access**: An SSE will facilitate a common and a structured meeting ground between Social Enterprises and investors/donors with inbuilt regulation for providing sanctity and accountability of finances.
- **Zero Listing and Admission cost**: SSE saves cost for both issuer and investor/donor by charging negligible fees for registration and listing.

- **Synergy between investors and investee in social aims**: In view of flexibility of investments and capital that would be available on an SSE, the canvas of choice would be much wider allowing investors and investees with similar missions and visions to connect seamlessly.
- **Performance based philanthropy**: Performance of the enterprises listed on an SSE would be monitored thus it will instill a culture of performance (Social return) driven philanthropy.
- **Promote market discipline**: Given that listing on SSE would **involve regular audit of impact** that SEs create, it will **promote competition** between firms and **encourage market discipline**.
- **Reduced burden on government**: SSE would leverage private sector participation in some key areas, engendering a collaborative approach with government in achieving the developmental goals.
    - Central and State governments till date have the biggest onus of achieving sustainable development goals.
- **Encourage innovation**: Social stock exchanges can encourage innovation by creating a market for impact-driven companies and incentivizing the development of new products and services that address social and environmental challenges.



Concerns associated with SSE

- **Lack of awareness**: Presently investors **do not have enough information** about such Social Enterprises and this **lack of knowledge** holds back donors and thereby hampers the fund flow.
- **Complexity:** A SSE can be more complex than a traditional stock exchange, given the need to evaluate both financial and social performance metrics.
- **Inadequate research on SSEs**: There is also a dearth of **adequate and meaningful literature and analysis** of SSEs and their implications on civil society. SSEs have largely been studied **from the lens of impact investment.**
- **Limited liquidity**: Social enterprises and non-profits may have limited liquidity in the secondary market, which could make it difficult for investors to sell their shares if they need to.
- **Concerns about sustainability and scale:** A study by Impact Finance Network in 2018 found that 75 percent of platforms were unsuccessful in generating income sufficient to fund their operational costs.

Road Ahead

- **Increase investor education:** Investors need to be educated about the unique features of social enterprises and non-profits, including their financial and social performance metrics.
- **Develop innovative financial instruments**: New financial instruments and investment vehicles can help to attract more investors to the social stock exchange. This can include social impact bonds, revenue-sharing agreements, and crowdfunding platforms.
- **Policy and regulation:** Government need to **assist in creating social finance markets**, and then support them with the **right mix of policy and legislative tools**.
- **Learning from other countries:** A **comprehensive analysis** of the experiences, structures, and learnings from SSEs across the world can aid in creating a **more enabling environment** for social organisations.

3.4. SELF HELP GROUPS (SHG)

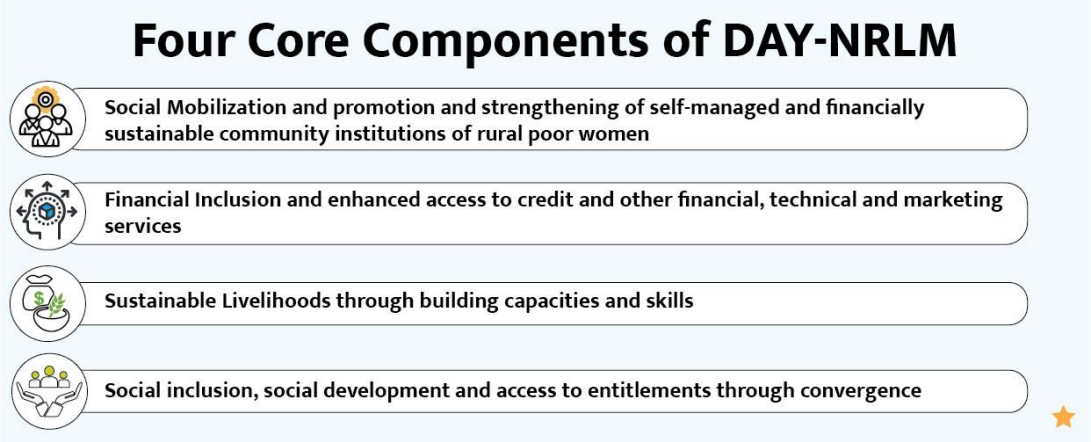
Why in News?

Recently, the Union Minister for Rural Development and Panchayati Raj asserted that the **target of having 10 Crore SHG members by 2024** will be achieved.

More on News

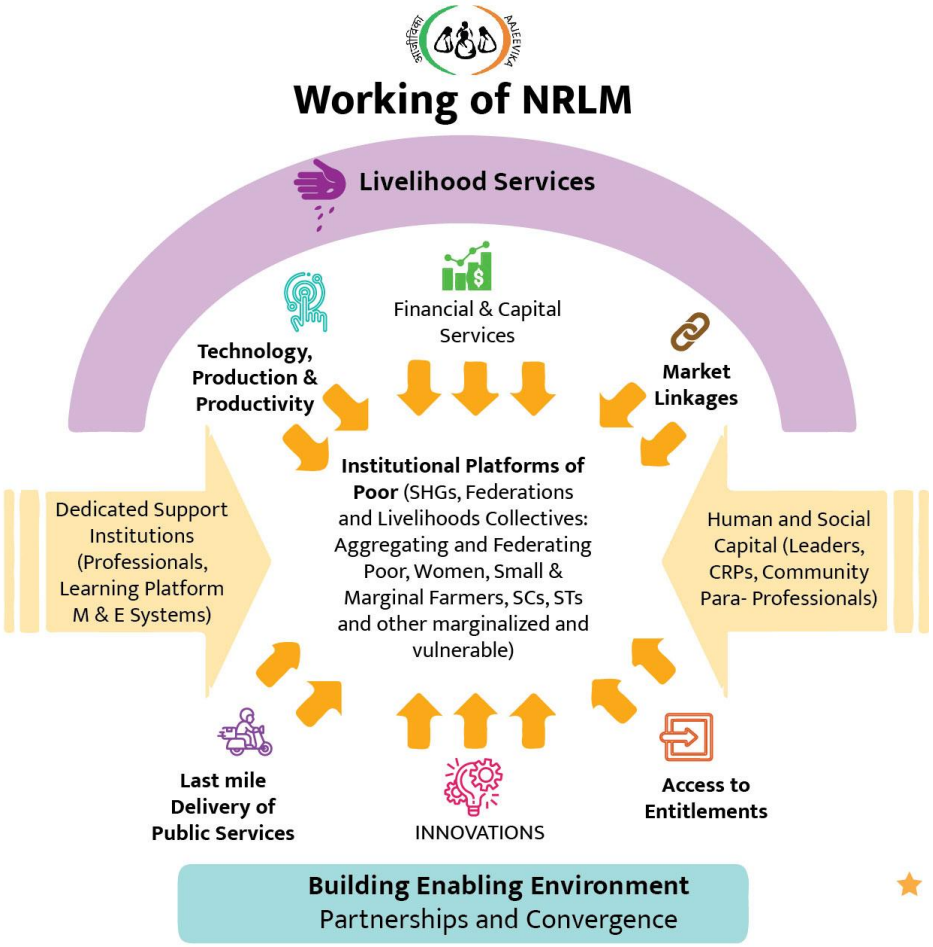
- The ministry has also signed an agreement with Meesho - an e-commerce platform - to help in marketing of products made by SHGs under the **Deendayal Antyodaya Yojana – National Rural Livelihood Mission (DAY-NRLM)**.

- NRLM and State Rural Livelihood Missions (SRLMs) have taken several steps to **promote curated products from SHGs** through multiple channels such as **Saras Gallery, State specific retail outlets, e-Commerce platforms like GeM, Flipkart, Amazon**.



Deendayal Antyodaya Yojana – National Rural Livelihood Mission (DAY-NRLM)

- **Genesis:** NRLM was launched in 2011 by **restructuring the erstwhile Swarnajayanti Grameen Swarojgar Yojana (SGSY).** It was renamed as DAY-NRLM in 2015.
- **Nodal Ministry:** The **Ministry of Rural Development** is implementing DAY-NRLM.
- **Aim: Alleviating poverty** and reach out to around **10 crore poor households by way of mobilizing rural women into community institutions** such as SHGs.
- **Basis of the program:** DAY-NRLM is **improving rural livelihoods through the SHG ecosystem**.
  - **SHGs are the basic unit**, along with higher order structure like **SHG federations, FPOs** planned for last mile service delivery and market access.
- **Status of Implementation:** As of January 2023, it has **mobilized a total of 8.79 Crore women into 81.61 lakhs SHGs**.

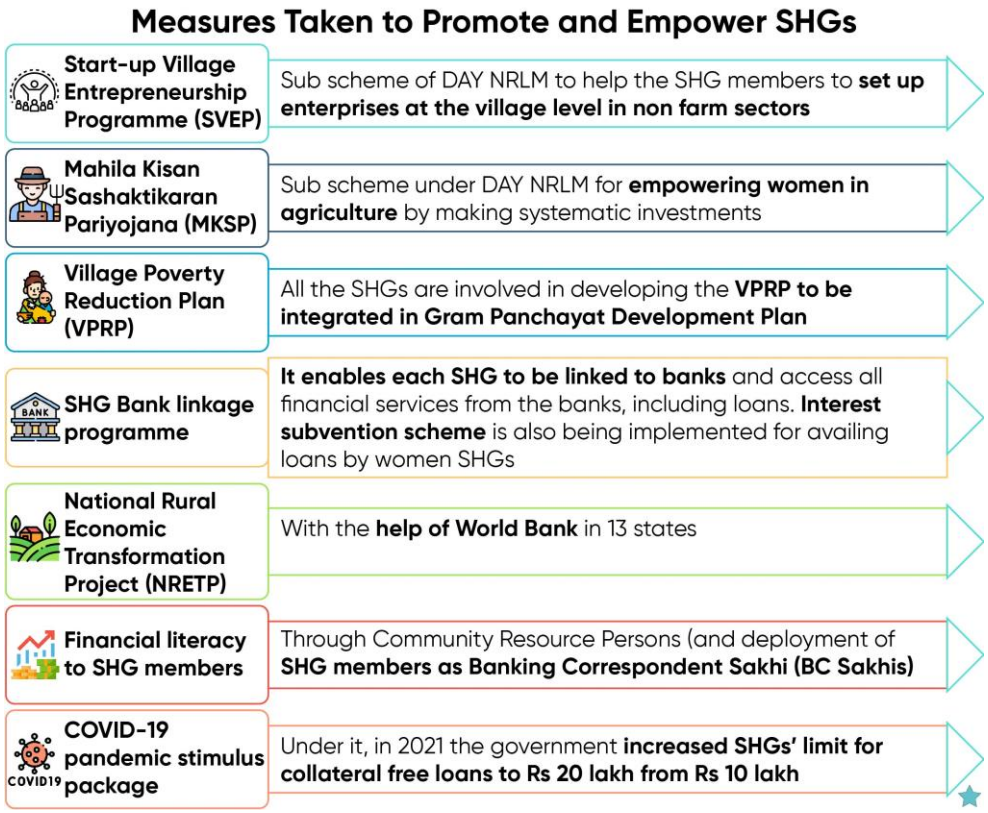


What are Self-Help Groups (SHGs)?

- **Small Group:** SHGs are **small informal groups of 10 to 20 people** who come together to **address their common problems**.
- **Legal status: Registration** of SHGs under any Societies Act, State cooperative Act or a partnership firm is **not mandatory**.
- **Group composition:** The group normally consists of **either only men or of only women** and the members generally belong to the **same social and financial background**.
- **Role of SHGs:** SHG is a means to **organize the poor people and the socio-economically marginalized** through a community organization to address their common problems.

Role of SHGs in development

- **Financial inclusion:** SHGs **promote small savings and provide small loans** to its members from its common fund.
  - SHGs **promote financial discipline** among its members. It is visible from the fact that Non-Performing Assets (NPAs) under NRLM bank linkages are only around 2.5%.
- **Poverty alleviation:** SHGs act as an **influential instrument** for poverty reduction, and socio-economic development.
  - The Government is implementing **Mission 1 Lakh, 2024** to provide an income stream of Rs. 1 lakh to women members of SHGs.
- **Social Development:** SHGs are creating **greater awareness** on issues like nutrition, health, sanitation and gender etc. and are also facilitating members to access their entitlements under various Government programmes/schemes.
- **Diversification of rural income streams:** Women SHGs are working in **multiple sectors** as Business Correspondents (BC), Bank Sakhis, Kisan Sakhis and Pashu Sakhis.
  - With help of SHGs, around 60-70% of the women working in agriculture and animal husbandry should be able to diversify themselves and **move towards millet cultivation and horticulture**.
- **Women empowerment:** SHG structure **promotes entrepreneurship** among women through easing loans and enabling access to markets.
  - The Government has taken initiatives to connect women FPOs and clusters with **e-commerce platforms** and helping them in **upskilling, branding and packaging**.
- **SHGs and COVID-19:** The World Bank has identified the role that women SHGs played in fighting Covid-19 pandemic through manufacturing masks, running community kitchens, and delivering essential supplies.



Issues associated with SHGs

- **Poor utilization of credit for productive purposes:** In 2020, researchers from the International Initiative for Impact Evaluation (3ie) found that **only 19% were used for productive purposes**.
- **Confinement to low-productivity sectors:** Most SHGs remain crowded in low-productivity, primary-sector activities, mainly agriculture, and are bogged down by **low absorption of technology**.
- **Lack of scalability:** Most SHGs remain **confined to being microfinance units** rather than vibrant business entities.
  - In many cases, women themselves are **unwilling or inhibited to scale up businesses** or do not find support within their families.
- **Primacy to economic empowerment:** The **NRLM model prioritizes livelihoods as primary pathway to subsidiary or social impacts** including improvement in health, nutrition, education, mobility, and women's empowerment.
- **Absence of digital and financial literacy:** Literacy levels are low for rural women in India (around 56%, according to National Sample Survey) and digital literacy is another missing link.
- **Limited participation in government programs:** As with other community-based and development projects, the members of SHGs—all of them poor and marginalised—**remain mere beneficiaries of the programmes** and have little control over the decision-making process.

Way Forward

- **Diversification of livelihood:** The success of SHGs would depend on raising the **abilities of members to diversify into other high-productive activities**.
- **Integration of digital services:** There is a need to **integrate digital financial services** to help small producer collectives scale-up and engage with the market.
- **Capacity building:** Building the capacity of SHG members by **training them in digital and financial literacy** will be critical.
- **Convergence:** The **convergence of SHGs with the Panchayats** can be ensured so as to enhance their say in the decision-making process. Some **southern states have taken a lead** in promoting the participation of women in SHGs in Gram Sabhas.
- **Involvement of private sector:** The NRLM can further **tap the startup and private sector space**.
    - For example, in 2019, **Kerala's Kudumbshree tied up with Amazon for its programme Amazon Saheli**, through which it promotes women entrepreneurs by selling their products.

Scan the QR code to know more about **Cooperatives.**

Weekly Focus #48: Cooperatives: Prosperity through Cooperation

3.5. FARM MECHANISATION

Why in News?

The **National Council of Applied Economic Research's (NCAER)** latest report on "Making India a Global Power House on Farm Machinery Industry" was recently released.

More about the report:

- The report highlighted that **Farm mechanisation in India is marked by 'tractorisation'**.
    - **India's farm equipment market is 7**% of the global market, **with more than 80% of the value contribution coming from tractors.**
- The **report insisted the need to focus on the Non-tractor farm machinery development**, the existing challenges in it and the ways to improve the usage of Non-tractor farm machinery in India.
    - In contrast the **trade surplus in non-tractor farm machinery is very small** and India is reliant on low grade equipment's or imports.
    - **Trade in non-tractor farm machinery forms less than 1%** of total merchandise trade in the segment.

Farm Mechanisation

- Farm mechanization refers to the **development and use of machines that can take the place of human and animal power** in agricultural processes.
- **Agricultural Mechanization removes the drudgery associated with agricultural labour,** overcomes time and labour bottlenecks to perform tasks within optimum time windows and can influence the environmental footprint of agriculture leading to sustainable outcomes.
- The **Indian farm mechanisation level is at 40–45%** compared to that of the United States (95%), Brazil (75%) and China (57%) (NABARD, 2018).

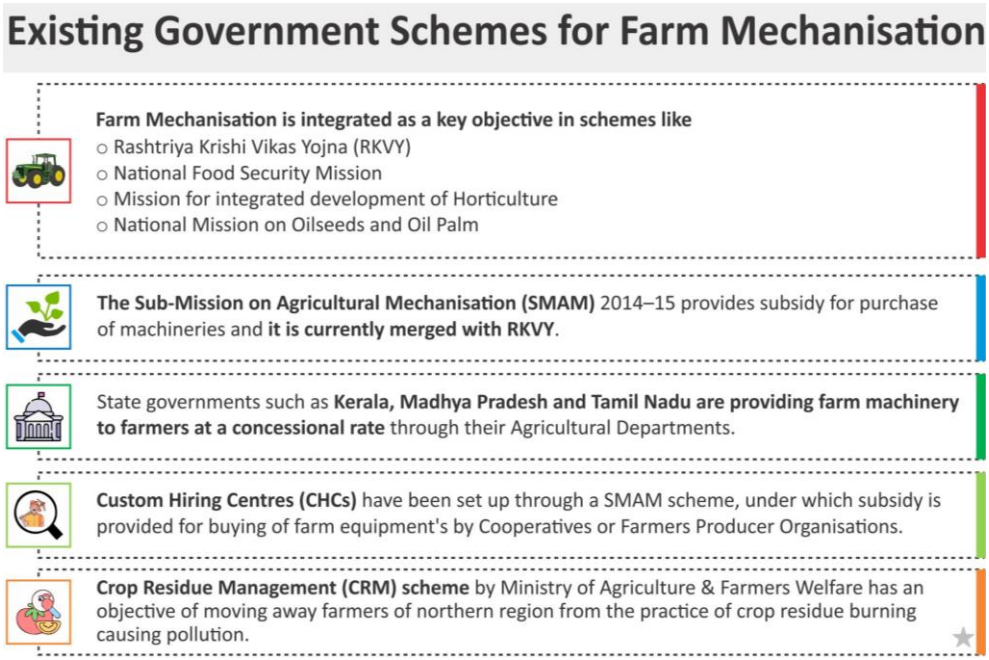
Need for farm mechanisation

- **Increased Productivity and Reduced Input Costs:** Use of proper equipment other than tractor can increase the farm productivity by up-to 30% and reduce the input cost by about 20%.
    - This is particularly important for small land parcel sizes in India, where sophisticated non-tractor farm equipment is more suited for marginal Indian farmers.

- **Reduced Work Burden and Increased Efficiency:** Most of the workforce in agriculture in India are females, and the usage of non-farm equipment can reduce their work burden and increase their efficiency.
- **Aid in Outward Migration of Educated Youth**: Farm mechanisation can also aid in outward migration of educated youth from the farm sector and help them to contribute better in other sectors.
- **Alternative to deal with Increasing cost of labour:** The cost of deploying labour for agriculture operation is increasing substantially. Farm mechanization is the only way to reduce labour cost, and thus cost of cultivation.
- **Improved quality of crops:** Mechanised equipment is designed to perform **farming operations with precision and accuracy**, leading to improved crop quality.
    - **Machines can uniformly sow seeds, apply fertilisers and pesticides**, and harvest crops at the optimal time, leading to better-quality yields.
- **Sustainability:** Farm mechanisation can promote sustainable agriculture by reducing the amount of land, water, and energy required for farming operations.

Challenges in Farm Mechanisation

- **Lack of Industry specific NIC code:** There is **no specific NIC code for the farming machinery industry**; products associated with farming machineries are spread across multiple NIC codes, which signifies that **they are not recognised/classified as a separate industry**.
    - **The National Industrial Classification Code ("NIC Code")** is a statistical standard for developing and maintaining a data base for various economic activities under a particular industry.
- **Small and fragmented land holdings:** The Marginal farmer with less acreage finds it difficult even to purchase minor farming equipment.
- **Quality and after-sales service:** Since most of the equipment's are made by unorganised sectors, there is inadequate quantity and quality of service centres for proper maintenance.
- **Low Awareness:** Farmers are not aware about various kind of machineries and implements and methods of using them.
- **Limited Research & Development (R&D) in Non-tractor Farm Machinery:** There is no system for the exchange/ transfer of new design or technology developed by research institutes with manufacturers/fabricators of these machineries.
- **Shortage of Skilled Workers:** Fabrication of agricultural tools and machinery is often done by semi-skilled workers without proper tools, thereby reducing their quality and efficiency.



Way Forward

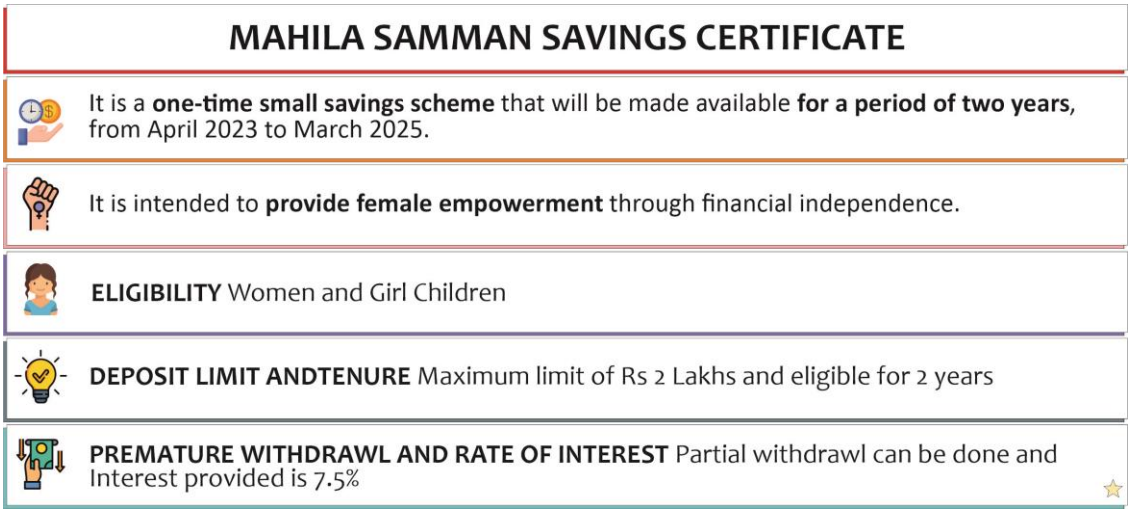
- **Creating a Framework and Action plan:** A **long term vision** to make India a production and export hub for Non-tractor farm equipment's, along with **an efficient action plan** to tackle the current challenges.
- **Creating an institutionalised framework for CHCs:** The **highly unorganised CHCs , are to be integrated better** and made efficient by establishing a proper Institutional set up.
- **CSR funding inclusions:** Companies in the sector could approach other Corporates not directly involved in farm machinery and **pitch the idea of investing their CSR funds** into promoting farm mechanisation through capacity building initiatives as well as infrastructure creation.

- **Encourage local innovations**: Innovations by the local farmers and ITI's should be duly recognised and the Government should help them to receive patents for such innovations and aid in commercialisation of the machinery.
- **Ease of financing** : Like KCC, procedures to avail term loan may be simplified with minimum documentation. Capacity building of bank staff dealing with agriculture term loan products may be ensured.

3.6. MAHILA SAMMAN SAVINGS CERTIFICATE

Why in News?

In the recent budget, the govt announced the **new small savings scheme "Mahila Samman Savings Certificate" for women.**



Importance of Small Savings Schemes in Indian Economy

- **Social Security Objectives:** Small Savings Schemes play a crucial role in supporting the social security objectives of the government by providing a safety net for vulnerable sections of society, such as senior citizens, widows, and disabled individuals.
- **Resource Mobilization for Government:** They are a primary source of resource mobilization for the government contributing around 20% of the Centre's borrowing requirement.
- **Transfer to States:** A significant proportion of the net small saving collections, around 75%, are transferred to states as part of their loans from the Centre.
- **Market Implications:** Small Savings Schemes have direct implications on the market. The effective return on these schemes can influence the fund flow into capital and secondary markets, making them an important factor in the market.

National Small Savings Fund (NSSF)

- The money deposited in these schemes by individuals is directly sent to the government and deposited in the NSSF.
- **NSSF was established in 1999** within the **Public Account of India** and is currently **administered by Ministry of Finance under National Small Savings Fund Rules, 2001,** which is derived from **Article 283(1) of the Constitution.**
- Objective for the formation of a dedicated fund for small savings is to **de-link small savings transactions from the Consolidated Fund of India.**
- Since NSSF operates in the Public Account, **its transactions do not impact the fiscal deficit of the Centre directly**.
- The money in the account is used by the Centre and States to finance their fiscal deficit and the balance is invested in Central and State Government Securities.
- **The balances under NSSF are direct liabilities of the Centre**. The NSSF flows affect the cash position of the Central Government.

Existing Small Savings Schemes in India

The existing savings schemes can be clubbed into

- **Post office Deposits:** Post office savings account, Post office Recurring deposit, Post office time deposits, Post office Monthly account.
- **Savings Certificate:** National Savings Certificate, Kisan Vikas Patra.
- **Social Security Schemes:** Public Provident Fund, Senior Citizen Savings Scheme, Sukanya Samriddhi Account.

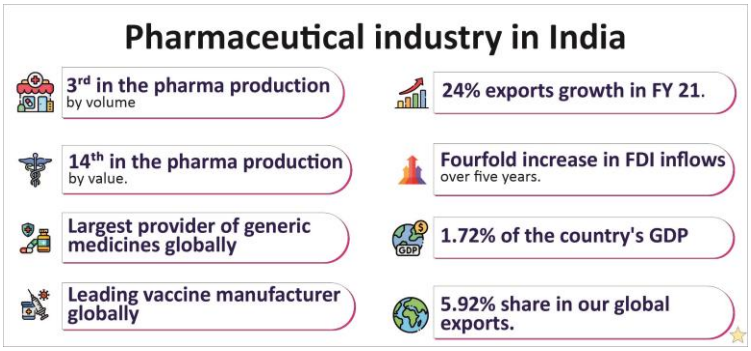
3.7. PHARMACEUTICAL INDUSTRY IN INDIA

Why in News?

Economic Survey 2022-23 estimated India's domestic pharmaceutical market to touch $130 billion by 2030.

About Pharmaceutical sector in India

- Major Segments of Pharmaceutical Industry are **Generic drugs, OTC Medicines and API/Bulk Drugs, Vaccines, Contract Research & Manufacturing, Biosimilars & Biologics**.
- India's domestic pharmaceutical market is **estimated at $41 billion in 2021** and is likely **to grow to $65 billion by 2024**.

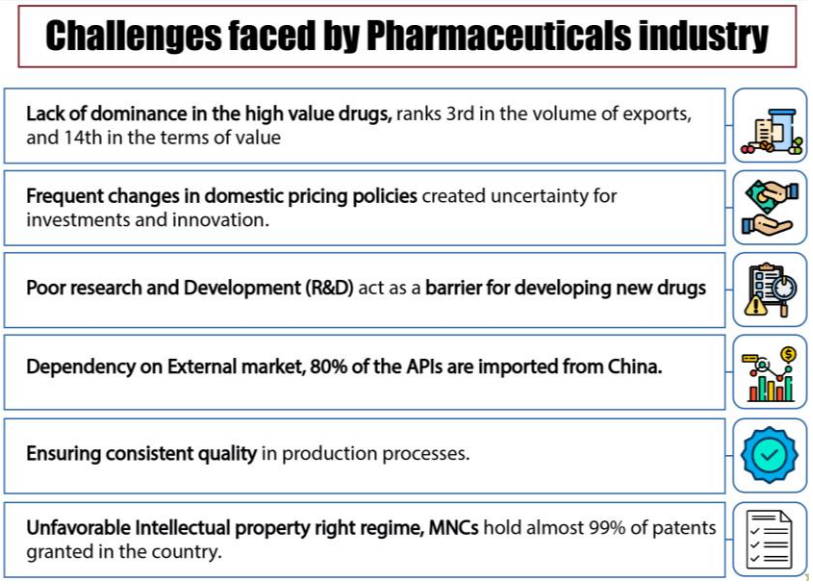


Why Pharmaceutical industry is growing in India?

- **Favorable government policies:** The Indian government has implemented several policies to promote the growth of the pharmaceutical industry.
  - These include tax incentives, R&D grants, and support for technology transfer.
- **Low cost of manufacturing:** Cost of manufacturing ~ 33% lower than western markets due to factors such as **cheap labor, affordable equipment, competitive property rates and low-cost utilities**.
- **Upgraded Manufacturing Plants:** Pharmaceutical manufacturing companies have made substantial investments in upgrading their facilities to meet global standards.
  - India has the highest number of United States Food and Drug Administration (US-FDA) compliant plants outside the US.
- **Skilled workforce:** India has a strong pool of skilled scientists, researchers, and technicians who are involved in research and development, quality control, and manufacturing.
- **Strong domestic demand**: The growing middle class and aging population have created a large demand for pharmaceutical products.
- **Expanding exports:** India supplies over 50% of Africa's requirement for generics, ~40% of generic demand in the US and ~25% of all medicine in the UK.
- **Other factors**
  - COVID-19-induced demand for critical drugs
  - Medical tourism which further enhance demand

Government initiatives to promote Pharmaceutical Industry

- **Strengthening of Pharmaceutical Industry (SPI) Scheme for MSMEs:** It was launched in March 2022 with **₹500 crore outlay for the period FY 21-22 to FY 25-26.**
  - The Scheme has 3 components
    - ✓ **Pharmaceutical Technology Upgradation Assistance Scheme (PTUAS)**
    - ✓ **Assistance to Pharma Industries for Common Facilities Scheme (API-CF)**
    - ✓ **Pharmaceutical and Medical Devices Promotion and Development Scheme (PMPDS)**
- **PLI Scheme for promotion of domestic manufacturing of critical Key Starting Materials (KSMs)/Drug Intermediates (DIs)/Active Pharmaceutical Ingredients (APIs) in India:** The outlay of the scheme is Rs 15,000 crore and the tenure of the scheme is proposed to be from 2021-22 to 2028-29.
- **Promotion of Bulk Drug Parks:** It aims to bring down the cost of manufacturing of bulk drugs by creation of world class common infrastructure facilities supported by the Central Government.
- **Pharmaceutical Promotion & Development Scheme (PPDS):** The scheme aims at promotion, development and export promotion in pharmaceutical sector by extending financial support for conducting seminars, conferences etc.
- **Pharma Bureau:** It provides facilitation to investors and resolution of their inter-departmental coordination issues in the Pharmaceuticals and Medical Devices sector.
- **Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP):** It aims to make quality generic medicines available at affordable prices to all especially for the poor and the deprived ones.



Way Forward to enhance the pharmaceutical industry

- **High value pharmaceutical products:** India needs to focus on **manufacturing high value pharmaceutical products** to become the Pharmacy of the World.
- **Incentivizing funding for Innovation and R&D:** In the pharmaceutical industry, **the gestation period may take about 10-15 years.** For the investments to increase, the risk capital needs to be created in India.
- **Enabling Regulatory Ecosystem:** The CDSCO implemented the **New Drugs and Clinical Trial Rules, 2019** which introduced changes to the regulatory framework which governs clinical trials in India. However, these changes have not brought about the expected spurt in clinical trials in India.
- **Addressing pricing pressures**: The government can work with industry stakeholders to develop fair pricing policies that balance the need for affordable medicines with the need for industry profitability and sustainability.

3.8. NEWS IN SHORTS

3.8.1. RBI'S MONETARY POLICY COMMITTEE (MPC) MEETING

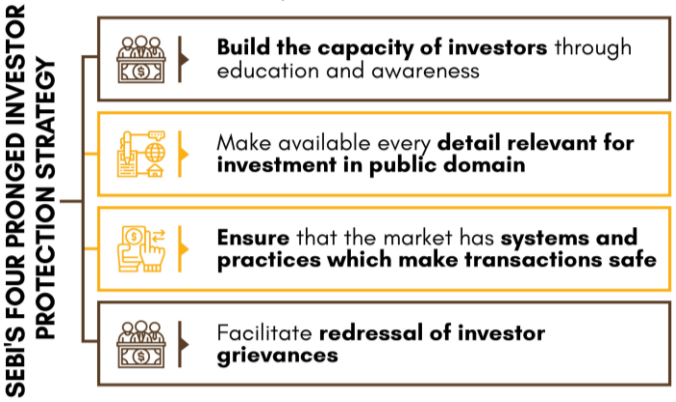
- **MPC increased Repo Rate by 25 basis points (bps)** to **6.5%** - targeting **high core or underlying inflation.**
  - Repo rate is the **rate at which RBI lends short-term funds to banks**. Increase in repo rate **inhibits banks from borrowing money**, **reducing amount of money in market** and helps to negate inflation.
  - Core inflation is change in **costs of goods and services** (except volatile food and energy price).

Other Key decisions

Payment and Settlement Systems	• **Extension of Unified Payments Interface (UPI)** to all inbound travelers to India or their merchant payments (P2M) while they are in the country. • To start with, it **will be extended to travellers from G-20 countries** at select international airports. ○ UPI is **an instant payment system** developed by National Payments Corporation of India (NPCI), an RBI regulated entity. ○ It is **built over IMPS infrastructure** and allows **instant transfer of money between any two parties' bank accounts.**
Currency Manage-ment	• **QR Code based Coin Vending Machine (QCVM)** pilot project from RBI and leading banks. ○ It is a **cashless coin dispensation machine** to **dispense coins** against a **debit to the customer's bank account** using **UPI.** ○ QCVM would **eliminate need for physical tendering of banknotes** and their authentication.

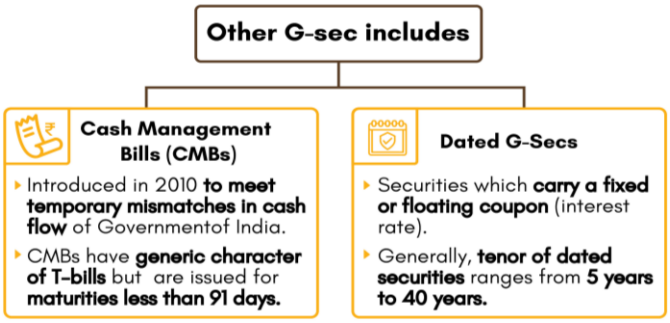
3.8.2. INVESTOR PROTECTION

- **In the backdrop of stock manipulation charges** on a business conglomerate, **Supreme Court (SC) asked SEBI and government to produce the existing regulatory framework in place** to protect Indian investors.
- SC also stated that **stock market is no longer a place for just high value investors** and has seen **rising presence of middle-class** and **called for forming a panel of experts** in banking and securities along with a former judge.
- **Stock market is regulated by SEBI** under the SEBI Act 1992 with the prime mandate to **protect interest of investors in securities.**
- **Initiatives taken for investor protection**
  - **By SEBI**
    - ✓ **Enhanced disclosure norms for IPO** bounds companies.
    - ✓ Framework for **preventing insiders trading.**
    - ✓ **New framework for credit rating agencies**
    - ✓ **Allowed T+1 settlement on optional basis**.
    - ✓ **SCORES** a web-based **centralized grievance redress system.**
  - **Others**
    - ✓ **Investor Education and Protection Fund** under Companies Act, 1956 which is funded by unclaimed funds on account of dividends, matured deposits, etc.



3.8.3. GOVERNMENT SECURITIES (G-SECS)

- **RBI issues draft norms for** lending and borrowing **of government securities (G-Secs).**
- Aim is **to facilitate wider participation in Government Securities Lending (GSL) Market**.
- **Key highlights of draft norms**
  - **Eligiblity:** G-Secs **issued by Centre** (except treasury bills (T-bills)) are eligible **for lending and trading** in GSL, whereas G-Sec of **both Centre and States** (including T-bills) shall be used **as collateral** under a GSL.
  - **Eligible Participants:** Entities eligible to undertake Repo transactions and those approved by RBI.
  - **Tenure:** Minimum one day and a maximum of ninety days.
  - **Securities borrowed under a GSL transaction** shall be eligible for **Statutory Liquidity Ratio (SLR) for borrower** (not for lender).
- G- Sec is a **tradeable instrument issued by Central or state Governments.** It acknowledges government's debt obligation.
  - **Such securities are short term** (usually called T-Bills, with maturities of less than one year) **or long term** (usually called Government bonds or dated securities with maturity of one year or more).
  - **Central Government issues both,** T-bills and bonds or dated securities while **State Governments issue only bonds or dated securities,** called State Development Loans (SDL).
  - G-Secs carry practically **no risk of default** and, hence, are **called risk-free gilt-edged instruments.**



3.8.4. BANK MERGERS

- **Evaluating bank mergers in India since 1997**, a Reserve bank of India (RBI) paper highlighted that:
  - Mergers **benefited both the acquirer and the acquired**.
    - ✓ **Efficiency of acquirers improved** because of factors like **geographical diversification**, **improvement in share of interest income** etc.
    - ✓ **Acquired bank** benefitted because of **addition to shareholder value**.
  - **Combined entity** relatively more **resilient to financial risks.**
  - Most of the **mergers amongst private sector banks were market-driven** and those **between** PSBs (public sector banks) **were government-led mergers.**
- **Mergers and Acquisitions (M&A)** refers to **transactions between two companies to combine in some form** i.e.
  - Merger or combining of two firms to form a new legal entity, and
  - Acquisition or an outright purchase of one company by another.

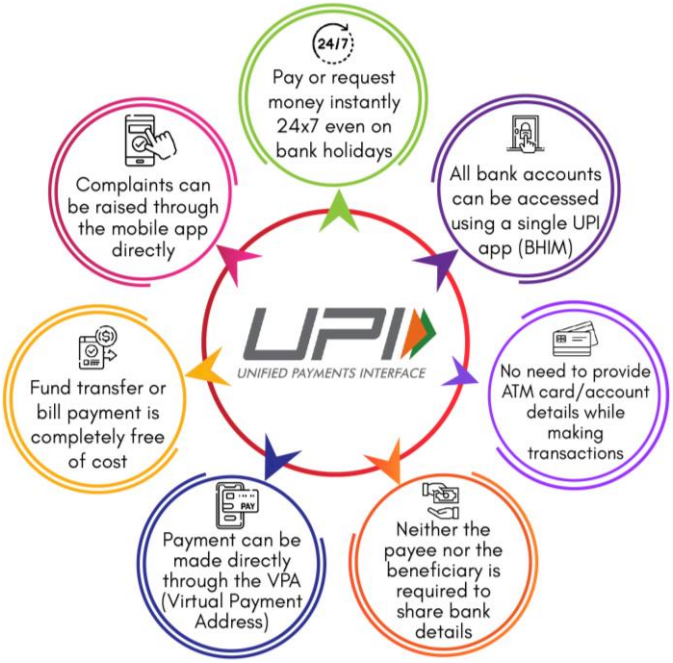
Benefits of M&A	Dangers of M&A
• Improved **Economies of Scale** • **Increased Market Share** and Distribution Capabilities • **Reduced Manpower costs** and Talent Retention • **Enhanced Financial Resources** • **Fills Business Gaps**, i.e. product, geographical or technology gaps	• **Execution Risk** due to lack of commitment from executives • It can have **negative impact** on **customers perception** • **Reduced Competition** and creation of **too-big-to-fail (TBTF) banks** that may have a **systemic impact**

3.8.5. UPI -PAYNOW LINKAGE

- India and Singapore launched UPI (Unified Payments Interface)-PayNow linkage.
- UPI-PayNow integration will **enable people in both countries** to **send money real-time via QR-code based** or simply by entering mobile numbers linked to bank account.
  - With this, **Singapore** became the **first country** to allow **cross-border Person to Person (P2P) payment facility**.
  - Earlier, at selected merchant outlets in Singapore, UPI payments through QR codes were made available.
- **Significance of UPI-PayNow linkage**
  - **Benefit Indian diaspora**, especially migrant workers, and students by **allowing faster and cost-efficient funds transfer.**
  - **Enable users to transfer funds instantly** without the need to get on board the other payment system.
- UPI is a real-time payment system **developed by National Payments Corporation of India (NPCI)** in 2016 which facilitates inter-bank financial transactions.
  - UPI supports both **P2P and Person-to-Merchant (P2M) payments**.

- NPCI is an **initiative of RBI and Indian Banks Association** under **Payment and Settlement Systems Act, 2007**. It is an umbrella organization for operating retail payments and settlement systems in India.

- PayNow is a **fast payment system in Singapore**. It **enables peer-to-peer funds transfer service**, available to retail customers through participating banks and Non-Bank Financial Institutions (NFIs) in Singapore.
- **Related news**
  - RBI allowed **UPI-based transactions** to **all in-bound travellers for local payments**, starting from **G-20 countries**.
  - Eligible travellers would be **issued Prepaid Payment Instruments (PPI) wallets linked to UPI** for making payments at merchant outlets.
    - ✓ **PPI Examples**: Smart cards, Online accounts, Online wallets, Stripe cards, Paper vouchers, etc.



3.8.6. BENAMI ACT

- Centre sought **review of Supreme Court (SC) 2022 judgement** that **struck down several provisions of Benami Transactions (Prohibition) Act, 1988, and 2016 amendments** to it.
  - Benami Transactions (Prohibition) Amendment Act, **2016 amended original Benami Act of 1988, expanding it to 72 Sections from a mere nine**.
- **Benami Act 1988,** was introduced to **prohibit Benami transactions** and give government the right to recover Benami property.
  - If the property is **held in a fiduciary capacity, it does not come under ambit of law.**
  - Benami transaction means **any transaction in which property is transferred to one person for a consideration paid** or provided by another person.
- **Key highlights of SC 2022 verdict**
  - **Section 3(2) of 1988 Act (accordingly of 2016 act also)** is **unconstitutional** for being arbitrary and **violative of Article 20(1) of Constitution** (prohibits retrospective punishment for a crime).
  - **Punitive provisions** of 2016 amendments **under section 5 shall not be applied retrospectively**.
    - ✓ Section 5 of 2016 Amendment Act allows confiscation of any property which is subject matter of a benami transaction.
  - Prosecutions or confiscation proceedings (for transactions between 1988 and 2016) shall stand quashed.

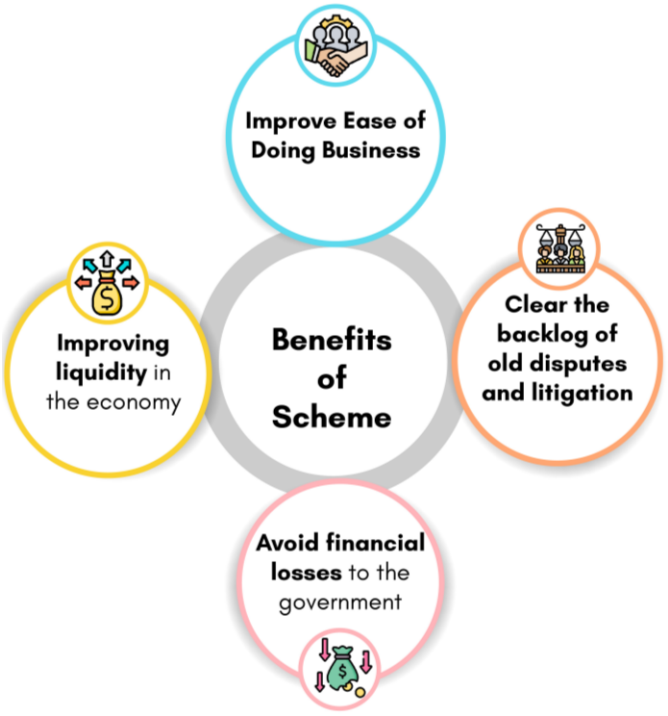
3.8.7. EQUALISATION LEVY

- **Central Board of Direct Taxes (CBDT) CBDT revised norms** for processing of equalisation levy (EL)
- Provisions are **part of Centralised Processing of Equalisation Levy Statement Scheme, 2023** for processing of statements furnished under **Finance Act, 2016.**
  - Presently, **procedure for processing of EL statements is lacking** which had **created some uncertainty**, especially regarding refund claims made.
- EL, **also known as Google tax**, is a **direct tax** introduced in **2016** to **tax digital economy.**
  - **Applicable on non-residents e-commerce operators** (ECO), it was initially (**EL 1.0**) **levied at 6% of gross consideration** on online advertisements and digital advertising space**.**
  - **In 2020 (EL 2.0), its scope was widened** and new levy **now includes a 2% tax on gross revenues received by a non-resident ECO** from provision of 'e-commerce supply or service' to Indian residents or non-resident companies having a permanent establishment in India.
- **Key highlights of revised norms**
  - **Centralised Processing Centre** of Income Tax department will **process EL statements electronically.**
  - A new **provision for faceless discussions.**
- OECD has also given a '**Two-Pillar Solution**' **to address Tax Challenges** Arising from **Digitalisation of Economy.**
  - It is agreed by **nearly 138 countries including India.**
  - Once adopted, it **will replace unilateral measures or levies such as EL** from India.
- **Pillar One**: 25% of the residual profits of about 100 of largest and most profitable MNCs will be reallocated to market jurisdictions where the companies' users are located.

- **Pillar Two:** A **global minimum tax of 15%** on corporate profits (applicable to MNCs with annual global revenue of over 750 million euros).

3.8.8. DRAFT VIVAD SE VISHWAS-II SCHEME NOTIFIED

- **Vivad se Vishwas (No Dispute but Trust) II Scheme** (Ministry of Finance) will be a **voluntary settlement scheme** for **contractual disputes** of government and government undertakings, **wherein arbitral award is under challenge in a court**.
  - **Announcement** regarding the scheme was **made in Union Budget 2023-24.**
  - **Scheme** will cover **disputes up to 30th September 2022.**
- **Salient Features of the Scheme**
  - **Application:** It will apply to disputes where **one of the parties is either Government of India or its following bodies** (disputes with states govts, another private firm not covered):
    - ✓ Centre's autonomous bodies.
    - ✓ Public sector banks and financial institutions.
    - ✓ All central Public sector enterprises.
    - ✓ UTs, including NCT of Delhi, and their agencies.
    - ✓ Organizations where the Centre has a 50% stake, like metro rail.
  - **Settlement:** It offers a **graded settlement** terms **depending on pendency level of the dispute**, i.e
  - **Implementation:** It will be implemented through **Government e-Marketplace (GeM).**
  - Proposed to **cover only domestic arbitration** and not international arbitration.

