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- DAF Analysis Session with senior faculty members of Vision IAS
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- Interaction with Previous toppers and Serving bureaucrats
- Performance Evaluation and Feedback

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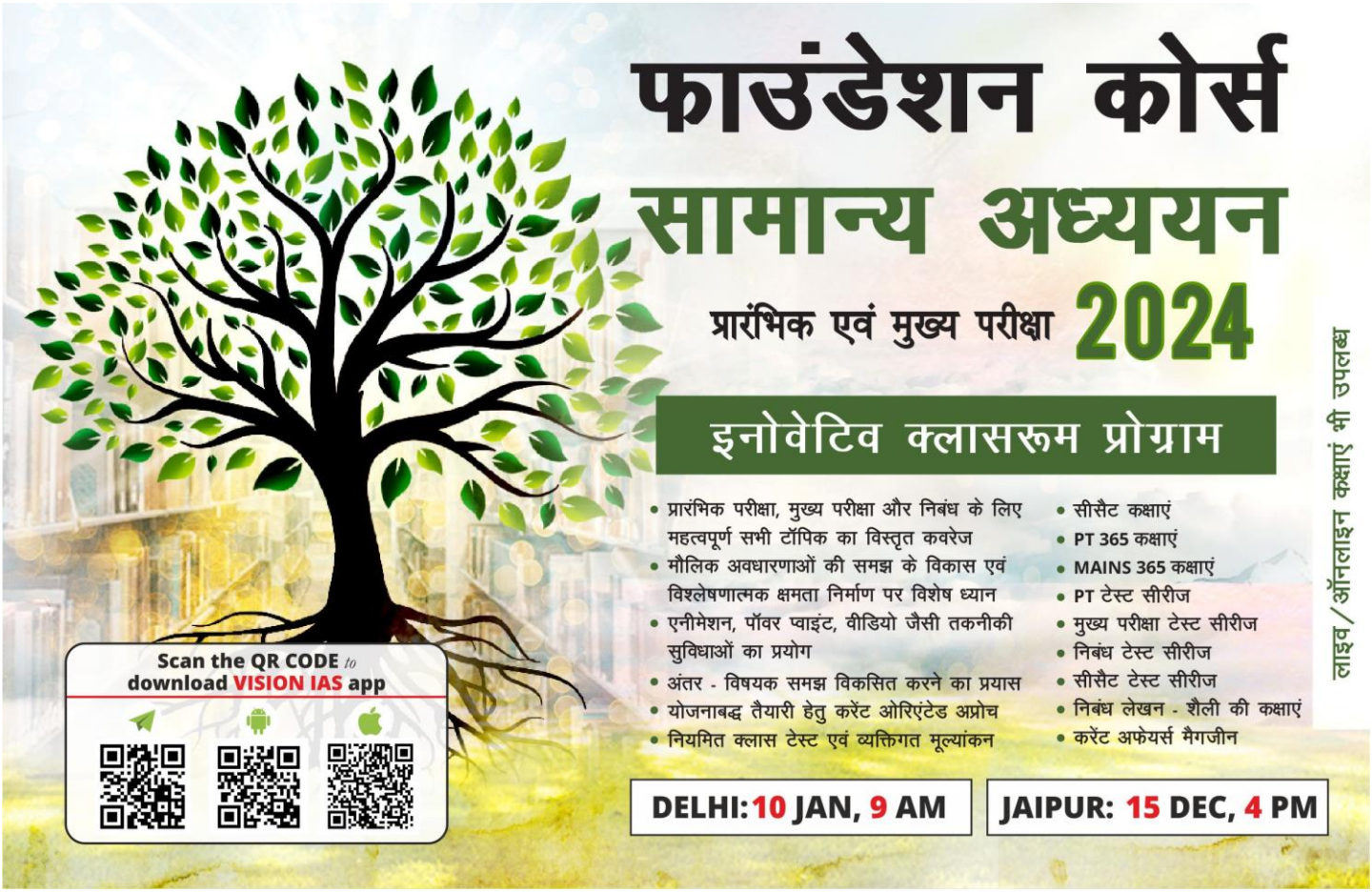

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Memorisation and recollection of information in Current Affairs is as important as understanding the articles. In order to enhance the learning outcomes from the Monthly Current Affairs Magazine, we are introducing following additions:

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.

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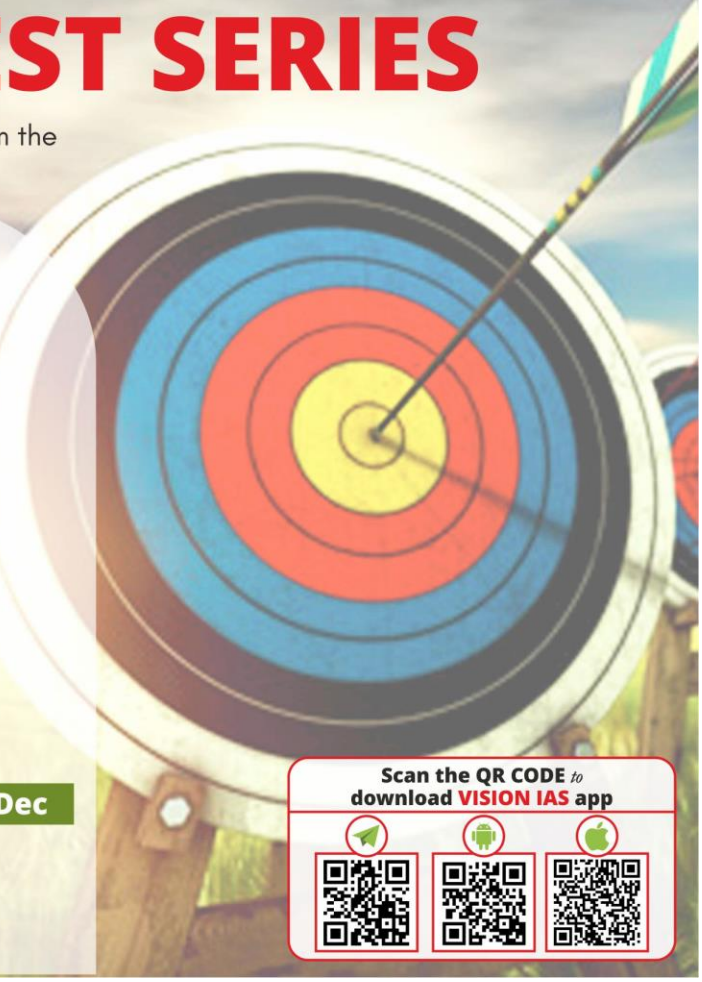

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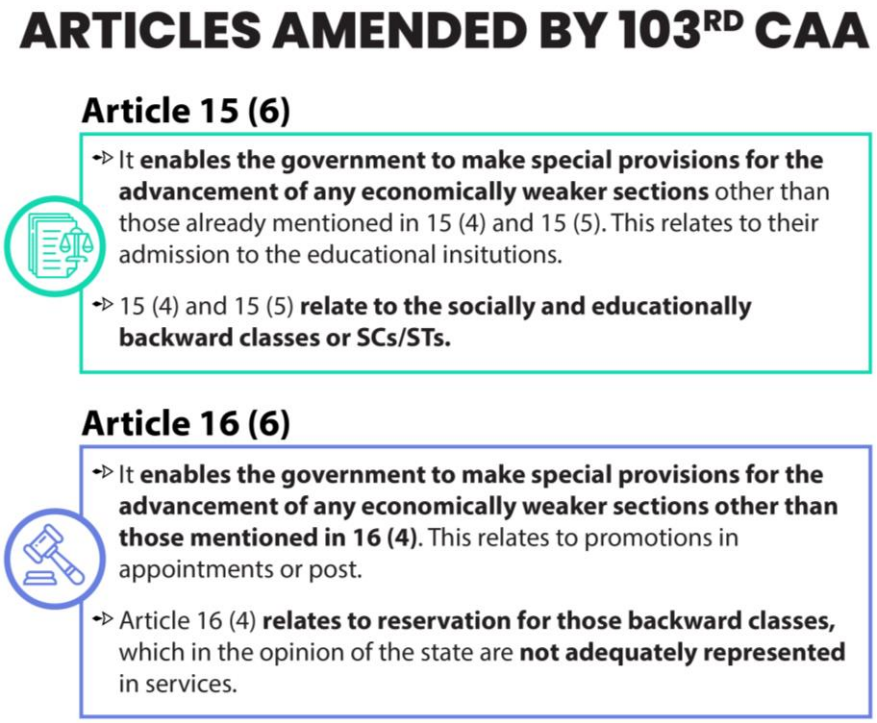
1. POLITY AND GOVERNANCE

1.1. ECONOMICALLY WEAKER SECTIONS (EWS) QUOTA

Why in news?

The Supreme Court Constitutional Bench upheld validity of **103rd Constitutional Amendment** which introduced **10% quota** for EWS in **education and public employment.**



About EWS quota

- EWS reservation was granted based on recommendations of **Sinho commission (**submitted report in 2010).
- **103rd Amendment Act 2019** inserted **Articles 15(6) and 16(6)** in Constitution to provide reservation to EWS among **non-OBC and non-SC/ST sections** of the population.
    - The act enables **both central and state governments** to provide reservations to EWS.
    - However, it allows state government to decide **whether or not to provide reservations** to EWS for appointment in state government jobs and admission to state government educational institutions.
- Act **amended Article 15** to **additionally permit** government to provide for advancement of EWS.
    - Further, **up to 10% of seats** may be reserved for such sections for **admission in educational institutions**.
    - Such reservation will not apply to **minority educational institutions.**
- The Act **also amended Article 16** to permit the government to reserve up to **10% of all posts for the "economically weaker sections" of citizens.**
- EWS reservation is in **addition to existing reservation**.
    - A person **not covered under reservation for SCs, STs, and OBCs**, and whose family had a **gross annual income below Rs 8 lakh**, **was to be identified** as EWS for **reservation.**
    - Also excluded were those who had **five acres of agricultural land,** or
    - A **residential flat of 1,000 square feet**, or
    - A residential plot of 100 square yards and above in notified municipalities, or 200 square yards in other areas.

Key points of Supreme Court verdict (Janhit Abhiyan v Union of India case, 2022)

- Reservation on economic criteria alone **did not violate the Basic Structure** of the Constitution.
    - SC's earlier jurisprudence i.e "**economic criteria cannot be sole basis** for determination of backwardness" is somewhat **restricted to reservation provided to SEBCs**.
    - And EWS is deemed a **separate and distinct category**.
- **Exclusion of SC/ST, SEBC** was a part of **reasonable classification** and necessary to **avoid double benefits.**
    - **Also,** Reservations as a concept **cannot be ruled** out in private institutions where education is imparted.
- 50% rule formed in **Indira Sawhney judgment in 1992** has not been held to be inflexible and inviolable for all times to come. Further, it had applied **only to SC/ST/SEBC/OBC communities** and not the general category.

Indira Sawhney Case, 1992- Crux of SC's Judgement

- Backward class of citizens can be identified on basis of caste system but cannot be identified only & exclusively with reference to economic criteria.
- Reservation cannot be given beyond the 50% rule.
- Creamy layer must be excluded from the backward classes.