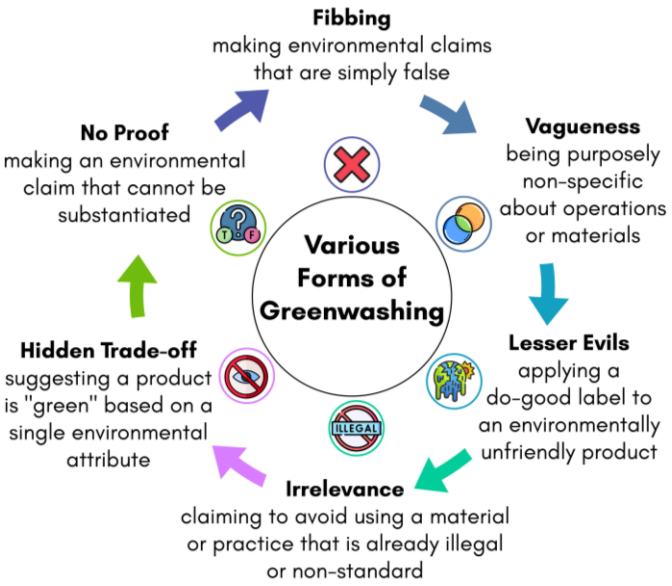


Related News
Vivad se Vishwas 1

- Department of Expenditure has provided **reliefs to MSMEs under Vivad se Vishwas-I** for past goods and services procurement contracts.
- Vivad se Vishwas-I was **announced in Budget Speech 2023-24 to overcome difficulties faced by MSME's** in last two years **due to COVID-19**.
  - **In cases of failure by MSMEs to execute contracts** during COVID period, **95% of forfeited amount** relating to bid or performance security, **will be returned to them** by government and government undertakings.
- Grant of relief will be **monitored through Government e-Marketplace (GeM).**

3.8.9. RULES NOTIFIED FOR GREEN BONDS TO AVOID GREENWASHING

- **SEBI notified do's and don'ts** relating to green bonds to avoid greenwashing.
- Green bonds are **bonds issued by any sovereign entity, inter-governmental groups or alliances** and corporates with the aim that **proceeds of bonds are utilised for environmentally sustainable projects**.
  - However, **concerns are raised** about possible **misuse of green bonds for greenwashing**.
- Although lacking universal definition, **Greenwashing refers to making false, misleading, unsubstantiated, or otherwise incomplete claims about the sustainability of a product, service, or business operation.**
  - During COP27, **UN Secretary-General also pitched for a zero tolerance** for greenwashing.



- **Do's and Don'ts for issuers of Green bonds by SEBI**
  - **Continuously monitor** whether operations are sustainable and resulting in reduction of adverse impact on environment.

- **Shall not use misleading labels, hide trade-offs or cherry pick data** from research to highlight green practices.
- **Shall quantify negative externalities** associated with utilization of the funds raised through green bonds.
- **Shall not make untrue claims** giving false impression **of certification by a third-party entity.**

3.8.10. SOUTH INDIA'S 1ST INDUSTRIAL CORRIDOR PROJECT

- **Project will be implemented at Tumakuru** (Karnataka) as **part of National Industrial Corridor programme** (NICP).
  - **Krishnapatnam** (Andhra Pradesh), **Tumakuru, and Ponneri** (Tamil Nadu) has been identified as **priority nodes** under NICP's **Chennai Bengaluru Industrial Corridor** (CBIC).
- NICP **aims to promote world class manufacturing facilities** and develop futuristic industrial cities in India. **Broad objective is to provide plug and play infrastructural facilities** for setting up large scale manufacturing units.
  - **Delhi Mumbai Industrial Corridor was the first corridor** taken up for development in 2011.
  - Subsequently, Amritsar- Kolkata, CBIC, Vizag-Chennai, East Coast etc. were added.
- **Need for industrial corridors**
  - **To foster global manufacturing, investment destination hubs** and smart cities with best in-class infrastructure.
  - **To unleash manufacturing potential** in the country and **raising its contribution to GDP** by creating quality infrastructure ahead of demand.
  - **To expand industrial output, increasing employment opportunities**, provide better living and social facilities for workforce.
- **Important features of NICP**
  - **Land parcels are developed for immediate allotment** to manufacturing units.
  - **Statutory clearances** including environment clearance are **being taken beforehand.**
  - **National Industrial Corridor Development & Implementation Tr**ust (NICDIT) for unified development.

3.8.11. GROUP STANDARDS FOR MILLETS

- FSSAI has framed **comprehensive group standard for 15 types of millets specifying 8 quality parameters** to ensure availability of **good quality (standardized) millets in domestic and global market.**
  - **Group standard is applicable to** barnyard millet, Amaranthus, Buckwheat, Finger Millet, Foxtail Millet, Pearl Millet, Fonio, Little Millet and Sorghum among others.
  - **8 parameters are** maximum limits for moisture content, uric acid content, extraneous matter, other edible grains, defects, weevilled grains, and immature and shrivelled grains.
- **Millets (superfood)** are a group of **small-grained cereal food crops** that are **highly tolerant and require low chemical inputs.**
  - Only millets like jowar, ragi, bajra, and Amaranth have standards prescribed in the FSSAI Regulations, 2011.

SMART QUIZ

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

4. SECURITY

4.1. MARITIME SECURITY

Why in news?

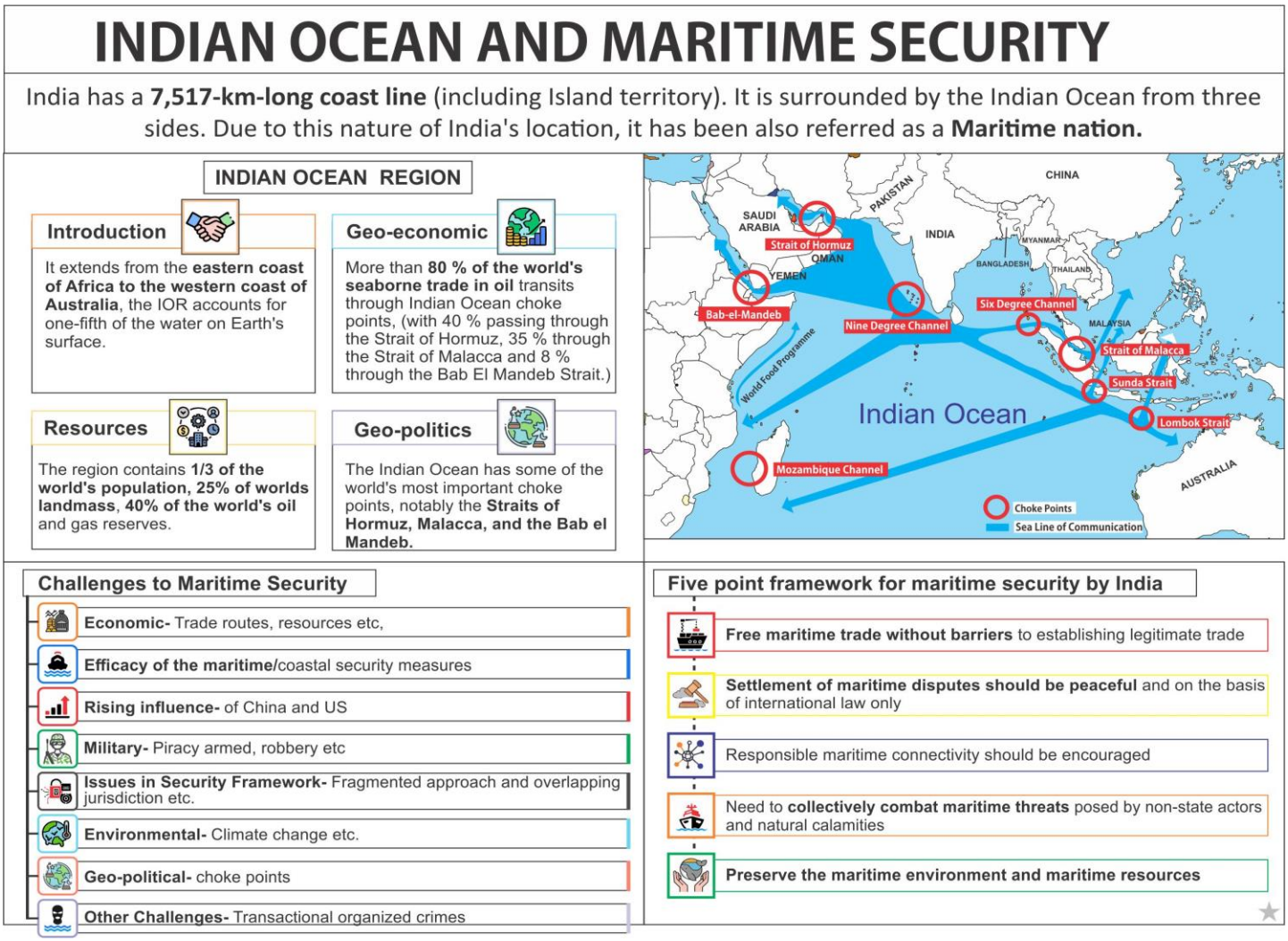
Recently, **Indian Navy's Information Fusion Centre for Indian Ocean Region (IFC-IOR)** signed a Memorandum of Understanding (MoU) with the **Regional Coordination Operations Centre (RCOC)** of **Seychelles**.

About IFC-IOR

- It was set-up in 2018 to **establish linkages with several multinational maritime security centres**.
- The centre also hosts **International Liaison Officers (ILOs)** from 12 countries namely Australia, France, Italy, Japan, Maldives, Mauritius, Myanmar, Sri Lanka, Seychelles, Singapore, the U.K. and the U.S.
- It also collates, fuse and disseminate intelligence on '**White Shipping'** in the Indian Ocean.
    - **White shipping** information refers to exchange of relevant advance information on the identity and movement of commercial non-military merchant vessels.

More on News

- It aims to promote **collaboration between the two centres** towards **enhancing maritime domain awareness, information sharing and expertise development.**
- It will allow the centres to **effectively develop a common maritime** understanding to counter non-traditional maritime security threats such as piracy and armed robbery, maritime terrorism, etc.
- The **Regional Operations Coordination Centre (RCOC)** also coordinates with the **Indian Ocean Commission (IOC).**
- MoU will strengthen the India's vision of **Security and Growth for All in the Region (SAGAR).**



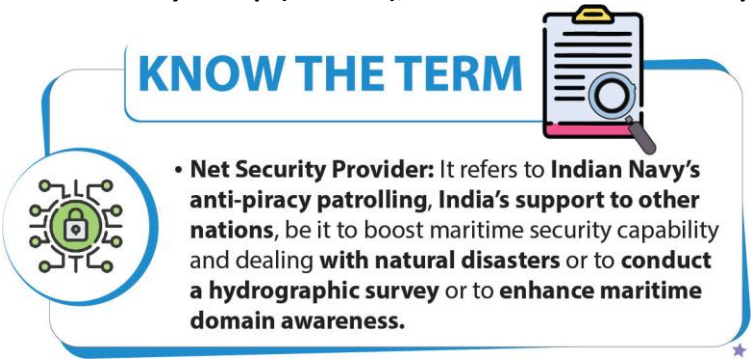
Initiatives taken for Maritime Security ("freedom from threats at or from the sea")

Global Level

- **United Nations Convention on the Law of the Sea (UNCLOS)**: Adopted in 1982, lays down a comprehensive regime of law and order in the world's oceans and seas establishing **rules governing all uses of the oceans and their resources.**
- **Regional Organisations**: **Indian Ocean Rim Association for Regional Co-operation (IOR-ARC):** Has been set-up to enhance trade liberalisation, trade and investment facilitation, economic and technical cooperation, and trade and investment dialogue.
- **Cooperation Amongst Countries**: The '**Indian Ocean Naval Symposium**' (IONS) is a voluntary initiative that seeks to increase maritime co-operation among **navies of the littoral states of the Indian Ocean Region.**
    - **BIMSTEC or the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation** is also an example.
    - Also, India conducts **Multilateral (Malabar) and bilateral military (SAMPRITI with Bangladesh etc.)** exercises.

Steps taken by India

- **Military Security**: India has become a **Nuclear Triad country** by inducting **Nuclear (SSBN) INS Arihant and Aircraft carrier 'INS Vikrant'.**
    - India is emerging as a **net security provider** in the region.
    - **Coastal Security Scheme (CSS):** By the **MHA to strengthen the patrolling and surveillance of coastal areas, particularly in shallow water areas close to the coast.**
    - **National Committee for Strengthening Maritime and Coastal Security (NCSMCS): To** coordinate all matters related to Maritime and Coastal Security.
    - **Joint Operations Centres (JOCs), Inter–agency coordination, National Command Control Communication, and Intelligence Network (NC3I), Multi-Agency Maritime Security Group (MAMSG), National Maritime Security Coordinator [NMSC] etc.** initiatives have been taken.
- **Other Initiative:**
    - **Project Mausam:** It aims to **re-connect and re-establish communications** between **countries of the Indian Ocean world.**
    - **Promoting Sustainability: Under its 'Blue economy'** initiative it is promoting utilisation of **Maritime resources in sustainable ways.**
    - **Infrastructure: Initiative like Sagarmala** have been launched to promote infrastructure in the region.
    - **Humanitarian Assistance and Disaster Relief (HADR):** India has emerged as a first responder in during emergencies. E.g., Vaccine Maitri.



Way Forward

- **Maritime cooperation**: Countries can cooperate by implementing the international treaties like UNCLOS and offering help in operational logistics.
- **Creating Awareness**: Creating awareness among civil population like fishing community for reporting strange incidents in oceans.
- **Technological Advancement**: Importing and implementing most modern technology for predicting and preventing enemy attacks in oceans. Emphasising on modernisation on Navy.

- **Information sharing and Mutual Trust**: Confidence building measures with island and littoral nations so that adequate information can be shared.
- **Policy Making**: Maritime security should be integral part of Indian Foreign Policy; a well-defined policy should be there.

Security and Growth for All in the Region (SAGAR)

- It was launched in 2015. It aimed at safeguarding **maritime interests of India's mainland and islands**. It promotes cooperation among the state actors and creates an environment of peace and stability.
- It also brings out the **importance of Coast Guard agencies of the littoral states to counter-piracy actions** by non-state actors.
- It also enhances **collaboration in trade, tourism, and infrastructure while keeping in view the climate change** problems and thus promote sustainable development of the region.

Indian Ocean Commission (IOC), 1982

- It is inter-governmental organisation that **coordinates maritime governance in the south-western Indian Ocean**.
- It comprises Seychelles, Madagascar, Comoros, Mauritius, and Reunion Island, France's overseas territory in the region.
- **India is an observer member of IOC.**

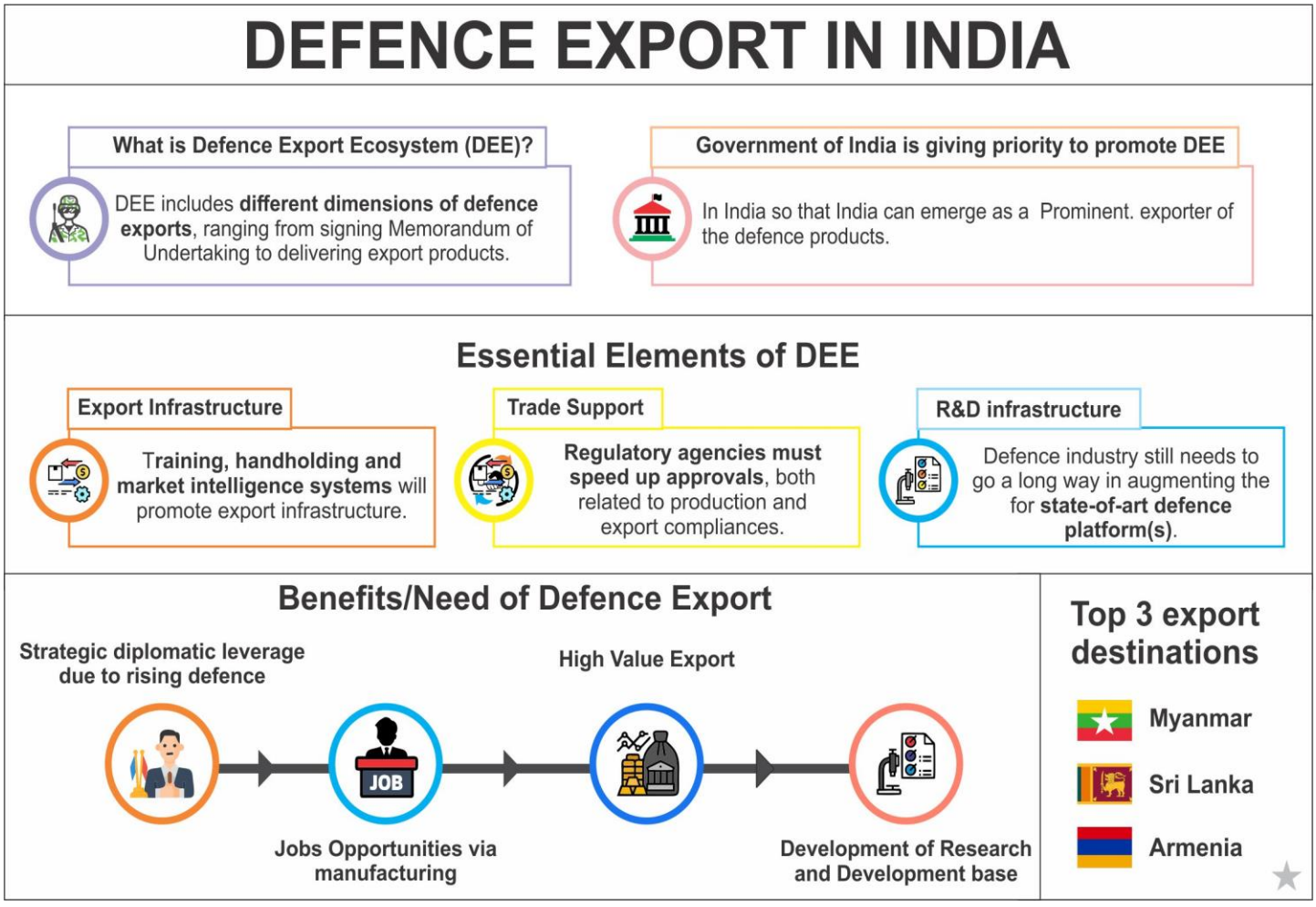
4.2. DEFENCE EXPORT OF INDIA

Why in news?

Prime Minister recently set a target of USD 5 billion in defence exports by 2024-25 at the inauguration of Aero India 2023.

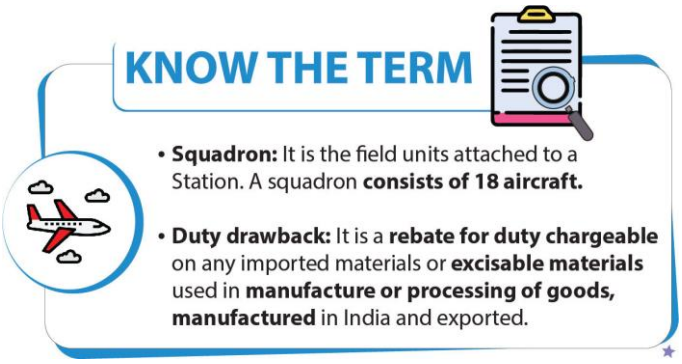
More on News

- This target was first enunciated in the **Defence Production Policy of 2018 (DPrP-2018)**.
- Government has transformed its strategy to emerge as an **exporter instead of 'net importer'**.
- Currently, India is exporting defence equipment to nearly 75 countries.



Challenges in Defence Export

- **Credibility**: Defence products holds low credibility because thier **dependency over other country for advanced weapons**. For instance, Rafale from France.
- **Over-reliance on Public Sector**: There is red tapism in defence production and export due to over -reliance on **Defence Research and Development Organisation (DRDO), Ordnance Factory Boards, Hindustan Aeronautics Ltd (HAL)** etc.
    - Private sector investment in defence sector is in initial stages.
- **Diplomatic**: India is not able to grab the opportunities due to **less pro-active diplomatic efforts.** For instance, HAL was to get an order from Malaysia for one squadron of Tejas Mark 1A, but South Korea bagged it.
- **Infrastructure Lapses**: Due to lack of adequate infrastructure, the demand of importer is not met on time. This forces them to look towards other countries.
- **Research & Development:** Research organisation such as **Defence Research and Development Organisation (DRDO)** etc. are given inadequate funds for the research and development.
- **Competition:** Countries prefer the defence products of US, France etc. as their products are superior in the terms of technological advancement.
- **Awareness:** Many exporters are not availing themselves of the **duty drawback benefit** despite the system being put in place by the Department of Revenue.



Initiatives Taken for the Defence Export

- **Make in India (2014)**: Under this government is promoting production of defence industry.
    - **Two defence industrial corridors** are also being set up **in Uttar Pradesh and Tamil Nadu.**
    - There is an ongoing simplification of processes for ease of doing business and export policy aimed at boosting defence exports.
- **Foreign Investment**: Allowed FDI under automatic route up to 74% and up to 100% through Government route.
    - **Mandating offset obligations in defence** deal is good step in this regard.
    - The offset is an obligation by an **international player to boost India's domestic defence industry** if India is buying defence equipment from it.
- **Strategic Defence Partnership**: Indian companies which do not have much expertise in defence manufacturing, are moving forward by **partnering with established defence companies of other countries**.
    - For instance, India's Kalyani Group has partnered with the Israeli Rafael Advanced systems.
- **Reform in Defence Production**: Strengthening business ecosystem by converting 41 Ordnance Factory Boards into seven public sector units (PSUs).
- **Support Scheme/initiatives**: **Production Linked Incentives (PLIs)** have been launched for the sectors of concerns like specialty steel, semiconductor, etc.
- **Research and Development**: Government has earmarked 25 per cent of the defence research budget for the private sector in 2022-23.

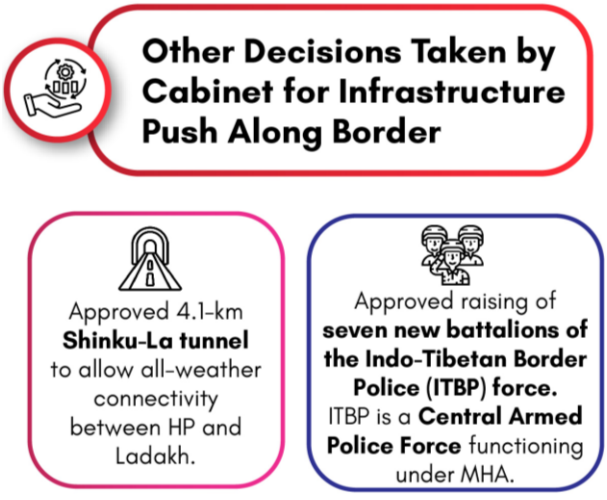
Way Forward

- **Support to MSMEs/Startups:** Through PLIs the export potential of MSMEs/Startups can be utilised.
- **Investment Promotion, FDI & Ease of Doing Business**: Big players of defence industry should be promoted to setup manufacturing unit in India.
- **Innovation and R&D**: Incentives should be provided to private players to carry out **R&D**.
- **Quality Assurance & Testing Infrastructure**: It will enhance the quality of our export product, leading to enhance in demand.
- **Export Promotion Council (EPC)**: A dedicated EPC needs to be setup; it should consist of export promotion officers who have an understanding of the policy framework of not only India but also that of other countries involved in defence production and exports.
- **Promotion of Indian Products**: There is a need to expose the Indian defence sector to trade fairs, buyer-seller meet (BSM), reverse BSMs, incubation opportunities with partner countries, and knowledge sharing.

4.3. NEWS IN SHORTS

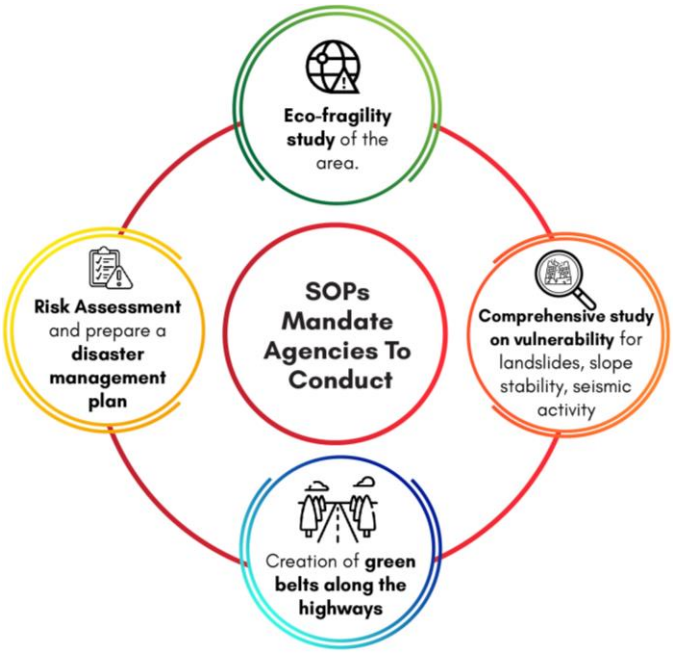
4.3.1. VIBRANT VILLAGES PROGRAMME (VVP) SCHEME

- **Cabinet approved Vibrant Villages Programme (VVP) Scheme.**
- VVP, a Centrally Sponsored Scheme, **will provide funds for development of essential infrastructure** and **creation of livelihood opportunities** along the northern land border.
  - VVP (approved for 2022-23 to 2025-26) will cover **Himachal Pradesh (HP), Uttarakhand, Arunachal Pradesh, Sikkim and Ladakh.**
  - Scheme will help in **improving quality of life of people** and **reversing outmigration** adding to improved security of border.
- **Key Features of the Scheme**
  - **Vibrant Village Action Plans** will be created **by district administration with the help of Gram Panchayats.**
  - **Development of growth centres on Hub and Spoke Model** through promotion of social entrepreneurship, youth and women empowerment etc.
  - Out of financial allocation of Rs. 4800 Crore, **2500 crore rupees will be used for roads.**
  - **100 % saturation of Central and state schemes** will be ensured.
  - **No overlap with Border Area Development Programme (BADP)**.
    - ✓ BADP aims to **meet development needs of people living in remote and inaccessible areas** situated near international border.
- **Outcomes expected:** connectivity with all-weather road, drinking water, 24x7 electricity with focus on Solar and wind energy, mobile and internet connectivity, Tourist/multi-purpose/health and wellness Centers.



4.3.2. SOP FOR HIGHWAY PROJECTS NEAR BORDER AREAS

- **Ministry of Environment, Forest and Climate Change (MoEF&CC) issued SOP** for all highway projects near border areas.
- **Standard operating procedure** (SOP), issued in backdrop of Joshimath crisis, **emphasize on:**
  - **Environmental safeguards** such as landslide and disaster management.
  - **Precautions** to be taken during **tunneling or drilling**.
  - **Protection of river catchments** and **hydrology.**
- **Earlie**r, MoEF&CC notified **amendments that exempt highways in border areas** from obtaining prior environment clearances, changing environmental impact assessment policy.
  - It **exempted highways projects falling within 100 km** of **International Border** or **Line of Control.**
- **Exemption to such highway projects** in border areas started a debate for **need of sustainable development.**

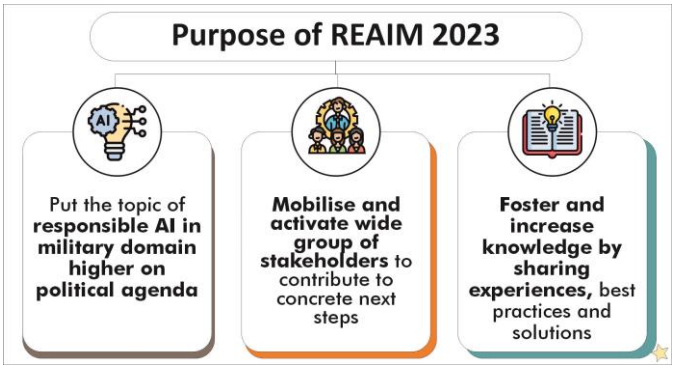


Arguments in favor	Arguments against
• **In view of China's huge build-up of infrastructure**, such projects assumed strategic importance. • **Critical for movement of security forces**, deployment pattern, and mobilisation in case of emergency.	• Increased blasting, tunnelling, dumping and deforestation, would **increase risk of landslides and flash floods.** • **Felling of trees leading to a loss of habitat**, which would force animals into invading human settlements.

• Will support **reversing migration in border areas**. • To **reduce emissions and travel time** of tourists and traffic congestion.	• **Regional climate warming** due to **carbon added to atmosphere** because of construction activity and higher number of road vehicles.

4.3.3. RESPONSIBLE USE OF ARTIFICIAL INTELLIGENCE IN MILITARY (REAIM)

- **World's first international summit** on Responsible use of Artificial Intelligence in Military (REAIM) 2023 **held in Hague, Netherlands.**
- It's the **first global attempt to prevent proliferation of Lethal Autonomous Weapons (LAWS)** and insert ethics, moral factor into rapidly developing weaponisation technology that has potential for cataclysmic damage.
- **Role of AI in military domain**
  - **Training and simulation** to provide battlefield experience to soldiers.
  - **Surveillance,** specifically in difficult to reach border regions, to provide situational awareness.
  - **Offensive capabilities,** such as autonomous armed drones, which can execute targets.
  - **Reconnaissance and tactical suppor**t in combat situations such as targeted strikes.
- **Concerns associated with use of AI in military**
  - **Ethical risks:** Principle of **distinction between civil and military assets and populations**, and principle of **proportionality of force deployment are compromised**.
  - **Data biases:** AI is characterised by a predisposition to certain kinds of data such as racial or gender bias which **impacts rational decision making**.
- **Steps taken by India to increase usage of AI in military**
  - **Dedicated labs in DRDO** for application orientated research in AI in different domains.
  - **Defence AI Project Agency (DAIPA)** enables AI based processes in defence Organisations.



4.3.4. EXERCISES IN NEWS

- **TARKASH:**
  - It is joint Indo-US exercise between **National Security Guard (NSG)- and US Special Operations Forces.**
  - For the **first time**, this exercised simulated a validation exercise for **Chemical, Biological, Radiological and Nuclear (CBRN) terror** response mission.
- **DHARMA GUARDIAN:** It is a joint **military exercise between India and Japan.**
- **Dustlik:** It is a joint military exercise between **India and Uzbekistan**.
- **Exercise desert flag VIII:** It is an annual international multilateral air exercise with participation from **UAE, India, France, Kuwait, Australia, UK, Bahrain, Morocco, Spain, Republic of Korea, and USA.**

4.3.5. SPY BALLOON

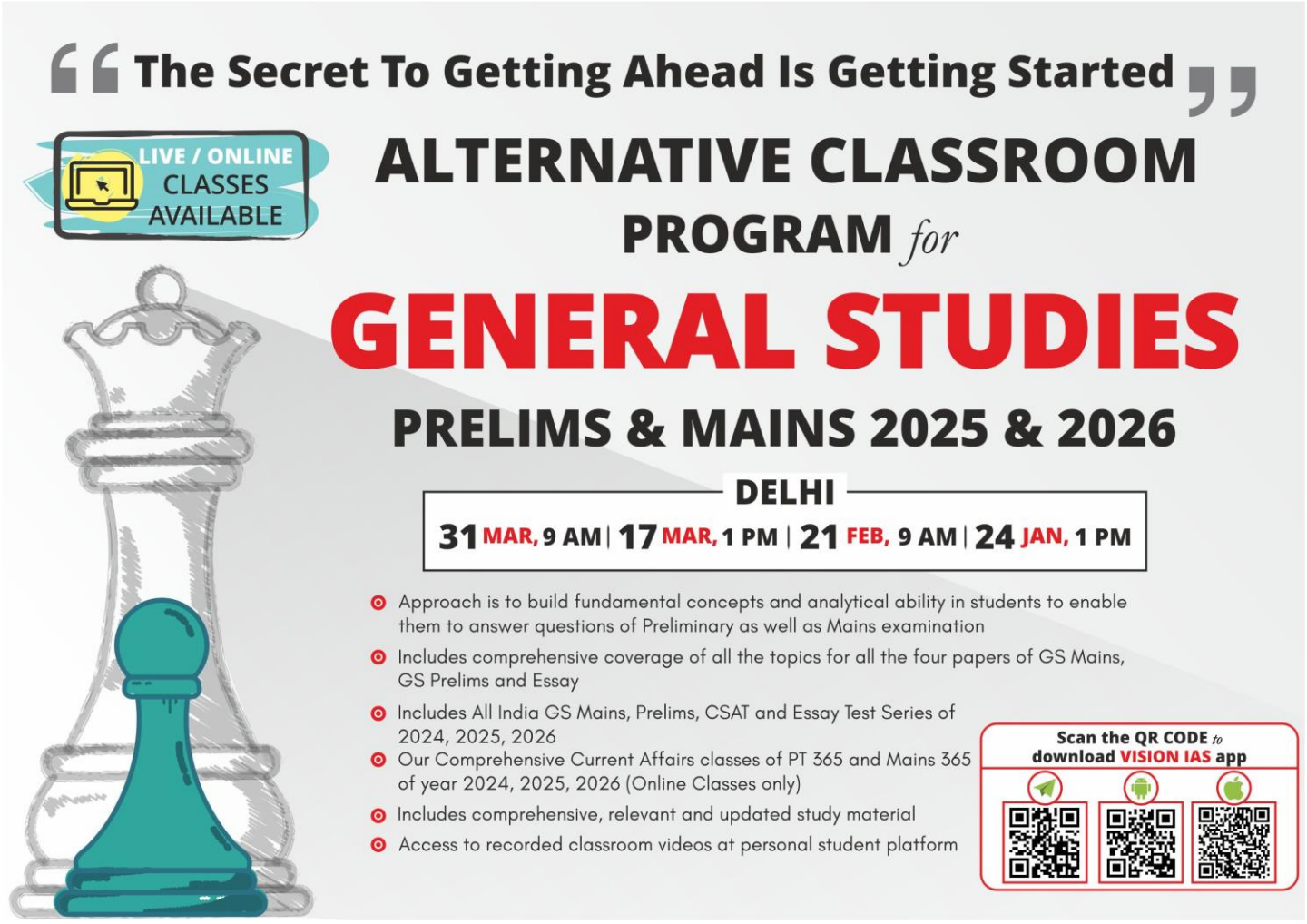
- U.S. Air Force fighter jet shot down spy balloon off South Carolina coast.
- Spy balloon is a **high-altitude surveillance tool** that usually operates at **80,000-120,000 feet.**
  - It **gathers intelligence and carry out other military missions**.
  - It is **equipped with cameras and imaging devices** suspended beneath the gas-filled white object to capture things of interest.
  - **Advantages**: **Cost-effective** in comparison to satellites. Also, scan an area from close quarters and **capture clearer, high-resolution images of target**.
  - **Disadvantage**: Deflected due to wind current.

4.3.6. LORA (LONG-RANGE ARTILLERY) WEAPON SYSTEM

- Bharat Electronics Ltd (BEL) has signed an MoU with Israel Aerospace Industries (IAI) for domestic manufacture and supply of its **LORA Weapon System (LORA) for Indian Tri-services**.
- LORA is a **short-range, road-mobile, ground and sea-launched solid fuelled ballistic missile** developed and operated by Israel**.**
  - LORA system provides **ballistic assault capabilities for multiple ranges** (**maximum range 280km)** with a precision level of 10 meters CEP (Circular Error Probability).
  - It uses **Inertial Navigation System/Global Positioning System** and TV for terminal guidance, with possible **in-flight maneuvering capability**.
  - It can carry a **warhead of upto 600 kg.**

4.3.7. KAVACH-2023

- All India Council for Technical Education (AICTE), Bureau of Police Research and Development (BPR&D) and Indian Cyber Crime Coordination Centre (I4C) jointly launched KAVACH- 2023.
- KAVACH- 2023 is a **national level hackathon** to **identify innovative ideas and technological solutions for addressing cyber security** and **cybercrime challenges** of 21st century.
    - It'll be conducted in two phases. Youth from educational institutions and registered start-ups participated in it.
    - **Prize money worth Rs. 20 Lakh** will be awarded to winning teams.



5. ENVIRONMENT

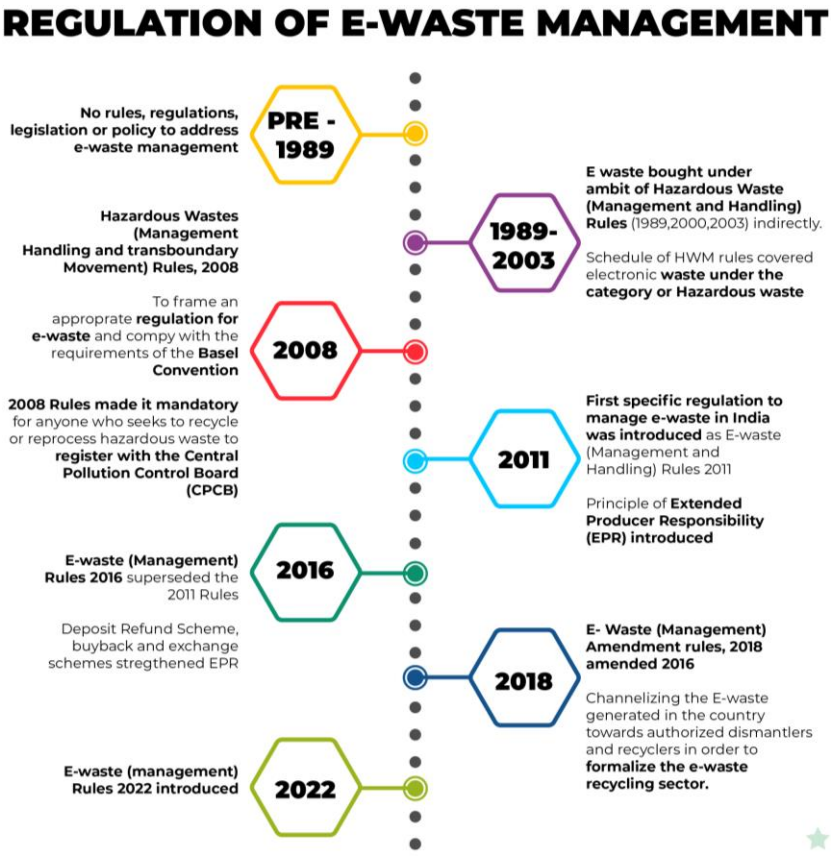
5.1. E-WASTE (MANAGEMENT) AMENDMENT RULES, 2023

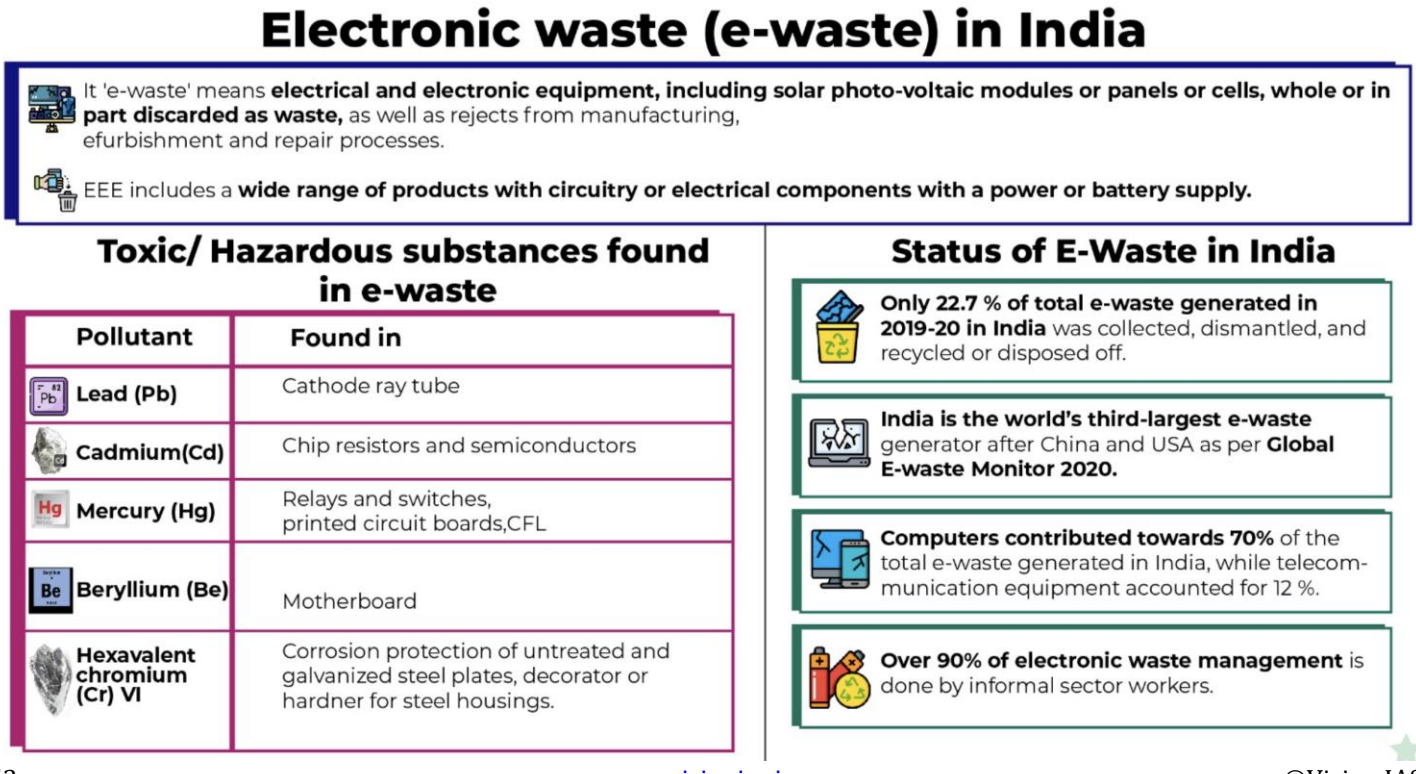
Why in news?

Ministry of Environment, Forest and Climate Change (MoEF&CC) has notified E-waste (management) Rules 2023, in the exercise of the powers conferred by **the Environment (Protection) Act, 1986.**

Key Provisions mentioned in E-waste (management) Rules 2023

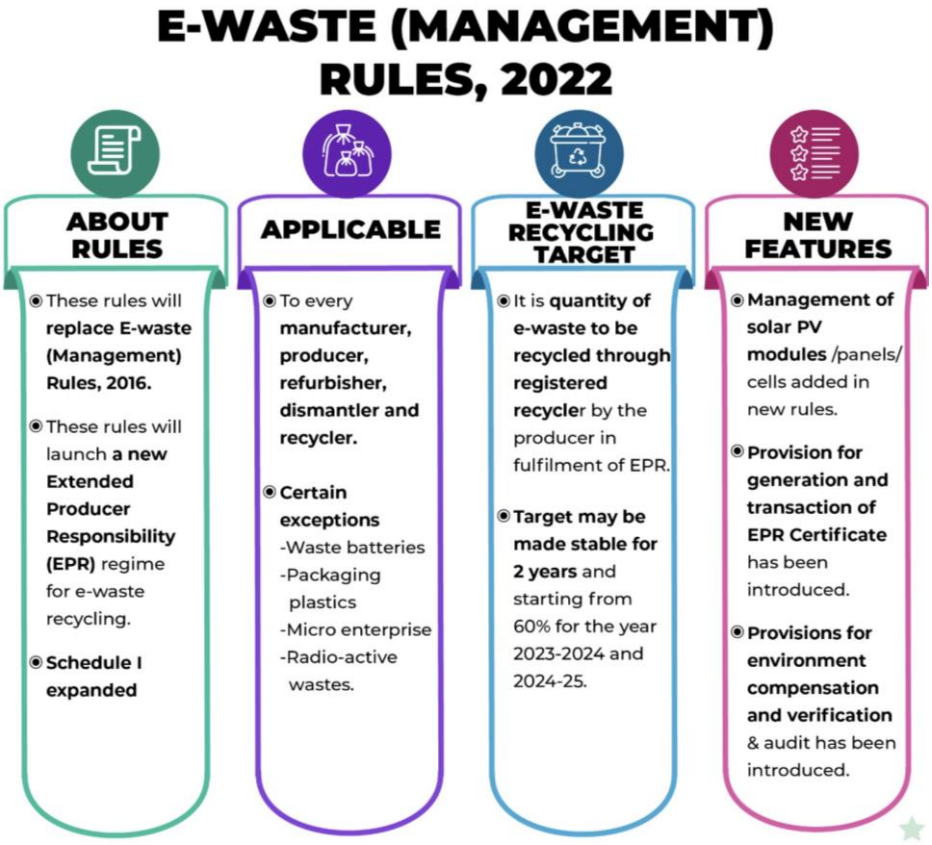
- These amendments rules seek **amendment to E-waste (management) Rules 2022** which shall come into force from the **1st April, 2023.**
- **It adds two substances** to the exemptions listed in **Schedule II of E-waste (management) Rules 2022** as follows:
  - **Cadmium and lead in Solar panels/cells**, solar Photovoltaic panels/cells/ modules.
  - **Lead in Medical Devices** (with the exception of all implanted and infected products).
- **Every producer shall provide the detailed information** on the constituents of the equipment and their components or consumables or parts or spares.
  - This information would be provided **along with a declaration of conformance to the reduction of hazardous substances provisions** as and when required by the **Central Pollution Control Board.**



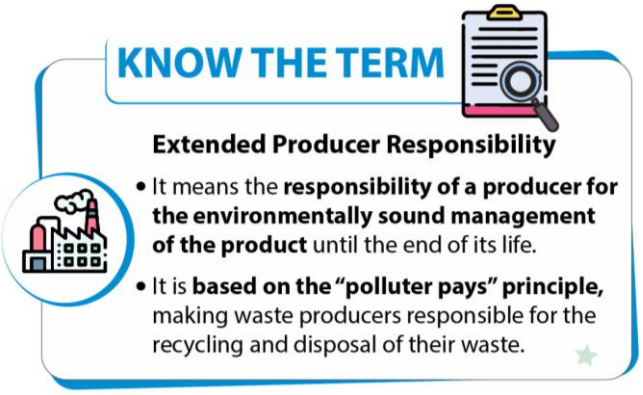


Issues of E-waste in India

- **Lack of infrastructure**: There is a huge gap between present recycling and collection facilities and the quantum of e-waste that is being generated.
- **Health hazards**: Exposure can cause **headaches, irritability, nausea, vomiting, and eye pain**. Recyclers may suffer from liver, kidney, and neurological disorders.
- **Lack of Awareness and Financial Incentives:** Consumers lack market information about prices for e-waste and various e-waste components, and they have few financial incentives for responsibly disposing of their e-waste.
- **Effects on Environment**: E-waste is an environmental hazard causing groundwater pollution, acidification of soil, contamination of groundwater, and air pollution due to the burning of plastic and other remnants.