Significance of the judgement

- **Reshapes politics of affirmative action**: EWS quota moves the reservation discussion **beyond Mandal debate** (weighed in **favor of caste reservation)**.
  - Though caste may be a **prominent factor** for determination of backwardness, Court has **routinely discouraged identification** of backwardness solely on basis of caste.
  - In **Ram Singh and Ors. vs Union of India case (2015),** Supreme Court suggested the need for a **non-caste based identification** of backward classes.
  - It held that **new practices, methods and yardsticks** have to be continuously evolved **to** enable recognition of newly emerging groups in society.
- **Attempt to elevate poor among the general category**: EWS quota **provides economic justice** to those who have **not been the beneficiaries of affirmative action** like reservation. Proponents have argued that it is in line **with the transformative goals of the Constitution.**
  - Further, economic criteria may be perceived as a first step in the process of **moving away with caste-based reservation.**
  - By **reading caste alongside class,** it reconfigures India's affirmative action policy **by offering an expansive view.**

Concerns related to EWS quota

- **Reservation is meant for social upliftment:** Reservation as a **traditional concept is not for financial empowerment**. It is for **social empowerment** and cannot be used as a **poverty alleviation measure**. Poverty can be **alleviated by other means** like scholarships.
  - A **collective remedy, meant to be compensatory discrimination** in favor of historically deprived classes, **cannot be converted into a scheme based on economic criteria.**
  - While an **economic quota** is justified for **accessing public goods** including subsidies (Article 15), it can't be extended to reservation (Article 16), which **seeks representation** of community.
  - Additionally, unlike caste discrimination, poverty does **not necessarily get carried from one generation to the other**.
- **Violates principle of equality**: By excluding OBCs, SC/ST communities from EWS, there is a **clear violation of equality** in their **eligibility to avail of a part of the open competition opportunities**.
  - **Minority view in recent judgement** held that such exclusion is **arbitrary and discriminatory**. It virtually confines SC/ST/OBC within their **allocated reservation quotas.**
- **Issue with income criteria:** The income criterion of ₹8 lakh a year has already been questioned as it is liable to **result in excessive coverage** of socially advanced classes.
  - It is to be noted that **exemption from filing I-T returns** are only provided to those with taxable **income below ₹2.5 lakh**.
  - **Further,** annual income cut-off is **much higher** than the **national-level annual per capita income**, thus including a **large section** of the population.
  - Also, **paucity of data** on direct income and **possibility of malicious income declarations** can create additional hindrances in effective implementation.
- **Tool of populism:** Critics have also pointed to the **political nature of the EWS quota**. The move is politically fraught with **potential to aggravate social tensions.**
  - **Minority view in recent judgement** highlighted that permitting breach of 50% ceiling limit would become a gateway for **further infractions and result in compartmentalization.**

Road Ahead

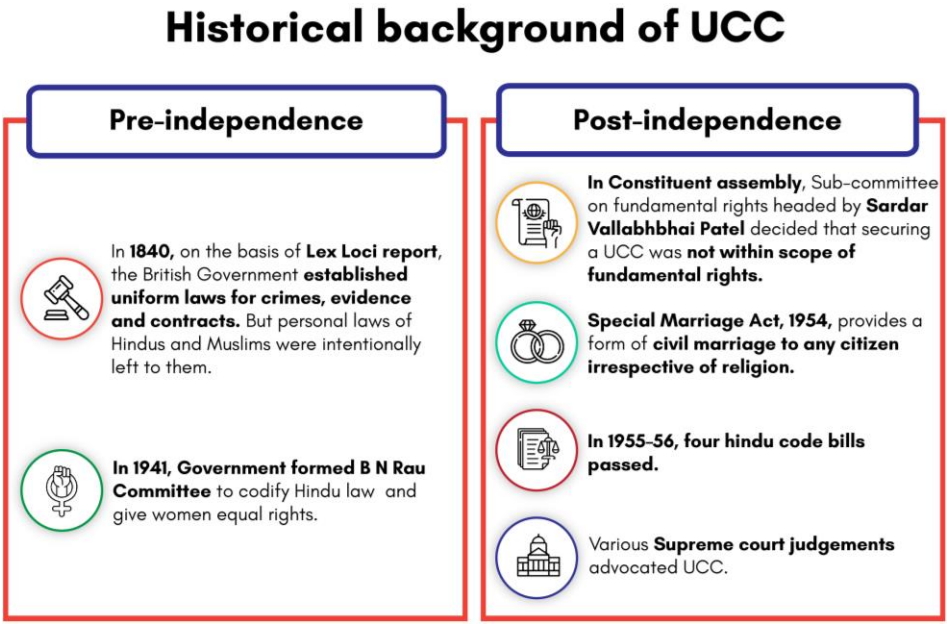
- **Guidelines to identify intended beneficiaries:** A **more detailed data and guidelines** for identifying **most genuine target groups** is crucial to ensure that **extremely needy individuals** get benefit of this policy.
  - Also, government should consider **both opening up the EWS quota to all communities** and keeping income criterion **much lower than the ceiling** (can be at same level as **income tax slab).**
- **Continuous evolution:** The **conceptual framework to** capture backwardness needs to be continuously evolved to ensure that affirmative actions are **much more inclusive**.

- **Others**:
  - When **more jobs are being created in private sector**, **policies that focus on expanding employment** would work better for EWS.
  - Government also needs to work on **improving quality of educational institutions** in general, which will limit demand for reservations to get into chosen few.

1.2. UNIFORM CIVIL CODE (UCC)

Why in news?

Recently a Private Member Bill titled **Uniform Civil Code in India Bill, 2020** was introduced in Rajya Sabha.



More on News

- The bill seeks to provide for a panel to prepare a UCC to be implemented across the country.
- UCC refers to **same set of civil laws applicable to all citizens of India** in their personal matters such as **marriage, divorce, custody, adoption and inheritance.**
- The provisions for Uniform Civil Code come under **Article 44** (Directive Principles of State Policy) of the Constitution.
  - It says that the **state shall endeavour** to secure a UCC for the citizens **throughout the territory of India.**
  - **Thus,** UCC comes under **non justiciable part of constitution**.
  - Also, **"Personal laws" comes** under Concurrent List.

Current Status of Personal Laws in India

- Different religious communities are currently governed by a **system of personal laws**, which have been **codified over the years** through various pieces of legislation.
  - For example, **Hindu personal law** is codified in four bills: **the Hindu Marriage Act, Hindu Succession Act, Hindu Minority and Guardianship Act, and Hindu Adoptions and Maintenance Act**.
    - ✓ The term 'Hindu' also **includes Sikhs, Jains and Buddhists** for the purpose of these laws.
  - Certain aspects of Muslim personal law are **expressly recognised in India** in acts such as the Shariat Application Act and Dissolution of Muslim Marriages Act.
  - Christian marriages and divorces are governed by the **Indian Christian Marriages Act** and the **Indian Divorce Act**, while Zoroastrians are subject to the **Parsi Marriage and Divorce Act.**
- There are **some secular laws** as well. For example, **Special Marriage Act**, under which Inter-religion marriages take place, and the **Guardians and Wards Act,** which establishes the rights and duties of guardians.
- Goa is, at present, the **only state in India** with a UCC. The **Portuguese Civil Code of 1867**, which continues to be implemented after India annexed the territory in 1961, applies to all Goans, **irrespective of their religious or ethnic community.**
  - However, Portuguese Code is **not completely a** UCC.
  - It makes certain provisions on religious basis. For example, Hindu men are allowed bigamy if wife fails to deliver a child by age of 25, or a male child by age of 30.

Need of UCC

- **Gender equality**: Personal laws, because they derive from tradition and custom, also **tend to give undue advantage to men**. Law Commission (2018) observes that various aspect of prevailing personal laws **disprivilege women**.

- For instance, Muslim men **being allowed to marry multiple wives**, but women being forbidden from having multiple husbands.
- Despite the 2005 amendment to the Hindu Succession Act, women are still considered **part of their husband's family** after marriage. So, in case a Hindu widow dies without any heirs or will, her property will **automatically go to her husband's family.**
- Men (fathers) are also **treated as 'natural guardians'** and are given preference under the Hindu Minority and Guardianship Act.

- **To address inconsistency in personal laws**: T**here is no consistency** in how issues like marriage, succession etc are treated for p**eople belonging to different communities**. **Reforms to personal laws** have **also been inconsistent**.
  - For example, multiple amendments have been brought to Hindu personal laws, while **Muslim law has seen fewer changes**.
  - A **secular republic** aspires for a **common law** for all citizens rather than **differentiated rules** based on religious practices.
- **Simplification of laws:** When enacted, the code will **simplify the complex laws** around marriage ceremonies, inheritance, succession, adoptions **making them one for all**.
  - The **same civil law will then be applicable to all** citizens **irrespective of their faith.**
  - It will also **reduce burden on judiciary due to standardisation of personal laws** and enable **speedy delivery** of justice.
- **Protection to Vulnerable Section of Society**: The UCC aims to provide **protection to vulnerable sections** as envisaged by DR. B R Ambedkar **including women and religious minorities**.
  - Many practices governed by religious tradition are at **odds with the fundamental rights** guaranteed in the Constitution.

Important judicial pronouncements in context of UCC

Arguments against implementation of UCC

- **Diversity within secular civil laws**: While India does **have uniformity in most criminal and civil matters** (like Criminal Procedure Code, Civil Procedure Code etc), States have m**ade several amendments to civil laws**. For example, law of anticipatory bail differs from one State to another.
  - Experts cite **plurality in already codified civil and criminal laws**, while arguing against UCC.
  - Looking at the codified personal laws of various communities in India — all Hindus are not governed by a homogenous personal law even after the enactment of the four acts.
- **Communal Politics:** Large section of society sees it **as majoritarianism reform.** In several verdicts, like in S.R. Bommai, Supreme Court has warned against "**mixing politics with religion**".
  - The court had worried whether a **secular state** should bring a code which can be **perceived as a threat to personal laws** based on the religious beliefs.
- **Against the diversity:** A **unified nation** does not necessarily **need to have "uniformity**". ''Efforts have to be made to **reconcile our diversity with universal and indisputable arguments** on human rights.
  - Term **"secularism"** has meaning only if it **assured the expression** of any form **of difference**. This diversity, both religious and regional, should **not get subsumed under the louder voice of majority**.
- **Can erode minorities' right**: Though UCC reinforces equality before law, it also clashes with the **right to freedom of religion** (Article 25 of Constitution).
  - The UCC could become a tool to **erode this right, suppress minorities and homogenise culture.**
- **Not supported by Law commission:** In 2018, Law Commission in a consultation paper held that UCC is **neither necessary nor desirable** at this stage.

Road Ahead

- **Collaborative Approach**: There is a **need to build a consensus** among all stakeholders and **educating the individuals** regarding the true nature and **positive effects of UCC**.
- **Brick by Brick Approach**: Rather than an **omnibus approach**, the government could **bring separate aspects** such as marriage, adoption, succession and maintenance into a UCC in stages.
  - The goal of a UCC should ideally be **reached in piecemeal manner**, like the recent amendment **on the age of marriage.**
  - A **just code** is far more important than a uniform code.
- **Law commission recommendations:** In **absence of consensus** on UCC, the Commission felt that best way forward may be to **preserve the diversity of personal laws** while ensuring that they do not contradict fundamental rights.
  - In order to achieve this, it is desirable that **all personal laws** relating to matters of family must f**irst be codified to the greatest extent possible**.
  - It will **limit the ambiguity in interpretation** and **application** of these personal laws.
  - The commission has suggested a **range of amendments** to existing family law to address various inequalities.
  - The legislature should first consider **guaranteeing equality within communities** between men and women, rather than **equality between communities**.
  - This way meaningful differences within personal laws **can be preserved** and inequality can be weeded out without absolute uniformity.

1.3. NEWS IN SHORTS

1.3.1. RIGHT TO VOTE FOR UNDERTRIALS

- Supreme Court (SC) has decided to examine law depriving undertrials the right to vote.
- Decision to examine came on a petition challenging **Section 62 (5) of Representation of the People Act (RPA), 1951** which **deprives prisoners of their right to vote.**
  - This restriction **does not apply to a person under preventive detention.**
- According to latest National Crime Reports Bureau (NCRB) report, there are **around 5.5 lakh prisoners in various jails across country.**

Arguments supporting Prisoners right to vote	Arguments against
• Section 62(5) of RPA is **discriminatory because of its broad language** which denies right to vote even to those detained in civil prison. • **Considered unreasonable** as a convicted person allowed to vote if on bail while denying this right to even undertrials, if in prison. • **Right to vote** is cornerstone of a democracy.	• In **Anukul Chandra Pradhan v. Union of India (1997)**, SC upheld **constitutional validity** of **Section 62 (5)** as: ○ Right to vote is **not conferred as per Article 14** of Constitution. ○ Right to vote is **subjected to limitations imposed** by legislature. ○ It helps to **avoid criminalization of politics** and **maintain election integrity.** • **Resource crunch as permitting this** would require greater security arrangements.