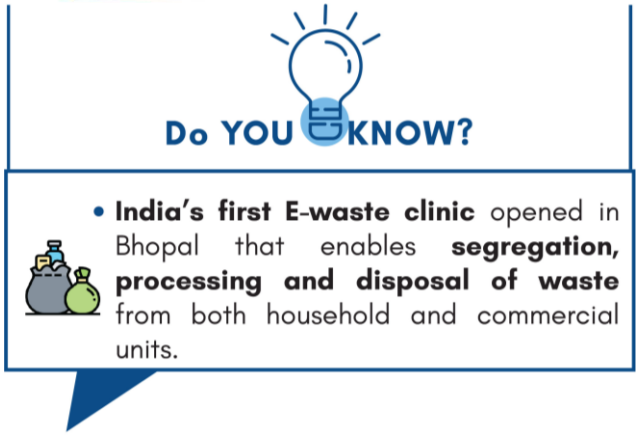


- **Lack of private participation:** E-waste recycling is a relatively new business, the potential lack of information on cost effective recycling technologies acts as a market barrier.
- **Involvement of child labour:** In India, about 4.5 lakh child labours are observed to be engaged in various e-waste activities and that too without adequate protection.
- **Large informal sector: Over 90% of electronic waste management** is done by informal sector workers, most of whom are **unaware of their rights.**



Way forward

- **Separate department in urban local bodies**: It is suggested that the government should rework on laws for waste management and create a separate department in urban local bodies to deal with the waste management.
- **Strengthen unorganized sector:** Unorganized sector should be brought under proper supervision and monitoring, so that majority of the e-waste generated could be recycled systematically.
- **Stringent monitoring and enforcement of the provisions of the E-Waste (Management) Rule 2022**: So that EPR targets are met and there is independent information on where this collected waste is 'recycled'.



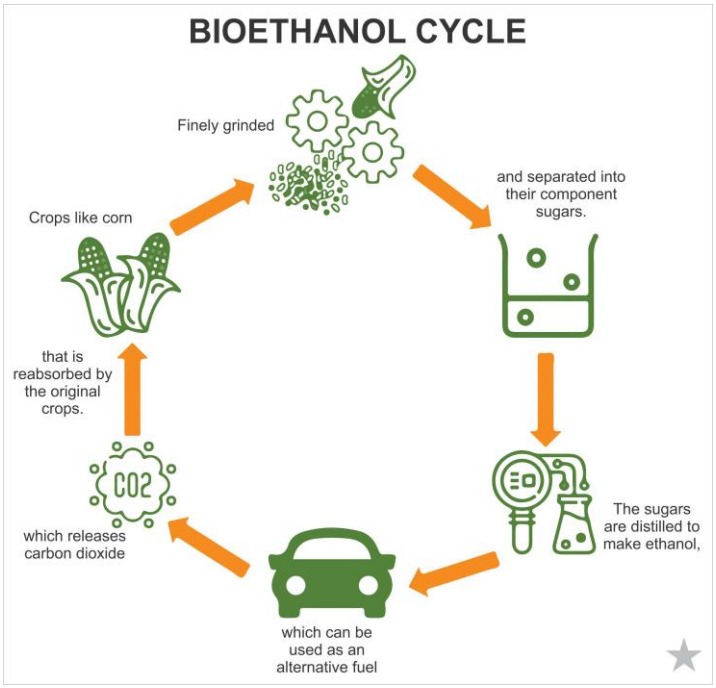
- **Improve and incentivize recycling**: Recyclers pay GST and are also responsible for transporting e-waste. This makes formal recycling economically unproductive.
  - MoEF&CC could address this at the policy level and come up with schemes to support and **enhance the formalization of the e-waste recycling sector**.

- **Regulation of import**: It is important that 'used' material, which is imported without restriction, is regulated and that information is provided through **Harmonised System (HS) codes** so that there is the monitoring of this material.
- **Improve awareness among consumers about e-waste**: The responsibility to raise awareness has to be entrusted to practically everyone from **Resident Welfare Associations (RWAs) and NGOs to ULBs that have local presence.**

5.2. ETHANOL BLENDING

Why in News?

Recently, Petrol blended with 20 percent ethanol was rolled out at select petrol pumps in 11 states and union territories.



More in News

- At present, **10% ethanol is blended in petrol** (10% ethanol, 90% petrol) and the government is looking to double this quantity by 2025.
  - In June 2022, **India achieved an average blending rate of 10% ethanol in petrol.**
- In the first phase, 15 cities will be covered and in the next two years it will be expanded throughout the country.

About Ethanol Blending

- **Ethanol-blended petrol primarily is a biofuel that is obtained from an organic source like sugarcane, maize, wheat, etc.**
  - Since it is plant-based, it is considered to be a renewable fuel.
- The '**National Policy on Biofuels'** notified by the Government in 2018 **envisaged an indicative target of 20% ethanol blending in petrol by year 2030.**
  - However, the **target of 20% ethanol blending (E20) was advanced from 2030 to 2025-26.**
- The **Oil Marketing Companies are to procure ethanol** from domestic sources and blends ethanol at its terminals.
  - Government has notified **administered price of ethanol since 2014.**
  - **Department of Food and Public Distribution (DFPD)** is the nodal department for promotion of fuel grade ethanol producing distilleries in the country.

Significance of ethanol blending

- **Reduce Pollution:** Use of E20 leads to an estimated reduction of carbon monoxide emissions by about 50 per cent in two-wheelers and about 30 per cent in four-wheelers compared to E0 (neat petrol).
  - Hydrocarbon emissions are estimated to reduce by 20 per cent in both two-wheelers and passenger cars.
  - By blending ethanol with petrol, **fuel mixture is oxygenated so it burns more completely and reduces polluting emissions**.
- **Reduce Import:** It will help lower India's energy import dependency and crude oil import bill.
  - It is estimated that the E20 programme can save the country $4 billion i.e Rs 30,000 crore per annum.
- **Boosts farmer incomes:** The programme gives farmers an additional source of income.
  - During the last eight years, farmers have got Rs 49,078 crore.

- **Fulfil International obligations:** Increased ethanol blending with fossil fuels help **reduce pollution and strengthen India's resolve towards fulfilling commitments made at COP-21**.
- **Energy security:** Using ethanol and other alternative fuels and advanced technologies to reduce fuel consumption continues to strengthen national energy security and reduce transportation energy costs for businesses and consumers.

Challenges in ethanol blending

- **Vehicle Modifications**: There is a requirement of upgrading the vehicle engines to make it compliant with Ethanol blending.
  - Although no significant change is required for 10% mixing, engines and components **will need to be tested and calibrated with E20 as fuel.**
- **Pricing of E20 vehicles:** The **cost of E20 compatible vehicles is expected to be higher** in the range of Rs 3000 to Rs 5000 for four-wheelers and Rs 1000 to Rs 2000 for two-wheelers, above the cost of ordinary vehicles tailored to run on 100% gasoline.
- **Food vs Fuel:** The production of ethanol requires the use of crops such as corn, sugarcane, or other biomass. The use of food crops for ethanol production can lead to higher food prices and shortages, which can have a significant impact on food security.

Initiatives for ethanol blending

- The Government has been **fixing remunerative prices of ethanol produced from different feed-stocks** for the supply of ethanol to OMCs for every Ethanol Supply Year
  - **FCI Rice & maize also allowed as feedstock**
- **Reduced Goods & Service Tax** (GST) on ethanol meant for Ethanol Blended with Petrol (EBP) Programme from 18% to 5%
- **Amended the Industries (Development & Regulation) Act, 1951** to ensure free movement of ethanol in the country
- **Environmental Clearance procedures simplified** by the Ministry of Environment, Forest & Climate Change
- **Flexi-fuel engine & components** (capable of running up to E85 fuel) included **under Production Linked Incentive (PLI) scheme.**
- The Central Government is providing **soft loans up to 40% of the project cost to the sugar mills** from Sugar Development Fund (SDF) for setting up ethanol projects.
- **Pradhan Mantri JI-VAN (Jaiv Indhan- Vatavaran Anukool fasal awashesh Nivaran) Yojana** for providing financial support to integrated bio-ethanol projects for setting up Second Generation (2G) ethanol projects in the country using lignocellulosic biomass and other renewable feedstock.
  - The total financial outlay for the scheme is Rs. 1969.50 crore for the period 2018-19 to 2023-24.

- **Water Footprint:** Sugarcane is a water intensive crop and is the most lucrative food crop for ethanol even though it has highest water consumption per acre.
- **Limited emission impact**: Studies have concluded that **no change in emissions was observed for Nitrous oxides emissions**.
- **Pricing:** The **prices of ethanol produced in India are higher in comparison to global players**, since the cost of raw materials like sugarcane and food grains are fixed by the government to support the farming community.
- **Interstate disparity:** The **blending has not been taken up in North-East states** due to non-availability of feedstock or industries.

Way forward

- **Augmentation of Ethanol production capacity:** Over time, technology for production of ethanol from non-food feedstock, called '**Advanced Biofuels' including second generation (2G) should be promoted so as to tap abundantly available resource without causing any tradeoff with the food production system.**
- **Augmenting Infrastructure of OMCs**: OMCs will need to prepare for the projected requirement of **ethanol storage, handling, blending and dispensing infrastructure**.
  - The state governments needed to **set up depots where farmers could drop their agricultural waste** and the **central government should fix a price for agricultural waste to make investments in 2G bioethanol production** an attractive proposition.
- **Incentives for E20 compatible engines:** Similar to the tax benefits provided for promoting electric vehicles in some states, tax benefits could be extended to upgrading vehicle engines to become compatible with E20 ethanol blends.
- **Diversify Crops:** There is **need to explore the feasibility of other grains in ethanol production to meet the 2025 targets.**

5.3. MANGROVES ECOSYSTEM

Why in news?

Union Budget 2023-24 announced **MISHTI (Mangrove Initiative for Shoreline Habitats & Tangible Incomes)** scheme.

More about news

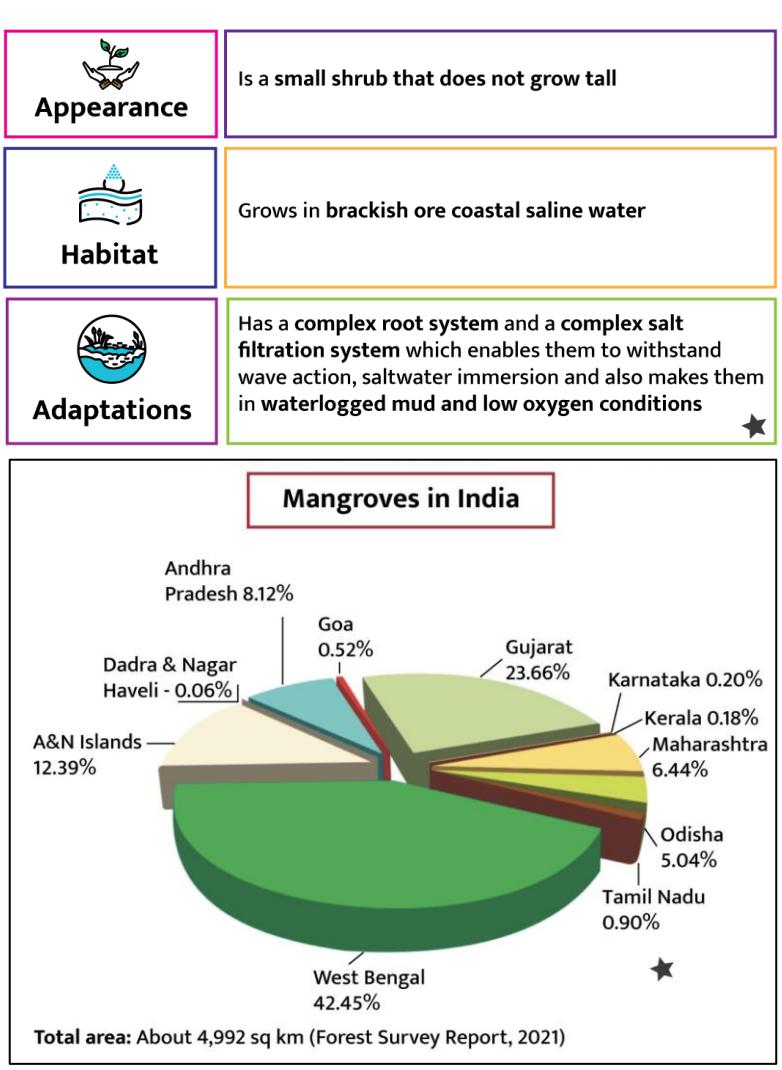
- MISHTI scheme aims at **mangrove plantation** along the **coastline and on salt pan lands.**
- **Mangrove plantations** will be taken up through the **convergence of job guarantee scheme** MGNREGS, Compensatory Afforestation Fund, and other funding sources.

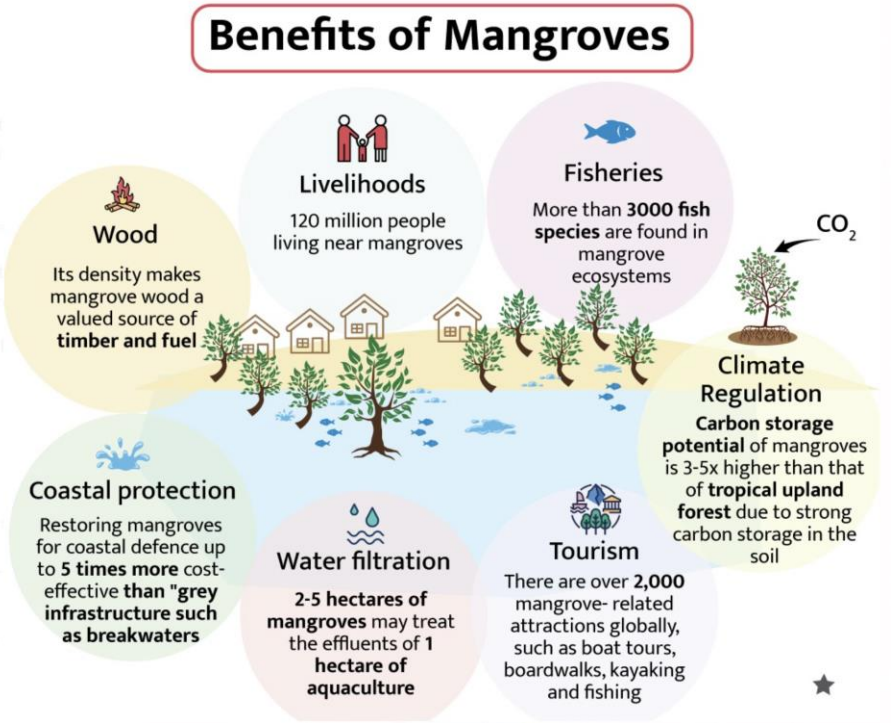
About Mangroves

Mangroves are the **characteristic littoral plant** formations of **tropical and subtropical** sheltered coastlines. They have been variously described as **'coastal woodland', 'tidal forest', and 'mangrove forest'.**

Threats to Mangrove ecosystem

- **Climate change:** Climate change is causing sea levels to rise and temperatures to increase, which can have a significant impact on mangrove forests.
  - Rising sea levels can lead to erosion and flooding, while increased temperatures can alter the balance of species in the ecosystem.
- **Natural calamities**: Frequent occurrences of tropical cyclones, storms and tsunamis, have damaged the mangroves of India.
- **Reduction of fresh water and tidal water flows**: Mangroves are well established in areas where there is good amount of freshwater inflow.
  - Dam and barricade construction on upper portion of rivers reduces freshwater flow into mangrove swamps.
  - Embankment construction and siltation at the river mouth obstruct tidal water flow into mangrove swamps.
- **Deforestation:** Mangroves are often cleared for agriculture, aquaculture, and urban development, resulting in significant habitat loss.





- **Invasive species:** Invasive species such as the **Prosopis juliflora,** a non-native tree species, can threaten the survival of mangrove forests.
- **Pollution:** Industrial pollution, sewage discharge, and agricultural runoff can all have a negative impact on mangrove ecosystems.

Measures required to conserve mangroves

- **Mainstreaming mangrove conservation in policies**: Marine and coastal **nature-based solutions such as mangroves** should be given due importance in **policy making.**
- **Monitoring and Surveys**: Environmental monitoring in the existing mangrove areas should be taken up **systematically and periodically**.
- **Addressing knowledge gaps:** Knowledge exchange is a **crucial factor of successful cooperation**. Adequate mechanisms should be created for **knowledge exchange**, improving **knowledge accessibility** for all stakeholders, and helping **close existing knowledge gaps** on mangrove protection.
- **Including all stakeholders:** Coastal industries and private owners need to be p**ersuaded to actively participate** in protecting and developing mangrove biodiversity. The **forest department officials should be trained** on taxonomy, biology and ecology of mangrove species.
    - Local communities should be empowered through steps like **community based ecological mangrove restoration workshops (CBEMR)** to enable **them** to **tackle the threats posed to mangrove forests**.
- **Afforestation:** It can help in conserving the mangrove forests. **Suitable sites should be identified** for planting mangrove species.
- **Others**
    - Human activities **should be limited** around the mangrove forests.
    - Encouraging **sustainable approach** towards ecosystem services/products.
    - **Fencing along the intertidal zone** to prevent livestock access.
    - Removing barriers to **restore natural tidal flows.**

Initiatives taken for protection and conservation of mangroves

- **Regulatory measures**: Regulatory measures include **Coastal Regulation Zone (CRZ) Notification (2019)** under Environment (Protection) Act, 1986; Wildlife (Protection) Act, 1972; Indian Forest Act, 1927 etc and **rules under these acts** as amended from time to time.
- **National Coastal Mission Programme on 'Conservation and Management of Mangroves and Coral Reefs':** Under this programme, **annual Management Action Plan (MAP) for conservation and management** of mangroves are formulated and implemented in **all the coastal States and Union Territories**.
- **Integrated Coastal Zone management Project (ICZMP):** MoEFCC piloted an ICZMP in Coastal stretches of 3 states namely Gujarat, Odisha and West Bengal. The objective is conservation and protection of Coastal resources which included **plantation of mangroves** as one of the major activities.
- **Magical Mangroves campaign: Worldwide Fund for Nature, (WWF), India**, enjoined citizens in nine coastal states on mangrove conservation through Magical Mangroves campaign. Campaign aimed at **sensitising citizens towards mangrove conservation.**
- **Joined Mangrove alliance for mangroves (MAC):** During COP27, India joined MAC which aims to scale up and **accelerate conservation and restoration** of mangrove forests.

5.4. AQUACULTURE

Why in news?

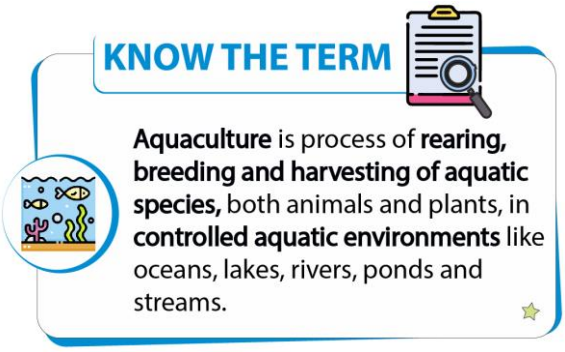
Union Minister of Fisheries, Animal Husbandry and Dairying inaugurated and launched **three national flagship programmes for aquaculture sector.**

Three programmes are:

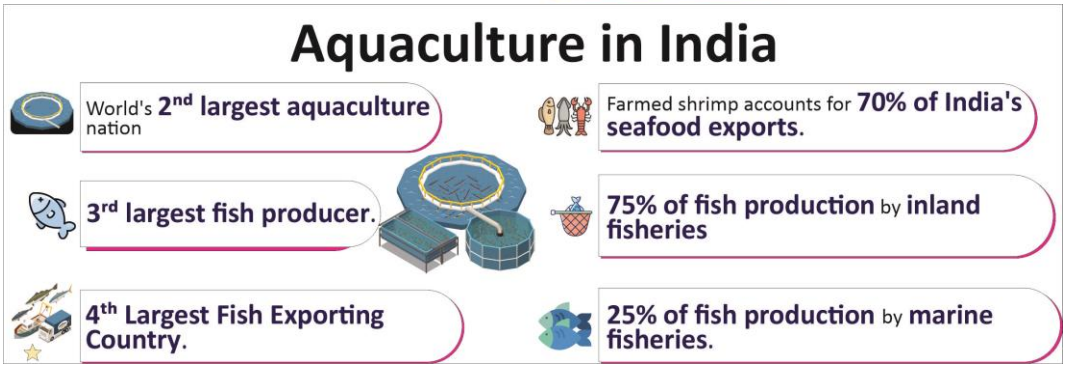
Name	Details	Importance
Genetic Improvement Programme of Indian White Shrimp (Penaeus indicus)	• Program sanctioned with an outlay of Rs.25 crores under **Pradhan Mantri Matsya Sampada Yojana (PMMSY).**	• Shrimp farming sector mostly depends on **one exotic Specific Pathogen Free stock of Pacific white shrimp** (Penaeus vannamei) species. • Program will help to b**reak single species dependence** and **promote**

		indigenous species vis-à-vis exotic shrimp species.
Phase 2 National Surveillance Programme on Aquatic animal Diseases (NSPAAD)	• **NSPAAD Phase 2 has been sanctioned under PMMSY.** ○ **Phase 1** is being implemented **since 2013.** • Envisages development of **National Information System** on Aquatic Diseases and trained '**disease diagnostic personnel'** with involvement of states.	• Will strengthen **farmer-based disease surveillance** system. • Help in **reduction of revenue losses** due to diseases **and will increase exports**.
Launch of Shrimp Crop insurance product developed by ICAR-CIBA	• Product charges **differential premium based on location and requirements** of individual farmer from 3.7 to 7.7 % of input costs. • Farmer will be compensated to tune of **80 % loss of input cost** in the event of total crop loss (more than 70%).	• Help in establishing farmers' access to **insurance and institutional credit facilities.** • Will help in **doubling farmers' income** in much faster time frame.

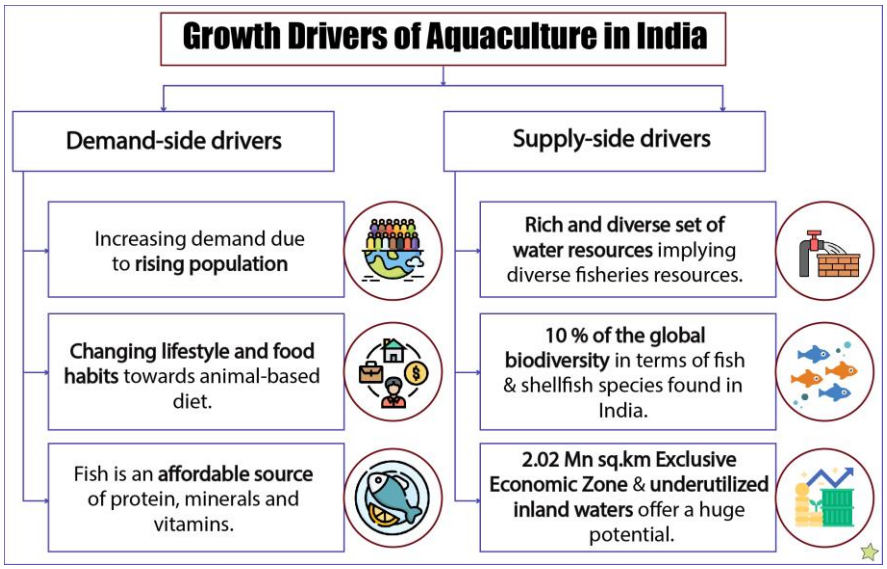
Benefits of aquaculture



- **Food and nutritional security:** Fish and other seafood are **good sources of protein**. They also have **more nutritional value** like the addition of natural oils into the diet, such as **omega 3 fatty acids**.
- **Employment and Economic Development**: Aquaculture can create jobs and contribute to the development of local economies.
  - In India, sector supports the **livelihood of over 28 Mn people** especially **marginalized and vulnerable** communities.
- **Exports opportunities:** With India being one of **top seafood exporters'** worldwide, sector has historically been a significant **source of foreign exchange earnings**. India **recorded highest export** of 1.36 MMT worth $ 7.76 Bn in **FY 2021-22**.



- **Environmental benefits**: Aquaculture helps in the farming of different species in a **sustainable manner** whereas practices like capture overfishing and extensive **use of bottom trawlers** adversely affects the marine environment by **damaging seafloor and leading to overfishing**.
- **Reduces Fishing Pressure on Wild Stock:** The practice of aquaculture allows for alternative sources of food instead of fishing the same species in their natural habitats.
  - Population numbers of some wild stocks of some species are in danger of being depleted due to overfishing and uncontrolled exploitation.
- **Water Usage:** Aquaculture systems often take advantage of harvested runoffs, stormwater and surface water. This reduces the dependency on other sources of water supply.
- **Alternative Fuel Source:** Algae are slowly being developed into alternative fuel sources as they can **produce fuels that can replace contemporary fossil fuels.**



Issues faced by aquaculture sector

- **Lack of quality inputs**: Available inputs like seeds, feed, growth supplements and medicines used in aquaculture **have quality concerns** which **reduces yield.**
- **Limited extension services**: Many aqua farmers do not have easy access to soil- **and water-testing facilities, consultations, and real-time market information**.
- **Reliance on few species**: Fishing business in the country is **reliant on a few fish species**- carps, pacu, and pangasius. Overproduction focusing on fewer species results in an **overstock of specific fish species, lowering prices and increasing volatility.**
- **Prone to diseases**: **Classical freshwater fish farming methods** like large ponds, no water exchange, no draining, and no bottom sediment removal are still in use, which lead to **disease-promoting conditions.**
- **Invasive species:** Invasives can **compete for food and habitat**, displace indigenous species, and interfere with the life of wild species. They can also carry **diseases or parasites that might kill** native species.
- **Aquatic pollution:** Use of **chemicals** (fertilizers, pesticides etc) in ponds and laboratories poses considerable risk of aquatic pollution. Release of water containing fish metabolites leads to **eutrophication.**
- **Climate change:** Climate change threatens aquaculture sector by modulation of phy**siology, behavior, distribution and migration pattern, reproductive capacity and mortality**. It has been estimated that ecosystem services of the east coast of India will **reduce by 25% in 25 years**.
- **Others**
  - **Poor quality fish** delivered in poorly managed production systems has an impact on **customer acceptability and preferences.**
  - **Lack of proper cold chain and distribution systems** has an impact on availability and marketing due to perishable nature.
  - **Poor access to reasonable loans**

Initiatives taken for aquaculture sector

- **Creation of an independent ministry**: Recognising importance of the fisheries sector, an i**ndependent Ministry of Fisheries, Animal Husbandry and Dairying** was created in 2019.
- **Conducive FDI policy: 100% FDI** (Foreign direct investment) is allowed through **automatic route** in Pisciculture (fish farming) and Aquaculture.
- '**Fisheries and Aquaculture Infrastructure Development Fund' (FIDF):** It was created in 2018-19 for **providing concessional finance** to the State/UT Governments, their entities and the private sector.
- **'Pradhan Mantri Matsya Sampada Yojana' (PMMSY): It aims** to bring about **Blue Revolution** through sustainable and responsible development of fisheries sector in the country. PMMSY is being implemented for a period of five years from 2020-21 to 2024-25 in **all States and UTs.**
- **E-Santa:** E Santa is an e-**Commerce platform** launched by MPEDA for facilita**ting direct trade between small and marginal aqua farmers and the exporters** by avoiding middle man effectively.
  - **Marine Products Export Development Authority (MPEDA)** is a **statutory body** established under **Ministry of Commerce & Industry** for promotion of marine exports.

Measures to strengthen aquaculture

- **Enabling policy framework**: A holistic approach to **provide the necessary support** for easy access to technology, equipment, training, credit, markets, etc., can help aqua farmers **adopt new techniques and methods** on a large scale.
  - Large-scale adoption of **sweet water cultivation techniques** like aquaponics, cage culture and **saline water practices** like seaweed cultivation can enhance productivity significantly.
- **Strengthen aqua value chain**: To reduce post-harvest losses, efforts are needed to strengthen **supply chain infrastructure** and improve **post-harvest technology and value addition**. **Entrepreneurs and private agencies should be encouraged** to create **efficient technology-driven supply chains**.
- **Promotion of Fish Farmer Producer Organizations** (**FPPOs)**: Promote FFPOs in **fish production clusters** across states in a **time-bound manner** and to provide them with support to **become self-sustainable.**
  - **Guidelines** on the 'Formation and Promotion of Fish Farmer Producer Organizations (FFPOs)' were launched under the PMMSY **in 2021.**
- **Using advanced technology:** Use of advanced technologies like the internet of things (IoT), big data etc can help in better decision making. Satellites and drones can **provide a holistic view of the ecosystem** with spatial and temporal information which **helps in monitoring.**

- **Promoting value addition by small and micro enterprises**: An '**entrepreneurial model'** can be used to encourage enterprises in production clusters. Major areas where **enterprises require support** are capacity building for value addition, Branding and certification etc.

5.5. WATER SENSITIVE CITIES

Why in news?

Recently a research paper highlighted **importance of Water Sensitive Urban Design and Planning (WSUDP) for Cities in the Global South.**

More about research

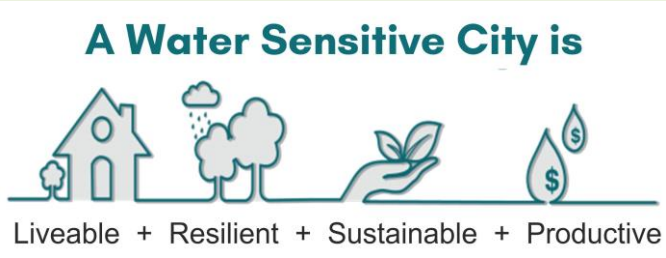
- **Cities in India and the global south are marked by rising inequity in urban settlement/housing**, translating into inequity in access to basic infrastructure and services (including water supply and sanitation, drainage and wastewater management).
- The 'water-sensitive cities' discourse and frameworks emerging from **global north countries (Europe and Australia) have their foundations in cities with planned urban development** with a statutory legal entitlement to housing and basic infrastructure.
- However, **cities of the Global South may not be able to undertake** all that the cities of Global North are able to do to implement **Water Sensitive Urban Design (WSUD)**.

Water Sensitive Urban Design and Planning (WSUDP)

- WSUDP is an emerging urban development paradigm **aimed to minimize hydrological impacts of urban development on environment**.
- **WSUDP includes** -
  - **Protecting local water bodies** (lakes, ponds and wetlands) for supplementary water sources.
  - **Storm water management** at public places, including open areas in cities through elements of landscape design (e.g., **vegetated swales and buffer strips and bio-retention systems**).
  - **Recycling and reusing wastewater** naturally (low cost or low energy) and not treating it as a liability.
  - **Augmenting water conservation approaches** at various scales (buildings and campus)-i.e., **by adopting water-efficient fixtures**, **xeriscaping, landscaping** (i.e., planting native species) and using water-efficient irrigation methods-thereby minimizing load on the municipal supply system and groundwater sources.
    - ✓ On-site **water conservation with rainwater harvesting (RWH)** is also important to reduce water scarcity.
  - **Adding value to the social and ecological aspects of areas** by planning and designing the built environment in accordance with community needs and water issues.
  - **Integrating the urban water cycle** by collaborating with practitioners of different disciplines to bring different perspectives and expertise.
  - **Associating upcoming policies**, regulations and approvals with WSUDP.

Water Sensitive Cities

- A water sensitive city **aims to achieve higher standards** and **effective water conservation** and **wastewater management** standards of the cities.
- Water-sensitive cities are geared towards **a holistic management of the water cycle** to deliver basic **urban water services of supply and sanitation** while **mitigating flood risks** and protecting and enhancing the **health of the receiving waterways.**
- Its key focus area is **Water Sensitive Urban Design and Planning (WSUDP).**

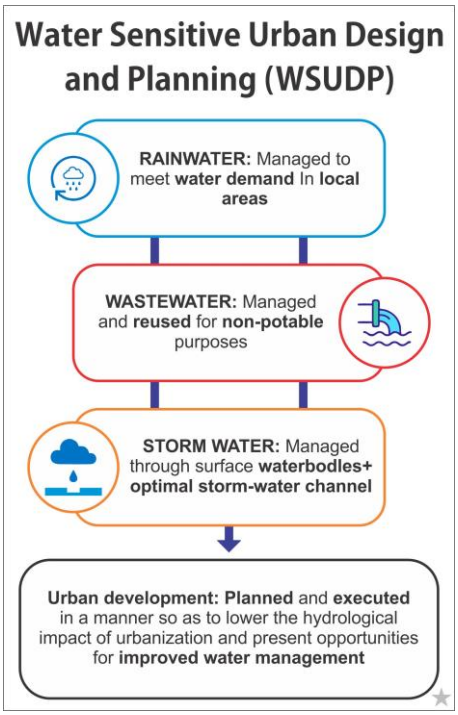


Global South

- **Global South largely refers to countries in Asia, Africa and South America**.
- These countries **have certain common attributes like a history of colonization, lacking role in governance of multilateral institutions** etc.

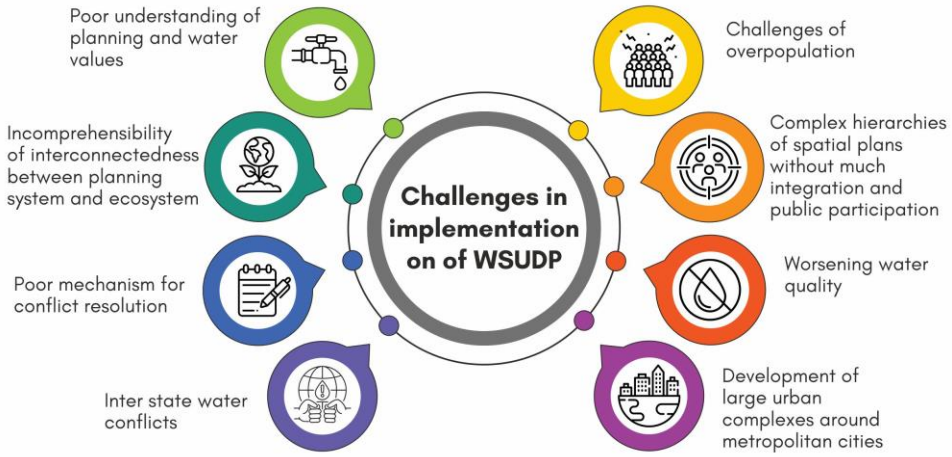
Need for water sensitive planning

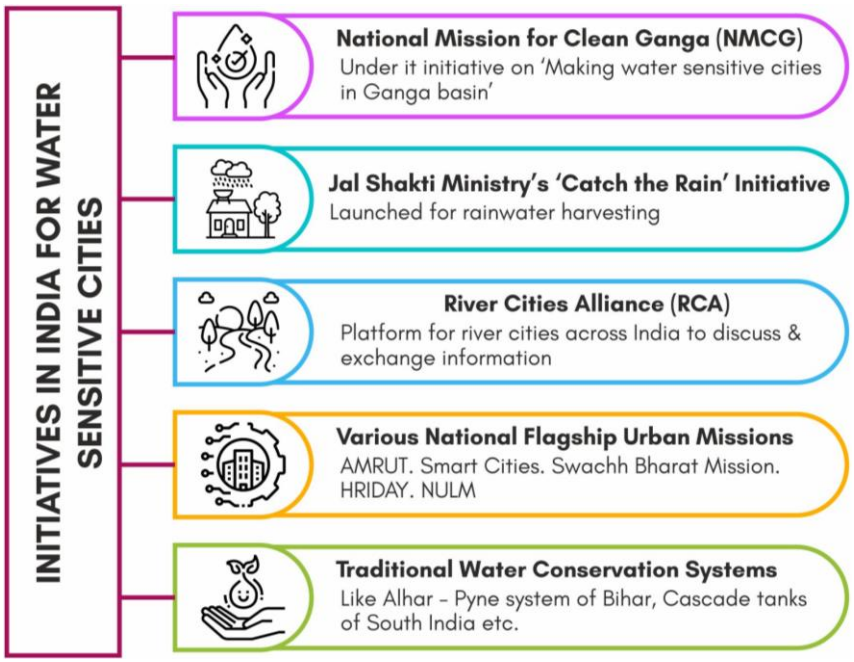
- **Need to depart from traditional focus of planning on land:** Integration of water planning and city planning is the primary goal of water sensitive planning.
- **Water security:** Through sustainable use of rainwater, groundwater, surface water, and reuse of wastewater.
- **Foundational issues with cities in Global South: Largely informal nature of development**, lack of adequate investment in physical infrastructure, **diverse sources of accessing water** (e.g., through water tankers), fragmented and **weak urban local government without buoyant tax** base, and rent seeking at a local level.
- **Safeguarding and Restoration of Water Commons:** Term 'water commons' is used for **shared resources** where water is held by human beings in trust for **future generations,** without imposing any costs.
- **Wastewater Reuse and Treatment:** Presently, in developing countries, **80% of industrial and municipal waste is released untreated in the water bodies.**
- **Depleting groundwater tables:** In India, the report of the **Fifth Census on Minor Irrigation Schemes** claims that groundwater in the country has **declined by 61 % from 2007 to 2017**. Storm water run-off needs to be treated as a resource.



Measures for effective water sensitive planning

- **Population Predictions:** Rapid population growth needs to be predicted and planned for, due consideration should be given to **likely water demand** when making population projections.
- **Embedding Water in Spatial Planning :** Integration between water planning and spatial planning to build "water sensitive cities".
- **Proper legal protection:** To large existing water bodies including rivers, streams, lakes, and ponds.
- **Green spaces:** To act as recharge areas and in layout plans the direction of storm water runoff, could follow these green spaces.
- **Separation of stormwater, wastewater, and black water:** Separate drainage systems and sewerage systems should be built. Decentralized sewage treatment systems must be developed and linked with locally placed sewage treatment plants.
    - **Localization of storm water** to reduce flooding and water pollution, and to enhance recharge of local water aquifers.





- **City sponges**: Integration of drains, water bodies, and organized recreational places such as city level parks and planned green spaces would be treated as city sponges.

Conclusion

Water sensitive planning **does not treat water as a resource** and rejects the idea of 'environmental services'. Under this, **water is treated as a critical element of civilizational significance** necessary for the survival of living beings and the planet itself.

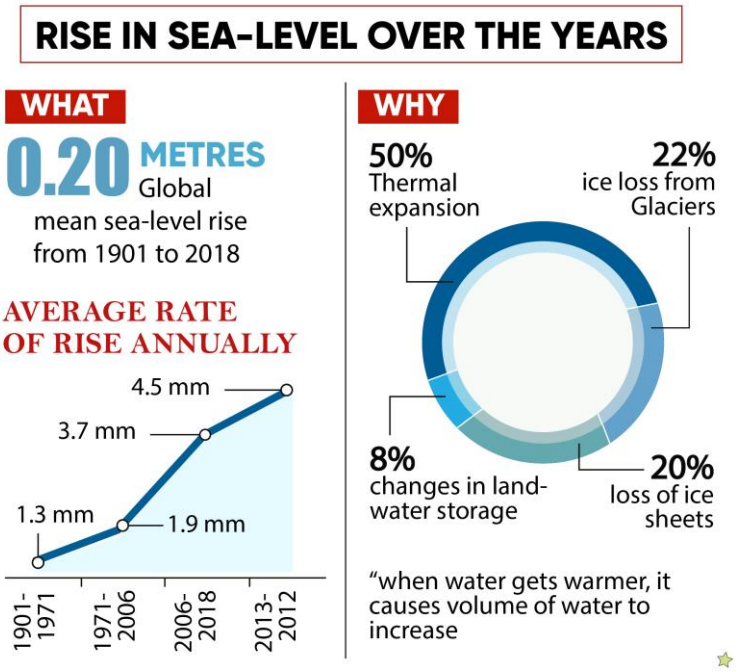
Scan the QR code to know more about **Urban Planning.**

Weekly Focus #53: Urban Planning in India: Building Future Cities of India

5.6. SEA LEVEL RISE

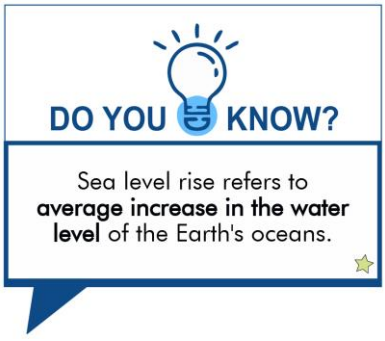
Why in news?

World Meteorological Organisation (WMO) released report titled '**Global Sea-Level Rise and Implications Facts and Figures'**.



Key highlights of report:

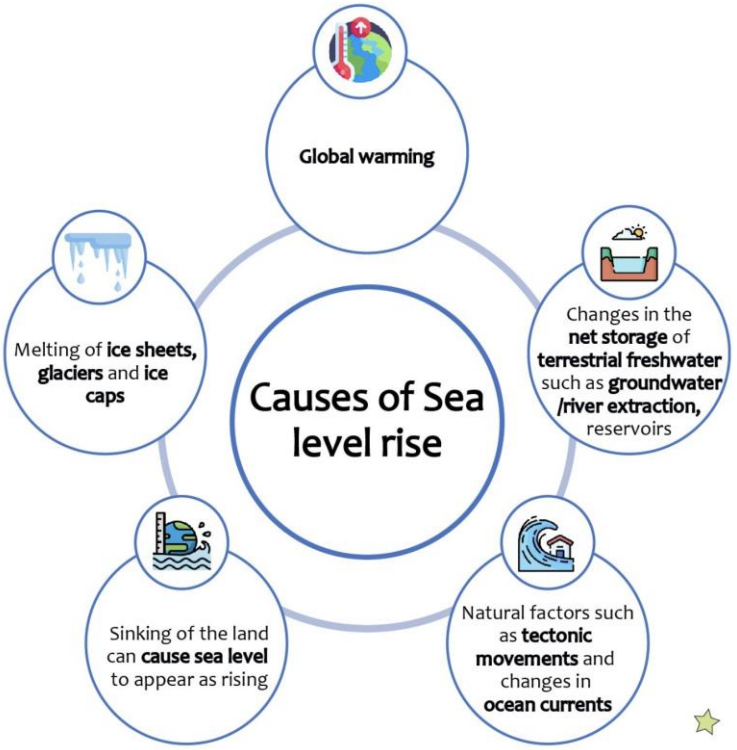
- Sea levels rose 4.5 mm a year on average between 2013 & 2022, the highest ever.
  - It is over three times higher than the rate at which they rose between 1901 and 1971.
- Sea-level rise is **not globally uniform and varies regionally**.
- India, China, Bangladesh, and Netherlands face **the highest threat** of sea-level rise globally.
  - Several **big cities on all continents** are threatened, such as Shanghai, Dhaka, **Mumbai** etc.
- Almost 11% of the global population (896 million people) lived within the **Low Elevation Coastal Zone** in 2020, potentially increasing to **beyond 1 billion people by 2050.**



Concerns related to Sea Level Rise

- **Environmental impact**
  - Impacts on coastal ecosystems, including wetlands, estuaries, and coral reefs.
  - Increase intensity of storm surges.
  - **Affecting flora and fauna** of each place, causing **loss of habitat** for fish, plants, and other species.
- **Economic impact**
  - **Threatens coastal infrastructure** necessary for **local jobs and regional industries**.
  - Rising sea levels can cause saltwater to **infiltrate groundwater supplies, which can have negative impacts on agriculture,** freshwater ecosystems, and human health.
- **Social Impact:** It can lead to the **displacement of people** who live in low-lying coastal areas, particularly in developing countries where resources and infrastructure may be limited.
- **Maritime disputes:** With sea-level rise, the baselines from which most maritime zones (defined under United Nation Convention on Law of Seas (UNCLOS)) are measured will change. Therefore, the outer boundary of the zone may also change, retreating landward, which may lead to maritime disputes.

Initiatives taken by India to tackle Sea level rise



- **Integrated Coastal Zone Management project (ICZMP**): Government of India has implemented ICZMP that has contributed, inter-alia, **mapping of hazard line**, Eco-sensitive Area, Sediment cell for **entire coastline** of India. Hazard line is indicative of **shoreline changes, including the sea level rise** due to climate change.
- **Coastal Regulation Zone (CRZ) Notification, 2019:** Ministry of Environment, Forest and Climate Change has issued CRZ Notification 2019 to **conserve and protect coastal stretches** and to promote development **through sustainable manner.**
- **Airborne Lidar Terrain Mapping (ALTM) elevation data**: Indian National Centre for Ocean Information Services (INCOIS), has acquired the baseline ALTM elevation data from ISRO for vulnerability mapping.
  - This data is available for **mainland Indian coast up to two kilometres** from coast and would be used for **predicting sea-level rise**.
- **Indian Tsunami Early Warning System (EWS):** As part of Indian Tsunami EWS, INCOIS has established a **real-time network** of tide gauges at different locations along the Indian coast. It will help in monitoring the **tsunami waves and provide timely advisories.**
- **Coastal Management Information System (CMIS):** coastal protection measures, a new component CMIS was initiated under the Central Sector Plan Scheme **"Development of Water Resources Information System"**. CMIS is a data collection activity carried out to **collect near shore coastal data.**

- **Disaster specific guidelines:** National Disaster Management Authority (NDMA) has issued several **disaster specific guidelines** for managing extreme weather-related disasters such as cyclones, floods etc.

Strategies to Tackle Sea Level Rise

Objective	Measure
Protect (reduce the likelihood of the hazard)	• **Build/maintain hard defences** like dikes and static seawalls that are effective in stabilizing the shoreline • **Beach nourishment** and dune restoration that preserves beach amenities. • **Replace/reinforce shoreline protection** with "living" shorelines – through planting vegetation, etc.
Accommodate (reduce vulnerability)	• Change **building codes and design standards** to account for sea-level rise, e.g. in building elevation and foundation design • Encourage the use of **property-level measures** for both new and existing properties.
Avoidance and planned retreat (reduce exposure)	• **Prevent new development** in areas at risk of flood or erosion through land-use regulation/zoning • **Physical relocation** of people and critical assets, including removal of existing hard protection.

Conclusion

There is **robust evidence and a compelling case for further action** to address the consequences of sea-level rise. While **not all coastal risks can be avoided**, well-prepared coastal communities will be better able to **adjust to new conditions** and **rapidly bounce back** from disasters when they occur.

5.7. GLACIAL LAKES OUTBURST FLOODS (GLOFS)

Why in news?