1.3.2. INITIATIVES LAUNCHED UNDER E-COURT PROJECT

- **Newly launched projects include:**
  - **Virtual Justice Clock**: **Exhibits vital statistics** at Court level giving the details of the cases instituted, cases disposed and pendency.
  - **JustIS Mobile App 2.0**: Tool for judicial officers for **effective court and case management** by monitoring pendency and disposal of cases.
  - **Digital court:** Initiative to make court records available to judge in **digitised form to enable the transition** to Paperless Courts.
  - **S3WaaS Websites**: To **generate, configure, deploy and manage websit**es for publishing specified information and services related to district judiciary.
- **E-Courts Mission Mode Project (2007)** is a national e-Governance project **for ICT enablement of district & subordinate courts.**
  - It was **conceptualised based on the report submitted by e-Committee**, Supreme Court of India.
  - **E-Committee** is the **governing body** headed by **Chief Justice of India**.
- **Benefits of e-Courts**
  - Make functioning of the courts **accountable and transparent.**
  - **Effective management of court and cases,** bringing down of pendency.
  - Will make the justice delivery system **affordable, accessible and cost-effective.**

- **Other initiatives**: National Judicial Data Grid NJDG, Virtual Courts, live-streaming of proceedings etc.

1.3.3. POLICE COMMISSIONERATE SYSTEM (PCS)

- **Agra, Ghaziabad and Prayagraj** to get Police Commissionerate System (PCS).
- Decision to set up PCS has been taken due to **increase in population, religious and cultural significance, tourism,** provide **better policing and maintain law and order.**
  - Districts would be **declared as metropolitan cities as per rules of Code of Criminal Procedure (CrPC)** before implementing PCS.
  - **Earlier, Lucknow and Noida adopted PCS** followed by Kanpur and Varanasi.

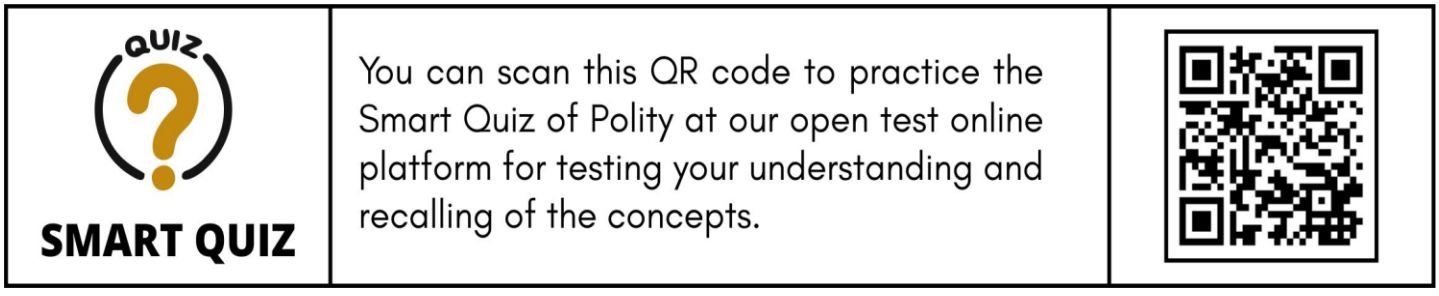
Police Commissionerate System (PCS)	Dual Command System (DCS)
• **Commissioner of Police (CP)** is **head** of a **unified police command structure**, is responsible for force in city, and is **accountable to state government**. ○ CP is **drawn from Deputy Inspector General rank or above** and is assisted by Special/Joint/Additional /Deputy Commissioners. ○ Such police officers have the **power of preventive arrest,** imposing Section 144 of CrPC Act and initiate chapter proceedings. • Office also has **magisterial powers**, including those related to **regulation, control, and licensing.** • Various committees constituted to suggest police reforms have recommended **PCS implementation in cities** which have **population of more than 10 lakhs.**	• District Magistrate (DM) and Superintendent of Police (SP) **share powers and responsibilities** in a district. ○ DM is entrusted with **issuing arrest warrants, licenses** while SP has powers and responsibilities to **investigate crime and make arrests**. • System is designed to **ensure lower concentration of power** and **making police more accountable to DM** at district level.

1.3.4. AADHAAR RULES UPDATED

- Government amended Aadhaar rules.
  - It specifies that supporting documents may be **updated "at least once" by Aadhaar holders on completion of 10 years** from enrolment date.
- Updation would **ensure continued accuracy of Aadhaar-related information in CIDR**.
  - CIDR is **centralised database containing**
    - ✓ **all Aadhaar numbers issued to Aadhaar holders** along with **corresponding demographic and biometric information** of such individuals etc.

1.3.5. RULE OF LAW (ROL) INDEX 2022

- **World Justice Project (WJP)** released RoL Index 2022.
  - The WJP is an **independent, multidisciplinary organization** working to create knowledge, build awareness, and stimulate action to advance the rule of law worldwide.
- **Key highlights**
  - RoL has **declined globally for fifth year in a row.**
  - India has **ranked 77 out of 140 countries.**
  - Topped by **Denmark**.
- As per **World Justice Project's definition**, the rule of law is "**a durable system of laws, institutions, norms and community commitment**" that delivers the following universal principles:
  - **Accountability** (of government as well as private actors under the law)
  - **Just law** (i.e., law which is clear, publicized, stable and applied evenly; and ensures rights)
  - **Open Government** (i.e., accessible, fair, and efficient processes by which the law is adopted, administered, adjudicated, and enforced)
  - **Accessible and Impartial Justice** (i.e., timely justice delivered by competent, ethical, and independent representatives and neutral parties who are accessible, have adequate resources, and reflect the makeup of the communities they serve).



2. INTERNATIONAL RELATIONS

2.1. ASEAN

Why in news?

Recently, 19th India- ASEAN summit was held in Cambodia.

More about news

- 2022 is being celebrated as **ASEAN-India Friendship Year as the summit also marked 30th anniversary** of India-ASEAN dialogue.
- **Key highlights of the summit**
  - Both sides **elevated ties from strategic to Comprehensive Strategic Partnership (CSP) to focus on specific areas** including **Maritime security, projects in Indo-Pacific, Cybersecurity** and inter-operability of digital financial systems etc.
    - ✓ CSP **will enable cooperation in** areas like **energy, health,** investments in **Make in India, technology,** climate change, etc.
    - ✓ This was done via adoption of the Joint Statement on ASEAN-India Comprehensive Strategic Partnership.
  - India announced an **additional outlay of $5 million for ASEAN-India Science and Technology Fund.**
    - ✓ **The Fund, established in 2008, facilitates** support to R&D projects and associated project development activities.
  - Expedite **review of ASEAN-India Trade in Goods Agreement** (AITGA) to make it more user friendly, simple, and trade facilitative for businesses as well as support for sustainable and inclusive growth.

About ASEAN

- Association of Southeast Asian Nations (ASEAN) **was established in 1967 with signing of ASEAN Declaration** (Bangkok Declaration) by Indonesia, Malaysia, Philippines, Singapore and Thailand.
- **Objective -** It **aims to accelerate economic growth, social progress and cultural development** through joint endeavours among Southeast Asian Nations.
- **The ASEAN Summit** – It is the highest policy-making body in ASEAN comprising the Head of States or Government of ASEAN Member States.
- If ASEAN were a single country, it would be **the seventh-largest economy in the world.** It is projected to **rank as the fourth-largest economy by 2050.**

Significance of India-ASEAN relations

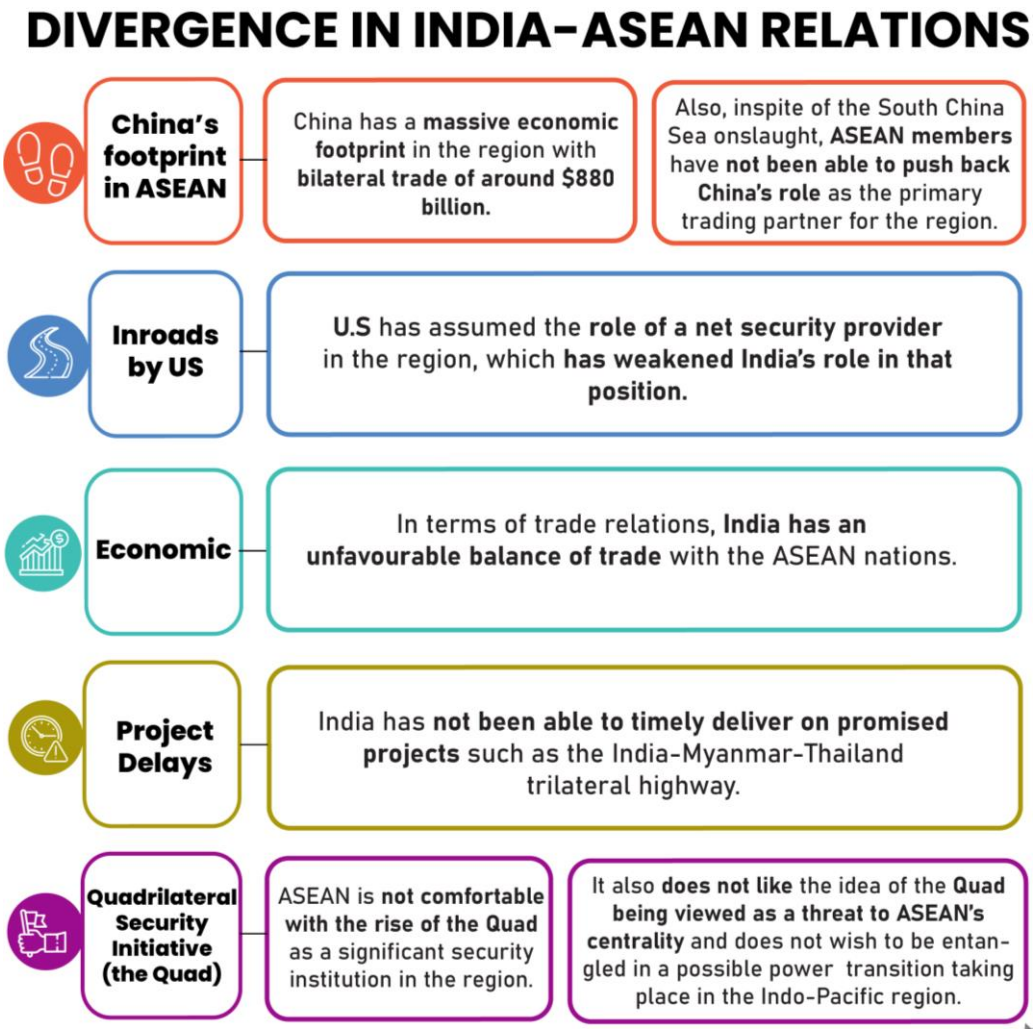
- **ASEAN's centrality in India's foreign policy-** a cohesive, responsive and prosperous **ASEAN is central to India's Act East Policy, Indo-Pacific Vision and contributes to Security and Growth for All in the Region (SAGAR)** initiative.
  - Bilaterally, **India has signed 'strategic partnerships' with four ASEAN countries,** namely, Indonesia, Malaysia, Singapore and Vietnam.
- **Connectivity and development of Northeast-** ASEAN-India connectivity is a **priority for India as also the ASEAN countries**.
  - **In 2013, India became the third dialogue partner of ASEAN** to initiate an ASEAN Connectivity Coordinating Committee-India Meeting.
  - Connectivity through **India-Myanmar-Thailand Trilateral Highway and the Kaladan Multimodal Project etc** have led to greater connectivity with **North East and ensured progress and development in the region.**
- **Maritime engagement –** Objective is to mutually address geopolitical tensions in South and East China Seas, enhance military cooperation through exercises such as CORPAT, SIMBEX etc.