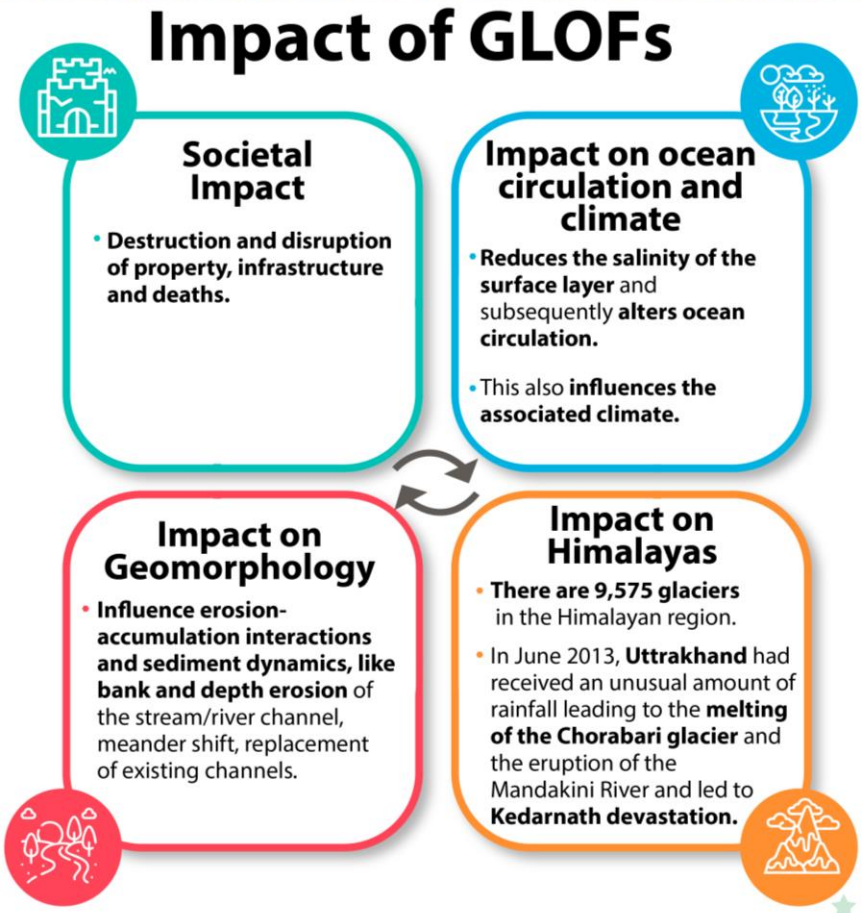
A recent study conducted by scientists at Newcastle University in the UK revealed that about **3 million Indians reside in regions that are susceptible to glacial lake floods (GLOFs).**

More about the study

- **Around 15 million people across the world** face the risk of sudden and deadly flooding from glacial lakes, which are expanding and **rising in numbers due to global warming.**
- More than half of those who could be impacted live in four countries: **India, Pakistan, Peru and China. India and Pakistan make up one-third** of the total number of people globally exposed to GLOFs
- Populations in **High Mountains Asia (HMA)** - a region stretching **from the Hindu Kush all the way to the eastern Himalayas** -are the most exposed and on average **live closest to glacial lakes** with **around one million people living within 10 km** of a glacial lake.

About Glacial Lakes and GLOFs

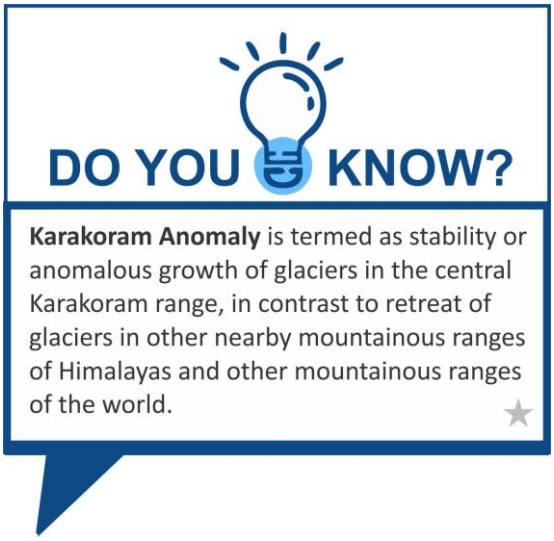
- **Glacial lakes are large bodies of water** that sit in front of, on top of, or beneath **a melting glacier.**
  - As they grow larger in size, they become more dangerous because glacial lakes are **mostly dammed by unstable ice or sediment** composed of loose rock and debris.
  - **Due to global warming** glaciers are retreating and glacier lakes are expanding in the size and numbers.
- **Glacial lake outburst flood (GLOF)** is a sudden release of a significant amount of water retained in a glacial lake, irrespective of the cause.



- **Factors triggering GLOFs include-**
  - **Rapid slope movement into the lake**: Fast slope movement (slides, falls and avalanches) into the lake produces displacement waves which, in turn overtop the dam or cause direct rupture of the dam.
  - **Increased water inflow into a lake** due to heavy rainfall/snowmelt & cascading processes (flood from a lake situated upstream).
  - **Earthquake**: The direct mechanism of earthquake-triggered lake outburst floods is dam rupture and failure.
  - **Long-term dam degradation**: Successive changes in the internal structure of the dam leading to increased **hydrostatic pressure** induced by **basal ice melting** that result in dam failure.
  - **Black carbon**: Due to incomplete combustion of fossil fuels, wood and other fuels amount of black carbon is increasing, which reduces the albedo of earth and melts the glaciers.
  - **Anthropogenic activities**: Mass tourism, developmental interventions such as roads and hydropower projects and the practice of slash and burn type of farming in certain pockets of the Indian Himalayan region.

Government steps to deal with glacial lake outburst floods (GLOF)

- **Different agencies to monitor, predict and undertake research on GLOF**:
  - **Central Water Commission (CWC)** has 46 existing **meteorological observation stations** in the Himalayan region, 1,000 meters above mean sea level out of which **35 stations are telemetry-based stations**.
  - **GSI carries out Glacier Mass Balance Studies**, Glacier Regimen Studies, and Glaciers& Climate Variability Studies for selected glaciers besides societal & related studies in Himalayan belt.
- **India's first ever National Disaster Management Plan :** Released in 2016 based on four primary themes of the **United Nation's Sendai framework (2015-30)** -understanding disaster risk, managing risk by strengthening governance, investing in disaster risk reduction for resilience and enhancing disaster preparedness.
- **Indian Space Research Organisation (ISRO):** Among many other organisations are engaged in glacial lake monitoring and water bodies in the Himalayan region of Indian River Basins.
- **Sikkim has installed a Lake monitoring and information System (water level Sensor)**: At South Lhonak lake. The sensor gives the water level of the lake and also monitored the lake level when there is sudden fluctuation in water level.



Way ahead

- **Glacier Management**: A **nodal agency** is very much essential for **inter-agency coordination** to streamline the efforts of different agencies for Glacier Management in the country.
- **Access to early warning systems and timely information:** Concerted efforts needed to set up and widen the network of **high-altitude meteorological and discharge stations** equipped with modern technology including Synthetic **Aperture Radar** imagery to automatically **detect changes in water bodies and lake formations** in the Indian Himalayan region.
- **Coordinated efforts:** There are **9,575 glaciers in the Indian Himalayan Region**. Monitoring of such a large number of glaciers requires a coordinated effort with huge manpower and logistics.

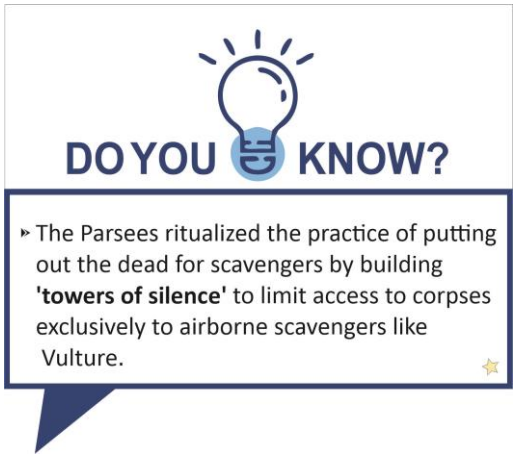
5.8. FIRST SYNCHRONIZED VULTURE SURVEY

Why in News?

Recently, **Kerala, Tamil Nadu, Karnataka began the first synchronised vulture survey** in select regions of the Western Ghats.

More about News

- A tripartite coordination meeting in the **Mudumalai Tiger Reserve** in Tamil Nadu, decided to organise the first synchronised vulture survey in the Western Ghats to **avoid duplications**.
- It will be conducted after dividing the **Wayanad landscape,** where the bird species are frequently sighted, into **10 locations**.
    - The Wayanad Wildlife Sanctuary, contiguous to the tiger reserves of **Nagarhole** and **Bandipur** of Karnataka and **Mudumalai** of Tamil Nadu, is the lone region where vultures thrive in the State.



Related information

Vulture Conservation and Breeding Centre (VCBC), Pinjore

- Recently, Union Minister for Environment, Forest and Climate Change paid his maiden visit to vulture conservation and breeding centre, Jatayu, situated in **Bir Shikargah Wildlife Sanctuary** near Pinjore in **Panchkula.**
- **VCBC** is a joint project of **the Haryana Forest Department and the Bombay Natural History Society (BNHS), a NGO.**
    - It is a collaborative initiative to save the three species of vultures, **the White-backed, Long-billed and Slender-billed**, from looming extinction**.**
    - The funding for running this centre is also received from international conservation bodies like **UK Royal Society for Protection of Birds and the Darwin Initiative of Survival of Species**.
- Other such initiatives have also been taken like **"vulture restaurants" in Gadchiroli, Nashik and Thane circles in the Maharashtra**, where carcasses free of diclofenac are provided.

Diclofenac

- **Diclofenac is toxic to vultures even in small doses**, causing **kidney failure**.
- It **results in uric acid accumulating in the birds' blood** and crystallizing around their internal organs—a condition called visceral gout

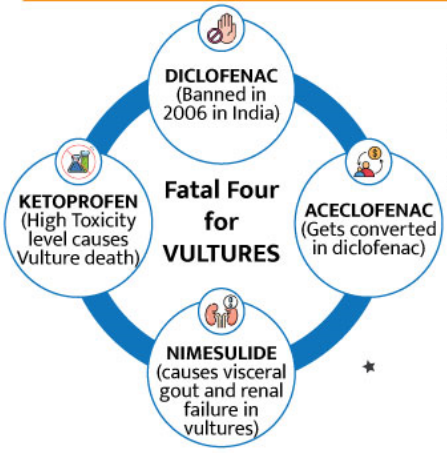
Vultures in India

9 species of vultures are recorded from India.

Four species of vulture are found in southern India and are concentrated in the Nilgiris Biosphere Region-Long **Billed Vulture, Red Headed Vulture and Egyptian Vulture and White-Rumped Vulture.**

Role of Vultures in Ecosystem

- Provides the stability of ecosystems and food webs.
- Efficient, cost-effective and environmentally beneficial carcass disposal service.
- Helps in preventing livestock borne diseases such as tuberculosis and anthrax by disposing of infected carcasses.



Factors behind the fall of population include Food Contamination of vulture food supplies with non-steroidal anti-inflammatory drugs; Habitat degradation etc.

Vulture Species in India

Species	Conservation Status		
Oriental White-backed Vulture or White-rumped vulture Genus: Gyps	appendix II	WPA,1972 Schedule I	CR
Long-billed Vulture Genus: Gyps			
Slender-billed Vulture Genus: Gyps			
Red-headed Vulture Genus: Monotypic			EN
Bearded Vulture Genus: Monotypic			NT
Cinereous Vulture Genus: Monotypic			
Himalayan Vulture Genus: Gyps		WPA,1972 Schedule I	
Eurasian Griffon Genus: Gyps			LC

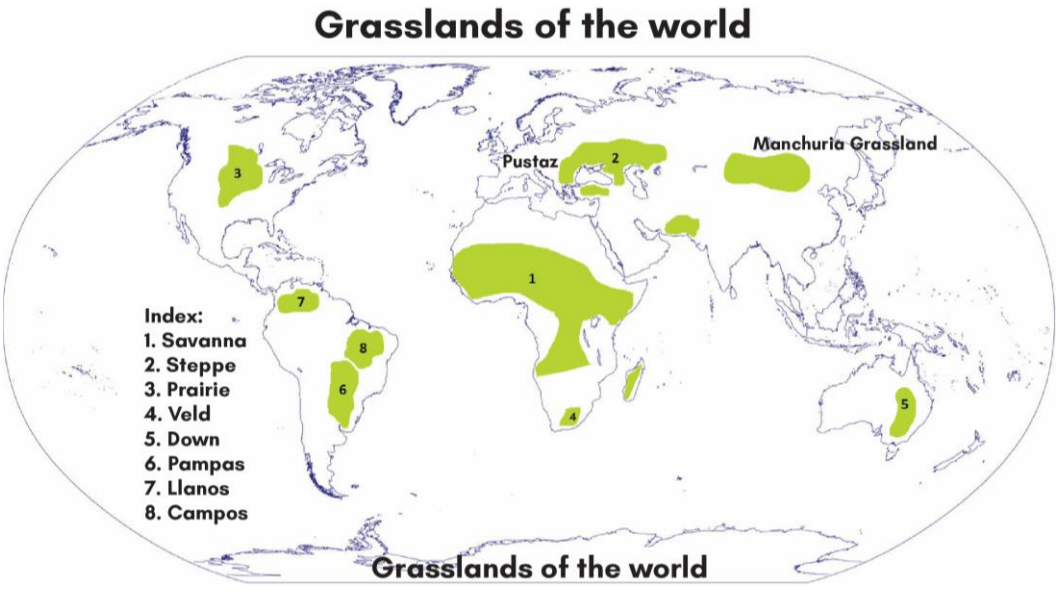
Action Plan for Vulture Conservation 2020-2025

- Prevention of poisoning of cattle carcasses, the principal food of vultures
- Enhancement of Conservation Breeding Programme in the country
- Regular monitoring of vultures across the country
- Enhancing the vulture safe zone network by creating at least one vulture safe zone in each state and continuing to work on the existing efforts of vulture safe zone.
- Determining and preventing other causes of mortality in vultures

5.9. GLOBAL ASSESSMENT OF SOIL CARBON IN GRASSLANDS

Why in News?

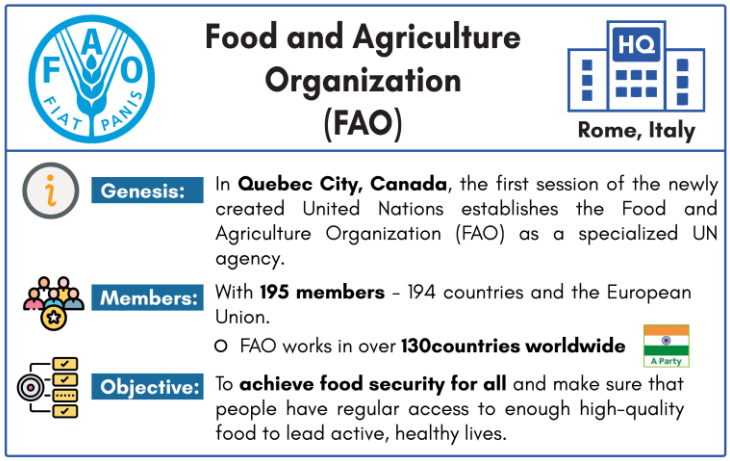
Recently, **Food and Agriculture Organization (FAO)** of the United Nations released its report on Soil Carbon in Grasslands.



More about Report

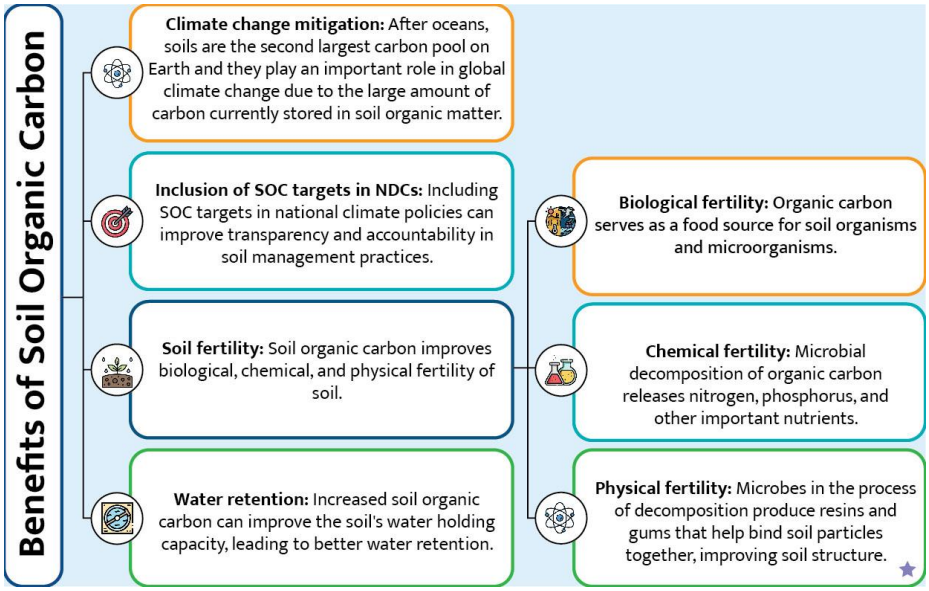
- This report **provides a comprehensive analysis of the state of carbon stocks** and potential offsets in grassland soils in the world.
- It measures **the baseline of stocks of Soil Organic Carbon (SOC)** in both **semi-natural** and **managed grasslands** and estimated their potential of SOC sequestration.
- As per report, **most of the world's grasslands have a positive carbon balance**, meaning the land is stable or well-maintained. However Negative carbon balance was also found in East Asia, Central and South America, and Africa south of the Equator.

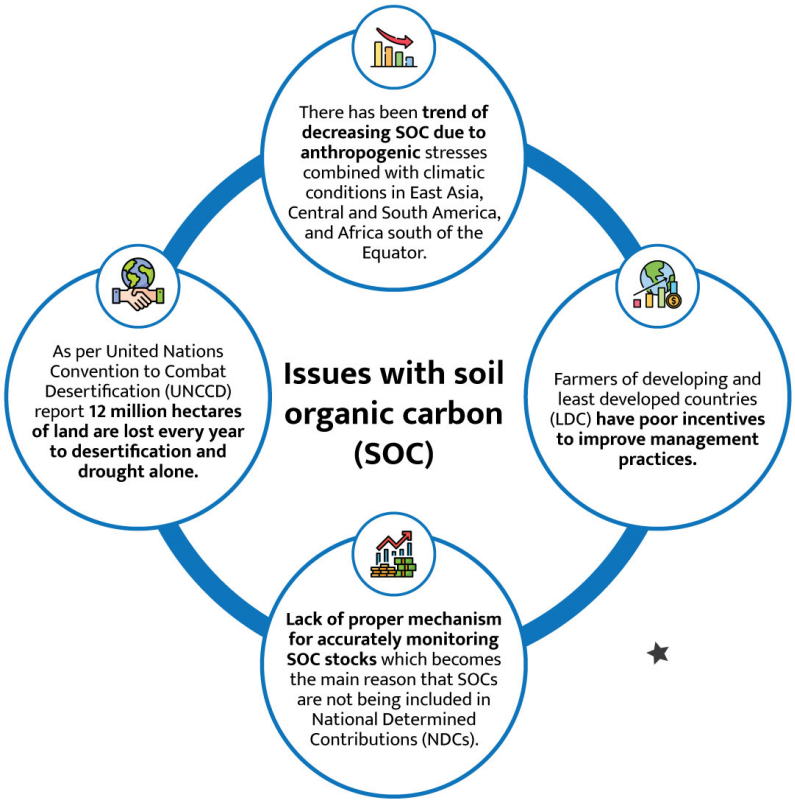
- Globally, grassland soils stored an estimated **63.5 Mt of carbon in the year 2010** at 30 cm soil depth, with unimproved systems storing slightly higher amounts than improved systems (33.8 vs 29.8 Mt C).
- The Russian Federation region accounts for more than **50% of all SOC stocks globally**



About Soil Organic Carbon (SOC)

- It is a **measureable component of soil organic matter**.
  - **Organic matter makes up just 2-10% of most soil's mass** and has an important role in the physical, chemical and biological function of agricultural soils.
  - **Organic matter contributes to nutrient retention and turnover, soil structure, moisture** retention and availability, degradation of pollutants, and carbon sequestration.
- **Soil organic carbon (SOC)** refers only to the carbon component of organic compounds while Soil organic matter (SOM) is difficult to measure directly, so laboratories tend to measure and report SOC.
- **Soil organic carbon and carbon sequestration**
  - **Sequestering carbon in SOC** has been suggested as one way to mitigate climate change by reducing atmospheric carbon dioxide.
  - **Small increases of SOC** over very large areas in agricultural and pastoral lands will **significantly reduce atmospheric carbon dioxide**.
  - For the reduction to be long-lasting, **organic matter would have to be in the more stable or resistant fractions.**
  - As per FAO report, **if the SOC content in the 0–30 cm depth layer of available grasslands increased by 0.3 per cent after 20 years of the application of management practices** that enhance soil organic carbon sequestration, 0.3 tonnes C/ha per year could be sequestered.





Suggestions

- **Improve soil fertility for better SOC:**
  - **Applying gypsum** to remediate sodic or magnesic dispersive soils.

- **Applying lime** to remediate acid soils: Acidity can degrade the favourable environment for bacteria, fungi and other soil organisms, and highly acidic soils can inhibit the survival of useful bacteria, such as the rhizobia bacteria that fix nitrogen for legumes.

- **Multi species perennial pasture blends**: With a good rotational grazing strategy, a diverse range of pasture species will ensure peak soil and farming system functionality – resulting in optimal soil carbon sequestration conditions.
- **Crop rotation system:** Introducing a crop rotation system that encompasses a dynamic nutrient management strategy can lead to soil that is much more capable of sequestering carbon – particularly where there is a material nutrient deficiency.
- **Undertaking earthworks**: implementing various types of earthworks to remediate degraded farmland to rehabilitate the soil to the point of being able to sequester carbon again.
- **Promoting specific plants**: Plants linked with fruiting, or mushroom-type, fungi stored 70 percent more carbon per unit of nitrogen in soil.

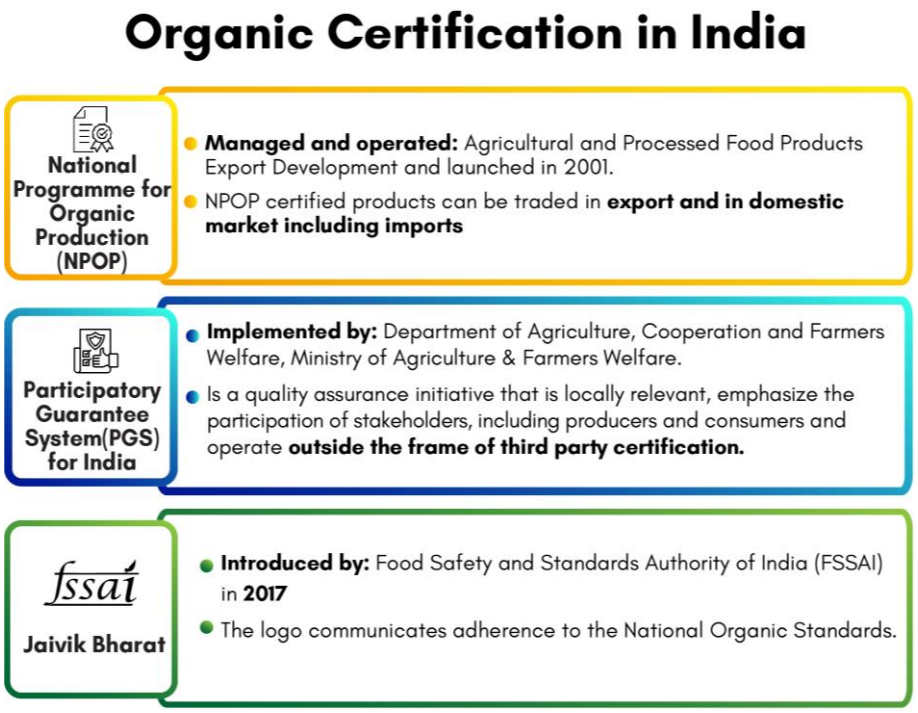
5.10. ORGANIC FARMING CERTIFICATION

Why in News?

Ministry of Commerce and Industry has begun adopting additional onsite **measures to check field-level irregularities in organic farming certification.**

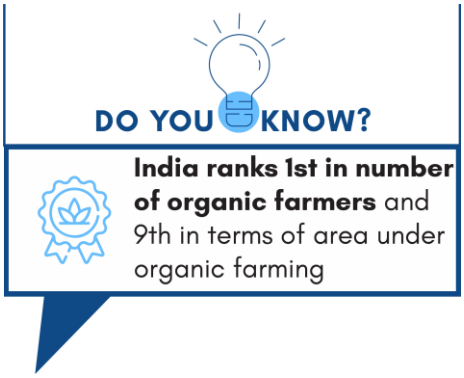
More about news

- This includes **verification of organisations that certify organic farming**.
- The development follows "**various irregularities being observed in the certification activities".**



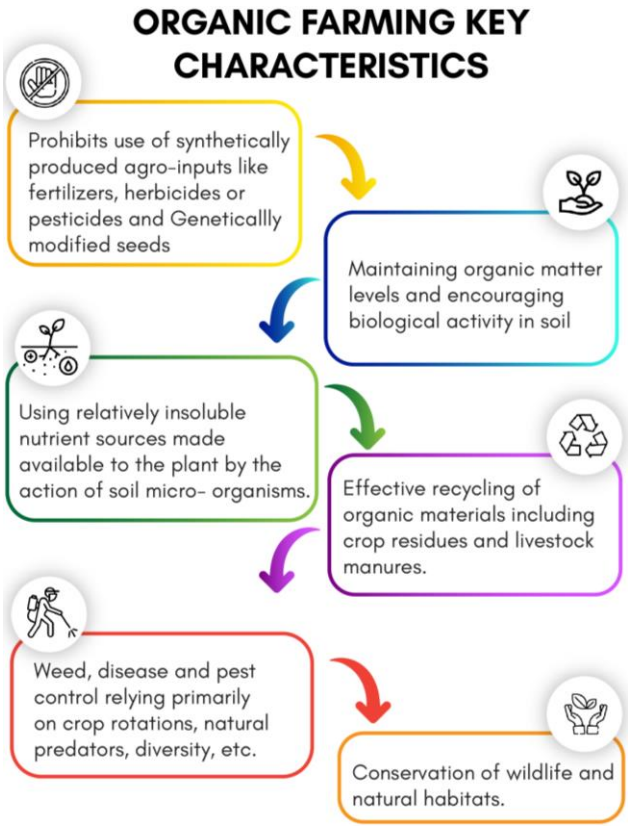
Benefits of Organic Farming

- **On Environment**
  - **Prohibits Use of Harmful Pesticides:** It does not involve any chemical fertilizers, pesticides, additives, or preservatives.
  - **Maintains a Healthy Soil:** Using compost, which contains helpful bacteria, helps build up the soil.
  - **Reduces Erosion:** Organic farmers limit tillage on fields, keeping dirt from eroding because the soil isn't broken up so often.
  - **Provides Cleaner Water:** Organic farming helps keep the water supply safe and clean by avoiding the use of harmful chemicals.
  - **Stimulates Biodiversity:** A mixture of plants, animals and microorganisms promotes soil and animal health as well.
- **On Farmers**
  - **Attract more customers** as interest in organic is on rise at domestic as well as at international market.
  - **Reduces the input cost of farmers**. For example-it uses 45% less energy compare to traditional farming.
- **For Consumers**
  - Organic produce is free from harmful chemicals and pesticides and therefore poses **no health risk**.
  - Organic produce has been found to have **higher levels of vitamins, minerals**, healthy fatty acids and phytonutrients.



Challenges in implementing organic farming across India

- **Organic farm yields are significantly lower:** Yields are lower (a recent study pegged this at ~25% lower on average), as is productivity or the money produced per unit of land (up to 44% lower than in conventional agriculture).
- **Low organic manure availability:** Converting to organic farming means that India need to produce a far higher quantity of organic manure and that means more cattles.
  - Cattle rearing have been listed as one of the main contributors to climate change.
- **Unpredictability of weather:** Around 50% of India's agriculture is rainfed and dependent on the monsoon. Conventional farming may be more suitable due to the unpredictability of weather, especially during monsoon season.
- **Pressure on existing natural habitats:** If a larger number of farmers were to switch to organic practices, it would require more land to be brought under agriculture.
  - This would be additional pressure on existing natural habitats, due to habitat conversion and loss**.**
- **Impact Food Security:** More land diverted for organic produce would also mean that the cost of production will rise, making food less affordable for poor consumers.



Steps Government taken to improve Organic farming

- **Paramparagat KrishiVikas Yojana(PKVY):** It is a sub-component of Soil Health Management (SHM) scheme under National Mission for Sustainable Agriculture (NMSA).
  - The scheme promotes cluster-based organic farming with **PGS certification**.
- **Mission Organic Value Chain Development for North Eastern Region (MOVCDNER)**: The scheme promotes third-party certified organic farming of niche crops of north east region through Farmers Producer organizations (FPOs) with focus on exports.

Similarity between Organic Farming and Natural Farming

- Both are non-chemical systems of farming.
- They are based on diversity, on-farm biomass management and biological nutrient recycling.
- Diversity, rotation multiple cropping and resource recycling is key.

Differences between Organic farming and Natural Farming

Organic Farming	Natural Farming
• Open for use of off-farm organic and biological inputs • Does not allow Genetically modified seeds or products • Open for micronutrient correction through use of minerals • Widely popular, Global market at 132 billion US$	• No external inputs • On-farm inputs based on Desi Cow (Jeevamrit, Beejamrit, Ghanajeevamrit) • Biomass recycling through mulching • Use of compost/ vermicompost and minerals are not allowed • Evolving markets are yet to be developed

- **National Mission on Oilseeds and Oil Palm (NMOOP):** Financial assistance at the rate of 50 per cent subsidy to the tune of Rs. 300/ha is being provided for different components including bio-fertilizers, supply of Rhizobium culture/Phosphate Solubilising Bacteria (PSB)/Zinc Solubilising Bacteria (ZSB)/ Azatobacter/ Mycorrhiza and vermi compost.
- **National Food Security Mission (NFSM):** Financial assistance is provided for promotion of Bio-Fertilizer (Rhizobium/PSB).
- **Financial assistance** to individual farmers with 8.0 or more hectare land @ 2700/ha for 3 years for **Participatory Guarantee System (PGS) certification** through Regional Council or **National Programme for Organic Production (NPOP) certification.**
- **Modern organic testing lab in Sikkim:** Centre has decided to set up a high quality modern organic testing lab in the State to promote organic produce of the State.

Comparison Between Sri Lanka's organic farming model and Sikkim Organic Model

Features	Sikkim	Sri Lanka
Process	It was gradual process and it took nearly eight years or so from 2008 to 2016 to be declared as Organic State	Target based approach was adopted to make the island nation into full-scale organic agricultural production.
Planning	Proper planning was done such as a whole range of biopesticides were also brought in so as to avoid a situation in which there would be crop failure because of a pest attack	No such long term planning
Farming system	State farmers were already using less inorganic inputs.	Mainly depend on chemicals inputs
Support system from Government	When fall in production would affect supplies, imports from the main land India were possible.	No support for farmers to switch over organic farming.
Training	Several agencies with good credentials were brought in to train master trainers who would train others who would go to villages and into the fields	No such mechanism

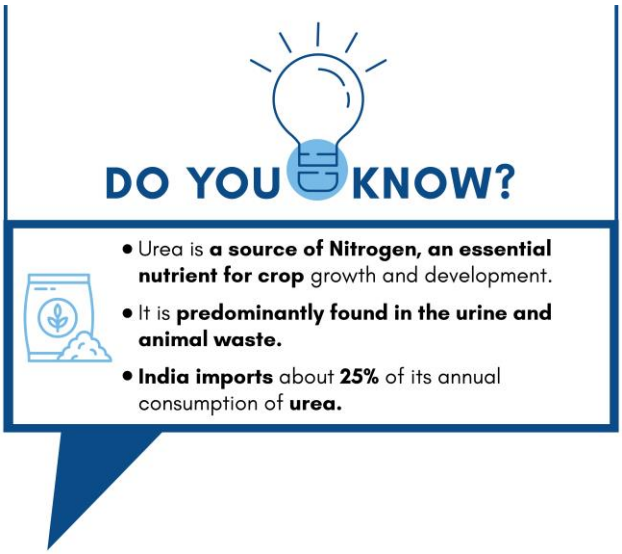
5.11. NANO UREA

Why in news?

Union Minister of Chemicals and Fertilizers has inaugurated the IFFCO Nano Urea Liquid Plants at Aonla and Phulpur in Uttar Pradesh.

More on news

- These two plants would expand the current production capacity of nano urea.
- At present, the capacity of nano-urea production is over **50 million bottles per year.**
- Also, **Parliamentary Standing Committee** on Chemicals and Fertilizers has recommended nano-fertilizers for **Sustainable crop production and maintaining soil health**.



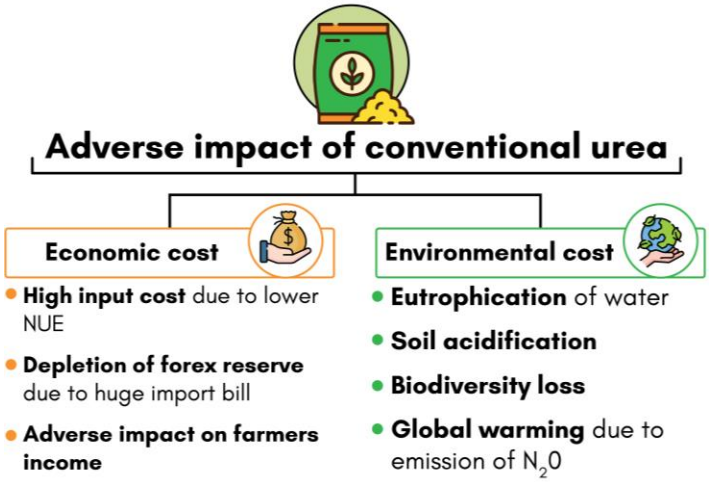
About Nano Urea

- Nano Urea is **a Nano-fertilizers** (refer box) that contains **nano nitrogen particles** of size range 20-50 nm **dispersed in water.**
  - Ministry of Agriculture & Family Welfare has notified Nano Urea as nano fertilizer in 2021 under **Fertilizer Control Order (FCO), 1985.**
    - ✓ **FCO, 1985** under the Essential Commodities Act, 1955 lays down as to **what substances qualify for use as fertilizers** in the soil.
    - ✓ It also mentions product-wise specifications, methods for sampling and analysis of fertilizers, procedure for obtaining license/registration, etc.
- **Developed by:** Nano fertilizer has been developed indigenously for the first time in the world at Indian Farmers Fertiliser Cooperative Limited **(IFFCO** IFFCO - Nano Biotechnology Research Centre (NBRC) Kalol, Gujarat through a proprietary patented technology.
- **Nitrogen concentration:** Total nitrogen concentration in one bottle of **Nano Urea (liquid) is 4 %** (40,000 ppm).

About Nano fertiliser

- **Nanofertilizers** are defined as materials in the **nanometer scale**, usually in the form of nanoparticles, **containing macro and micronutrients** that are delivered to crops in a controlled mode.
- **Categories of nanofertilizers based on the type of formulation:**
  - **nanoscale fertilizer**, which corresponds to the conventional fertilizer reduced in size typically in the form of nanoparticles;
  - **nanoscale additive fertilizer**, is a traditional fertilizer containing a supplement nanomaterial; and
  - **nanoscale coating fertilizer,** refers to nutrients encapsulated by nanofilms or intercalated into nanoscale pores of a host material.
- **No separate funds have been allocated** by the Department of Fertilizers for Nanotechnology.

- **Formation**: Process of nano urea formation uses **"organic polymers"** that keeps the 'nano' particles of nitrogen stable and in a form that can be sprayed onto plants.
- **Subsidy**: There is **no government subsidy on nano urea** and hence there will be huge savings for the government.
- **Relevance of Nano-urea**
    - Increasing food production is a necessity to **ensure food security for a growing population.**
    - **However, since** Nitrogen Use Efficiency (NUE) in agriculture is less than 30-40%, reaching targeted crop yields has **resulted in overuse of nitrogen.**
    - **Overuse of nitrogen** is an **economic and environmental concern** (refer to the infographics) worldwide which could be overcome by use of nano-urea.

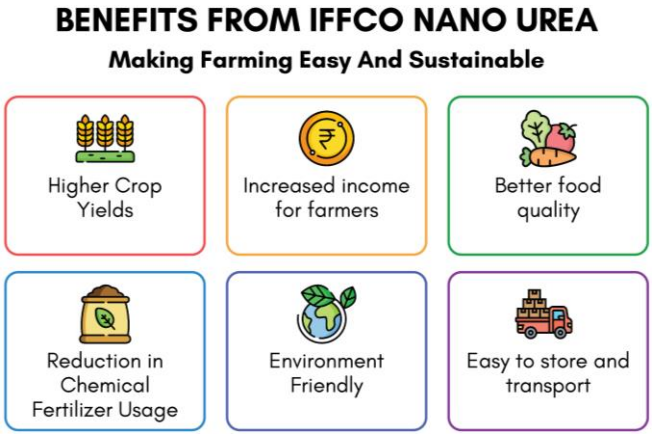


    - Nano-urea has **Nitrogen use efficiency (NUE)** of **more than 80%.**
        - ✓ The **quantum effects of nanoparticles** and the **increased surface area** make the nanoparticles in Nano Urea deliver more nitrogen.

Concerns associated with nano-urea

Issues with Nano Urea

- **Health hazard:** Nanoparticles could enter into the food chain while also exhibiting large-scale bioretention and accumulation within living organisms.
    - Higher levels of toxicity can cause growth retardation and inhibition.
- **Less Nitrogen:** Chemically packaged urea is 46% nitrogen (20kg of nitrogen in a 45 kg sack). Contrastingly, Nano Urea sold in 500 ml bottles has only 4% nitrogen (or around 20 gm).
- **Funding-** The Parliamentary Standing committee has observed that despite its underlying benefits, no separate funding has been allocated for nano-urea by the Ministry.
- **Effectiveness:** Urea is highly water soluble and already reaches the lowest form of concentration when absorbed. How nanoparticles can increase the effectiveness of nitrogen uptake by being still smaller is being debated.
- **Application methodology:** Some critics also believe that fertiliser use efficiency of urea is better via soil application rather than foliage.
- **Behavioural aspects:** Use of packaged urea is deeply ingrained behaviour in farmers. Changing such a behaviour would not be easy.



Way Ahead

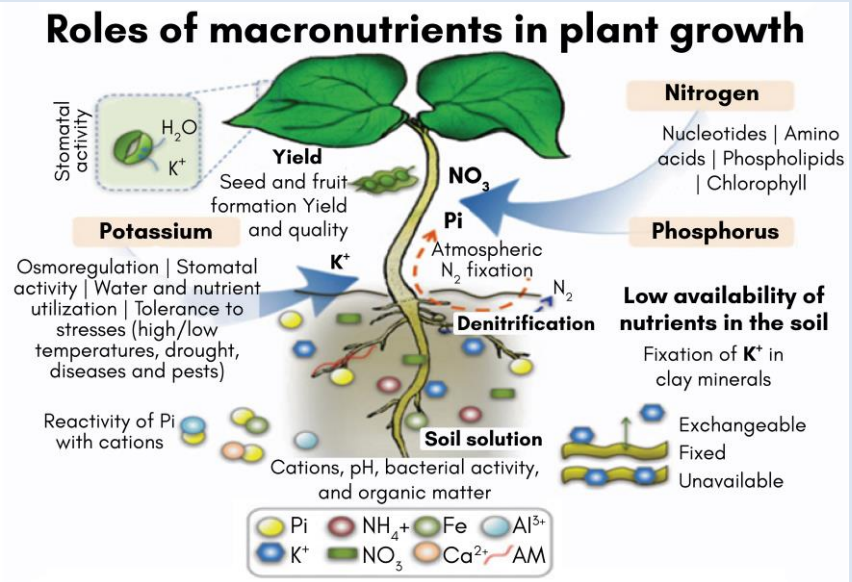
- **Increasing Production:** The Parliamentary committee has recommended to have a **dedicated Production Linked Incentive (PLI) scheme** for the promotion of Nano-Fertilizer production.
    - **Also,** private sector can be involved to scale its production.
- **Assessing the effect:** Conduct long-term dedicated research for all the major crops in all the agroclimatic regions and soil types to assess the merits and demerits of the use of nano fertilizers.
    - Such research would also be helpful in **establishing nutritional quality, bio-safety, efficacy and reliability** of the harvested produce of nano fertilizers treated crops.
- **Ensuring quality:** Set up of quality testing laboratories throughout the country to ensure production and sale of quality nano fertilizers

- **Minimise variation in effectiveness:** Crop specific Standard Operating Procedure (SOP) for appropriate application of Nano Urea be devised.
- **Facilitate mechanisation:** Facilitating the availability of drones to the farmers at the Block/ village level throughout the country for effective spray of urea by drones.
    - Under **Sub-Mission on agricultural mechanization (SMAM) scheme**, eligible farmers can buy modern agricultural equipment with 50 to 80% subsidy.
    - **Corporate Social Responsibility (CSR) fund** could also be used to provide the facility of drones

Related news

Nano-Diammonium Phosphate (DAP) fertilizer

- The **Ministry of Agriculture** has allowed IFFCO and Coromandel International to start production of **nano-DAP for three years** that would be available from the **2023 kharif season**.
- Nano-DAP is a **next-generation fertilizer** with **nanoparticles of Nitrogen** and **Phosphorus**, i.e., particles with size between **1 to 100 nanometres.**
- DAP is a **phosphate-based fertilizer** manufactured by **reacting Ammonia** with **Phosphoric acid**, containing **Nitrogen** and **Phosphorus.**
- **More than half of the country's DAP requirements are imported**, and the main sources are West Asia and Jordan.



Essential plant nutrients and their roles

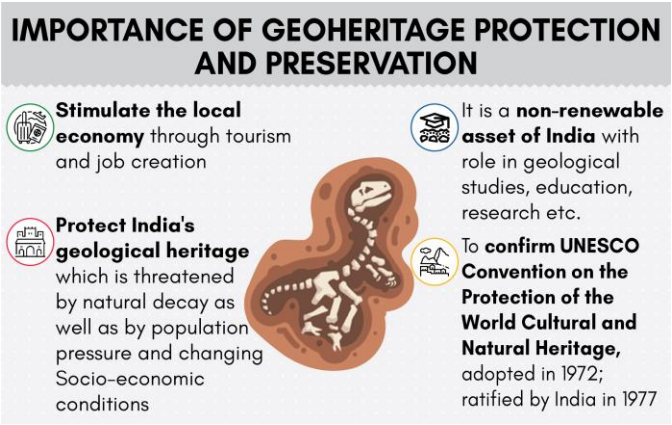
- **Three primary macronutrients**: nitrogen (N), phosphorus (P), potassium (K).
- The **Nitrogen, Phosphorus and Potassium (NPK) consumption ratio** has widened from 4:3.2:1 in 2009-10 to **7:2.8:1 in 2019-20.**
- **Three secondary macronutrients:** calcium (Ca), magnesium (Mg), and sulfur (S).
- **Nine Micronutrients:** boron (B), chlorine (Cl), copper (Cu), iron (Fe), manganese (Mn), sodium (Na), zinc (Zn), molybdenum (Mo), nickel (Ni).
- IFFCO is also developing **micronutrient fertilisers like Nano Zinc, Nano Copper, Nano Boron, Nano Sulphur, etc.** in order to ensure eco-friendly sustainable agriculture.

5.12. NEWS IN SHORTS

5.12.1. DRAFT GEO-HERITAGE SITES AND GEO-RELICS (PRESERVATION AND MAINTENANCE) BILL

- Draft Bill, **published by Ministry of Mines** in December 2022, provides **for declaration, preservation, protection and maintenance of geo-heritage sites and geo-relics of national importance** for geological studies, education, research etc.
    - Geo-heritage sites are **sites of rare and unique geological and geomorphologic significance** having geomorphological, mineralogical, petrological, paleontological, and stratigraphic significance **including caves, natural rock-sculptures etc.**
    - Geo-relics are any **relic or material of geological significance** or interest like **sediments, rocks, minerals, meteorites or fossils.**
- Geological Survey of India (GSI) has declared **32 geo-heritage sites**, including **Fossil Parks** (e.g. **Siwalik Fossil Park**, Himachal Pradesh); **Geological Marvels** (e.g. **Lonar Lake, Maharashtra**), **Rock Monuments** (e.g. **Peninsular Gneiss, Karnataka**) etc.
    - GSI is an attached office under **Ministry of Mines.**
- **Key Highlights of the Draft Bill**
    - **Authorising Central Government to**:
        - ✓ **Declare** a geo-heritage **site to be of national importance.**
        - ✓ **Acquire area under a geo-heritage site** under provisions of **Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.**

- ✓ **Declare area** around each geo-heritage site **as prohibited area and regulated area.**
- **Penalties for destruction**, removal, defacement, misuse of geo-heritage sites and geo relics.



5.12.2. FIFTH INTERNATIONAL MARINE PROTECTED AREAS CONGRESS

- **Fifth International Marine Protected Areas Congress** (IMPAC5) **concluded in Vancouver, Canada.**
- IMPAC5 is a **global forum that brings together ocean conservation professionals** and high-level officials to **inform, inspire and act on Marine Protected Areas (MPAs)**
  - It aims to **protect 30 percent of global ocean by 2030.**
  - It supported **Kunming-Montreal Global Biodiversity Framework, "Our Ocean, Our Future, Our Responsibility" Call for Action** and **Ocean Conservation Pledge**.
  - It was jointly hosted by Host First Nations (Musqueam, Squamish and Tsleil-Waututh) together with **International Union for Conservation of Nature (IUCN), Canadian Parks and Wilderness Society (CPWS)** and Province of British Columbia.
- MPA is a **section of ocean where a government has placed limits on human activity.**
  - Currently, an estimated **7.65%** of ocean is covered by MPAs.
  - Important **MPAs (coastal or marine) of India are as given in image**.
    - ✓ They are notified as **either 'national parks' or 'wildlife sanctuaries'** under Wildlife (Protection) Act, 1972.
- **Need of MPAs**
  - **Protect marine habitats** and variety of life that they support.
  - **Raising the profile of an area for marine tourism** and broadening local economic options.
  - **Generate income through tourism and sustainable fishing**.
  - **Maintaining climate change resilience** as it protects coastal habitats to reduce human vulnerability.

5.12.3. MARINE SPATIAL PLANNING (MSP) FRAMEWORK

- **Country's first** Marine Spatial Planning framework **was launched in Puducherry.**
- MSP Framework, **part of a pact under Indo-Norway Integrated Ocean Initiative**, was launched **to balance growth** alongside **sustainable management of ocean resources** and coastal environment preservation.
  - Framework is a collaboration **between Norwegian Environment Agency, Ministry of Earth Sciences,** National Centre for Coastal Research and UT of Puducherry.
- MSP is a process of analysing and **allocating spatial and temporal distribution of human activities in marine areas** to achieve ecological, economic, and social objectives.
  - **Intergovernmental Oceanographic Commission** of UNESCO help countries by providing a **step-by-step guide for ecosystem-based MSP.**
- **Benefits of MSP**
  - **Ecological/ Environmental Benefits:** Identification of biological and ecological important areas, reduction of cumulative effects of human activities on marine ecosystems etc.
  - **Economics Benefits:** Certainty of access to desirable areas for new private sector investments, transparency in permit and licensing procedures etc.
  - **Social Benefits:** Improved opportunities for community participation, improved protection of cultural heritage etc.
  - **Increasing cross-border cooperation** to develop renewable energy, allocate shipping lanes, lay submarine cables etc.
  - **Reducing conflicts** and creating synergies between different activities.