- **It also seeks to** tackle non-traditional threats in the region such as piracy and drug trafficking etc.
- It also helps **to bypass choke points such as the Malacca strait in the Indian ocean region** (IOR carries 90% of India's trade and its energy sources.)

India-ASEAN Quick Facts

- **Political:** India began formal engagement with ASEAN in **1992 as a "Sectoral Dialogue Partner"** and forged a **strategic partnership in 2012**.
- **Economic** –The **ASEAN-India Trade in Goods Agreement (AITGA) was signed in 2009** and the one on **ASEAN-India Trade-in-Services and Investments in 2015.**
- **Tourism and people to people contact - India is the first Dialogue Partner** to sign an MoU on Strengthening Tourism Cooperation with ASEAN.
- At the **25th Anniversary of ASEAN-India Dialogue Relations in 2018, they adopted Delhi Declaration** which charts out the future direction of ASEAN-India Strategic Partnership.

- **Security -** India and ASEAN aim to establish a rules-based security architecture for peaceful development in the region, in contrast to China's aggressive policies.
  - Also, partnership between ASEAN and India helps **in countering Terrorism, Violent Extremism and Transnational Crimes,** including through implementation of **ASEAN Plan of Action in Combating Transnational Crime (2016-2025).**
- **Economic – India is one of ASEAN's top trading and investment partners. Also,** Indian businesses consider ASEAN as a conducive destination for trade.
  - For instance, by 2025, the pharmaceuticals market in ASEAN countries would be almost $34 billion, posing a lucrative opportunity for India.
- **Supply chain integration post covid 19 pandemic –** Both countries are being responsive to the new supply chains emerging in the region – such as Australia–Japan–India, and India–Myanmar–Thailand – as these will enhanced trade facilitation.
- **Cultural connections -** Hinduism and Buddhism came to Southeast Asia from India. The Indian languages, Sanskrit and Pali, have influenced several of the region's scripts.
  - The **national carrier of Indonesia is called Garuda, a legendary bird found in Hindu**, Buddhist and Jain mythology.



Way forward

- **Convergence -** India and ASEAN differ in terms of perspectives, intentions or actions on several bilateral, regional and international issues.
  - It is important for ASEAN and India to continue engaging each other to avoid any misunderstanding on these matters, or better still, to address them in a mutually beneficial manner.

- **Building Resilient supply chains -** Current engagement in value chains between ASEAN and India is not substantial. ASEAN and India can leverage the emerging scenario and support each other to build new and resilient supply chains.
    - However, to explore this opportunity, **ASEAN and India must upgrade the skilling, improve logistics services and strengthen the transportation infrastructure.**
- **Work collaboratively –** ASEAN possesses one of the fastest grown digital economy regions in the world. India too has a vast and burgeoning start-up sector with a digitally proficient human capital base.
    - For example, **India's Aadhaar system can facilitate digital connections among the citizens of India**. ASEAN wants to do the same with its citizens**.**
    - India also needs to needs to **support community building, assist individual countries in ASEAN, particularly the CLMV countries (**Cambodia, Laos, Myanmar, Vietnam).
- **Build goodwill -** Lastly, both India and ASEAN are confronted with human security issues on account of cross-border crises such as the Rohingya situation, extremism and the frequency of regional natural disasters.
    - This is an area of cooperation which **can help to build goodwill and deepen existing relations** between the governments and the people on both sides.

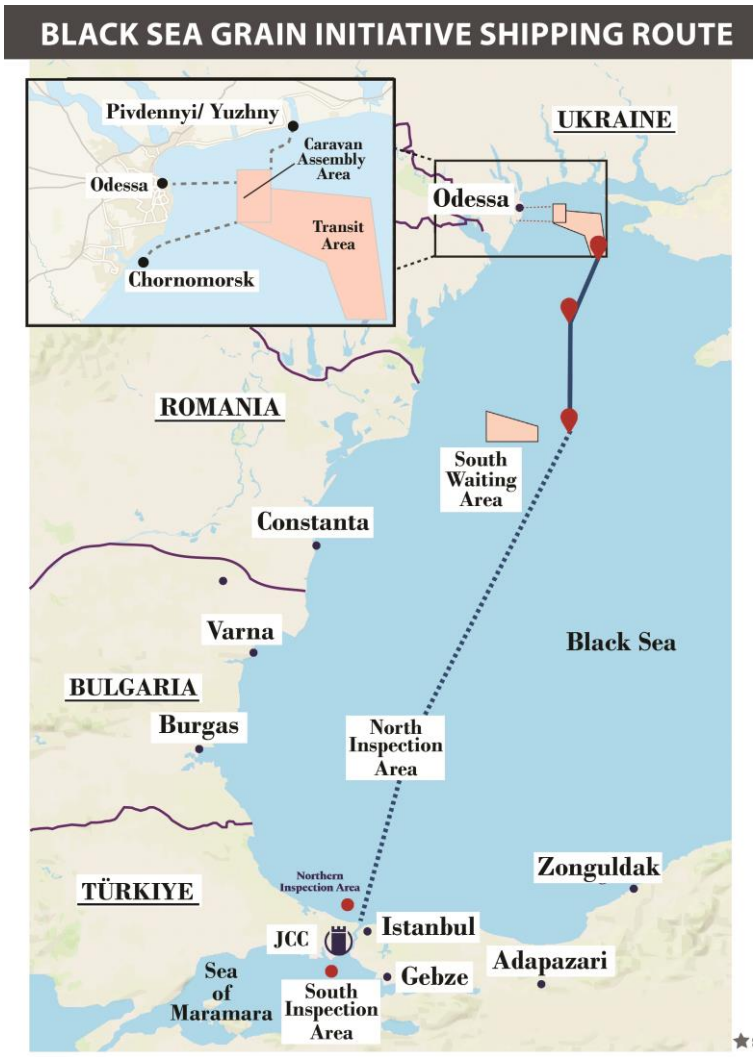
2.2. GEOPOLITICS OF FOOD SECURITY

Why in news?