5.12.4. RIVER CITIES ALLIANCE (RCA)

- **DHARA 2023 (Driving Holistic Action for Urban Rivers), annual meeting of RCA members,** was held.
  - DHARA provides a **platform to co-learn and discuss solutions** for managing **local water resources.**
- RCA is a **dedicated platform for river cities to ideate, discuss and exchange information** for sustainable management of urban rivers.
  - It focuses on **three broad themes- Networking, Capacity Building and Technical Support.**

- RCA includes cities from **both Ganga basin and non-Ganga basin states.**
- RCA is a **successful partnership of Ministry of Jal Shakti** and Ministry of **Housing and Urban Affairs.**

5.12.5. RED SANDERS

- **TRAFFIC factsheet highlighted Red Sanders** is India's **most exploited tree species.**
  - **TRAFFIC was established in 1976 by WWF and IUCN as a wildlife trade monitoring network** to undertake data collection, recommendations on wildlife trade.
- **Key highlights of the factsheet**
  - The CITES Trade Database recorded **28 incidents of Red Sanders illegal trade seizure**.
  - **China** remains the **largest importer**.
  - It highlights the threats of rampant illegal logging and smuggling of trees especially in **Chittoor, Kadapa, Nellore & Kurnool** districts in **Andhra Pradesh**.
- **About Red Sanders**
  - Red Sanders is a **flora-species** that is endemic to a distinct tract of forests in **Eastern Ghats.**
  - It is a very slow-growing tree species that attains maturity after **25 – 40 years**.
  - It is **fire-hardy** and **resistant to droughts**.
  - It is locally known as **Yerra Chandanam, Rakta Chandanam.**
  - It is exploited for the extraction of **Santalin** (a red pigment used as dye and colorant in food), medicine, cosmetics.
  - It is also a **good raw material** for musical instruments and luxury furniture.
- **Initiatives taken by India**
  - The **export** of Red Sanders from India is **prohibited under Foreign Trade Policy.**
  - **nders Anti-Smuggling Task Force (RSASTF)**-2015.
  - **Operation Rakth Chandan.**

5.12.6. CHEETAH TRANSLOCATION

- **India and South Africa signed a MoU** on Cooperation on Re-introduction of Cheetah to India with an aim **to expand cheetah meta-population** and to **reintroduce cheetahs to a former range state**.
  - Cheetahs were made available by **Phinda Game Reserve**, **Tswalu Kalahari Reserve**, **Waterberg Biosphere**, **Kwandwe Game Reserve** and **Mapesu Game Reserve** and will join Cheetahs **relocated to Kuno National Park in Madhya Pradesh** (from Namibia).
  - Plan is to translocate a further **12 annually for next eight to 10 years.**
- **South Africa plays** an active role in **providing founders for population and range expansion of iconic species** such as cheetahs.
  - Cheetah was **declared extinct in India in 1952** due to over hunting and loss of habitat.
- **Translocation** is being made **under 'Project Cheetah',** world's **first inter-continental large wild carnivore translocation** project.
  - **National Tiger Conservation Authority** (NTCA) is **nodal agency** for project.
- Cheetah, world's **fastest mammal**, is a **keystone species** (organism that helps define an entire ecosystem) of **dry forests, scrub forests, and savannahs.**
  - Protected under **Appendix 1 of CITES.**
  - **IUCN status: African Cheetah (Vulnerable)**; **Asiatic Cheetah (Critically endangered).**

5.12.7. PANGOLIN

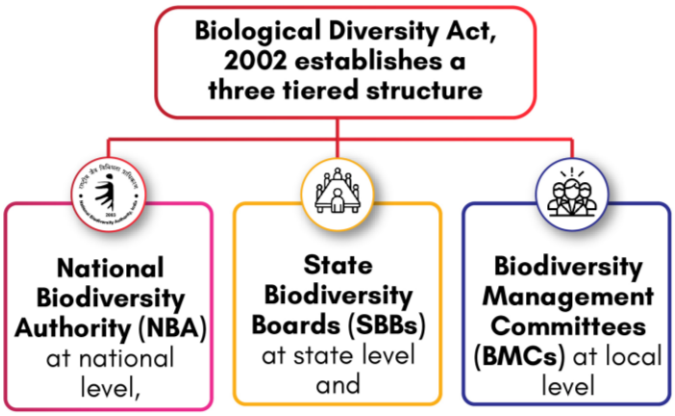
- **Over 1,000 pangolins poached and trafficked in India** between 2018 and 2022.
  - Pangolins are **among the most trafficked wild mammals** globally.
- Pangolins are **only mammals wholly-covered in scales** (use to protect themselves).
  - **Diet:** eat ants, termites and are called as scaly anteater.
  - **Behaviour:** solitary, primarily nocturnal animals.
    - ✓ Pangolin is an **'ecosystem engineer' that helps in soil circulation**
  - **Threats:** Scales used in traditional medicines, meat for consumption.
- **Out of 8 species** of pangolins, **Two are found in India.**
  - **Indian Pangolin** (Endangered), **Chinese Pangolin** (Critically Endangered).

5.12.8. LADAKH'S FIRST BIODIVERSITY HERITAGE SITE

- Local **Biodiversity Management Committee**, concerned panchayat, along with **SECURE Himalaya Project** recently resolved to **declare Yaya Tso as Ladakh's first biodiversity heritage site (BHS)**.
  - Yaya Tso is a **nesting habitat** for a large number of birds and animals, such as the bar-headed goose, black-necked crane and brahminy duck.

- It is one of the **highest breeding sites** of the black-necked crane in India.

- **BHS** are areas that are unique, ecologically fragile ecosystems having rich biodiversity.
  - **Under Biological Diversity Act (BDA) 2002**, the State Governments are empowered to notify BHS, in consultation with 'local bodies', areas of biodiversity importance as Biodiversity Heritage Sites.
  - **Criteria for BHS**: species includes richness, high endemism, presence of rare, endemic and threatened species, keystone species, species of evolutionary significance etc.
  - There are **36 BHS in India, Mahendragiri hill (Odisha) is the last BHS added in 2022.**
- **About SECURE Himalaya**:
  - It is a joint project of **Ministry of Environment, Forest and Climate Change and United Nations Development Programme (UNDP), funded by Global Environment Facility.**
  - It is aimed at **conservation and protection** of the high-altitude ecosystems of the Himalayas.



5.12.9. SHINKU LA TUNNEL

- Construction of **4.1-km Shinkun La tunnel on Nimu-Padam-Darcha Road link** has been approved.
- Shinku-la pass **connects Himachal Pradesh's Lahaul valley and Ladakh's Zanskar valley.**
  - It'll be built by **Border Road Organisation (BRO)** under its ambitious **Project Yojak.**
    - ✓ Project aims to **build more tunnels like Atal Tunnel** and maintain the connecting roads.
  - It'll **provide all-weather road connectivity to Ladakh** and this will be the **shortest route to border areas of Union territory** from other parts of country.
  - It will **bring swiftness in movement of security forces.**

5.12.10. DICKINSONIA

- An alleged **fossil discovered near Bhopal** about 2 years ago and **thought to be of an extinct Dickinsonia** turned out to be an **impression of a decayed beehive**
- Dickinsonia is **considered to be Earth's oldest animal,** dating back 570 million years ago (late Ediacaran period).
  - It is an **extinct genus of a basal animal** (animals which have radial symmetry in their body plans).
  - It is considered an **integral links between early, simple organisms and then explosion of life in Cambrian Period** that was around 541 million years ago.
  - Dickinsonia has been **found in Australia, Russia, Ukraine, China**.

5.12.11. PMN (POLYMETALLIC NODULES) EXPLORATION

- **International Seabed Authority** (ISA) and **Ministry of Earth Sciences exchanged** PMN (Polymetallic Nodules) exploration extension contract.
- Contract for same was **initially signed in 2002** for a period of 15 years. It was extended by ISA twice for 5 years period, **during 2017 and 2022**.
  - India has been assigned an area of **about 75,000 sq km in Central Indian Ocean Basin (CIOB) for PMN exploration**.
- PMN refers to small **potato-like rounded accretions** composed of minerals such as **manganese, nickel, cobalt, copper and iron hydroxide**
  - These have **immense economic and strategic importance**.

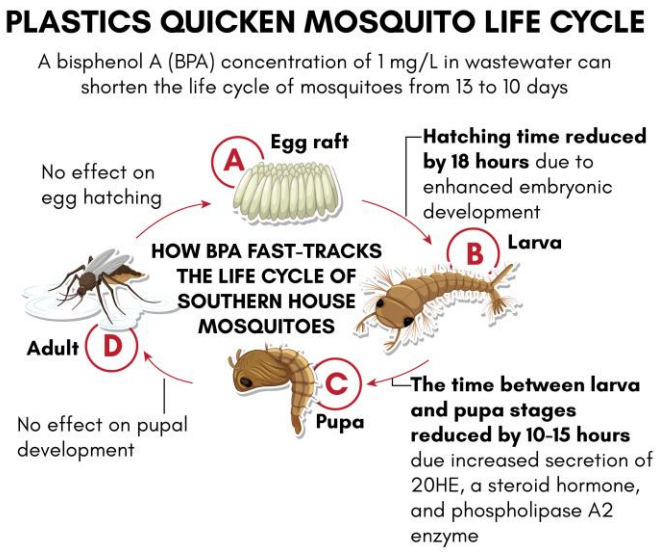
- **Significance of deep sea mining**:
  - Metals extracted from PMN can be used in **electronic devices, smartphones, solar panels** etc.
  - By just **utilizing 10%** of PMN reserve available in allotted area, India can meet its **energy requirements for the next 100 years**.
- **Concerns related to deep sea mining**:
  - May cause **unavoidable, irreversible harm** to deep-sea ecosystems;
  - Can have a **deleterious impact** on marine species;
  - Risk of accidents like **leaks and spills of fuel etc.**
- ISA, an **autonomous international organisation** established under **1982 United Nations Convention on the Law of the Sea**, allots **'area' for deep-sea mining**.
  - Deep-sea mining is process of **retrieving mineral deposits** from deep seabed i.e. ocean **below 200m.**
  - India was **first country** to receive **status of a 'Pioneer Investor' in 1987**.

5.12.12. PFAS OR FOREVER CHEMICALS

- New study has found **alarming levels of toxic PFAS, also known as "forever chemicals"** in Norwegian Arctic ice which may affect wildlife.
- **PFAS (Per- and polyfluorinated alkyl substances)** are a large chemical family of over 4,700 highly persistent chemicals **that don't occur in nature**.
  - **They hardly degrade in natural environment** and have been found in blood of people and wildlife all round world.
  - It can be **toxic to both humans and wildlife.**
- **PFAS uses:** In cosmetics (hair conditioner, foundation cream, sunscreen etc.), electronics (smartphones), textiles (waterproof outdoor clothing and equipment, carpets, mattresses) etc.

5.12.13. BISPHENOL A (BPA) CHEMICAL

- Recent study has highlighted **accelerated breeding in mosquitoes due to** presence of **Bisphenol A** in urban drains.
- **Bisphenol A** or **BPA** is a chemical produced in large quantities for use primarily in production of **polycarbonate plastics**.
  - It is commonly used in shatterproof windows, eyewear, water bottles, and epoxy resins.
- It can leach into **food and beverages** as well, exposing adults to **ill effects** of it such as **high blood pressure, diabetes** and **cardiovascular disease.**
  - It can **disrupt the endocrine system** by interfering with hormones and affects **brain and prostate gland** of **foetuses, infants and children**.



5.12.14. SDG AGRIFOOD ACCELERATOR PROGRAMME

- **FAO and SEED partnership launched** the Programme.
  - SEED is a **global partnership** for action on **sustainable development and green economy**.
  - It was founded by UN Environment Programme (UNEP), UN Development Programme (UNDP) and International Union for Conservation of Nature (IUCN).
- SDG Agrifood Accelerator Programme is **designed to help agrifood system start-ups** develop their businesses while **contributing to UN's SDGs.**
  - Operating across Africa and Asia, 12 **SMEs who joined the Programme will be supported in** three areas: **financial readiness, innovation potential, and market reach**.

5.12.15. CLIMATE SMART VARIETIES OF WHEAT

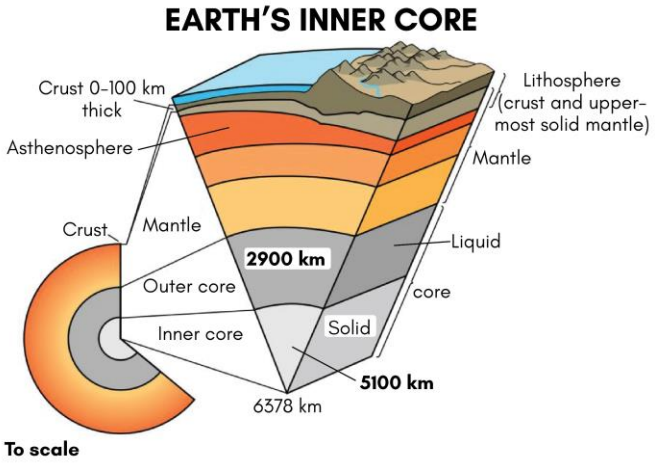
- **Indian Agricultural Research Institute** (IARI) scientists have developed **three climate-smart varieties of wheat.**
  - These varieties are **characterised by "mild vernalisation requirement**" i.e., need for a certain minimum period of low winter temperatures for initiation of flowering.
- Three varieties are: **HDCSW-18** (officially notified in 2016), **HD-3410 and HD-3385.**
  - HD-3410 (released in 2022), has **higher yield potential** (7.5 tonnes/hectare) with **lower plant height (100-105 cm).**
  - Among these, **HD-3385 is least lodging-prone** and most amenable for early sowing.
    - ✓ Lodging refers to **permanent displacement of aboveground parts of a crop** from its upright position.

5.12.16. WORLD SUSTAINABLE DEVELOPMENT SUMMIT 2023

- Summit is **TERI's (the Energy and Resources Institute) annual flagship multistakeholder event.**
  - TERI is an **independent, multi-dimensional organization**, with expertise in research, policy, consultancy and implementation.
- It is one of the **independently convened** event in **Global South** that brings together **world leaders, thinkers, scientists, industry etc** to work towards **long-term solutions for planet's health.**
- It examined topics such as **finance, science, technology and innovation, sustainable consumption, inclusive energy transitions etc.**

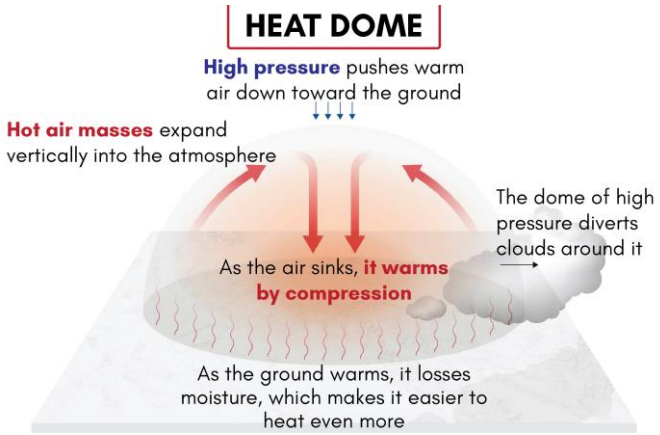
5.12.17. EARTH'S INNER CORE

- **Scientists discovered new layer** at Earth's inner core.
- Discovered by Australian National University seismologists, '**solid metallic ball'** is deep **inside inner core of Earth**, dubbed as "**innermost inner core**".
  - It is **solid due to high pressure deep within the Earth** that stops iron alloy from melting.
  - It is a **crystallized structure within inner core's innermost region** that is different from outer layer.
  - **First hypothesised about 20 years ago,** it was identified through **data gathered from seismic waves caused by earthquakes**.
- So far, **four layers of Earth's structure** had been identified (refer image). This includes:
  - **Crust: Topmost** or **outermost layer** of earth which makes up **1%** of **Earth Volume**. It has two parts - **thinner Oceanic Crust** and **thicker Continental Crust**.
  - **Mantle: Solid/plastic layer of earth** which makes up about **84%** of **Earth Volume**. It is divided in two parts - **Upper Mantle** and **Lower Mantle. Uppermost mantle** and **crust** constitute **lithosphere**.
  - **Outer core: Liquid portion of core,** composed of **80% iron** along with **nickel** and some other **lighter elements.**
  - **Inner core: Solid portion of core,** composed of **Iron and nickel** with presence of heavy elements like **gold, platinum, palladium, silver and tungsten**.
- **Significance of Fifth Layer**
  - **Provide information on past events on Earth** that happened hundreds of millions to billions of years ago.
  - Provide a **new way to probe Earth's inner core** and its centremost region.
  - Inform on **evolution of earth's magnetic field** etc.



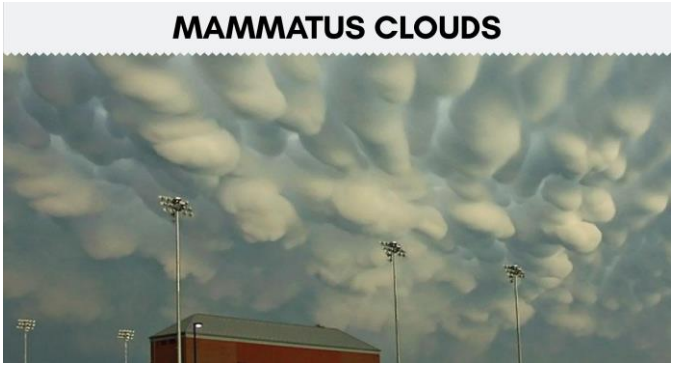
5.12.18. HEAT DOME

- **Heat-spewing anticyclone over North-West India** has led to **unusual heat in February**.
  - India Meteorological Department (IMD) predicts that it is likely to **recede from land and back off into Central Arabian Sea** soon, making way for **moisture-laden western disturbance** and **associated cloud cover** with **rain or snow in Western Himalayas** and adjoining plains.
- Heat dome is a **high-pressure circulation in atmosphere** which acts like a dome or cap, trapping heat at surface and favoring heatwave formation.
  - It occurs when **hot ocean air** is **trapped over a large area.**
- Typically, **heat domes are tied to the pattern of jet stream** (fast winds high in atmosphere that generally runs **west to east**).
  - Normally, **jet stream has a wavelike pattern**, meandering north and then south and then north again.
  - When these meanders in jet stream become bigger, they move slower and can become stationary and resulting into heat domes.
  - **Hot air typically rises into atmosphere**, but dome's lid causes air to sink. As air sinks, it **compresses and becomes warmer** that causes temperature in dome to rise continually.
- **Impact of heat dome:** Affect sessional agricultural products; Increased risk of wildfire, heat-related illnesses such as heat rash, heat stroke, heat exhaustion etc.



5.12.19. MAMMATUS CLOUDS

- **NASA has released picture of Mammatus clouds**, hovering over Nebraska, US.
- **About Mammatus clouds**
  - **They generally** appear in connection with **substantial cumulonimbus clouds,** but they have also been sighted to form on other cloud types, **such as stratocumulus, altostratus and altocumulus.**
  - **Turbulence within cumulonimbus** often leads to **formation of Mammatus clouds**, particularly on **bottom of projecting anvil** as it quickly **descends to lower altitudes.**
  - Their **shapes can vary greatly**, from **typical bulging shape to a more elongated tube** dangling from the cloud above.



QUIZ

SMART QUIZ

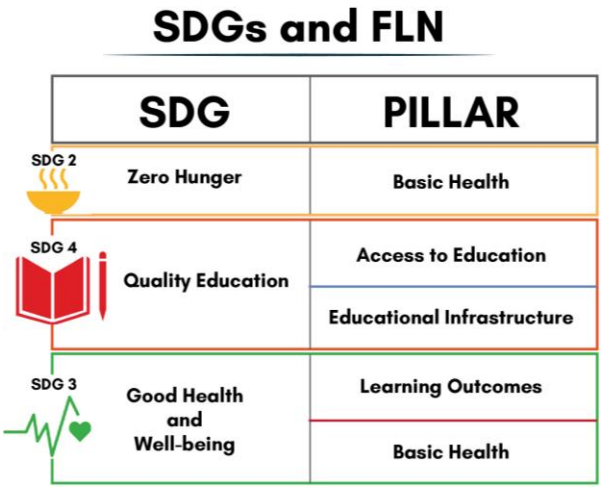
You can scan this QR code to practice the Smart Quiz of Environment at our open test online platform for testing your understanding and recalling of the concepts.

6. SOCIAL ISSUES

6.1. FOUNDATIONAL LITERACY AND NUMERACY (FLN)

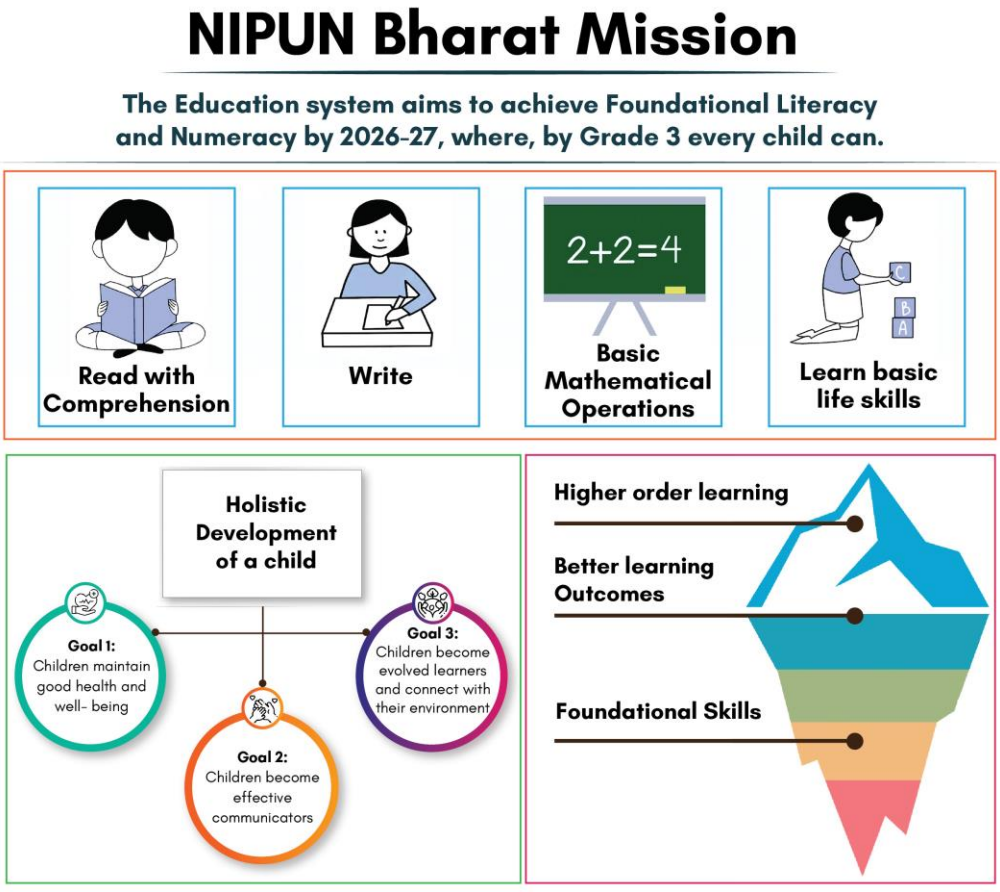
Why in news?

The second edition of the Foundational Literacy and Numeracy report of the Economic Advisory Council to the Prime Minister (EAC-PM) has been released.



About the report

- It was prepared by **the Institute for Competitiveness (IFC)** — the Indian wing of the Institute for Strategy and Competitiveness at Harvard Business School.
- Report presented an **index on the overall state of FLN across children aged below ten years.**
- It compares states on **36 indicators across five key domains** that have been mapped with key **Sustainable Development Goals or SDGs also (refer to the infographics).**



About Foundational Literacy and Numeracy (FLN)

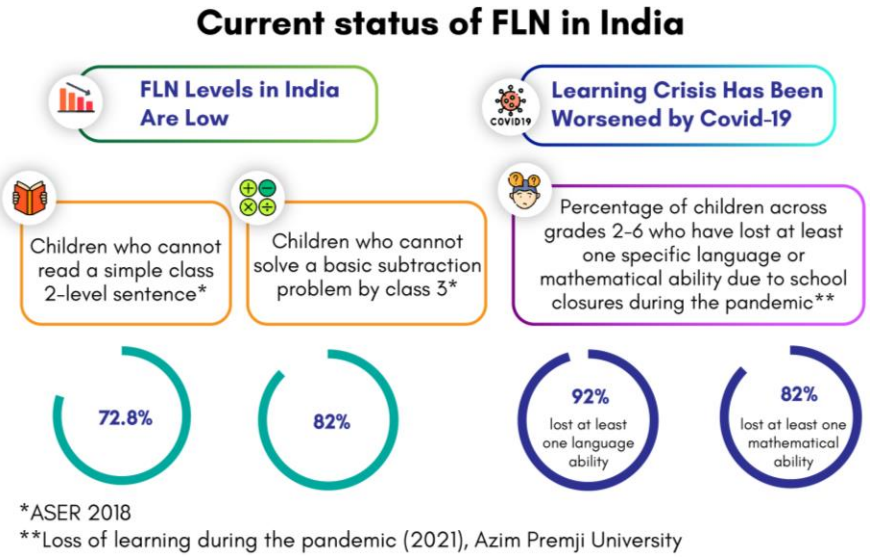
- FLN refers to basic skills **in reading, writing, and** mathematics**.**
- It is the ability to **read and understand a basic text** and **perform simple mathematical calculations by the end of grade 3.**
- This becomes **the foundation for all future learning** upon which other skills are built (refer to the infographics).
- **National Education Policy (NEP) 2020** accords the **highest importance** to the achievement of FLN.
- The Ministry of Education has launched a national mission for FLN '**NIPUN Bharat** (National Initiative for Proficiency in Reading with Understanding and Numeracy)' for ensuring that **every child in the country necessarily attains FLN by the end of Grade 3, by 2026-27.**

Key findings of the report

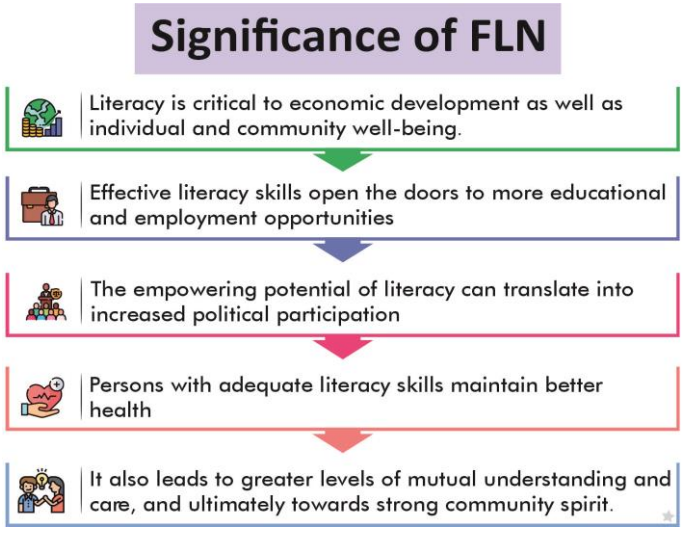
Literacy	Numeracy	States' performance
• **Punjabi language has the best performance** with 51% of the students exceeding global proficiency level (GPL)	• **42% of the students** surveyed across India meet the **global minimum proficiency**, and 37% partially meet the global	• **Key high performing states** ○ **Punjab topped all** key indicators. ○ **Rajasthan** and Sikkim also performed well in some parameters

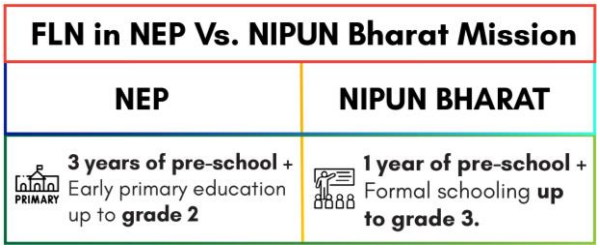
• **Only Telugu and Mizo** have **more than 30% students who meet GPL** • **Tamil, Konkani, Assamese and Bodo** language have the **poorest performance**	minimum proficiency level in mathematics. • Higher percentage **of girl student's performed low** as compared to the boys	• **Key underperforming states: Meghalaya**, **Telangana** and **Uttar Pradesh** performed poorly on various parameters

Challenges in achieving FLN



- **Historical negligence:** Foundational Literacy in India has been marginalised for decades and has begun to receive the much-needed focus and attention, post the launch of the NIPUN Bharat Mission.
- **Understanding of FLN:** There is a lack of convergence between NEP and NIPUN Bharat Mission regarding what FLN entails and up to what grades does it cover.
- **Language of instructions:** In various private schools in India, priority is given to English language even at preschool level.
- **Availability of teachers:** The foundational education depends on the teaching methods and how the students are taught.
  - However, 19% of the teaching positions lie vacant in India. In rural areas, the vacancy is 69% (2021 'State of the Education Report for India', by UNESCO).
- **Digital divide:** Between 2020 to 2022, **only 41.3% of schools had access to computers** and 24.5% to the internet.
- **Learning loss due to pandemic:** Due to closure of schools, children could not get the adequate opportunity for attaining FLN even though they are promoted to higher classes.
- **Malnutrition:** Malnutrition during early childhood can lead to lifelong developmental delays and disabilities, affecting child development and learning and adult productivity and earning.
- **Poor infrastructure:** Availability of basic amenities like drinking water, toilets among others are very important aid to learning process.
  - Yet, only 19 states have scored above national average 67.12 in the educational infrastructure pillar.





Way ahead to achieve universal FLN

- **Familiar language as medium of instruction:** Foundational learning programmes must take into account needs of both mother language and second language learner.
- **Interpersonal interactions:** Meaningful interpersonal interactions between the teacher and the child is particularly useful for children from demographically diverse homes.
- **Skilled teachers:** Government should identify and recruit language teachers from every community, so teachers are available for students with different mother tongues.
  - It should be complemented with **capacity building of existing teachers and Anganwadi workers.**

- **Retention of skilled teachers:** The working conditions of the schools, including basic amenities, libraries, and technology access, need to be improved.
- **Home learning:** Verbal environments influence and make learning a language more effective and smooth, the capacity building of parents has to be addressed and taken into account.
    - For instance, in Turkey, **evaluations of an intensive parenting intervention** that combined **home training for mothers** with either a centre based or custodial day care program was tried.
    - It showed a **strong correlation** between **mothers' participation** in the programme and **children's scores on cognitive assessments.**
- **Improving Internet penetration:** According to a UNICEF report in 2022, countries with a higher internet access rate at home tend to have a higher share of children with foundational reading skills.
- **Opportunity to Catch up:** Students suffering from learning loss due to pandemic should be given the adequate learning opportunity by expanding the scope of FLN beyond grade 3.
- **Improving nutrition:** Knowledge about children's nutrition can be incorporated in schools, allowing children to realize the importance of good food and healthy eating habits and form them on their own from an early age.
    - **Saksham Anganwadi and Poshan 2.0 scheme** is the positive initiative to improve the nutritional outcome among kids and adolescent girls along with Pregnant and lactating mothers.
- **Improving infrastructure:** States must have a better-shared understanding of how the design of school infrastructure affects vocational learning outcomes.
    - It will **increase the efficiency of the resources invested** in school infrastructure projects and also **enhance cooperation between stakeholders** for development of school infrastructure.

Related information

Report	Released by	Class	Methodology	Frequency
Annual Status of Education Report (ASER)	NGO Pratham	Estimates of **children's schooling status** for **all children aged 3-16**	**Face to face interactions** with **children and teachers in rural India annually**	**Annually**
National Achievement Survey (NAS)	Ministry of Education	Evaluates learning outcomes of **students in Classes III, V, VIII and X**	**MCQs based, conducted**	**Once** every **three years**
Foundational literacy and numeracy (FLN) report	Institute for Competitiveness (IFC), and EAC-PM (Economic Advisory Council to Prime Minister)	---	**Data from: UDISE+, NSSO, NFHS, NAS, budget**	**Once every two years (Biennial)**
Foundational Learning Study (FLS)	MoE and NCERT in collaboration with States/UTs and supported by UNICEF	Only for grade **III students**	**One-to-one interviews** with each participant	**--**

6.2. PARTICULARLY VULNERABLE TRIBAL GROUPS (PVTG'S)

Why in News?

In the 2023-24 Union Budget, **Pradhan Mantri PVTG (Particularly Vulnerable Tribal Groups) Development Mission (PMPDM)** was announced for the socioeconomic development of the group.

About PMPDM Mission

- It has been launched as part of '**Reaching the Last Mile'**, one of the **seven Saptarishi priorities** enlisted in the Budget.
    - ₹15,000 crore will be made available to implement the Mission in the next three years under the Development Action Plan for the Scheduled Tribes.
- It will empower the particularly vulnerable tribal groups with **safe housing, clean drinking water**, **education**, **nutrition**, **road** and **telecom connection** and **livelihood**.

Need of the PMPDM for the PVTG's

- **Social**: PVTG's are trapped in the various social problems like illiteracy, displacements etc.
  - **Literacy rate** is considerably low, ranging from 10% to 44%.
    - ✓ Female literacy rate is much lower.
  - **Child marriages** and **marriages** before achieving legal benchmark are common amongst PVTG's.
  - Due to **development projects** such as dams and mineral exploration, they are forced to displaced from their ancestral land.
- **Demographic**: Although PVTGs are slowly witnessing decadal increase in their population, quite a few still face stagnation such as the Birhor in central India.
  - Some PVTG's are on the edge of extinction such as **Onge** and **Andamanese**.
  - They also face "**Triple Burden of Diseases**" which includes high rates of **malnutrition**, **communicable diseases** like TB, Leprosy and rising **non-communicable diseases** like cancer and diabetes.
- **Economic**: The main source of their livelihood includes food gathering, Non-Timber Forest Produce (NTFP), hunting, livestock rearing, shifting cultivation and artisan works.
  - Due to **degradation of forest** and **several restrictions from the forest authorities** their **livelihood is threatened.**
- **Cultural**: The **distinct cultural identity** of the PVTG's **has been eroded over the period of time** due to globalisation etc.
- **Politico-administrative**: Their representation in **political sphere** and **administration is minimal** (Both at national and state level).
- **Environmental/Ecological**: PVTG's are the biggest sufferer of the of **climate change** and **other related issues.**
- **Other:** The **Forest Rights Act (FRA), 2006** provides for only **4 hectares land allocation** to them.
  - Ownership is only for land that is actually being cultivated by the concerned family and no new lands will be granted.
  - Also, the **PESA (Panchayat Extension to Scheduled Areas Act) has not been operationalised adequately** in areas with PVTGs.

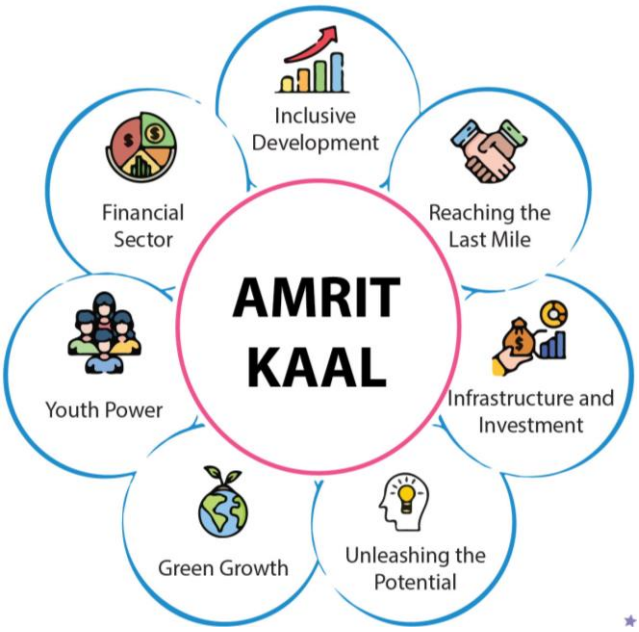
About Particularly Vulnerable Tribal Groups (PVTGs)

- PVTG (earlier known as Primitive Tribal Groups) is the category with in Scheduled Tribes created on the recommendation of **Dhebar commission (1973)**.
- In **1975, Government of India declared 52 tribal group as PVTG's**. While in 1993 an additional 23 groups were added to the category, making it a total of **75** PVTGs out of 705 Scheduled Tribes.
- PVTGs reside in 17 States and UT of Andaman & Nicobar Islands.
- The highest number of PVTGs are found in **Odisha (13)** followed by **Andhra Pradesh (12)**).

Criteria and Identification of PVTG's

- **Government of India** follows the following criteria for identification of PVTGs.
  - Pre-agricultural level of technology
  - Low level of literacy
  - Economic backwardness
  - A declining or stagnant population.
- **States/UTs** submit **proposals** to the Union Ministry of Tribal Welfare to declare certain tribal communities as PVTG's.
- If any tribal group fulfil the afore-mentioned criteria, then it is declared as the PVTG by the Ministry.

'SAPTARISHI' - 7 PRIORITIES OF BUDGET 2023-24



Other Initiatives for PVTG's

- **Indigenous and Tribal Populations Convention, 1957** has been adopted by the International Labour Organisation (ILO).
- Programmes and initiatives have been launched under Five Year Plans such as **Community Development Program**, **Multipurpose Tribal Blocks**, **Tribal Development Block**, **Tribal sub-Plan (TSP)** etc.
- **Restricted Area Permit** system was implemented under the **Foreigners (Restricted Areas) Order, 1963.**
- **Scheme for Development of Primitive Vulnerable Tribal Groups (2008)**
  - It gives **state governments flexibility** in planning initiatives.

- Activities covered include **housing, land distribution and development**, agriculture, roads, energy, etc.
- Additional Funds are **available for activities not already funded by any other Scheme** of the centre/state.
- A long-term **Conservation-cum-Development Plan for five years** for each PVTG to be established by States.
- The Scheme is **funded entirely by the Central government.**

Way Forward

- **Fair Implementation:** The mission should be implemented in letter and spirit. **PVTG's needs to consulted before** the implementation of the Mission.
  - Considering their notion or meaning of development is necessary.
- **Extensive Surveys**: As regular census is not conducted, State governments must urgently conduct extensive surveys to gather **accurate demographic** and **socio-economic figures** of the PVTGs.
  - This will help in policy formulation.
- **Updation of PVTG List**: Some of the PVTGs are distributed in more than one State. The Birhor are recognised as a PVTG in four States, while 10 other group are PVTG in two States, namely the Sahariya, Kurumba, Koraga, Korwa, JenuKuruba, Kattunayakan, Katkari/Kathodi, Kharia, Kolam, and Lodha.
- **Recognition of Rights**: The rights pertaining to their land and custormary rituals needs to recognised by the government. It help them in building trust on government and connecting with the main stream society.
  - State governments must recognise PVTGs habitat rights over revenue land using the PESA**.**

6.3. MANUAL SCAVENGING

Why in news?

Kerala became the first state in the country to use robotic technology to clean all its commissioned manholes.

More on news

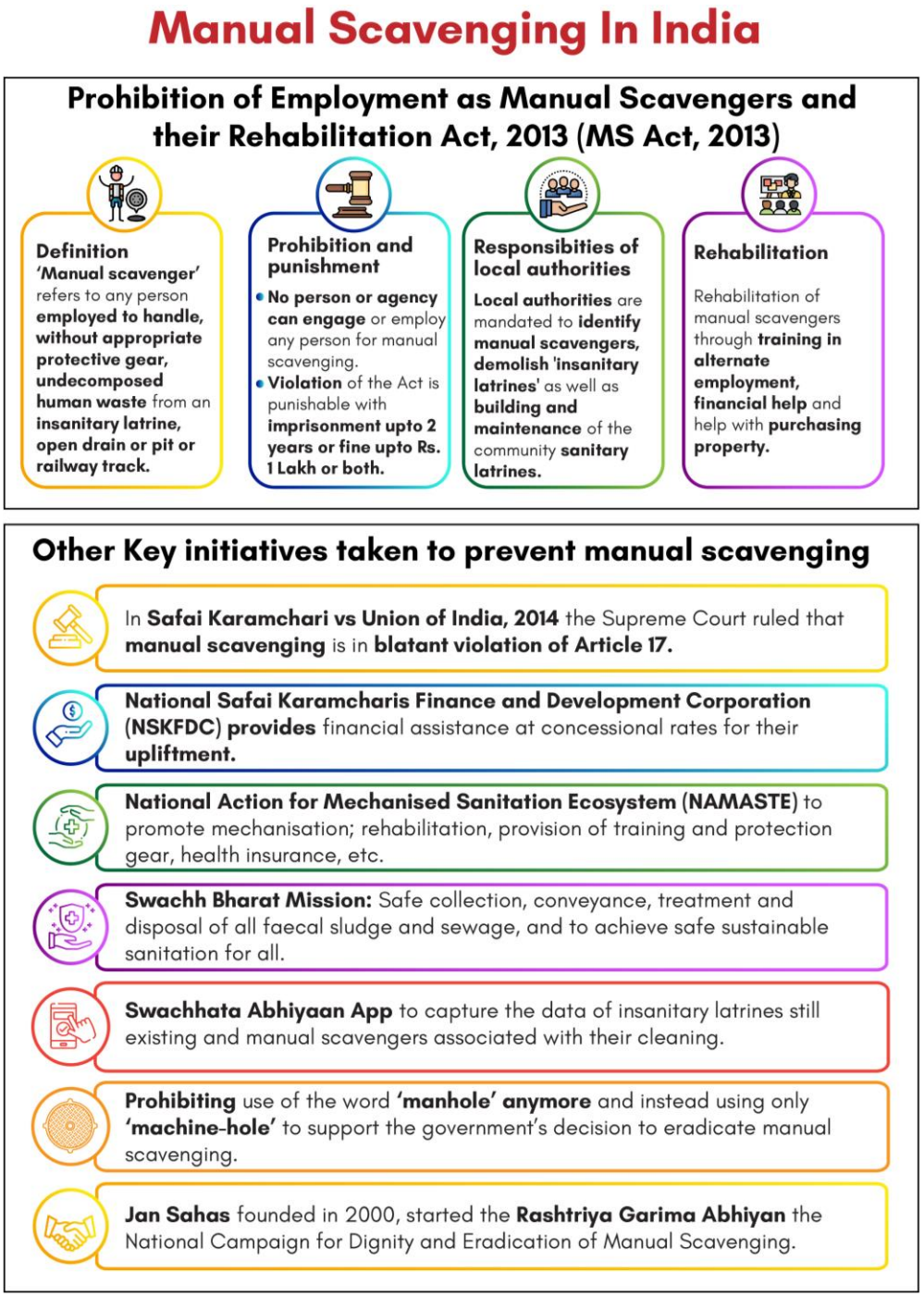
- The **robotic scavenger 'Bandicoot'** to clean sewages **functions in a similar way such as a person.**
- It enters the manhole, removes sewage using robotic hands, and releases it at the designated site.
- Also, it has features of being **waterproof, HD vision cameras, and sensors that can detect harmful gases** inside the manholes.

About Manual scavenging

- Manual scavenging is the **dehumanising practice** of **manually cleaning and handling of human excreta** from dry latrines, sewers, septic tanks, railway lines, etc. **with basic tools like brooms.**
- It is a **primarily caste-based-forced occupation** in India.
- There are at present approximately **58,098 "eligible manual scavengers"** across the country.
- Eradication of manual scavenging is a very crucial factor for attaining various **Sustainable development Goals (SDGs).**
- It not only goes against various international conventions but also **India's legislative as well as constitutional mandates** (refer to the infographics).

Reasons underlying persistence of the practice of manual scavenging

- **Informal economy:** This makes their identification and providing associated rights difficult.
- **Weak law:** Cleaning of human excreta with the help of protective gear is not considered manual scavenging under the MS Act, 2013.
- **Ineffective implementation:** The practice of manual scavenging was banned in 1993. However, due to lax implementation of law, this practice is still prevalent.
- **Water scarcity**: Some of the rural settlements in India lack proper water supply because of which people are forced to manually remove excreta from the toilets.
- **Restoration and rehabilitation:** Complexity of procuring loan through different schemes of NSKFDC further alienates them from taking loans for restoration and rehabilitation.
- **Lack of voice:** People involved in the act of manual scavenging are not organised into some right groups like trade unions.
    - Also, they come from a highly deprived section of the society which perpetuates their exploitation.



- **Absence of mechanisation:** Septic tanks are designed in such a way that they could be cleaned only manually.

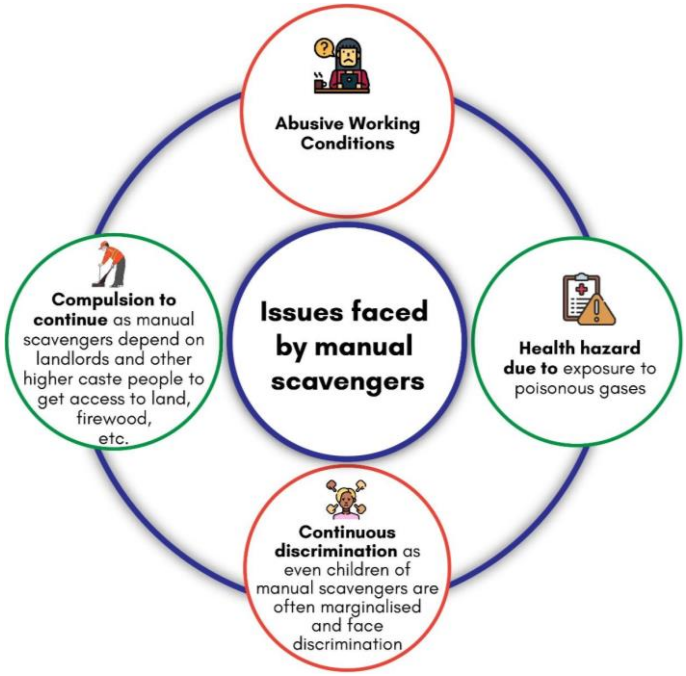
Way ahead for eradicating manual scavenging

Eliminate the demand

- **Scientific waste disposal:** People throw bottles and all kinds of trash in the toilet that ends up clogging the sewer line. Awareness campaign is needed against such disposal.
- **Replicating Kerala model:** It is being seen as a major step towards the **use of technology-driven solutions for manhole cleaning.**
- **Behavioural change**: Information, Education and Communication (IEC) along with effective implementation of the law is critical for enticing positive response from people against manual scavenging.
    - Adequate provision for WASH (Water, Sanitation and Hygiene) is also necessary for such behvioural changes.

Eliminate the supply

- **Identification**: Data in government surveys and other reports contradict in terms of people engaged in this work.
  - Therefore, proper identification of such people is necessary to address the gravity of the problem.
- **Women empowerment:** While working to rehabilitate and support manual scavengers, one of the first steps should be to recognise the women engaged in this work and prioritise their needs.
- **Ease of rehabilitation:** Provisions of loan and skill development should be easily accessible also there should be a proper mechanism for easy legal help in case of violation of the Act.
- **Giving voice to voiceless:** Manual Scavengers should be mobilised into trade unions, self-help groups, co-operatives and pressure groups to safeguard the interest of the workers.



- **Inclusive policy making:** People with first-hand experience can reveal the loopholes in the system. Hence, manual scavengers should be made the active stakeholders in policy making.

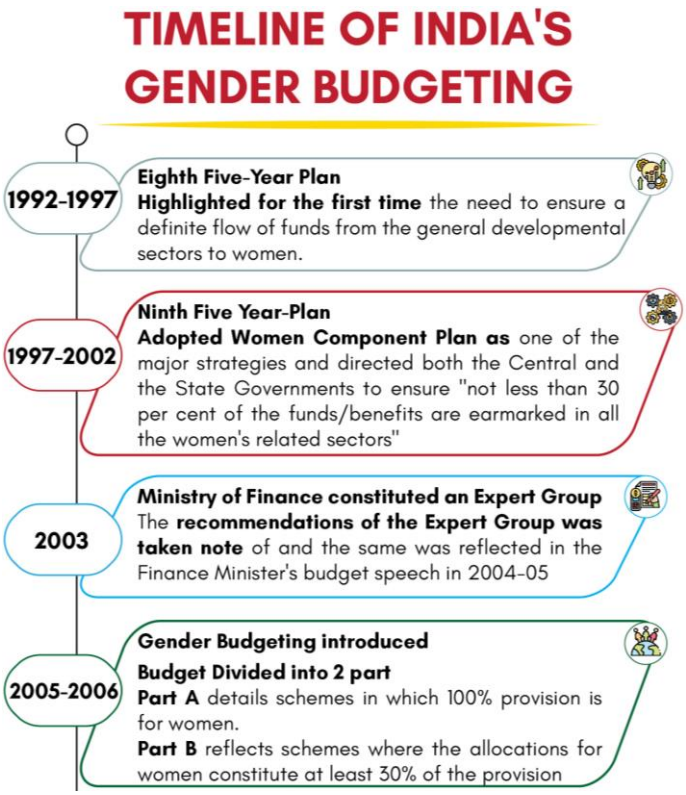
6.4. GENDER BUDGETING

Why in News?

Recently, in Union Budget 2023, gender budgeting is pitched as a powerful fiscal innovation for women's empowerment.

More About News

- Government recognizes the importance of **Nari Shakti** (women power) as the harbinger of our bright future and for women-led development during the **Amrit Kaal (the 25-year-long lead-up to India@100).**
- Government focus is inclusive development, which is also the first "**saptarishis**" or the seven principles guiding the outlook.
- The estimated Gender Budget stood at **4.96% of the total expenditure this year,** compared to 4.33% 2022-23.



About Gender Budgeting (GB)

- It is a **powerful tool for achieving gender mainstreaming** so as to ensure that benefits of development reach women as much as men.
- It is not an accounting exercise but an **ongoing process of keeping a gender perspective in policy/ programme formulation,** its implementation and review.
- It **entails dissection of the Government budgets** to establish its gender differential impacts and to ensure that gender commitments are translated into budgetary commitments.
- **Benefits of GB**:
  - **Addressing Gender Inequality:** The **rationale for gender budgeting** is rooted in recognizing the fact that national budgets affect men and women differently.

- ✓ **Women make up nearly half of India's population** and lag behind men on many social indicators like health, education, and economic opportunities.
- **Promoting Inclusive Development**: Gender budgeting can also **contribute to the achievement of the Sustainable Development Agenda 2030.**

Challenges in Gender Budgeting

- **Concentrated in 5 key ministries:** Government data shows that between 2005-06 and 2019-20, India's gender Budget remained concentrated in five key Ministries and Departments: Rural Development, Women and Child Development, Agriculture, Health and Family Welfare, and Education.
- **Post-Covid-19 approach:** Lack of focus on spending on issues that proved critical during the pandemic. As the gender Budget remained 4.41% and 4.33% of the total budgetary expenditure.
- **Limited quantum of gender budgeting**: The quantum of gender budgeting has remained in the range of 4 to 6% of the total expenditure and less than 1% of its GDP.
- **In terms of methodology:** Lack of a transparent mechanism that details weights attributable to various schemes under gender budgeting.

Suggestions

- **Process used for determining and reporting the estimates needs to change:** It should be based on a roadmap prepared by each ministry/department, which shows how they plan to meet gender needs and bridge existing gender gaps.
- **Diversify the number of ministries:** It will help in proper targeting of various aspect of women empowerment.
- **Availability of gender-specific data sets:** Need to have proper segregated data for effective budget allocation and monitoring.
- **Improving the gender budget allocation:** Based on women population of the country for effective implementation.
- **Proper Budget allocation in Part A and Part B:** There was a **228% hike in Part A** of the Gender Budget compared to last year, while **Part B** saw a **6% drop** from 2022-23.

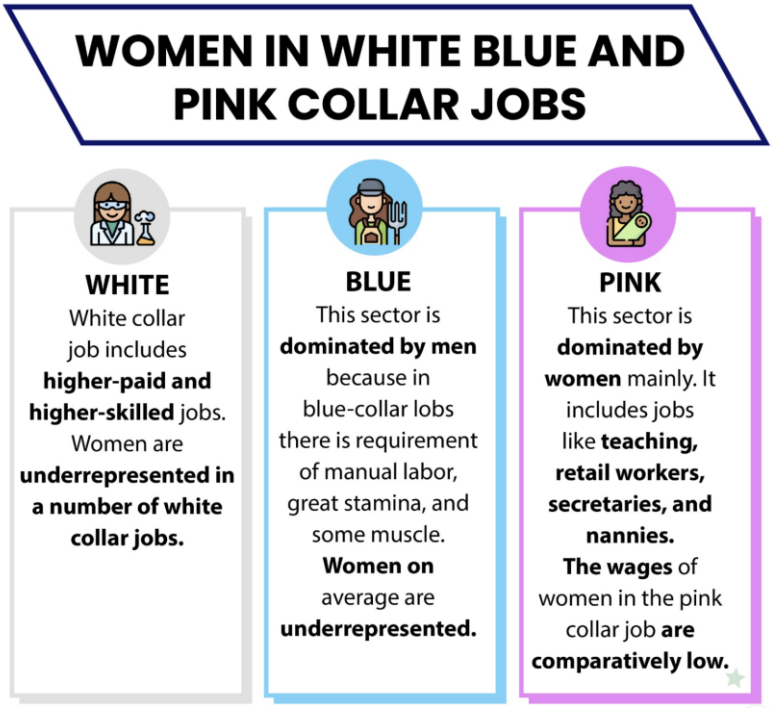
6.5. WOMEN IN WORKFORCE

Why in News?

President in her recent speech asserted that **low participation of women** in the work force is a **major hindrance in the overall development** of the country.

Importance of Women in Work Force

- **Economic Growth:** According to a McKinsey report if India achieved gender equality **there would be** an increment to **annual GDP growth by 1.4 per cent.**
- **Empowerment**: According to the **National Family Health Survey (NFHS)**, Women's decision-making power in the household is more if they are employed.
  - It will also help in improving performance of **social indicators like Infant Mortality Rate (IMR), Maternal Mortality Rate (MMR) etc.**
- **Diversity at work**: Women participation in work force will bring together different kinds of energies that complement each other. They will promote **multitasking, customer-centricity, teamwork, a nurturing mindset** etc.



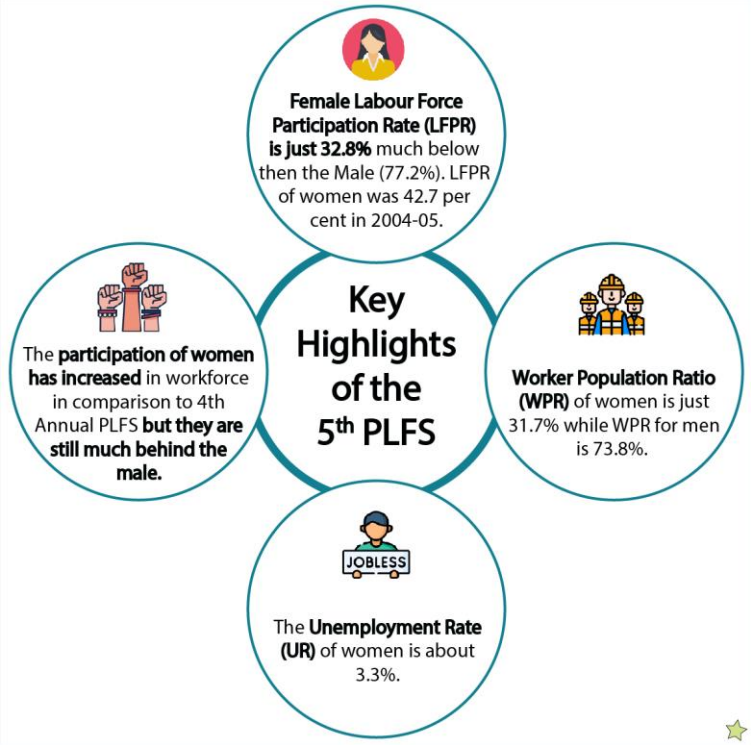
- **Demographic Dividend:** India's **median age is merely 28-30 years**. A younger women workforce translates to an advantage, energising fast-paced development and growth.
- **Parity with Other Countries and Global Commitment:** The women earn far lesser than men in India when compared to other countries like South Africa, Brazil and Chile.
    - Enhancement in women participation will help in achieving achievements Sustainable Development Goals such as **SDG 1 (No Poverty)**, **SDG 5 (Gender Equality)**, **SDG 8 (Decent Work and Economic Growth)** and **SDG 10 (Reduced inequalities).**

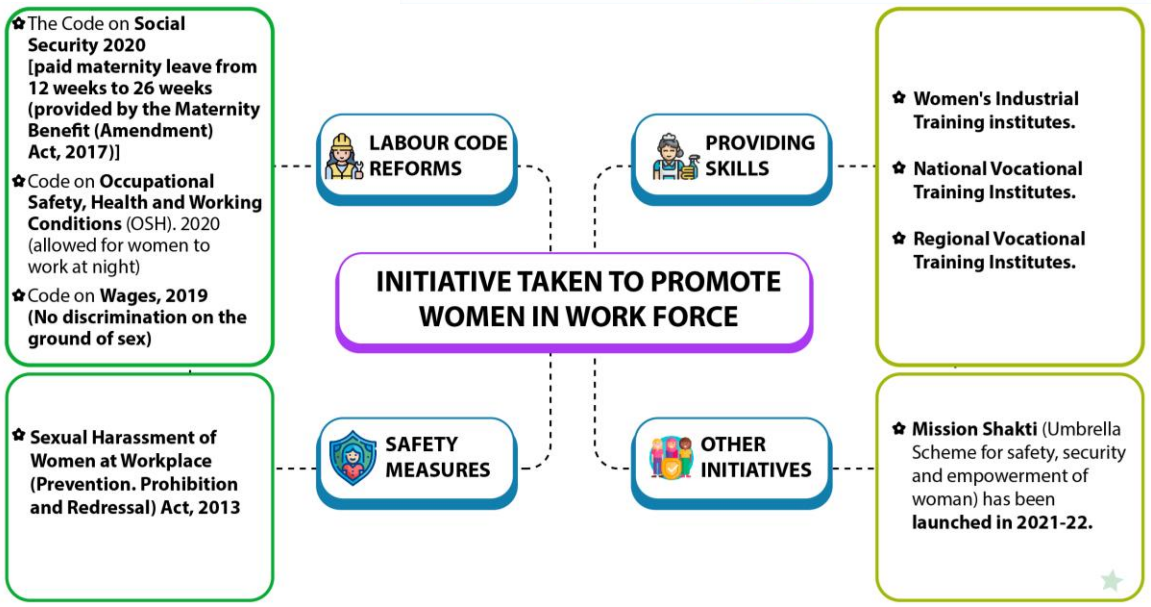
Discrepancy in Counting the Female Labour Force Participation Rate (FLFRR)

- Experts have highlighted **three main measurement issues** which leads reduce the overall **FLFRR. These include**
    - **Overly broad categories,**
    - **Reliance on a single question to categorise labour force status, and**
    - **Narrow approach of limiting productive work to labour force participation.**
- According to **International Labour Organisation (ILO) research, female LFPR was 56.4 % in India for 2012,** against the far lower official estimate **of 31.2 %** for 2012.

Reason behind Low Participation of Women in Work Force

- **Social:** Qualified women are unable to join the labour market due to **family responsibilities** and the need to conform to social norms.
    - The migration trends from rural to urban are still largely viewed as a **male domain**.
- **Economic:** India has been ranked at the **143rd** place in **Economic Participation and Opportunity** indicator of **Global Gender Gap (GGG) Index for 2022 (**Released by **World Economic Forum (WEF)).**
    - With the **rise in household income the participation of women in workforce has been discouraged.**
    - Also, they are given employment in certain low paying sectors such as basic agriculture, sales and elementary services and handicraft manufacturing. For this, the term **'feminisation of labour'** is being used.
- **Educational:** A **higher percentage of males** compared to **females** have received vocational/technical training.
    - Moreover, they are given training in those sectors which are seen as a **traditionally 'female domain'**, like handlooms and apparels, childcare, nutrition, pre-school, and crèches.





- **Technological Advancement:** Widespread gender **digital divide is there**, as per study, only 35 per cent of Indian women are active internet users.
- **Workplace harassment**: It can take in various forms, such as sexual harassment, mental harassment, gender discrimination etc.
- **Prohibition of Certain Activities**: The Factories Act prohibits female employees from cleaning, lubricating, or adjusting machines, working near cotton openers, and working in operations deemed hazardous.

Way Forward

- **Sensitisation:** People need to be sensitised about the existing stereotypes on women.
- **Inclusivity** and **Equity**: Their representation in non-traditional areas such as Artificial Intelligence, etc. can be ensured by inclusive ideas.
    - Use of technology, promotion of incubation space, funding opportunities and setting up of upskilling centers would nudge women to participate in the ongoing **fourth industrial revolution** (fusion of advance technologies such as **artificial intelligence (AI), robotics, the Internet of Things (IoT),** etc.).
- **Safety**: Adequate safety measures should be taken such as **panic button** etc.
- **Policy Making**: Sound labour market information is essential for developing well-informed policies.

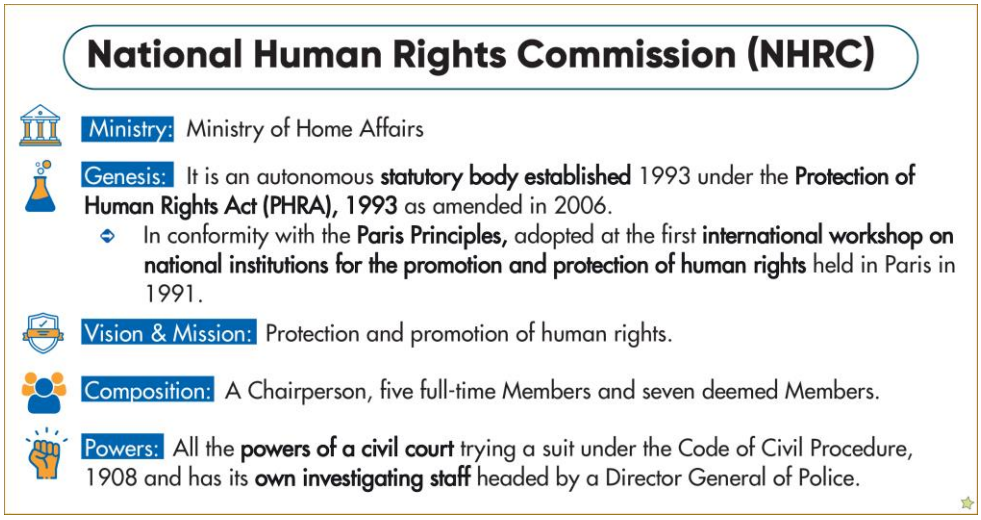
6.6. MENTAL HEALTHCARE

Why in news?

The National Human Rights Commission (NHRC) in a report flagged the "inhuman" condition of various government-run mental healthcare institutions across the country.

More on news

- The NHRC's observations were made after **visits to all operational government facilities,** to assess the implementation of the Mental Healthcare Act (MHCA), 2017.
- NHRC noted that facilities are **"illegally" keeping patients long after their recovery which** is an "infringement of the human rights of mentally ill patients".



About mental healthcare

- The World Health Organization (WHO) defines **mental health** as a state of **well-being,** where an **individual realises their capabilities**, can cope with the normal stressors of life, work productively, and is **able to contribute to their community.**
- Mental illness is an amalgamation of **biological, social, psychological, hereditary, and environmental stressors.**
    - Social factors and institutions**, like gender, race and ethnicity, are responsible for mental health conditions.**
    - In a genome-wide linkage study have found out that the **heritability of depression** has been estimated to be **approximately 40%.**

Mental Health in India

Current status of Mental illness in India

- More than 80% people are not able to access treatment
- 1.39 lakh suicide in the year 2019
- 1 in 7 people live with mental illness
- Mental health issues cost Indian firms $14 billion a year

Fators affecting Mental Health

- **Traumatic events** Physical and emotional trauma
  Traumatic brain injuries (TBI)
  Antenatal/prenatal trauma
- **Hazardous substances and biological agents**
  Pathogens and infections
  Ionising radiation Toxins
- **Personal factors and lifestyle choices**
  Economics
  Poverty and housing issues
  Relationships
  Medical issues
  Traumatic events (loss, grief etc)
  Physical activity
  Sleep
  Digital technologies
- **Occupational factors**
  Undue pressures
  Poorly defined job roles
  Lack of control over work
  Unhealthy work-life balance
- **Genetic factors**
  Hereditary genes
  Gene mutations

Mental Health Care

Administration

Ministry of Health and Family Welfare: Medication and treatment at primary health centres at the community level and specialised tertiary healthcare at state mental hospitals

Ministry of Social Justice and Empowerment: Social security-related issues such as disability pension, reservations for employment and housing for homeless persons living with mental illness.

Key legislations

Mental Health Care Act of 2017

Rights of Persons with Disabilities Act of 2016 (it recognises mental retardation, and mental illness as disability

Mental Healthcare Act, 2017

- Bans treatment of minors by electric shocks
- Mandates use of muscle relaxants & anesthesia for electric shock therapy on adults
- Disallows seclusion or solitary confinement of a person with mental illness
- Right to Personal Communication & prohibits ill-treatment towards patients
- Run mental health establishments & review boards registered by Mental Health Authorities
- Decriminalises suicide, and Provisions of advance directives
- Violation may attract imprisonment up to 6 months or Rs. 10,000 one or both

Other Key initiatives Mental Health

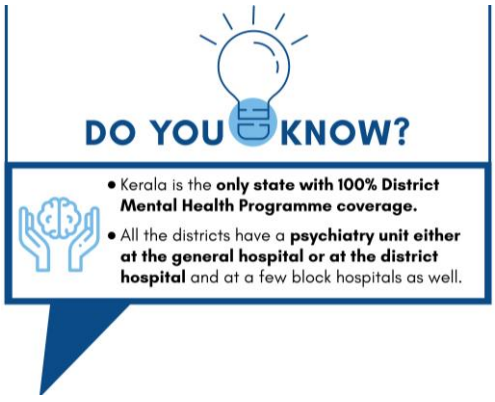
- **National Mental Health Program (NMHP):** To address the shortage of qualified professionals in the field of mental health.
- **24/7 Toll free Kiran Helpline** to provide support to people facing anxiety, stress, depression, suicidal thoughts and other mental health concerns.
- T-MANAS (Tele-Mental Health Assistance and Nationally Actionable Plan through States)
- **Manodarpan:** To provide psychosocial support to students, family members and teachers for their mental health and well-being during the times of Covid-19.

Challenges of tackling mental health care

- **Challenges faced by patients**
  - **Stigma:** Because of stigma mental health patients do not seek any medical help.
    - ✓ This can have **deep isolating psychological impact.**
  - **Drop out:** Sometimes treatment including counselling can take over a year. Also, these sessions are prohibitively costly, forcing patients to withdraw.
- **Inadequate resources**
  - **Shortage of doctors:** Estimates from WHO in 2017 show that India has only **0.15 psychologists per lakh** while the requirement is three psychiatrists per lakh.
  - **Inadequate training to doctors:** There is a range of mental illnesses that need to be identified and treated, however training of doctors is not commensurate to the demand of the job.
  - **Resources at Primary Health Cares (PHCs):** The supply of medication at the PHCs level may be irregular and inadequate given the range of illnesses.
  - **Rehabilitation facilities:** The MHCA requires the government to provide less restrictive **community-based rehabilitation facilities** for persons who no longer require treatment in restrictive mental health establishments.
    - ✓ Such rehabilitation facilities are **either missing or inadequate** in India's landscape of mental healthcare services.
- **Administrative shortfalls**
  - **Lack of coordination:** Given that mental health involves both medical treatment and social welfare, there is an **overlap between the two key ministries**, yet enough intersectoral coordination may be missing.
  - **Underutilisation of funds:** For example**, less than 40% of funds** allocated to states from 2015 to 2020 under the District Mental Health Programme were utilised.
  - **Regional disparity:** Due to inadequate resources in rural and remote areas, many mental health professionals are reluctant to work in rural areas.

Way ahead

- **Understanding the gravity:** Careful mapping and research needs to be undertaken to produce quality data, that is essential to understand the size of the problem.
  - Additionally, the initiative of mapping should be complemented with setting **benchmarks for screening** of mental illness.
- **Mental health literacy:** Awareness programme is the gateway for stigma less mental health interventions.
  - Lack of awareness leads to overlooking, misjudging or dismissing the signs that someone needs help as well as stigmatising those who seek medical help.
  - Also, there is an urgent need to **counter the notion that mental health exclusively means the absence of mental illness.**
- **Affordability: Cost** of counselling sessions should be **regulated.** Also, underwriting norms in **insurance policies**, coverage of outpatient costs, disease classification, pre-existing conditions, need clarification.
- **Financing:** The allocated budget is about approximately 932.13 crores but experts believe that budget allocation must be enhanced. Also, mechanisms should be devised to **effectively utilise the financial resources.**

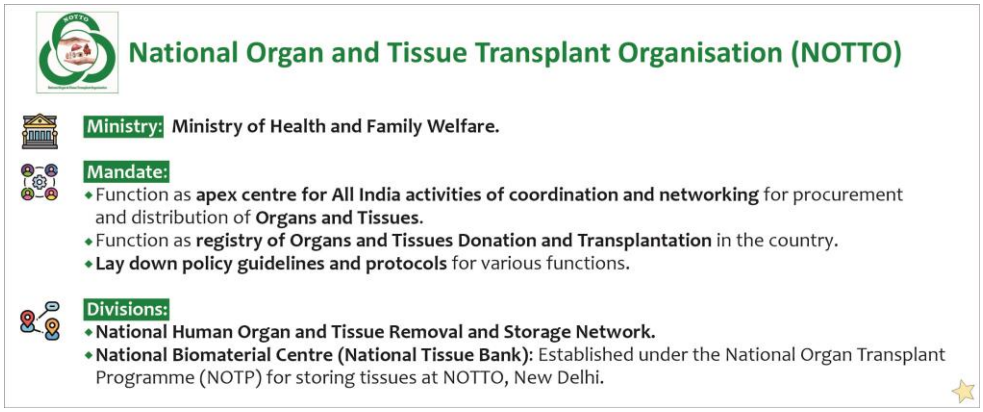


- **Administrative reforms:**
  - **Bottom-up strategy:** A mental healthcare system **modelled on reproductive and child health**–with services starting at the **village level and going up to the tertiary hospitals** is needed**.**
  - **Effective coordination:** Better intersectoral coordination between mental health and social welfare departments of the government is needed.
- **Shifting care from institution to community:** For community based rehabilitation, India should bolster outpatient services and have day-care centres.
  - It will **facilitate a comprehensive approach,** supported by heightened political commitment, scientific understanding and a citizen driven movement.

6.7. NEW ORGAN TRANSPLANTATION GUIDELINES

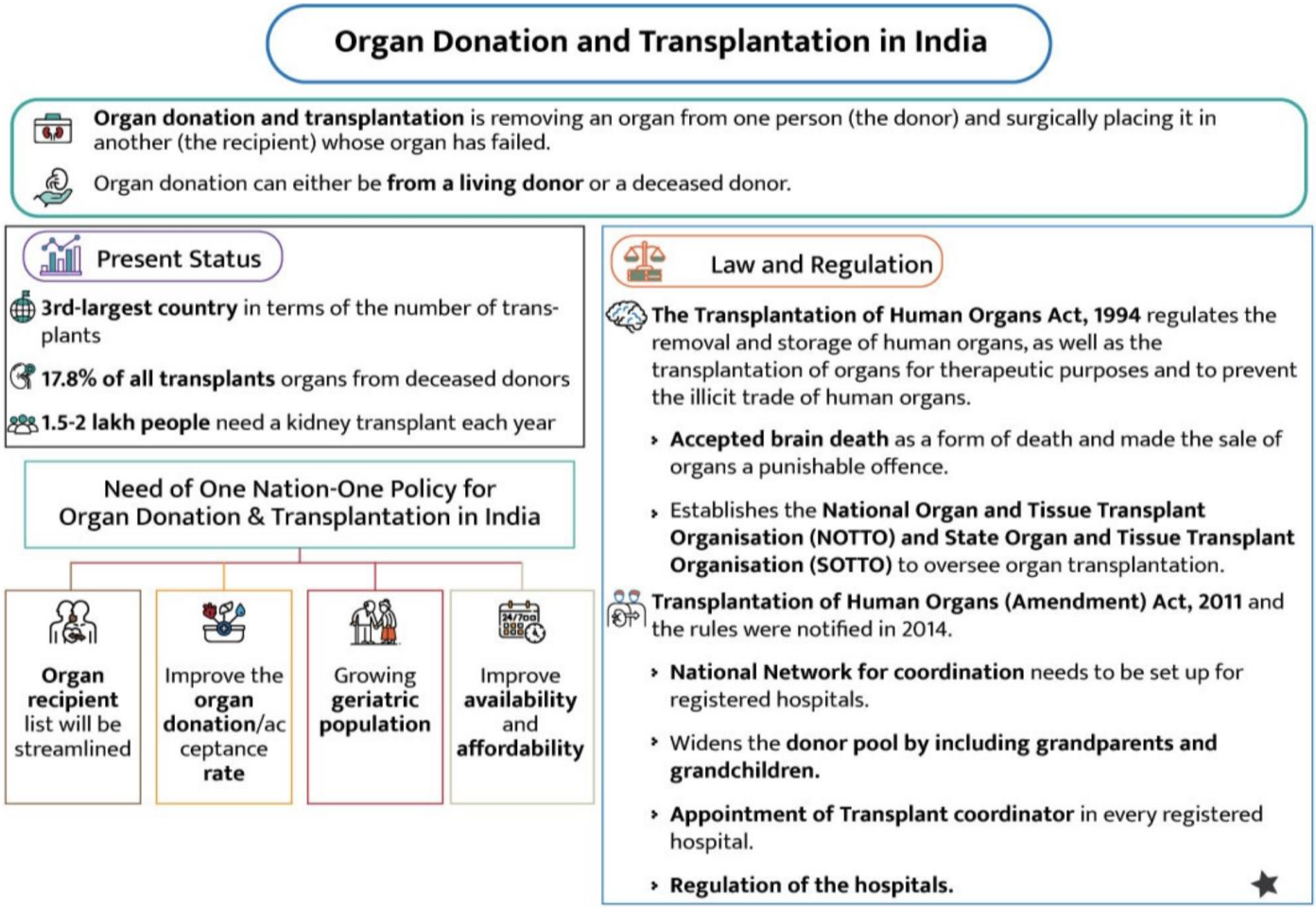
Why in News?

In a recent move aimed at improving the organ donation and transplantation system in India, the Ministry of Health and Family Welfare (MoH&FW) has **introduced several changes to the National Organ Transplantation Guidelines.**



New Guidelines

- **No domicile requirement:** A Citizen can now register for organ donation in any state, previous requirement of registering in the state of domicile has been removed.
- **Upper limit age:** New Guidelines allow even those above 65 years of age to register to receive an organ for transplantation from deceased donors.
    - **Under the previous guidelines established by the National Organ and Tissue Transplant Organization (NOTTO),** patients over the age of 65 suffering from end-stage organ failure were prohibited from registering to receive an organ for transplantation.
- **No registration fees:** Centre has asked states to stop governments to stop taking fees to register a patient for organ transplants.
- These developments come in the backdrop of when MoH&FW is working on **One Nation-One Policy for organ donation and transplantation.**

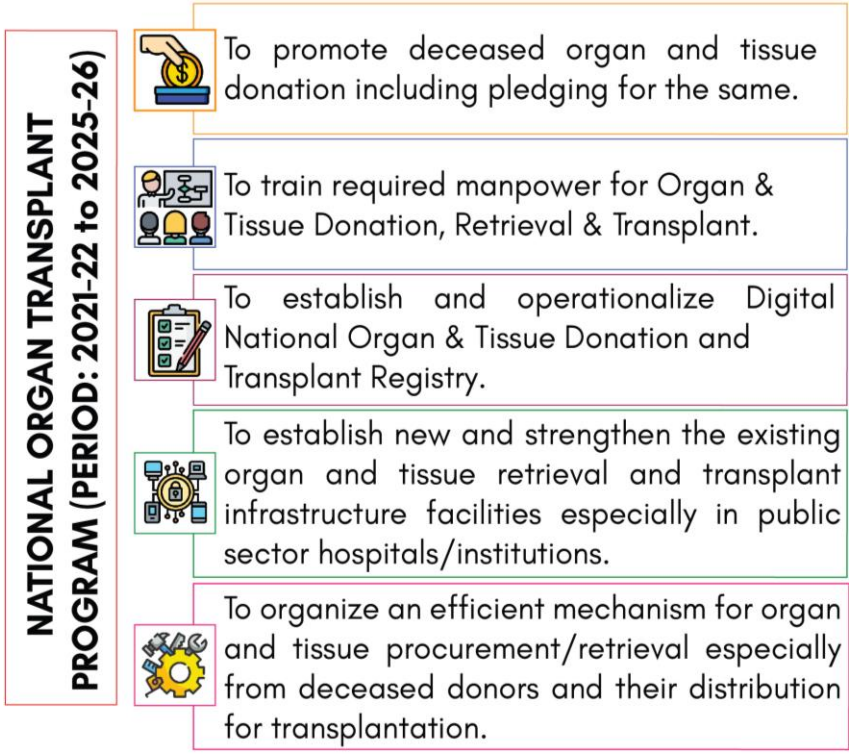


Issues in Organ Donation and Transplantation in India

- **Health being a state subject**: Since health is a state subject in India, it can be challenging to get all states to accept and implement new regulations.
- **Low organ donation rate:** Despite the high demand for organs, the rate of organ donation is still quite low in India, as many citizens are not willing to pledge their organs due to social, cultural, and religious beliefs.
- **Regional disparities**: There is a significant disparity in organ donation rates between different regions, such as the North-South divide, with most critical/specialized hospitals being located in South India.
- **Limited specialized hospitals**: Despite having over 640 medical colleges and hospitals in India, organ transplantation remains a specialized service limited to certain hospitals only.
- **Family sentiments:** In cases of brain dead donors, the family members go through various emotions and grief, while the window of opportunity for organ transplant begins to shrink rapidly.
- **Acceptance of organ transplants:** Many patients and their family members have doubts about the quality of care the patient will receive after an organ transplant, as well as how long the patient will survive after the transplant.
- **Black market:** The existence of a large black market for organ donation creates a trust deficit among needy families and hinders organ donation in India.

Ethical Issues involved in organ transplantation

- **Justice versus benefit in allocation:** Due to shortage of donors, the question of who should get the organs - the one who is the sickest or the one who is waiting for long, or the one who can get benefited the most or to the richest person in queue – becomes an ethical dilemma.
- **Individual beliefs system**: The treatment of body and its parts after death has great significance for an individual for religious, spiritual, cultural and social reasons.
- **Monetizing body parts:** Selling an organ for the need of money raises question of ethics and exploitation of poor sections.
- **Coercion & Non-informed donation:** Scandals of trafficking of organs raise issues regarding informed consent of the donor.
- **Potential risks of donation:** At times, donors are unaware of the potential risks and aftereffects they may undergo.
- **Non-universality:** The development and use of technology related to organ and tissue transplants is quite expensive and beyond the means of many people.



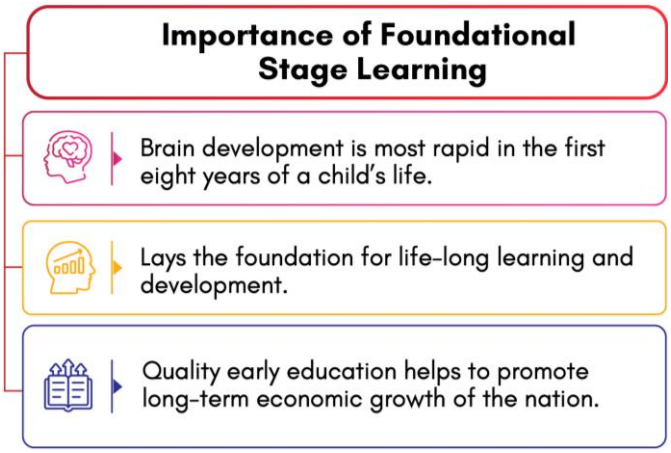
Suggestion

- **Open dialogue about organ donation:** Starting from school curriculum or special course making students as torch bearer for elimination negative approach towards organ donation and transplantation.
- **More awareness about Organ donation among masses:** Through advertisement or Role model.
- **Better coordination among various governance levels:** Like NOTTO at the national level, SOTTOs at the state level and ROTTOs at the regional level needs to ensure that they work as well-oiled machinery while performing their mandate.
- **Engaging with all stakeholders:** Specially engaging with local stakeholders and non-governmental organisations (NGOs).
- **Improve Hospital strength:** There is a need to expand the number of institutions where surgeries and transplants are undertaken.

6.8. NEWS IN SHORTS

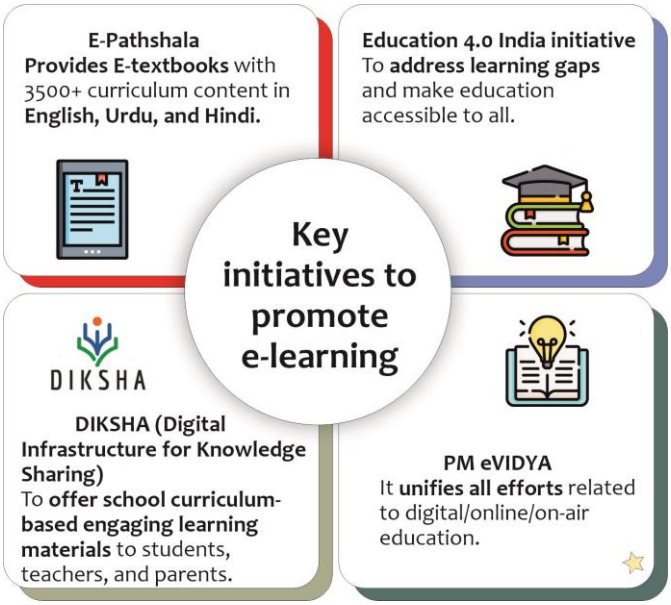
6.8.1. JADUI PITARA: A LEARNING-TEACHING MATERIAL

- **'Jadui Pitara'** -a play-based LTM **tailored for children between the age group of 3**- has been developed **under National Curriculum Framework for Foundational Stage** (NCF-FS).
  - It is designed **to pique curiosity and accommodate diverse needs of learners** in foundational stage.
- **National Education Policy 2020 envisages 5+3+3+4** (Foundational + Preparatory + Middle + Secondary) **curriculum pedagogical structure.**
  - **A National Steering Committee** headed by Prof. K. Kasturirangan will **develop NCF for each of the stages**.
- **NCF-FS** was launched **by Ministry of Education** in October 2022 and accordingly, **NCERT has developed LTM**.
  - **NCF-FS** emphasises **play based learning** for foundational stages.
  - Accordingly, **LTM for foundational stage** was launched **using the concept of Jaadui Pitara.**
- **Key features of Jadui Pitara**
  - **Applies to Class 1 & 2 also** (age 6-8).
  - It is **available in 13 Indian languages**.
  - Comprises of **playbooks, toys, puzzles, posters, story books** etc. as well as **reflecting local culture, social context** and languages.
  - **Learning and Development in several domains** including Physical Development, Socio-emotional and Ethical Development, Cognitive Development etc.



6.8.2. STUDY WEBS OF ACTIVE LEARNING FOR YOUNG ASPIRING MINDS (SWAYAM)

- With **2.4 crore enrolments**, government-run **SWAYAM has outperformed any other e-Learning platform**.
  - SWAYAM is a **repository of more than 300 high quality Massive Open Online Courses (MOOC) that** are developed by **academicians from top ranked institutions** and **are offered free of cost.**
- A learning system **based on formalised teaching but with help of electronic resources** is known as E-learning.
  - India is **one of the biggest markets** for e-learning with **revenue projected to reach US$ 4.73bn in 2023**.
- **Factors driving eLearning platform**
  - **COVID-19 pandemic** has accelerated adoption of online learning.
  - Demand for **remote and flexible** learning options.
  - **Advancements in technology** and growing trend towards **personalized and adaptive learning.**
- **Challenges faced:** Ensuring **quality and accuracy** of content, **digital divide, unequal access** to technology and internet connectivity etc.



6.8.3. GLOBAL QUALITY INFRASTRUCTURE INDEX (GQII) 2021

- **India's accreditation system ranked 5th** in Global Quality Infrastructure Index (GQII) 2021.
- GQII program is an initiative to **research and disseminate data on Quality Infrastructure (QI).**
  - It is supported by **Physikalisch-Technische Bundesanstalt (PTB)** and **Federal Ministry for Economic Cooperation and Development (BMZ), Germany.**
- GQII 2021 ranks **184** countries according to **relative development** of their **QI.**

- **Overall rank of India's QI is 10** while Germany ranks 1, followed by China and USA.
- It aims to **metrology, standardization and accreditation.**

Parameter	Meaning	India's Rank	Responsible Agency
Metrology	**Science of measurement**, embracing both **experimental** and **theoretical determinations** at any level of uncertainty in field of science and technology.	21	**National Physical Laboratory** under **Council of Scientific & Industrial Research** (NPL-CSIR)
Standar-dization	Process of **creating protocols** to **guide creation of good** or **service** based on consensus of all relevant parties in industry.	9	**Bureau of Indian Standards (BIS)**
Accredi-tation	**Formal, independent verification** which **establishes competence and credibility of conformity assessment bodies (CABs)** which perform testing, certification, inspection, etc.	5	**Quality Council of India (QCI)**

- **Importance of QI**
  - **Helps in international cooperation** by creating reliability and trust between trading partners.
  - **Lays foundations of quality and credibility,** especially for sectors such as health and sustainable development.

6.8.4. YUVA SANGAM PORTAL

- **Yuva Sangam registration portal was launched.**
- **It is an initiative** of Government of india **to strengthen people to people connect especially** between **youth belonging to North Eastern India** and other States.
- It will **focus on conducting exposure tours** of youth between 8 North Eastern States and other States.
- It is **conceptualized under Ek Bharat Shreshtha Bharat** (EBSB) in collaboration with various other ministries and departments such as Culture, Tourism, Railways etc.
  - EBSB aims to **promote mutual understanding** between people of different states/UTs **through state/UT pairing.**

6.8.5. MISSION ANTYODAYA SURVEY (MAS) 2022-23

- It was launched by **Ministry of Rural development and Panchayati Raj** along with its portal and mobile application.
- MAS is **conducted by Department of Rural Development since 2017-18.**
  - It aims to **assess the outcome of various development schemes** in rural areas.
  - It is carried out coterminous with People's Plan Campaign (PPC).
  - Survey-2022 Questionnaire has **183 indicators and 216 data points covering 21 areas**.
  - Areas covered in survey include fisheries, agriculture, fuel and fodder, good governance, roads, etc. Questionnaires are to be **prepared in 13 languages.**

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. LITHIUM DEPOSITS IN INDIA

Why in News?

Geological Survey of India has for the first-time established **Lithium inferred resources (G3) of 5.9 million tonnes** in Salal-Haimana area of Reasi District of Jammu & Kashmir.

More on News

- The discovery is **'inferred' or preliminary, the lowest of the three levels of estimations** of a mineral deposit and the **second of the four stages of exploration**, as per the UNFC 1997.
- This may be the **seventh largest deposit of the rare element**, accounting for **roughly 5.7% of all the reserves** in the world.
- Previously, in India, lithium reserves have been **reported from Karnataka's Mandya district**.

Mineral exploration stages

- According to the **United Nations Framework for Classification for Reserves and Resources of Solid Fuels and Mineral Commodities** (UNFC 1997), resources are categorized using the **three essential criteria affecting their recoverability:**
  - Economic and commercial viability (E).
  - Field project status and feasibility (F).
  - **Geological knowledge (G)**.
- Under the **Geological Knowledge**, the exploration for any mineral deposit involves **four stages: reconnaissance survey (G4), preliminary exploration (G3), general exploration (G2) and detailed exploration (G1).**

Geological Survey of India (GSI)

Kolkata, West Bengal

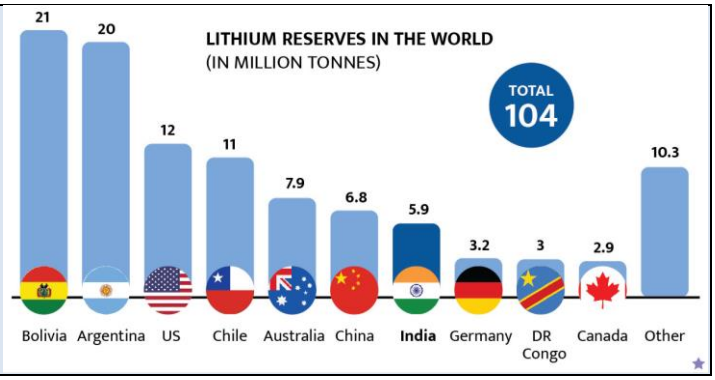
Genesis: Set up in **1851,** primarily to **find coal deposits for the Railways.** Presently, is an **attached office to the Ministry of Mines.**

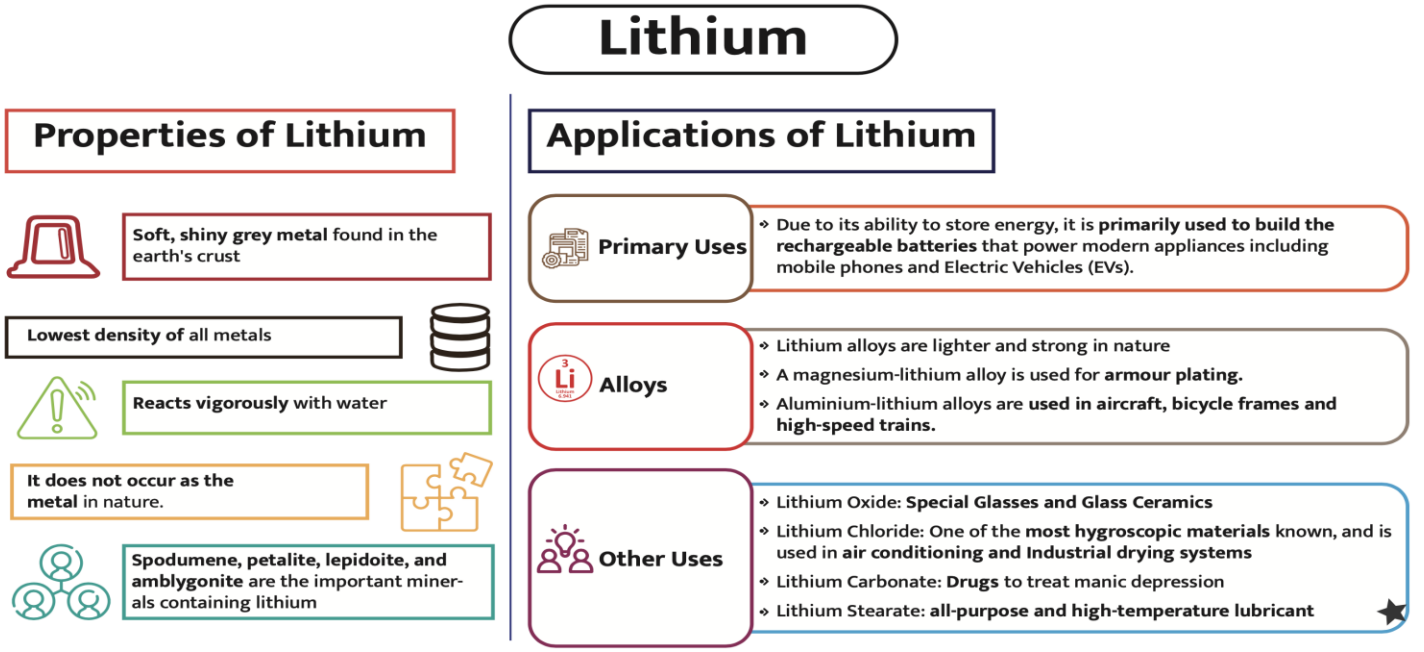
Objective: Establishing a repository of geo-scientific information and assessment of mineral resources.

Other key information: It achieves its objectives through ground surveys, air-borne and marine surveys, mineral prospecting and investigations, multi-disciplinary geoscientific, geo-technical, geo-environmental and natural hazards studies, glaciology, seismotectonic study, and carrying out fundamental research.

Global Distribution of Lithium

- The United States Geological Survey (USGS) said in 2022 that **total lithium resources globally stand at 80 million tonnes** although the reserves from which it can be accessed were pegged at just over 22 mn tonnes.
- Though found on each of the six inhabited continents, **Chile, Argentina, and Bolivia** — together referred to as the **"Lithium Triangle"— hold more than 75%** of the world's supply.





Significance of Lithium finding

- **Reduce import dependency:** Currently, India does **not have its own lithium resources** and is dependent on imports.
  - In FY2022, India imported lithium and lithium ion worth almost **₹14,000 crore**, which is likely to increase going forward.
  - India presently **imports lithium from Hong Kong, China, USA, Australia and Argentina.**
- **Boost to manufacturing and exports**: Manufacturing of rechargeable Lithium based batteries for multiple purposes and self-reliance.
  - A World Bank study suggests that the **demand for critical metals** such as lithium (Li) and cobalt is **expected to rise by nearly 500%** by 2050.
- **Transformation of Mobility:** It will strengthen India's **National Mission on Transformative Mobility and Battery Storage** for transitioning towards Electric Vehicles and green mobility**.**
- **Fulfilment of Net Zero Emission Goal by 2070:** Lithium being a key component of lithium-ion batteries used in EVs, harnessing solar power, wind energy etc.
- **Strengthening of critical mineral supply chain for emerging technologies:** Lithium reserves and processing is highly concentrated and India's find will significantly strengthen its supply chain.
  - Although, **China does not hold a lot of lithium reserve,** it **controls over half the global lithium processing** and almost 75% of cell components and battery cell production in the world.

Risks from lithium mining in the region

- **High risk in ecologically sensitive Himalayas:** Recent Joshimath subsidence shows fragility of the region and long-term issues with activities like mining.
- **Environmental pollution:** Open-pit-mining, refining, and waste disposal from Lithium extraction processes **substantially degrades the environment**, including depletion and contamination of waterways and groundwater, biodiversity, and considerable air pollution.
- **Stress on Water Resources:** Extracting lithium from its ore is **highly water-intensive**, taking about 2.2 million litres of water for one tonne of lithium.
- **CO_2 Emissions:** The lithium production process involves **heating the ore at a high temperature** that can only be **cost-effective by burning fossil fuels**. It could mean emission of 15 tonnes of CO_2 for every tonne of lithium.

Way ahead

- **Regulation of Lithium Mining:** Lithium mining and extraction can be pursued in a regulated manner to ensure **sustainable mining**.
- **Diversification of supply chain:** Till India utilizes its reserves, strategic agreements with international partners are critical for ensuring unrestricted supply of lithium.
- **Increasing efforts to expedite mineral exploration in India:** New push and investment is needed to further push the mineral exploration with involvement of private sector players.
- **Assessment of socio-ecological impact:** Socio-ecological impact of lithium extraction needs to be assessed for ensuring sustainable and inclusive development of the region.

7.2. GAGANYAAN

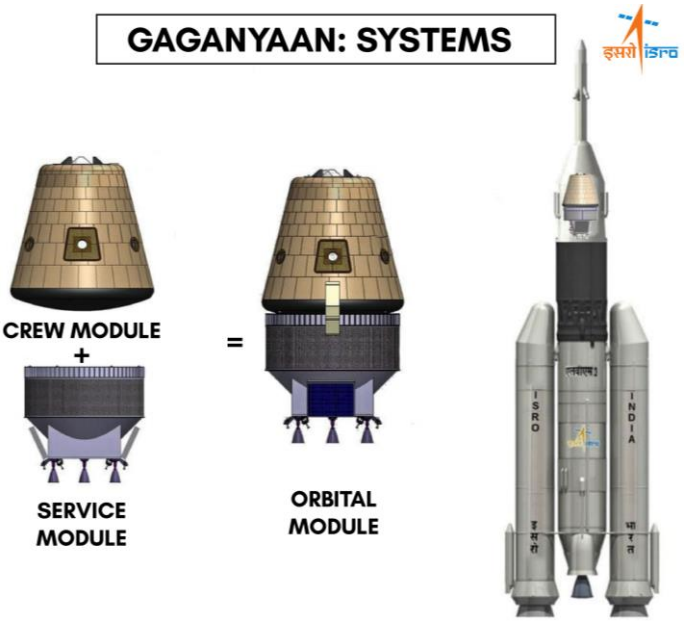
Why in news?

Indian Space Research Organisation (ISRO), along with the Indian Navy, has conducted an important trial for the **Gaganyaan, Indian Human Spaceflight Programme (IHSP).**

More about the news

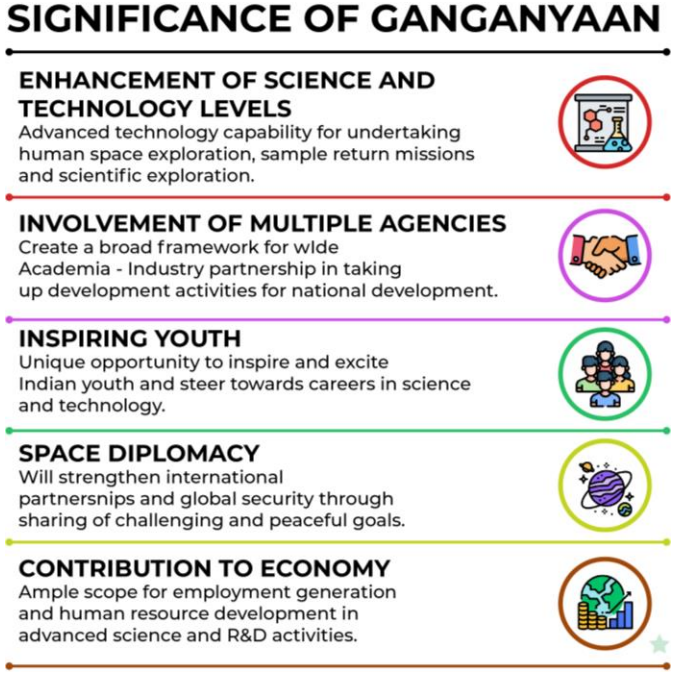
- They carried out **initial recovery trials of the Crew Module** in the Navy's Water Survival Test Facility (WSTF) in Kochi.
- **A Crew Module Recovery Model (CMRM),** that simulates the mass, center of gravity, outer dimensions, and externals of the actual Crew Module at touchdown, was used for the trials.
- ISRO's recent operation form the **initial recovery trials of Crew Module** in a closed pool.

- The **crew module will be the habitable part** of the Gaganyaan spacecraft that will have pressurisation and life support systems for the crew members.
- In contrast, **the service module will be an unpressurised structure** containing the propulsion system, power systems, and avionics to support the crew module during the mission.



About Gaganyaan Project

- It is **ISRO's first manned space mission** which envisages demonstration of human spaceflight capability by launching crew of 3 members to an orbit of 300-400 km for a 3 days mission.
  - It will **bring them back safely to earth**, by landing in Indian sea waters.
- **Mission includes three space flights**: two unmanned 'Abort missions' to test for crew safety, followed by the manned space journey.
  - **First trial (uncrewed flight) for Gaganyaan** is being planned by the end of 2023 or early 2024.
  - This will be followed by **sending Vyom Mitra, a humanoid** and **then with the crew onboard.**
- It will take off on a **Launch Vehicle Mark-III (LVM 3 rocket)** previously known as GSLV Mk III which is capable of launching four-tonne satellites in the Geosynchronous Transfer Orbit (GTO).
- **Gaganyaan National Advisory Council** has been created with members from different institutions and industries to deliberate on various aspects of the mission.
- Mission will make **India 4th country to have human spaceflight capability after US, Russia and China.**
- ISRO is developing indigenous technologies for **Human rated launch vehicle, Habitable Crew Module, Life Support System, Crew Escape System, Ground Station Network, Crew Training and Recovery.**
  - These technologies are **crucial to meet the objectives of Gaganyaan mission** and to take up **any further interplanetary missions**



Challenges for India to carry out Manned Space Missions

- **Hostile environment:** Gaganyaan has to create an atmosphere like Earth inside a small volume and ensure that is **adequate supply of oxygen, removal of carbon-dioxide and comfortable temperature and humidity** levels are maintained throughout the mission.
- **Gravity field:** Transitioning from one gravity field to another has impact on the physical bodies. It affects hand- eye and head-eye coordination.

Human in Space policy

The **Department of Space** has put up for public consultation, the **draft "Humans in Space Policy for India -- 2021"** and guidelines and procedures for its implementation.

About the policy

- **Applicability**: The guidelines are applicable to activities presently postulated under **Indian human space program (IHSP)** and for those activities which shall be defined and carried out in future in conjunction with IHSP.
- **Aim**: It envisages undertaking demonstration of **human spaceflight to LEO (low-earth orbit) in the short-term** and lay the foundation for a sustained exploration in the long run that will enable presence in LEO and beyond.

- **Isolation:** Due to isolation, one may encounter **depression, fatigue, sleep disorder** and psychiatric disorders.
- **Radiation:** In space stations, astronauts receive over ten times the radiation than what people are subjected to on Earth. **Radiation exposure may increase the risk of cancer. It can also damage the central nervous system.**
- **Launch escape system:** Anything may go wrong during the prelaunch, launch and post launch phase including the explosion of rocket into a fireball. Launch escape systems safety features must be built to minimize the losses.
- **Re-entry and Recovery:** The spacecraft's re-entry into the atmosphere must be very precise, even the slightest deviation could lead into a disaster.
- **Financial:** These missions require exorbitantly **huge investment** as they are highly technology intensive.

Way Ahead

- **Leveraging private sector:** ISRO is leveraging the capability of private sectors for various inputs required for developing the spacecraft.
- **Expanding International collaboration: Other than Russia, the US and France** had also offered training support to astronauts for Gaganyaan. Collaborating with more countries would provide better choices.
- **Doing away with the bureaucratic hassles:** To overcome the challenges of human spaceflight a steady and continuous upward progression toward **greater societal, scientific and technological development** is required.
- **Leaving nothing to chance:** Human space missions involve an **amalgamation of several technologies** and intense **coordination between different teams required** to significantly reduce the margin of error. The history of space travel has revealed that challenges can unexpectedly arise anytime from the lift-off to the injection stage.

Conclusion

The Gaganyaan mission could **propel India** to the **centre of human space exploration**. The manned missions will push India further in **exploration beyond Earth's orbit** as countries are eager to control the next space race, which has the **potential to trigger major changes in the global order.**

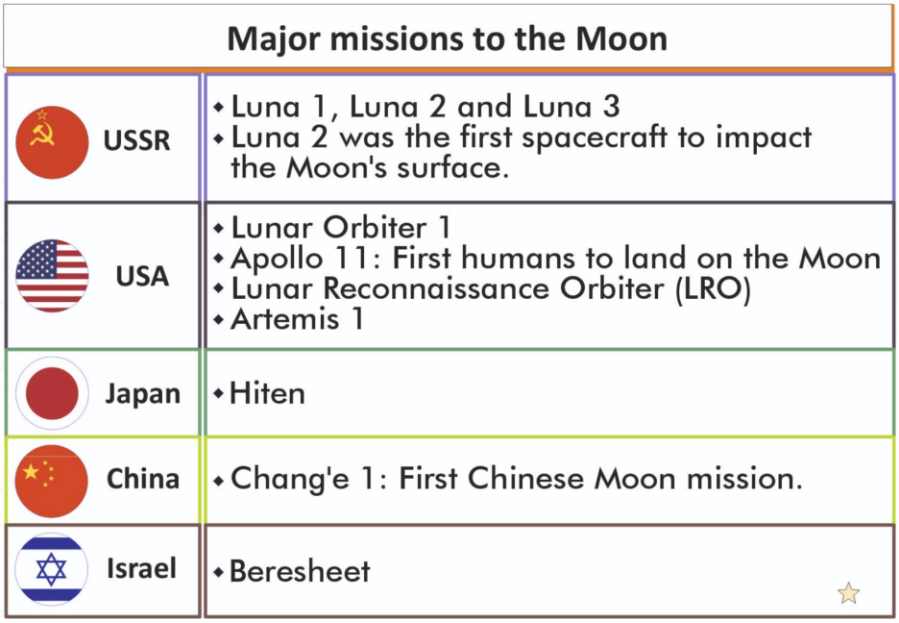
7.3. CHANDRAYAAN 3

Why in News?

Several critical steps that are necessary for the successful launch of the India's 3rd lunar exploration expedition were successfully conducted recently.

More about the News

- Indian Space Research Organization (ISRO) have **achieved a significant milestone in their efforts to safely land a spacecraft on the Moon**.
    - The Chandrayaan-3 spacecraft has **successfully passed the "essential tests" that validate its ability to endure the severe vibration and acoustic conditions** it would experience during its launch.

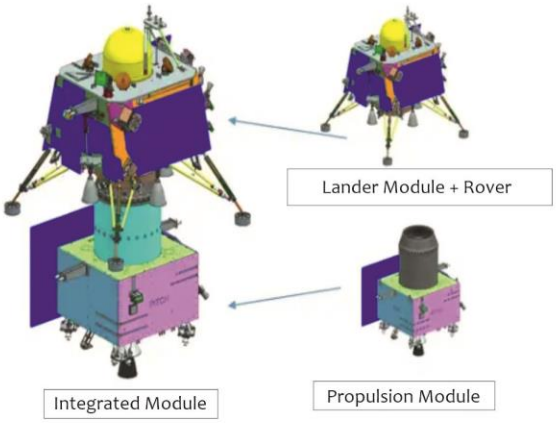


- The three **possible landing sites for the mission is also finalized** between Manzius U and Boguslawsky M craters in the **South Polar Region of the moon**.
- The **proposed lander has successfully completed** the crucial Electro - Magnetic Interference and **compatibility test.**
- The **Flight acceptance hot test, for the Cryogenic engine** to be used in the mission was also successfully conducted.

Chandrayaan 3

Objectives of the Mission

- To demonstrate **Safe and Soft Landing** on Lunar Surface.
- To demonstrate **Rover roving** on the moon.
- To conduct **in-situ scientific** experiments.



Mission Modules

Lander Module

- **Radio Anatomy of Moon Bound Hypersensitive ionosphere and Atmosphere (RAMBHA):** To measure the near surface plasma density and its changes with time.
- **Chandra's Surface Thermo physical Experiment (ChaSTE):** To measure thermal properties of lunar surface in polar region.
- **Instrument for Lunar Seismic Activity (ILSA):** To measure seismicity and determine lunar crust and mantle.
- **LASER Retroreflector Array (LRA):** To understand dynamics of moon system.

Rover Module

- **LASER Induced Breakdown Spectroscope (LIBS):** To derive the chemical Composition and infer mineralogical composition of Lunar-surface.
- **Alpha Particle X-ray Spectrometer (APXS):** To determine composition of lunar soil and rocksat the landing site.

Propulsion Module

- **Spectro-polarimetry of HAbitable Planet Earth (SHAPE):** To probe into Exo-planets which would qualify for habitability in future.

Launch Vehicle

- **Geosynchronous Launch Vehicle Mark III or GSLV-MK3.**
- **3-stage launch vehicle** consisting of Cryogenic Upper Stage, Solid Rocket Boosters and Core Liquid Stage.
- **Carrying capacity of 8 tonnes to low earth orbit (LEO) and 4 tonnes to geo transfer orbit (TO).**

Previous Lunar Missions of India

	CHANDRAYAAN 1 (2009)	CHANDRAYAAN 2 (2019)
Objective	To **prepare a three-dimensional atlas** of both near and far side of the moon and chemical, **mineralogical and photo-geological mapping of moon**	To **demonstrate the ability to soft-land** on the lunar surface and operate a robotic rover on the surface.
Modules	Contained **only Orbiter,** which was **successfully placed at 100kms** from Lunar surface.	Contained **Orbiter, Lander (VIKRAM)** and **Rover (PRAGYAN)**, the orbiter was successfully placed, but the lander lost connection while landing.
Findings	● The **detection of Water (H2O) and Hydroxyl (OH)** on the surface of the moon. ● It **confirmed the Ocean Magma Hypothesis** i.e. the moon was once completely in molten state. ● **Detection of new spinel-rich rock** type on lunar surface. ● **It confirmed the presence of magnesium, aluminium, silicon and calcium on lunar surface,** through x-ray signals.	● Identified the **presence of variable Argon-40** at the middle and higher latitudes of the Moon. ● Detected the **presence of Chromium and Manganese** on the lunar surface. ● Detected **signatures of the sub-surface water-ice,** and achieved high resolution mapping of the **lunar morphological features** in the polar regions. ● **Micro solar flares, were observed outside the active region of the sun for the first time,** which will help to understand the mechanism behind heating of the solar corona.

Lessons from ISRO's previous Chandrayaan missions

- **Scientific Discoveries:** The Chandrayaan-1 and Chandrayaan-2 missions have contributed to our understanding of the Moon's geology, mineralogy, and topography.
- **Learning about navigation:** In Chandrayaan 2 mission, Navigation control and guidance mechanism in the penultimate phase was not designed to handle the large spike in speed that developed in the last 3-5 minutes of its descent. The problem had been corrected in the new modules of Chandrayaan-3.

Why the South Pole of the Moon is chosen as the preferred landing site, for most of the upcoming Lunar missions?

- The **South pole area remains in shadow,** which is much larger than that at the North Pole. There is a **possibility of the presence of water** in permanently shadowed areas around it.
- The region has **craters that are cold traps and contain a fossil record** of the early Solar System.
- The **regolith in the region has traces of hydrogen, ammonia, methane, sodium, mercury** and silver- making it an uptapped source of essential resources.
- Its **elemental and positional advantages make it a suitable pit stop** for future space exploration.

- **Extended lifespan of orbiter:** The Chandrayaan-2 mission has demonstrated notable achievements in each of its phases, resulting in valuable benefits.
  - Additionally, Chandrayaan-3 will have a **similar spacecraft configuration, landing spot on the moon, and experiments to be conducted** on the lunar surface as the previous mission.
- **Technology Development**: The Chandrayaan program has been instrumental in developing and demonstrating new technologies, such as the use of high-resolution imaging, testing the technologies for deep-space missions, etc.

Scan the QR code to know more about **Space exploration.**

Weekly Focus #37: Space Exploration: Changing dynamics & pathway to the future

7.4. NASA-ISRO SYNTHETIC APERTURE RADAR (NISAR) SATELLITE

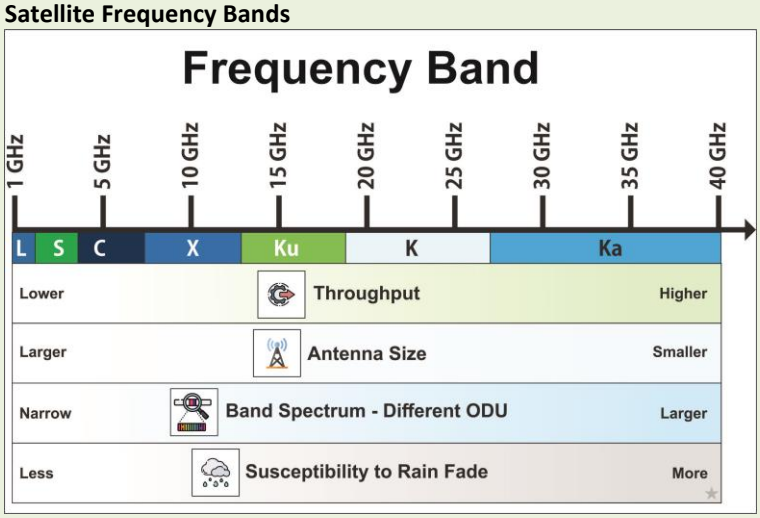
Why in News?

Recently, Indian Space Research Organisation (ISRO) has received the NASA-ISRO SAR (NISAR) satellite from the U.S. space agency.

About NISAR Satellite

- NASA-ISRO SAR (NISAR) is a **Low Earth Orbit (LEO) observatory** being jointly developed by NASA and ISRO.
- NISAR **will map the entire globe in 12 days** and provide spatially and temporally consistent data for understanding changes in Earth's ecosystems, ice mass, etc.
- The 2,800 kilograms satellite **consists of both L-band and S-band synthetic aperture radar (SAR)** instruments, which makes it a dual-frequency imaging radar satellite.
    - The **SAR payloads** mounted on Integrated Radar Instrument Structure (IRIS) and the spacecraft bus are together called an observatory.
    - **NASA is to provide the L-band radar**, GPS, a high-capacity solid-state recorder to store data, and a payload data subsystem.
    - **ISRO is to provide the S-band radar**, the GSLV launch system and spacecraft for the mission.
- NISAR is expected to be launched in **January 2024 from Satish Dhawan Space Centre into a near-polar orbit**.
    - After the commissioning period, the mission will conduct science operations with the L-band radar to satisfy NASA's requirements for **minimum of three years**, while the **S-band radar will be used by India for its specific needs for a period of five years.**

Satellite Frequency Bands



- **L band radars** operate on a wavelength of 15-30 cm and a frequency of 1-2 GHz. L band radars are **mostly used for clear air turbulence studies**.
- **S band radars** operate on a wavelength of 8-15 cm and a frequency of 2-4 GHz.
    - Because of the wavelength and frequency, S band radars are not easily attenuated.
    - This makes them **useful for near and far range weather observation**.
    - The drawback to this **band of radar is that it requires a large antenna dish** and a large motor to power it.

Significance of the mission

- **High Precision and Resolution:** The usage of two microwave bandwidth regions (L-band and S-band), enables it to measure changes in earth surface less than a centimeter across.
    - The Synthetic Aperture Radar used **can penetrate clouds and darkness and enable the NISAR to collect accurate data at any weather** and provide high-resolution images.
    - The precision interferometric orbits of the mission will **enable in mapping few millimetres of deformations in the land surface.**
- **Large Imaging Area:** The instrument's imaging area is greater than 240 kilometers along its orbit and it **can image the entire Earth in 12 days.**
- **Observing Indian Coasts and Antarctica:** NISAR will acquire data over the Indian Coasts and monitor annual changes in the bathymetry along the deltaic regions.

ISRO's other International Collaboration's

Planned Missions

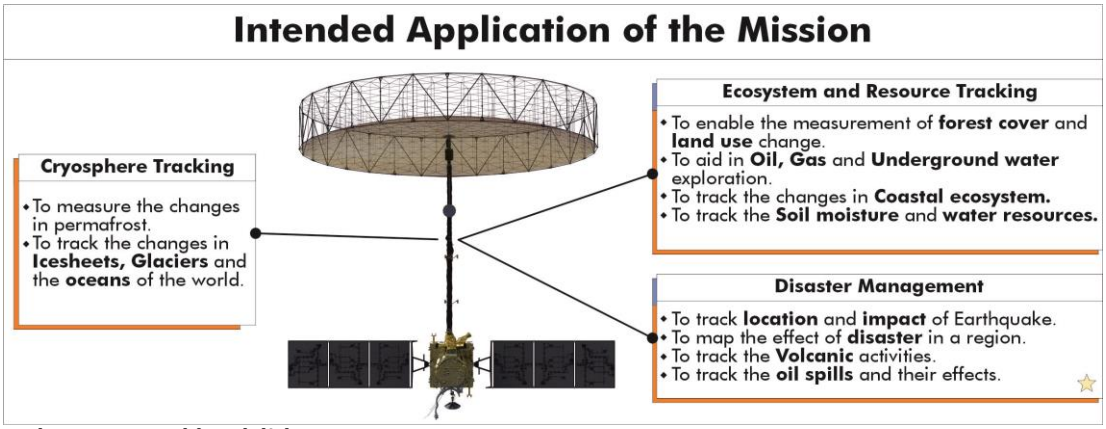
- **TRISHNA:** Joint **initiative of ISRO and The National Centre for Space Studies- France (CNES)** to launch an earth observation satellite mission with thermal infrared imager.
- **LUPEX (Lunar Polar exploration)**: Joint **initiative of ISRO and Japan Aerospace Exploration Agency (JAXA)**, to **send a lander and rover to the Moon's South Pole.**

Launched Missions

- **Megha Tropiques**(2011): Joint **initiative of ISRO and The National Centre for Space Studies- France (CNES)** to study the tropical atmosphere and climate change.
- **SARAL (Satellite for ALTIKA and ARGOS)** (2013): Joint **initiative of ISRO and The National Centre for Space Studies- France (CNES)** to study the Ocean from space using altimetry.

- The NISAR mission will **observe sea ice characteristics over the seas surrounding India's Antarctic polar stations,** which can be used to detect marine oil spills and disseminate the spill location during accidental oil seepage for preventive measures.

- **Observations for different fields:** It will provide a means of disentangling and clarifying spatially and temporally complex phenomena, **ranging from ecosystem disturbances to ice sheet collapse and natural hazards including earthquakes, tsunamis, volcanoes, and landslide.**



7.5. WHO'S PANDEMIC TREATY

Why in News?

Recently, Members of the World Health Organisation (WHO) held the first round of negotiations towards the pandemic treaty.

International Health Regulations (IHR)-2005

- It is the **mechanism through which the WHO has handled the pandemics in the recent past,** the outbreak of COVID-19, has highlighted the flaws it contained and hence the call for a New Pandemic Treaty, became more prominent.
- These are an **instrument of international law that is legally-binding on 196 countries, including the 194 WHO Member States**.
- They **create rights and obligations for countries, including the requirement to report** public health events at regular interval.
- The Regulations also **outlines the criteria to determine whether or not a particular event constitutes a "public health emergency of international concern".**

More about the News

- The World Health Organization (WHO) is leading **two major international initiatives to address on the threat of future pandemics.**
- The first initiative involves **revising the International Health Regulations (IHRs)** to improve global health alerts' speed and efficiency.
- The second initiative involves **negotiating a new Pandemic Treaty** to provide a more efficient and equitable response to pandemics in the future.
- These initiatives **aim to learn from the experiences of the Covid-19 pandemic and enhance global capabilities to respond to new microbial threats**.

About the Pandemic Treaty

- WHO published a **'zero-draft' of the pandemic treaty on February 1**. With this, negotiations will officially begin on what the final document, due to be presented at the World Health Assembly in 2024, will entail for global- and national-level pandemic preparedness.
  - Earlier, WHO's World Health Assembly (WHA) established an **Intergovernmental Negotiating Body (INB) to draft and negotiate a WHO convention to handle pandemic better.**
  - It **identified Article 19 of the WHO Constitution provision** under which the instrument should be adopted.
- It will **entail for global- and national-level pandemic preparedness**.
- The **draft opens the path to major multilateral negotiations** and has invited inputs from member groups.
- It aims to **prevent pandemics, save lives, reduce disease burden and protect livelihoods, through strengthening the world's capacities for preventing**, preparing for and responding to, and recovery of health systems from, pandemics.

Key highlights of the Zero draft:

- **Establishment of "The Network":** It aims to set up **a Global Pandemic Supply Chain and Logistics Network**, to deliver the vaccines and required medicines in the event of a breakdown, to all member countries.

- **Ensuring Equality:** It **calls for reducing the inequitable access to pandemic-related products** (including but not limited to vaccines, therapeutics and diagnostics)
    - Rather it should be addressed by increasing manufacturing capacity that is **more equitably, geographically and strategically distributed to all** and provide certain clauses for utilization of resources during and after the pandemic.
- **Empowering Innovations:** It **recognises the need to build and strengthen capacities and institutions for innovative research and development** for pandemic-related products, particularly in developing countries.
- **Enabling transparency:** It calls for **establishment of the WHO Pathogen Access and Benefit-Sharing System (the "PABS System")**, which is to cover all pathogens with pandemic potential, including their genomic sequences.
- **Establishment of a governing body:** In order to promote the effective implementation of the treaty a Governing body is to be set up, comprising of:
    - **The Conference of the Parties (COP),** which is to act as the sole decision-making organ and
    - **The Officers of the Parties**, which is to act as the administrative organ of the Governing Body.
- **Expansion of WHO's authority**: The draft aims to expand WHO's authority, to declare a pandemic and, thereby, trigger provisions in the treaty that would reallocate resources and encourage governments to waive intellectual property rights as per requirements.
- **Strengthening of the health infrastructure:** It also calls for Strengthening of the health infrastructure, empowering the Health workforce, Protection of Human rights, Encouraging Cooperation among member countries, implementing One Health approach.

7.6. NEWS IN SHORTS

7.6.1. SMALL SATELLITE LAUNCH VEHICLE (SSLV)

- **Second developmental flight of SSLV** — SSLV-D2 — **placed three satellites** in its precise orbit.
    - **Earlier, first test flight** of SSLV had **marginally missed** to place the satellites.
- **SSLV-D2 carried:**
    - **EOS-07**, an **Earth Observation Satellite** by ISRO.
    - **Janus-1**, a **technology demonstrator satellite** built by United States-based Antaris and its Indian partners.
    - **AzaadiSAT-2 satellite**, a combined **effort of about 750 girl students across India** guided by Space Kidz India.
- **About SSLV**
    - It is a **3 stage Launch Vehicle** of ISRO configured with **three Solid Propulsion Stages and liquid propulsion**-based Velocity Trimming Module as a terminal stage.
    - It is **capable of launching Mini, Micro, or Nanosatellites** (10 to 500 kg mass) to a **500 km orbit.**
    - Like Polar Satellite Launch Vehicle (PSLV) and Geosynchronous Satellite Launch vehicle (GSLV), **SSLV can accommodate multiple satellites**, albeit smaller ones.
    - Unlike PSLV and GSLV, SSLV **can be assembled both vertically and horizontally.**
    - **Other features**: Low cost, low turn-around time, launch on demand feasibility, minimal launch infrastructure requirements etc.
    - **NewSpace India Limited (NSIL),** under Department of Space and commercial arm of ISRO, is the **sole nodal agency responsible for providing end-to-end SSLV Launch services** for customer satellites.

7.6.2. WORLD'S FIRST 3D-PRINTED ROCKET ENGINE

- **Agnikul-Cosmos**, a space-tech startup incubated in IIT-Madras**, has successfully conducted the flight acceptance test for its 3D printed rocket engine "Agnilet".**
- Unlike other rocket engines, Agnilet **was built in a single step, eliminating thousands of parts that are typically assembled** in a conventional rocket engine.
    - It is **a semi-cryogenic engine**, which uses a **mixture of liquid kerosene** at room temperature **and super cold liquid oxygen as fuel.**
    - During the test, it **generated sea level thrust of 6 kilo Newton**.
- Agnilet Engine **will power the company's launch vehicle, Agnibaan**, which is capable of **carrying payloads of up to 300kg to a low-earth orbit.**
    - **Launch of Agnibaan will be the second by a private firm** -- **after** Hyderabad-based **Skyroot Aerospace's Vikram-S,** which took place in November 2022.

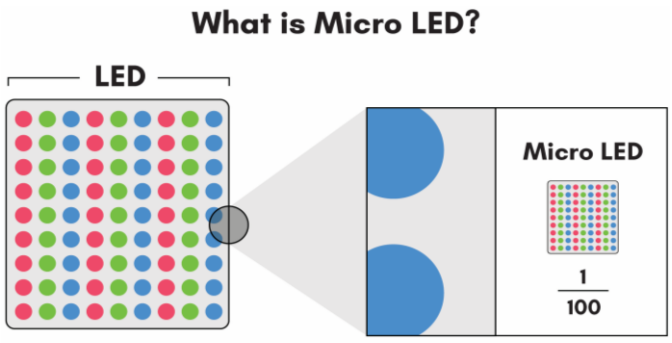
- **Earlier Agnikul also unveiled** India's **first privately designed and operated rocket launchpad** and mission control centre (located at Sriharikota**).**
    - It is specifically built **to support liquid-stage controlled launches** while also **addressing ISRO's need for monitoring key flight safety parameters** during launches.

7.6.3. INTERNATIONAL IP INDEX

- **India ranked 42nd** on International IP Index **released by US Chambers of Commerce**.
- Annual Index **evaluates protection of Intellectual Property** (IP) **rights in 55 of world's leading economies**, together representing a**round 90% of global GDP.**
    - **U.S topped the index**.
- **Key Findings for India**
    - **Improved enforcement against copyright-infringing content** and provides **a best-in-class framework** to promote better understanding and **utilisation of IP assets**.
    - **Concerns**: Dissolution of IP Appellate Board (2021), under-resourced and overstretched judiciary, limited framework for the protection of biopharmaceutical IP rights etc.

7.6.4. MICROLEDS (LIGHT EMITTING DIODE) DISPLAYS

- Recently various electronic companies are showing their interest in **MicroLED (mLED or µLED)** display technology.
- microLED displays **comprise several microscopic LEDs**, which self-illuminate per display pixel- just like an OLED (Organic LED) panel does.
    - mLED is **as small as cutting a centimetre of hair into 200 smaller pieces**.
    - Each of these mLEDs are **semiconductors that receive electric signals**. Once these mLEDs are gathered, **they form a module.** Several modules are then combined to form screens.



Micro LED features miniature length less than 100 µm, smaller than a sand and mere 1% that of LED. Via massive transfer technology, µm-level trio-color RGB Micro LEDs are moved onto substrates, creating Micro LED displays in various sizes.

- **Comparison with other displays**

Display Technology	LCD (Liquid crystal display)	OLED	Mled
Pixel types	Back lit display	Self-emissive display	Self-emissive display
LED makeup material	Inorganic LED backlight	Organic LED	Inorganic LED
Brightness	High	Low	Very high
Lifespan	Long	Short	Very long
Response time	Slow (in milli-seconds)	Medium (in micro-seconds)	Fast (in nano-seconds)

- **Benefits of mLED**
    - Self-emissive and have **better colour reproduction** and **provide better viewing angles**.
    - **Limitless scalability**, as they are **resolution-free, bezel-free, ratio-free, and even size-free**.
    - **More efficient and bright, more durable** and with higher colour gamut against LCD and OLED.
- **Challenges:** Higher manufacturing cost, market share for liquid crystal displays remains sizable etc.

7.6.5. DIGITAL CONNECTIVITY INFRASTRUCTURE PROVIDER (DCIP)

- Telecom Regulatory Authority of India (TRAI) released **consultation paper on Digital Connectivity Infrastructure Provider (DCIP) Authorization under Unified Licence (UL).**
- TRAI is seeking views to **introduce DCIP authorization under UL regime** as it underlined the **importance of robust Digital Connectivity Infrastructure (DCI) in economic development**.
    - UL offers **service-wise authorizations**, where licensees establish networks and use them to provide services.
- **Importance of DCI**
    - Increases **productivity** and provides **amenities** that **enhance quality of life**. It is used for **financial services, e-governance, tele-medicine** etc.
    - Helps in **implementation of various government schemes under Digital India**, Make in India, Ayushman Bharat Digital Mission etc.
- Earlier, **National Digital Communications Policy (NDCP-2018)** emphasized on **DCI under 'Propel India' mission**.
    - NDCP-2018 envisages **enabling unbundling of different layers (e.g., infrastructure, network, services, and applications layer)** through differential licensing. (Refer image)

- DCIP will **work at infrastructure and network layer**; creating neutral third-party entities which can create passive and active DCI.
    - Currently, **Infrastructure Providers Category-I (IP-I) rolls out passive infrastructure** while **active infrastructure creation is permitted to Telecom Service Providers only.**
- DCIPs can **lease/rent/sell their infrastructure** only to such entities which are **licensed under Indian Telegraph Act**.
- **Potential Benefits Of DCIP:** Increased common sharable DCI and network resources, cost reduction, attract investment, strengthen service delivery segment, etc.
- Passive Infrastructure **refers to physical space**, e.g. telecom towers, fiber distribution hub etc. while Active infrastructure refers to active elements such as **antennas, back-haul connectivity** etc.

7.6.6. LARGE LANGUAGE MODELS (LLMS)

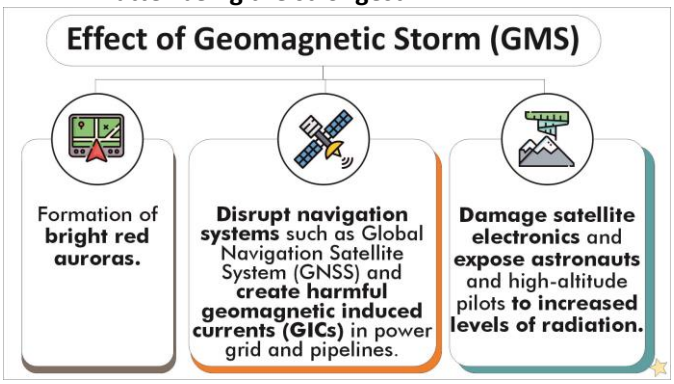
- **Meta Platforms** has released **Large Language Model Meta AI (LLaMA)**.
    - LLaMA is a **foundational language model** developed **to assist researchers** in subfield of Artificial Intelligence (AI).
    - It is a **collection of language models.**
- LLMs are **AI systems that consume massive volumes of digital text** from internet sources such as articles, news reports, and social media posts.
    - These digital texts are **used to train software that predicts and produces content from scratch** based on prompts and queries.
    - These models **can help in writing essays, composing social media posts**.

7.6.7. AADHAAR MITRA

- **Unique Identification Authority of India (UIDAI) launched** its **chatbot 'Aadhaar Mitra'.**
    - Chatbot is **software that simulates human-like conversations with users via chat.**
- Artificial Intelligence/Machine Learning (AI/ML)-based chatbot can answer queries related to Aadhaar.
    - It can **provide information about most Aadhaar services** such as Aadhaar Centers, Aadhaar Enrolment/Update status, PVC i.e., plastic card order status, Complaint status etc.

7.6.8. GEOMAGNETIC STORM

- Recently, **Solar wind passed through a gap** which occurred due to a **crack in Earth's magnetic field** sparking **a G1-class geomagnetic storm (GMS).**
    - Crack occurred due to **South-pointing magnetic fields weakening Earth's defenses against solar wind**.
- GMS is a **disturbance in earth's magnetosphere**, which is the area around planet controlled by its magnetic field.
    - Earth's magnetosphere protects its inhabitants from most of the particles emitted by sun.
    - It is **caused by massive exchange of energy from solar wind into space environment** surrounding the Earth.
    - GMS are **categorised between G1 and G5**, the **latter being the strongest**.



- Red auroras occur when **solar particles react with Oxygen at higher altitudes**, generally above 150 miles.
    - At this height, **Oxygen is less concentrated** and is "**excited" at a higher frequency** or wavelength than denser Oxygen lower down making reds visible.

7.6.9. WOLF 1069 B

- Astronomers have discovered an **exoplanet Wolf 1069b which is orbiting a red dwarf star Wolf 1069.**
    - An **exoplanet** is any **planet beyond our solar system**.
    - **Red dwarfs** are stars with **very low mass** and are **generally referred to as coolest stars.**
- It is **orbiting in its star's habitable zone (Goldilocks zone),** making it a prime candidate for liquid water to potentially exist on its surface.
- It is **tidally locked to its parent star,** meaning one side is always in daylight and other is always in darkness.

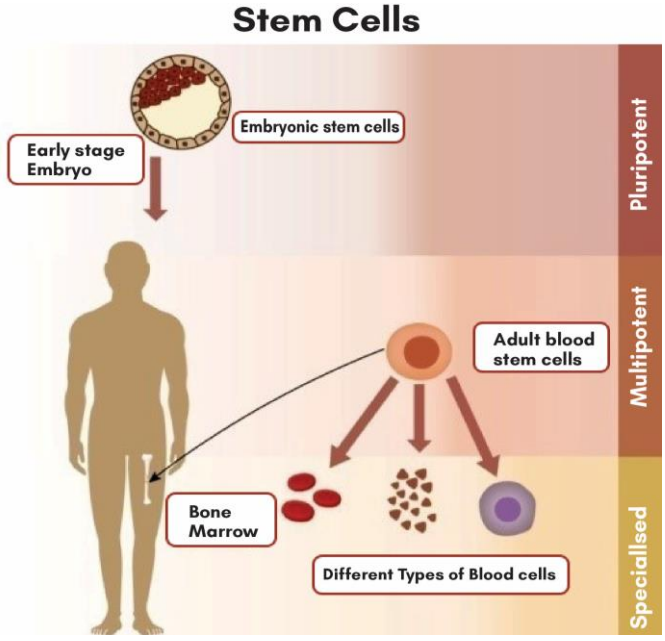
7.6.10. JUPITER MOONS

- Jupiter, with 92 moons, **beats Saturn to become planet with most moons.**
- Jupiter is **home to first moons discovered in our solar system**, functions like a mini solar system.
- Jupiter's **four largest moons are called Galilean satellites**: **Lo, Europa, Ganymede, and Callisto**.
    - **Lo** is most **volcanically active body** in solar system.
    - **Europa's surface is mostly water ice.**

- **Ganymede** is largest moon in solar system and is **only moon known to have its own internally generated magnetic field.**
- **Callisto's** surface is **extremely heavily cratered and ancient.**

7.6.11. STEM CELL TRANSPLANT (SCT)

- **Third Patient has been cured of HIV** (Human Immunodeficiency Virus) after Stem Cell Transplant (SCT).
- This was **achieved with a bone-marrow transplant** (also called SCT) from people carrying a **specific HIV-resistant genetic mutation** called **CCR5-delta 32 genetic mutation**.
- A bone marrow transplant is a **procedure that infuses healthy blood-forming stem cells into body** to replace bone marrow that's not producing enough healthy blood cells.
  - Bone marrow transplants **may use cells from your own body** (autologous transplant) **or from a donor** (allogeneic transplant).
- **HIV mainly attacks CD4 immune cells** (type of white blood cell) **in human body**, thereby **reducing** a person's **ability to fight off secondary infections.**
  - **CCR5 receptors** on surface of CD4 immune cells **act as a doorway for HIV virus.**
- However, **CCR5-delta 32 mutation** prevents these receptors used by HIV virus from forming on the surface, effectively removing the doorway.



- **About Stem cells**
  - Stem cells are **special human cells** that are able to **develop into many different cell types**.
  - Stem cells **provide new cells** and **replaces specialized cells** that are damaged or lost.
  - Based on the cell type/tissue of origin, **stem cells are classified as Somatic Stem Cells** (also known as adult stem cells) and **Embryonic Stem Cells** (refer infographic above).

7.6.12. LYMPHATIC FILARIASIS (LF)

- Recently, **Mass Drug Administration (MDA) was launched by** Union Ministry of Health and Family Welfare **to eliminate LF by 2027,** three years ahead of the global target.
- LF or elephantiasis, is a **neglected tropical disease.** Infection is **usually acquired in childhood** causing hidden **damage to the lymphatic system.**
  - **Symptoms:** Abnormal enlargement of body parts.
  - **Caused by:** Nematodes (roundworms) of family Filariodidea.
  - **Transmitted by: Mosquitoes including** Culex, Anopheles and Aedes.
  - **Global initiative:** Global Programme to Eliminate Lymphatic Filariasis by the WHO

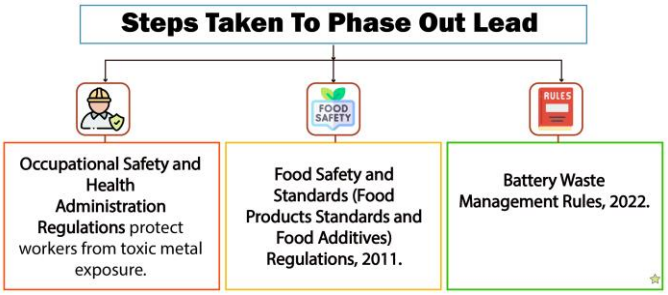
7.6.13. MALARIA

- **A deadly malaria vector**, transmitter **Anopheles Stephensi**, has been **detected in Kenya**.
  - Anopheles Stephensi **originated in Southeast Asia, West Asia** and **Arabian Peninsula**.
- **Malaria is** an acute febrile illness **caused by Plasmodium parasites**, which are spread to people **through the bites of infected female Anopheles mosquitoes**.
  - **There are 5 parasite species** that cause malaria in humans, and **2 of these species** – P. falciparum and P. vivax – **pose greatest threat**.
  - Anopheles stephensi is **capable of transmitting both** Plasmodium falciparum and P. vivax.
    - ✓ It is **highly adaptive** and **can thrive in urban environments**.

7.6.14. LEAD POISONING

- As per study conducted by NITI Aayog and Council of Scientific & Industrial Research (CSIR) in 2022, **23 states exceed the permissible blood lead level of 5 µg/dL margin.**
  - Levels in remaining states and Union Territories cannot be determined due to **lack of research and screening mechanisms to collect data.**
  - Also, 2020 report by UN Children's Fund (UNICEF) and Pure Earth stated that **275 million children in India record blood lead levels beyond tolerable limit of 5 µg/dL.**
- Lead is a **naturally occurring toxic metal** found in **Earth's crust**.

- **Source of lead poisoning**
  - **Occupational sources**: Mining, painting, glass manufacturing, pottery, smelting etc.
  - **Non occupational sources**: Traditional medicine, vehicular exhaust, food, painted toys, contaminated soil, dust and water etc.
- **Impact of Lead poisoning**: Damage to brain and nervous system, **slowed growth and development**, learning problems, **Hearing/speech problems** leads to **reduced intelligence, lower educational attainment etc.**



7.6.15. TRENDS IN MATERNAL MORTALITY 2000 TO 2020 REPORT

- **Trends in maternal mortality 2000 to 2020 report** was released **by World Health Organisation**.
- Maternal Mortality Ratio is **maternal deaths per 100,000 live births.**
- **Key highlights**
  - **Maternal mortality declined by 34 %** between 2000 and 2020.
  - **Every day in 2020**, approximately **800 women died** from preventable causes related to pregnancy and childbirth **i.e., a woman dies around every two minutes.**
  - **In 2020, about 70% of all maternal deaths** were in sub-Saharan Africa.
- **Sustainable Development Goal (SDG) target 3.1** aims to reduce maternal mortality to less than 70 maternal deaths per 100 000 live births by 2030.

7.6.16. DAR-ES-SALAAM DECLARATION

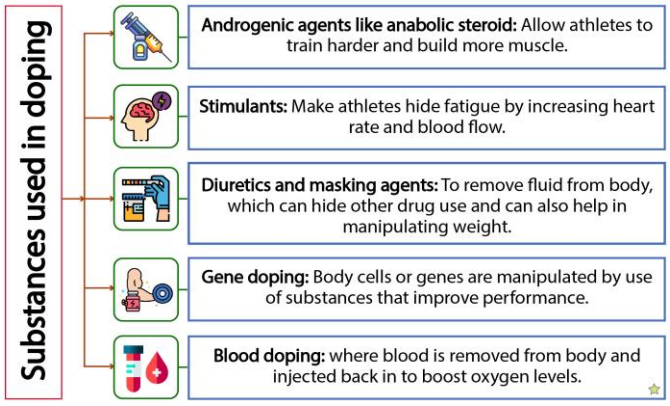
- It is a declaration **on ending AIDS in children by 2030.**
- The Declaration **was announced at the first ministerial meeting of the Global Alliance to end AIDS in Children, which brings together the 12 African countries with UNAIDS** and other health agencies.

7.6.17. INTERNATIONAL HEALTH REGULATIONS (IHR) 2005

- **First round of discussions** regarding amendments to the World Health Organization (WHO) International Health Regulations 2005 **concluded.**
- **About IHR 2005**
  - It is a **legally binding agreement of 196 countries to build capability to detect and report potential public health emergencies worldwide**.
  - Under the IHR 2005, WHO has the authority to **declare a Public Health Emergency of International Concern (PHEIC)** when there is an extraordinary event that poses a public health risk to other countries through the international spread of disease.

7.6.18. DOPING IN SPORTS

- **Tripartite Memorandum of Understanding** (MoU) signed to deal with problem **of doping in sports.**
- MoU was signed **between Ministry of Youth Affairs & Sports**, Food Safety & Standards Authority of India **(FSSAI)** and **National Institute of Pharmaceutical Education & Research**, Hyderabad.
  - It aims to create **nutritional supplement testing capacity** in India, **increase research opportunities** in anti-doping domain, provide **dope-free nutritional supplements** etc.
- Doping is the **consumption of certain prohibited substances** by athletes to enhance performance.
- **Monitoring of Doping in sports**
  - **World Anti-Doping Agency (WADA)** monitors doping in all kinds of competitive sports.
  - At national level, there is **National Anti-Doping Agency (NADA)** that is provided **statutory backing** by **National Anti-Doping Act, 2022.**



7.6.19. HYBRID-SOUNDING ROCKET

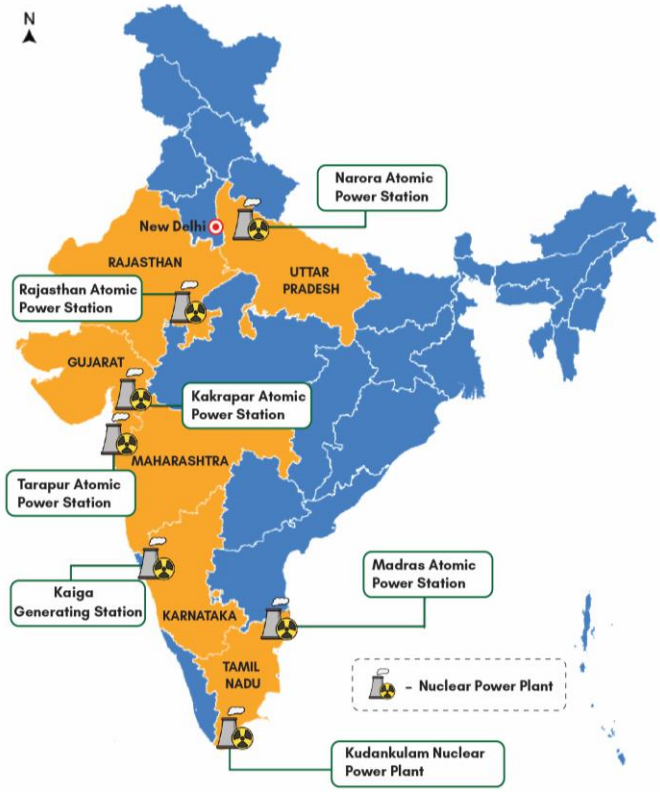
- **India's first hybrid-sounding rocket launched** by private players from Chengalpattu, Tamil Nadu.
- Martin Foundation, in association with Dr. APJ Abdul Kalam International Foundation and Space Zone India, launched the **Dr. APJ Abdul Kalam Satellite Launch Vehicle Mission- 2023.**
  - Rocket can be used for research in **weather, atmospheric conditions and radiations**.

- Sounding rockets are **one or two stage solid propellant rockets** used for probing **upper atmospheric regions (Aeronomy)** and for **space research**.
  - They can also be used to test or prove prototypes of new components or subsystems intended for use in launch vehicles and satellites.
  - Sounding rockets take their **name from the nautical term "to sound,"** which means to take measurements.
  - **Hybrid-rocket** uses **different propellants**, i.e., **one solid** and other being either **gas or liquid**.
- **In 1963, Indian Space Programme** started with **first sounding rocket launch** from **Thumba Equatorial Rocket Launching Station (TERLS), Kerala.** Thumba was selected as it is **close to magnetic equator**.
- In 1967, **ISRO launched its own version** of sounding rockets - **Rohini RH-75**.
  - In 1975, **ISRO** consolidated all sounding rocket activities under **Rohini Sounding Rocket (RSR) Programme**.
- **About Rohini RH- 200**
  - **RH-200** (meteorology purpose) is one of three sounding rockets **currently operational with ISRO**, the **other two being RH-300 Mk 2 and RH-560 Mk 2** (both for Aeronomy).
    - ✓ **200** in the name denotes **Rocket's Diameter in millimeters (mm).**
  - Rh-200 Rocket Used Polyvinyl Chloride (Pvc) Based Propellant. In 2020, First Rh-200 Used A New Propellant Based On Hydroxyl-Terminated Polybutadiene (Htpb).

7.6.20. NUCLEAR ENERGY PROGRAM

- **Haryana's first nuclear power plant** will be set up in Gorakhpur village.
- Upcoming Gorakhpur Haryana Anu Vidyut Pariyojana (GHAVP) will have **two units of 700 MWe capacity each of Pressurised Heavy Water Reactor (PHWR).**
- India's **3-stage nuclear energy program,** envisioned by Homi Bhabha, is based on a closed nuclear fuel cycle.
  - **Stage-I: PHWRs fuelled by Natural uranium would produce plutonium-239. Heavy water (D2O**) is used as **moderator and coolant in PHWR.**
  - **Stage-II:** Fast Breeder Reactors utilising **plutonium- 239 fuel from first stage** and formed **uranium-238.**
  - **Stage-III:** Advanced nuclear power systems for **utilisation of thorium**.
- India successfully **reached the first stage in 2013** with over 22 nuclear reactors (18 PHWRs, and 4 Light Water Reactors) in 7 nuclear power plants. (refer map)
- **India is currently on second stage of program**.
  - India's current nuclear power capacity of 6,780 MW is expected to **increase to 22,480 MW by 2031.**
  - Nuclear energy is **fifth-largest source of electricity for India.**
- **Steps taken to increase nuclear power output**
  - **Atomic Energy Amendment Act 2015** allow public-sector companies to form joint ventures to build nuclear power plants.
  - **Resolution of issues relating to Civil Liability for Nuclear Damage (CLND) Act 2010** and establishment of an **Indian Nuclear Insurance Pool**.

Operational Nuclear Power Plants in India



QUIZ
SMART QUIZ

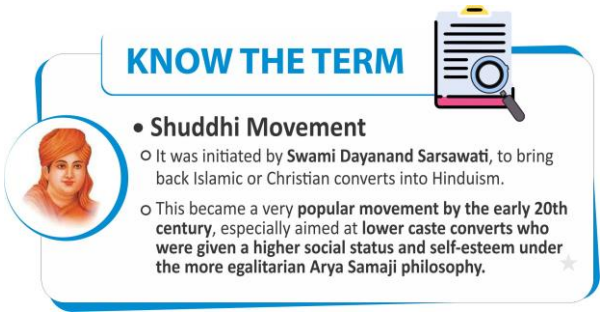
You can scan this QR code to practice the Smart Quiz of Science & Technology at our open test online platform for testing your understanding and recalling of the concepts.

8. CULTURE

8.1. MAHARISHI DAYANAND SARASWATI

Why in News?

The Prime Minister inaugurated the year-long celebrations commemorating the **200th birth anniversary** of Maharishi Dayanand Saraswati.



About Maharishi Dayanand Saraswati

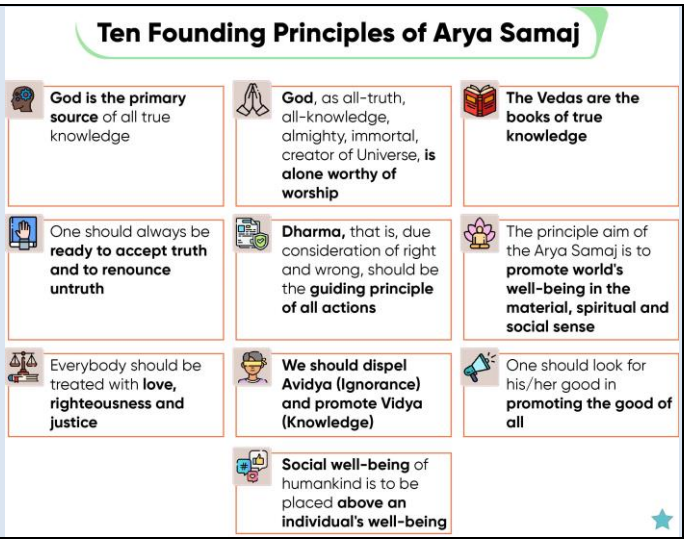
- Born on **12th February 1824**, in Tankara, Gujarat, Maharishi Dayanand Saraswati was a **social reformer.**
- **His views on religion, politics and society** were published in his famous work**, Satyarth Prakash (1875)**.

Philosophy of Maharishi Dayanand Saraswati

- **Advocation of Dharma:** He strongly **advocated the concepts of Dharma** which he believed to be free from any partiality and as an embodiment of truthfulness.
  - To him, **Adharma was anything that did not hold true**, was not just or fair and was opposed to the teachings of the Vedas.
- **Supremacy of Vedas:** He believed in the Supremacy of the Vedas and dispelled the notion of any deficiency in the scriptures of India. But he pointed out that their **real meaning is forgotten**.
  - His book Satyarth Prakash **emphasised the "return to Vedic principles"** that he believed had been lost over time. He gave the **slogan 'Go back to Vedas'**.
- **Non-violence:** He preached **respect and reverence for other human beings**, supported by the Vedic notion of the divine nature of the individual and condoned the practice of Ahimsa or non-violence.
- **Prioritized Humanity:** He advocated that **all activities must be done for the benefit of humankind as a whole**, rather than individuals or even idols and religious symbols (as a part of "10 founding principles of Arya Samaj").
- **Views on caste system:** His universalism was directly **antithetical to the caste system**. While he did not fully oppose the institution of caste itself, he advocated for **significant reform within it.**
  - Citing the Vedas, he claimed that **caste is not supposed to be hereditary** but rather on the basis of an individual's talents and disposition.
  - Furthermore, he was **against the practice of untouchability**, which he believed was an outcome of centuries of brahmanical domination. He **advocated Vedic education for all castes**.
- **Women empowerment:** He campaigned for the education of women as well as **against regressive practices such as child marriage.**

Arya Samaj

- **Genesis:** He **founded Arya Samaj in 1875 in Bombay to counter social inequities** prevalent during the times.
- **Objective:** The purpose of the Samaj was to **move the Hindu religion away from the fictitious beliefs**. **'Krinvan to Vishvam Aryam"** was the motto of the Samaj, which means, **"Make this world noble".**
  - Arya Samaj rejected the ritualistic excesses and social dogmas of orthodox Hinduism and promoted a **united Hindu society on the basis of Vedic teachings**.
  - The Samaj directs its members to **condemn ritualistic practices** like idol worship, pilgrimage and bathing in holy rivers, animal sacrifice etc.
- **Role of Arya Samaj:** Arya Samaj has played a crucial role in the cultural and social awakening of the country through its **emphasis on social reforms and education**.



- The Samaj launched programs to **support widow remarriage** in the 1880s, supported **education of girl child and opposed child marriage**.
- **Paropkarini Sabha:** He also established **Paropkarini Sabha** under the fold of Arya Samaj to propagate Vedic traditions through Gurukuls and publications as mediums.

Contributions of Maharishi Dayanand Saraswati

Political Contributions	Contributions to Education
• **Influence on nationalists:** Though he was not directly involved in active politics of the period, his life and teachings had **considerable influence on personalities** like Lala Lajpat Rai, Vinayak Damodar Savarkar, Madam Cama, Ram Prasad Bismil, Mahadev Govind Ranade, Madan Lal Dhingra, Subhash Chandra Bose and Bhagat Singh. • **Idea of Swaraj:** He is credited to have **first used the term swaraj** (self-rule) in 1875, which was later used by leaders likes Lokmanya Tilak and Mahatma Gandhi. • **Criticism of British:** His **criticism of the British from a religious point of view** as well as providing an ancient Indian alternative was crucial to the nationalist discourse of the time. • **Push to Swadeshi:** He was strongly in **favour of wearing indigenous clothes and setting up factories** in his country. After talking with many native kings, he **inspired them for Swadeshi**. • **Vision of India:** His vision for India included a classless and casteless society, a united India, and an **India free from foreign rule.**	• **New Education system:** He introduced a complete overhaul of the education system by **introducing Anglo-Vedic schools** to offer Indian students an updated curriculum teaching both the **knowledge of the Vedas along with contemporary English education**. • **DAV Schools:** The **Dayanand Anglo Vedic (DAV) schools came into existence in 1886** to realise his vision. The first DAV was established at Lahore. • **Indian alternative:** He founded **multiple Vedic schools** and Gurukuls, based on principles of the Vedas, which provided an **Indian alternative to missionary schools**.

Significance of Maharishi Dayanand Saraswati's legacy in today's era

- **Women's empowerment:** Maharishi Dayanand's **push for education of women and opposition to ills like dowry and child marriage** act as an inspiration for the current generation**.**
- **Modernity with cultural identity:** His call to 'Back to the Vedas' inspires the present generation of India to lay **the path of modernity while enriching the culture** and taking pride in Indian heritage.
- **Assistance in natural calamities: Jeevan Prabhat Trust**, an organization inspired by the ideals of Maharishi, contributed immensely in social service and rescue operations during the 2001 earthquake in Gujarat.
- **Sustainable development:** Maharishi described **'a self-realized person' as one who gives more than he takes.** This is an inspiration for Government of India's Mission LiFE initiative for environmental protection and sustainable living.
- **Arya Samaj centres and DAV schools:** Maharishi Dayanand Saraswati's legacy carries on through the Arya Samaj centres found across India and the values that they carry.

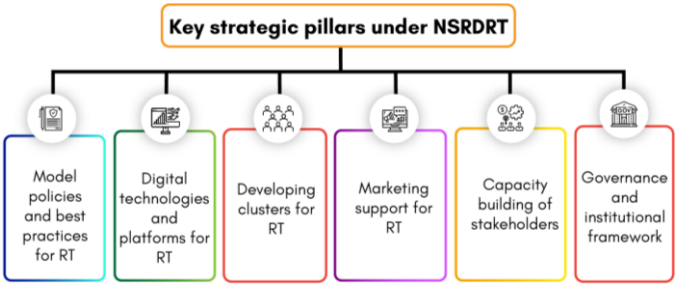
8.2. NEWS IN SHORTS

8.2.1. BEST TOURISM VILLAGE COMPETITION PORTAL

- **Ministry of Tourism (MoT) launched** Best Tourism Village Competition Portal
- Best tourism village competition was formulated to develop and promote rural tourism. MoT will select the best villages through **three-level competitions—district, state and national**.
  - Nationally awarded village will be **featured on different portals** including government websites.
  - Nine-point evaluation criteria of best villages have been **aligned with Sustainable Development Goals**.
- MoT also launched **Rural Tourism Portal, Visit India Year 2023 initiative and Global Tourism Investors' Summit (GTIS) 2023 portal.**
  - First GTIS in May 2023 will showcase investible projects and opportunities in tourism and hospitality sector in India.
  - India vision to **make India one trillion USD tourism economy by 2047** with 100 million international visitors.
- Rural tourism has been identified as **one of niche tourism areas** for development by MoT.
- **Significance of Rural tourism:** Promoting **agri-, eco-tourism**; creating **employment opportunities** and boost rural income; **addressing rural-urban migration**

challenge; preserving indigenous arts, crafts and culture.

- **Challenges in promoting to rural tourism**: Poor rural infrastructure; Lack of skill development in rural areas; Lack of community involvement and inclusive planning; Environmental degradation etc.
- **Initiatives for rural tourism**
  - **Rural Circuit** has been identified as **one of 15 thematic circuits** under **Swadesh Darshan Scheme.**
  - **National Strategy & Roadmap for Development of Rural Tourism (NSRDRT) in India.**
- Recently, Parliamentary stated that **revenues specifically at UNESCO-recognized World Heritage Sites (WHS) are gradually rising.**
  - India has **32 cultural heritage sites** on UNESCO WHS list. Among these, **Maharashtra's Ajanta, Ellora and Elephanta caves received most funding** from government.



8.2.2. KEELADI EXCAVATIONS

- Keeladi is a **tiny hamlet in Sivaganga district**, Tamil Nadu. It is **located**, near temple city of Madurai, **along the Vaigai river**.
- **2015 excavations** at Keeladi prove that an **urban civilisation existed in Tamil Nadu in Sangam age.**
  - **Sangam age** in ancient Tamil Nadu was believed to be **from third century BCE to third century CE.**
  - Based on Keeladi findings **Archaeologists have pushed Sangam age further back**.

8.2.3. SIANG UNYING FESTIVAL

- Siang Unying Festival is an important **festival of Adi community** was celebrated at **Boleng, Arunachal Pradesh.**
  - It is celebrated to mark **beginning of Adi community's new year i.e., arrival of spring season**; and to strengthen the bond among community.
- Adi constitutes a major group and inhabit **lower part of Lower Dibang Valley district** especially Roing and Dambuk areas.
  - Adis are basically **dependent on agriculture**. Both **wet rice cultivation and shifting cultivation** are practiced.
  - **Padams, Milangs, Komkars, Minyongs and Pasis** collectively call themselves as Adi meaning hill people.

8.2.4. ATTUKAL PONGALA

- The Attukal Pongala held in Attukal Temple, Thiruvananthapuram is the **largest congregation of women for a festival in the world.**
  - Pongala, which means 'to boil over', is the ritual in which **women prepare sweet payasam** (a pudding made from rice, jaggery, coconut and plantains cooked together) **and offer it to the Goddess or 'Bhagavathy'.**
- 'The ten-day-long celebration commences in the **Malayalam month of Makaram-Kumbham** (Feb - March) on the Karthika star.

8.2.5. SANGEET NATAK AKADEMI AWARDS (SNAA)

- **President conferred** various artists **Sangeet Natak Academe Fellowship and Sangeet Natak Awards** for 2019.
- **Sangeet Natak Akademi**, apex body in **field of performing arts in country**, was **set up in 1953** for **preservation and promotion of intangible heritage** of India's diverse culture.
- SNAA are **national honours given by government to performing artists, teachers**, and scholars in field of performing arts.
  - **Awards are given in five fields i.e.,** Music; Dance; Theatre; Other Traditional/Folk/Tribal/Dance/Music/Theatre and Puppetry; and Overall contribution/ Scholarship to Performing Arts.

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. ETHICS OF GLOBAL GOVERNANCE

Introduction

Global governance functions through a **set of institutions, rules, and processes that aim to manage cross-border issues** - like diplomatic relations, trade, financial transactions, migration, and climate change. It seeks to **address collective concerns, and mediate common interests**, creating both privileges and obligations for the public and private sectors.

Characteristics of Global Governance Mechanisms

- **Limited Functional Area**: All global governance bodies are **confined to specific areas of competence** (banking or environmental preservation).
- **Different Rules**: Each global governance body **functions according to its set rules** and there is **absence of general international rules of engagement.**
- **Overlapping Jurisdictions**: **E.g., International Renewable Energy Agency (IRENA) and International Energy Agency (IEA)** or Asian Infrastructure Investment Bank (AIIB) and World Bank (WB).
- **Lack of Sovereignty**: **None of them possess the sovereignty** that is the primary feature of states.

Global governance is, however, **not limited to a set of treaties and organizations**; it is comprised of a **vast network of collaborative processes, relationships, guidelines, and monitoring mechanisms**, which are all necessary to manage our increasingly complex interdependence.

Stakeholders of Global Governance and their interests

Stakeholder	Interests
Sovereign states	• **Recognition from the other states** as a legitimate participant in global governance. E.g., Palestine is not recognized as a state by some global bodies. • **States want to ensure their sovereign autonomy** and may prioritize issues such as **national security and economic growth** over international considerations.
Civil Society	• They expect **fulfilment of certain obligations** in lieu of the rights and benefits that they provide. • These have a **responsibility to promote international cooperation and advance global public goods** such as human rights, peace, and environmental sustainability.
Global Institutions	• To **hold governments and international organizations accountable** to their ethical obligations.
Private Sector	• **Responsibility to promote shareholder value,** alongside **responsibility to respect human rights, protect the environment,** and contribute to the **broader social and economic well-being of society.**
Citizens or Individuals	• Individuals have a responsibility to be **informed and engaged citizens,** and to **act in ways that promote the greater good of society.**

Ethical Dimensions of Global Governance

Accountability Problem		**Actors and Discretion problem**	
Example **World Bank is not able to hold US accountable** for its obligations.		**Example** **United Nations Security Council (UNSC)** has showcased several instances different principles apply to developed and developing countries.	
Manifestation • International laws and rules have **failed to bestow obligations** on participants of global governance. • This is further compounded because of **absence of common accountability mechanisms across the world**.	**Resolving Ethical Issues** • Global Governance bodies should be given **more powers to enforce accountability and create monitoring measures.** • **Neutral parties can be engaged** for audits of accountability mechanisms.	**Manifestation** • Rules are **not same for everyone**. There is large distinction based on the interests of those making the rules and on whom these are being applied.	**Resolving Ethical Issues** • Governance in global bodies should be based on **Rule of Law** and policymaking by consensus in accordance with a **wide participatory approach**.

Polarizing Narratives		**Legitimacy and leadership**	
Example In **climate change negotiations**, there have been disagreements on principles such as **Common But Differentiated.**		**Example** A **single veto member at the UNSC can obstruct** efforts to respond to a crisis.	
Manifestation • There is a growing **divergence of expectations for what global governance should deliver** due to different.	**Resolving Ethical Issues** • Keeping a **dialogue based approach** which aims to allay **every party's concerns**.	**Manifestation** • Domination of global institutions by powerful countries which often **results in decisions that do not represent interests or values of all countries or people**.	**Resolving Ethical Issues** • The autonomous global institutions should strive to **promote inclusivity and participation** of all stakeholders. • Idea of **one country, one vote** can be explored rather than economic criteria such as funding.

Justice and Fairness		**Upholding Human Rights**	
Example Developing countries often argue that **global trade agreements**, such as WTO mechanisms **prioritize the interests of developed countries** over those of developing countries.		**Example** • **Cases of Human Rights Violation** were recently observed in **Iran protests, Myanmar's Rohingya crisis etc.** • **UN Human Rights Council** is often criticized for **allowing countries with very poor human rights record** to have a seat in the council.	
Manifestation • Issues of Global commons such as disproportionate **impact of climate change** on vulnerable communities, unequal and unfair access to resources etc.	**Resolving Ethical Issues** • Strengthening the **leading multilateral institutions.** • Global governance must **prioritize SDGs.**	**Manifestation** • **Abuse of human rights in various instances is overlooked** due to differences in opinions and conflict of interests. • Also**, enforcement mechanisms** for implementing a universal set of human rights **are lacking** with global governance bodies.	**Resolving Ethical Issues** • The upholding of human rights under **UDHR can be made mandatory** for UN member states with an effective enforcement mechanism. • A **common minimum code of conduct** in relation to human rights can be framed.

Conclusion

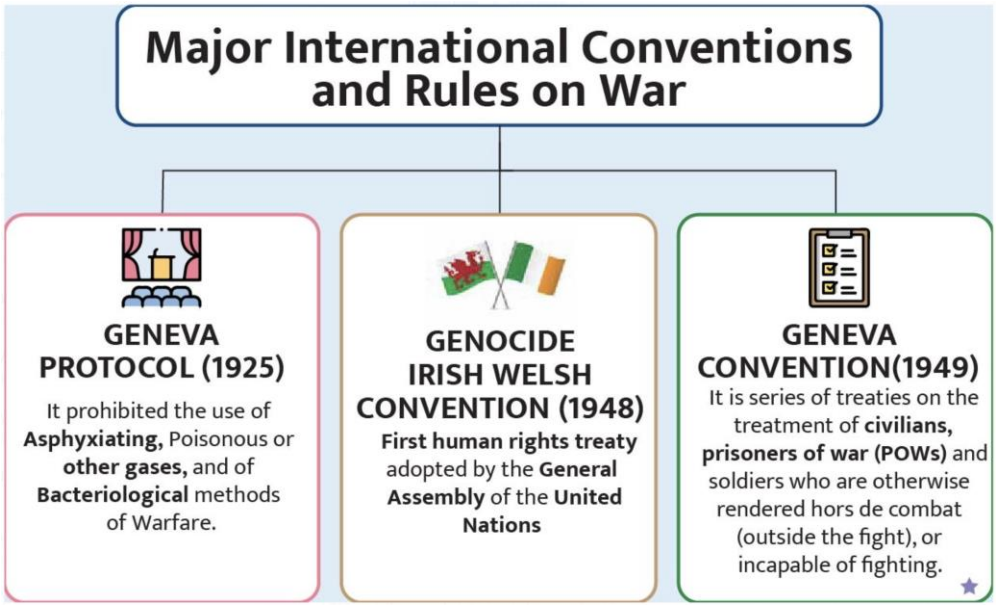
For the larger part of the past 200 years, global governance has been conceived as a project of reforming the state systems to prevent conflict and war. However, now the global governance needs to evolve to a system which is centered around values of humanity and greater aspirations of societies.

9.2. ETHICS OF WAR

Introduction

With **8,006 civilians killed and around 13,287 injured** according to UN Human Rights data, the war in Ukraine has now gone on for more than a year.

People often do not associate war and ethics with one another, given the death, conflict, and senselessness that typically arises. This highlights the importance of Ethics of war.



War ethics and its importance

The **purpose of war ethics** is to help decide what is right or wrong, both for individuals and countries, and to contribute to debates on public policy, and ultimately to government and individual action.

War Ethics can be broadly divided into 3 parts: **Beginning of war, Manner of war, end of the war**. Each part has its own set of Ethical concerns. These ethics hold importance due to following reasons-

- **Ethical conduct of soldiers and militaries on both sides:**
  - **Minimize civilian causalities:** In several instances, the chaos and uncertainty associated with the war results in civilian casualties. For example in just 100 days in 1994, about 800,000 people were slaughtered in **Rwanda's conflict.**
  - **Dignity of Prison of wars:** Many times, prisoners of wars get humiliated and abused by detainee. For example, treatment of detainees of war in Afghanistan's conflict.
  - **Control War crimes:** War crimes are those violations of international humanitarian law (treaty or customary law) that incur individual criminal responsibility under international law.
- **To avoid conflicts:** Ethical or moral obligations sometimes help to curb the war or conflicts among groups or countries.
- **Dignity of Vulnerable groups**: For example-after seizing parts of Iraq and Syria in 2014, the armed group ISIL (Islamic State of Iraq and the Levant) killed 1,200 Yazidis and enslaved and raped 7,000 others.
- **Reduce the negative impact on Environment:** As wars have major impacts on environment. For example-Use of herbicide **Agent Orange** in Vietnam.

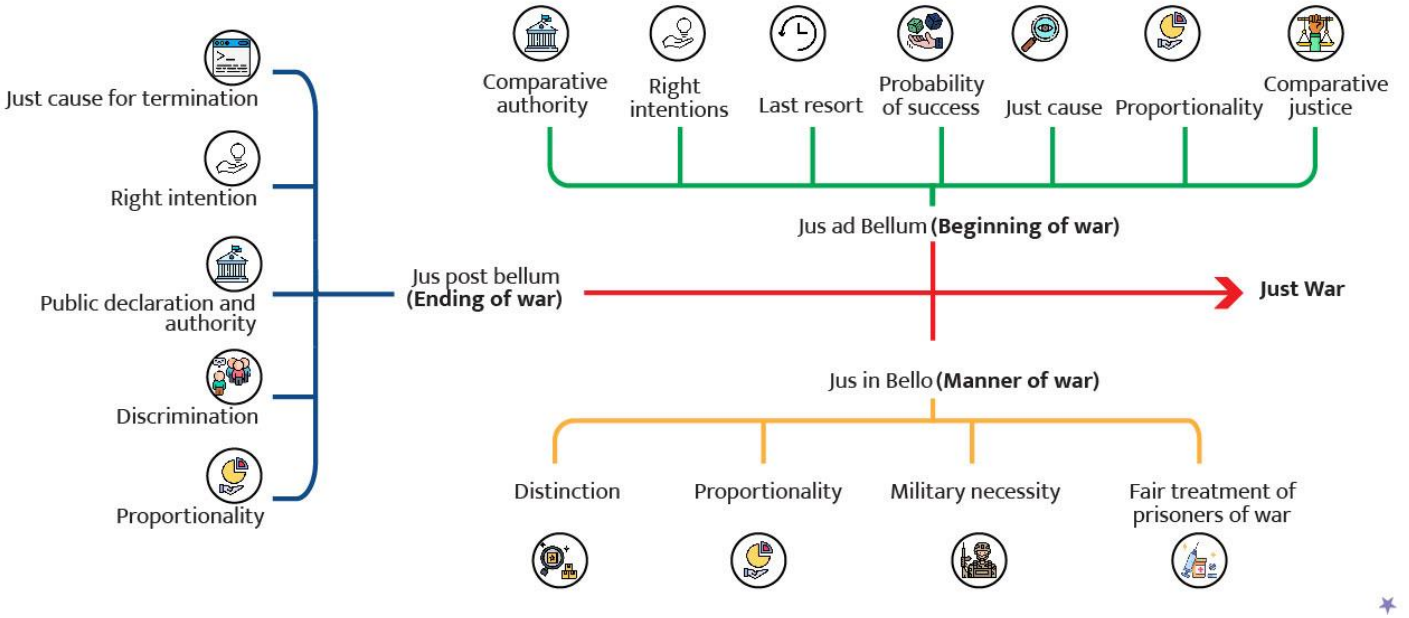
Why maintaining ethical conduct is difficult in war?

- **Absence of Ethical War guidelines from Global multilateral institutions**: Global Institutions have not been able to provide mechanism to hold countries accountable.
  - For Example-United Nation Security Council (UNSC) has not been able to effectively intervene in Russia – Ukraine conflict.
- **Political considerations take precedence over ethics**: There have been regimes across the world, where leadership has created and used war-like situations as a political tactic.

- For example, several cases and instances in conflict between North Korea and USA.

- **Use of indiscriminate weapons like Bio-Chemical weapons:** Use of such weapons acts collectively on a region harming soldiers and civilians alike.
  - For example-Use of Chlorine, phosgene (a choking agent) and mustard gas (which inflicts painful burns on the skin) were among the chemicals used.
- **Disproportionate use of force for strategic advantage**: To get an upper hand in a battle, countries tend to use disproportionate force and miss the ethical consideration of proportionality.
  - For example- Use of Nuclear Weapon by USA in World War II.
- **Vested interest of Nations**: Hidden interest in place of treating war as last resort affects the ethical consideration.

Sub-categories of Just War



Conditions in which war can be justified	Ethics to be adhered while engaging in war
• **Legitimate Authority:** The war is fought by an entity that has the authority to fight such wars. • **Right Intention:** Entity intends to achieve the just cause, rather than using it as an excuse to achieve some wrongful end. • **Reasonable Prospects of Success:** The war is sufficiently likely to achieve its aims. • **Proportionality:** The morally weighted 'Good' achieved by the war outweigh the morally weighted 'Bad' that it will cause. • **Last Resort (Necessity):** There is no other less harmful way to achieve the just cause.	• **Differentiation**: Both sides must differentiate between combatants and non-combatants. • **Proportionality of Force**: The extent of the attacks must not supersede the intended purposes, which must be non-other than concluding the war. • **Situation requires military intervention**: The act must have a reasonable military justification. • **Follow Geneva Convention of Prisoners of War (PoW):** If there are any prisoners of war, combatant and civilian alike, must be treated with fairness.

Conclusion

"So long as there are men, there will be wars."

– Albert Einstein

On the long enough timeline, war among nations, regions or people may be an inevitability. But the associated death and destruction can be mitigated if wars are looked from the lens of reason and humanity.

"Not every war is worth fighting…."

– Naushad

10. SCHEMES IN NEWS

10.1. MEMBERS OF PARLIAMENT LOCAL AREA DEVELOPMENT SCHEME (MPLADS)

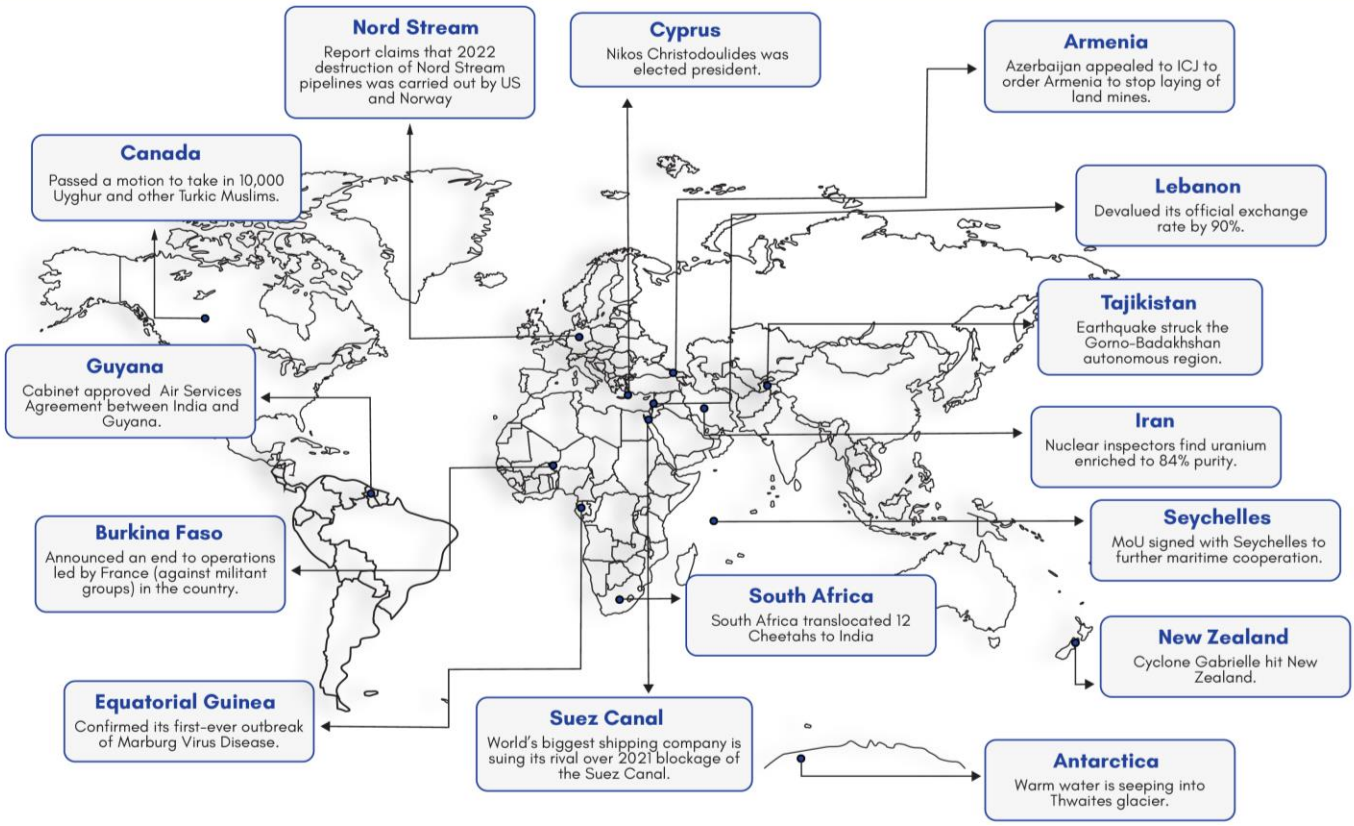
Why in news?

Recently, the Government has released the Revised Guidelines on Members of Parliament Local Area Development Scheme (MPLADS) 2023.

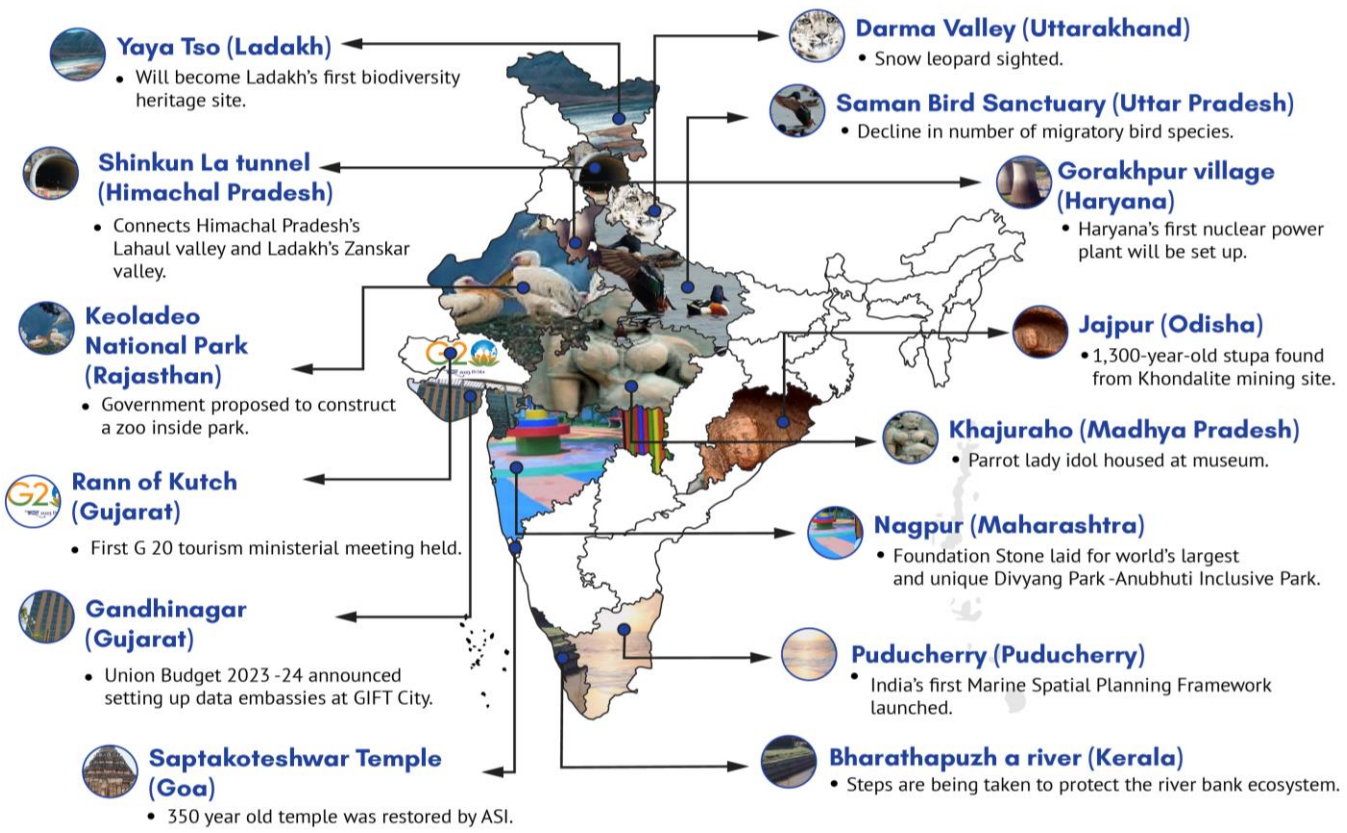
Objectives	Salient Features

• To **enable the Members of Parliament (MPs) to recommend works of developmental nature** with emphasis on the **creation of durable community assets based on the locally felt needs**.	• The MPLAD Scheme is a **Central Sector Scheme, fully funded by the Government of India.**
	• The scheme was **announced in 1993**.
	• Initially, the administration of MPLADS was with the **Ministry of Rural Development**. Since 1994, the administration of the Scheme has been vested with the **Ministry of Statistics and Programme Implementation** (MoSPI).
	  ○ MoSPI is responsible for the release of funds, policy formulation and prescribing monitoring mechanisms for the implementation of the MPLAD scheme.
	• The Government has recently launched the new **Web-Portal for implementation of the Revised Fund Flow Procedure** under MPLADS to facilitate:
	  ○ **Real-time monitoring,**
	  ○ **Greater transparency and accountability in the system**
	  ○ **Improved efficiency and effectiveness**
	  ✓ The new MPLADs guidelines and the web portal will come into effect from April 2023.
	• **Fund Entitlement**
	  ○ The **annual MPLADS fund entitlement** per MP constituency is **Rs. 5 crore** which shall be released, in **two equal instalments of Rs 2.5 crore each**, by Government directly to the District Authority of the Nodal District of the Member of Parliament concerned.
	  ○ MPs are to recommend every year, works costing **at least 15 per cent of the MPLADS entitlement** for the year for areas inhabited **by Scheduled Caste population and 7.5 per cent for areas inhabited by Scheduled Tribe population**.
	  ○ In wake of the COVID pandemic, **MPLADS was suspended from April 6, 2020 to November 9, 2021**, and no funds were allocated to the scheme for FY 2020-21.
	• The role of an MP is, however, **limited to the recommendation of a project**. The onus is on the district authority to sanction, execute and complete the recommended project within a particular timeframe.
	  ○ As per guidelines, a **District Collector, District Magistrate or District Commissioner is the authority to implement MPLADS**. For municipal corporations, **the Commissioner or Chief Executive Officer functions as the authority.**
	  ○ It stipulates that all recommended eligible works have to be sanctioned within 75 days from the date of receipt of the recommendation.
	• **Lok Sabha Members can recommend works within their Constituencies and Elected Members of Rajya Sabha** can recommend works within the State of Election with select exceptions.
	  ○ **An elected MP can also recommend works anywhere in the country outside the usual region** in which he/ she can recommend work, subject to the following conditions:
	  ✓ There shall be ceiling of Rs. 25 lakhs in a financial year per MP for all such recommendations, except in case of calamity.
	  ✓ Any MP can consent their MPLADS funds **upto Rs. One Crore per annum for rehabilitation and reconstruction works** in areas affected by natural "calamity of severe nature" in any part of the country, subject to certain conditions.
	• **Nominated Members of both the Rajya Sabha and Lok Sabha** can recommend works anywhere in the country.
	• The funds **under MPLADS are non-lapsable** both at the end of the Union Government and at the end of the District Authority.
	  ○ The unspent balances of a particular year are utilized in the subsequent year(s).
	• **Interest accrued** on the annual fund will have to be **mandatorily remitted to the Consolidated Fund of India (CFI).**

Places in News: World



Places in News: India

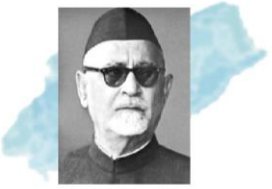


Personalities in News

Personality	About	Ethical Values Exhibited by the personality

Chhatrapati Shivaji Maharaj
	• Shivaji was born in **1630** in Shivneri Fort, Pune district to **Bhonsle-Maratha clan to Jijabai and Shahji Bhonsle** (a general of Bijapur).
	• India's **first-ever navy in modern era was built by him.**
	  ▸ Now, **Indian Navy's ensign** draw their **inspiration from Seal of Chhatrapati Shivaji Maharaj.**
	• He was **a great feminist, a devout Hindu but a secular king** who believed in **peaceful co-existence** of different religions.
	• **Aurangzeb called Shivaji a "Mountain Rat"** because of his warfare tactics.
	• **Battles fought by Shivaji:** Battle of Pratapgad; Battle of Kolhapur; Battle of Umberkhind; Battle of Purandar; Battle of Sinhagad etc.
	• **Titles granted to Shivaji:** Chhatrapati (sovereign), Shakakarta (founder of an era), Kshatriya Kulavantas and Haindava Dharmodhhaarak (protector of Hindu faith).
		• **Valour and leadership**
		  ▸ He was known for his **bravery and courage** in battle. He was willing to take risks to protect his people and fight for their rights.
		  ▸ He was a **visionary leader** who built India's first-ever navy in the modern era.

Santh Sevalal Maharaj
	• For the first time ever, **Ministry of Culture** has announced a **year-long commemoration of birth anniversary of Banjara Dharmaguru Santh Sevalal Maharaj.**
	• **Born in 1739** in Shivamogga district of **Karnataka.**
	• He was a **social reformer and spiritual teacher of Banjara Community.**
	  ▸ Spread across India, Banjara Community is a **nomadic community with nearly 10-12 crore population.** They are classified as **SC, ST and OBC in different states.**
	• Having sound knowledge in **Ayurveda and Naturopathy,** he **eradicated myths** and **superstitions** prevalent among forest dwellers and nomadic tribe.
		• **Compassion and Purposefulness**
		  ▸ He worked tirelessly to uplift the lives and alleviate the sufferings of the people of his community.
		  ▸ He was **committed to eradicating myths and superstitions** prevalent among forest dwellers and nomadic tribes and improving their living conditions.


Dr Zakir Hussain
	• **President paid tributes** to Dr Zakir Hussain **on his 126th birth anniversary.**
	• He **served as third President of India** and first Muslim to hold the position.
	• He **helped found the Muslim National University in Aligarh** (later moved to New Delhi and today known as **Jamia Millia Islamia**) and served as its vice-chancellor from 1926 to 1948.
	• He became **chairman of National Committee on Basic Education,** established in 1937 to design a **Gandhian syllabus for school.**
	• From 1956-58 he **served on the executive board of UNESCO.**
	  He was awarded the **Bharat Ratna in 1963.**
		• **Commitment to the social progress and Institution builder**
		  ▸ He was a **firm believer in the power of education** to transform society and believed that education was the key to unlocking human potential and promoting social progress.
		  ▸ He helped **found many educational institutions,** including Jamia Millia Islamia in Delhi, which he served as its Vice-Chancellor and believed in the importance of building strong institutions that would serve the needs of the nation.

Amrita Sher-Gil
	• National Gallery of Modern Art celebrates **110th birth anniversary of Amrita Sher-Gil.**
	• She is one of the **pioneers of the modern movement in Indian art.**
	• **She was influenced by work of Paul Cezanne, Amedeo Modigliani, and Paul Gauguin.**
	• Influenced in particular by **wall paintings of Ajanta Caves,** she attempted to **fuse their aesthetic with European oil painting techniques.**
	• **Her works: "South Indian trilogy"** (Brahmacharis, South Indian Villagers Going to Market, and Bride's Toilet), **Mother India, Open Air Painters.**
		• **Pioneering and free spirit**
		  ▸ She is often **referred to as India's Frida Kahlo** for aesthetically blending traditional and Western art forms.
		  ▸ She was very spirited and lived a very carefree life with focus on her painting.

WEEKLY FOCUS

Weekly Focus Topic Descriptions

ISSUE	DESCRIPTION	READ MORE
World Order: The rise and potential decline	International order established after the Second World War has been remarkably enduring. But given its antique origins, this order now seems increasingly under pressure. Challenges are coming from rising states; rapid technological change; and from the economic turmoil. But what exactly is World Order? This document while explaining the basics, analyses India's key role in the emerging world order and discusses the need to re-establish a rules based world order for the benefit of all.	
Universal Health Coverage: What, Why and How?	COVID pandemic has brought home the importance of basic public health, strong healthcare systems as well as the resilience of a population. While health indicators have been gradually improving in India, health for all is yet to be achieved. But, how do we define health in the first place? This document seeks to provide an overall understanding of health and unique challenges and unprecedented opportunities in front of India to achieve the goal of Universal Healthcare.	
Lifestyle for Environment: From Mindless Consumer to Mindful Citizen	Our habits are deeply ingrained in our daily lives and are continually reinforced through several elements of our environment. Translating our intention to do good for the environment is not always easy to translate into action. However, it is not impossible. This document is an attempt to highlight the immense importance of a sustainable lifestyle of each and every individual for our environment and our planet. ***Responsible individual climate action is the key to safeguarding our collective future.***	

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2 AIR

ANKITA AGARWAL

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UTKARSH DWIVEDI

6 AIR

YAKSH CHAUDHARY

7 AIR

SAMYAK S JAIN

8 AIR

ISHITA RATHI

9 AIR

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