Recently, Russia resumed participation in Black Sea Grain deal.

More on news

- The Black Sea Grain deal was **brokered by the United Nations (UN) and Turkey (also called Türkiye)** in July between **Russia and Ukraine.**
- The deal endeavors to **tackle escalating food prices** emanating from **supply chain disruptions** due to effective blockage of Black Sea.
- Deal was to provide for a **safe maritime humanitarian corridor for Ukrainian exports** (particularly for food grains) from three of its key ports, namely, **Chornomorsk, Odesa and Yuzhny/Pivdennyi.**
    - Ukraine is among the largest exporters of wheat, maize, rapeseed, sunflower seeds and sunflower oil, globally.
    - Its access to the deep-sea ports in the Black Sea enables it to directly approach Russia and Europe along with grain importers from the Middle East and North Africa.
- The central idea was to **calm markets by ensuring an adequate supply of grains**, thereby limiting food price inflation.
    - The initiative has also been credited for having made a "huge difference" to the global cost of living crisis.



- The deal was **for a period of 120 days** with an option to extend or terminate it in November 2022.
    - Recently, the deal was extended for 120 days.
- Many experts observe that any further suspension of the deal may re-introduce the price pressures on grain prices.
    - It has also pointed that **food security** goes beyond developmental or humanitarian issues and could be **threatened by geopolitics despite surplus production** of food at global level.

About Food security

- According to Food and Agriculture Organisation of the UN food security refers to 'a situation that exists when **all people, at all times**, have physical, social and economic **access to sufficient, safe and nutritious** food that meets their **dietary needs and food preferences** for an active and healthy life'.
    - The definition is focused on undernourishment (hunger), **nutritional aspects are not explicitly covered.**
- Sustainable Development Goal or **SDG 2** aims to create a **world free of hunger by 2030.** But the number of **undernourished people** has actually increased to reach **690 million in 2019** since 2014. If this trajectory continues, the **number of undernourished people** will have **increased to 840 million by 2030.**
- Such food insecurity represents, in particular, **a political failure** as **global food production has long surpassed** the level necessarily **to keep all people fed.**
    - The global **food crises** have also served to entrench the idea **of food as an object of strategic national importance.**

Impact of Geopolitics on Food Security

The 'return of geopolitics' in recent years, encompassing **weakening multilateral frameworks, unilateralist tendencies and great power competition,** puts the achievement of SDG 2 into even greater peril. Geopolitics has a **more prominent impact** across a range of areas that **directly affect food security** as given in the following table.

Factors	Threats to food security
Compulsion to Trade	• **Strategic nodes or chokepoints** of the global food system remains vulnerable to politically motivated restrictions. • **Economic unilateralism and protectionism and trade war** have accelerated, with trade interdependence increasingly treated as a liability. For example, global food crisis of 2007–2008 happened due to attempt to insulate domestic market from international volatility. • **Geopolitical frictions** also make **reform** to multilateral institutions like WTO **difficult.** For, example the failure of the WTO's Doha Development Round of trade talks
Armed conflict	• **Disrupts** agricultural **production, trade, transport** and **access** and humanitarian aid. • **Starvation of local populations** could be used as a tactic of war as happened in Nigeria, Somalia, South Sudan, Syria and Yemen.

	• Armed conflicts and **concomitant social unrest** could lead to **geopolitical repercussions.** Example, Arab Spring of 2010–11. • **Peacebuilding gets hampered** due to geopolitical rivalry at international platforms like UNSC which creates a vicious circle for food insecurity.
Competition for natural resources	• **Green grabbing**: It refers to trade-offs between environmental sustainability and food security that happens due to production of biofuels. • **Resource grabbing:** China is the largest supplier of phosphorus despite having only 5% of the reserves rendering importing countries like India vulnerable to supply shock during adverse geopolitical events.
Climate change	• **Food insecurity** is currently concentrated in developing countries in low latitudes which are **more vulnerable to climate change**. Thus, climate change may **exacerbate and widen inequality** on an international scale.

Way ahead

- **Insulating food forum from geopolitics:** Dedicated forums for multi-stakeholder dialogue, coordination and cooperation on world hunger need to be protected from the spill over of geopolitics.
- **Shifting models of global governanc**e: Diversify the governance system by including non-state and market-based organizations, to establish new interest coalitions and partnerships that can **potentially bypass interstate rivalries** and zero-sum logic.
- **Maintaining open trade:** Allow food to flow from surplus areas to those in need by urgently phasing out export bans imposed by major food producers.
  - **Increasing trade financing and reinforcing supply chains** is vital to addressing the food price shock due to geopolitics challenges like wars.
- **Intensify efforts to recycle nutrients**: food system has a significant surplus of nutrients that aren't being utilized.
  - Step towards regenerative agriculture and nature-positive solutions needs to be taken for reducing dependency on a few countries.
- **Increase productivity in developing countries:** This will bridge the geographical yield gap and strengthen their resilience against any global shock to food supply.
- **Climate resilience:** Investing in climate-resilient agriculture with a focus on low-cost, high-impact measures, such as:
  - Investing in new crop varieties
  - Improving water management
  - Information dissemination

2.3. INDIAN DIASPORA IN UK

Why in news?

2022 marks the 130th anniversary of the election of **Dadabhai Naoroji** to the House of Commons (first person of Indian origin to be elected to the House of Commons).

Indian Diaspora in the UK: Status, contribution and challenges

- **Population percentage:** According to the 2011 census of England and Wales, Indian origin people **account for 2.5 per cent of UK's overall population.**
- **Economic status:** Indians make up one of the most prosperous and dynamic ethnic minority communities in the UK.
- **Active political participation:** The Indian community in Britain has made its presence felt in the Political area.
  - There are 15 Indian-origin members in the House of Commons and over 25 peers in the House of Lords, which compares favourably to the Indian-origin population percentage.

Dadabhai Naoroji

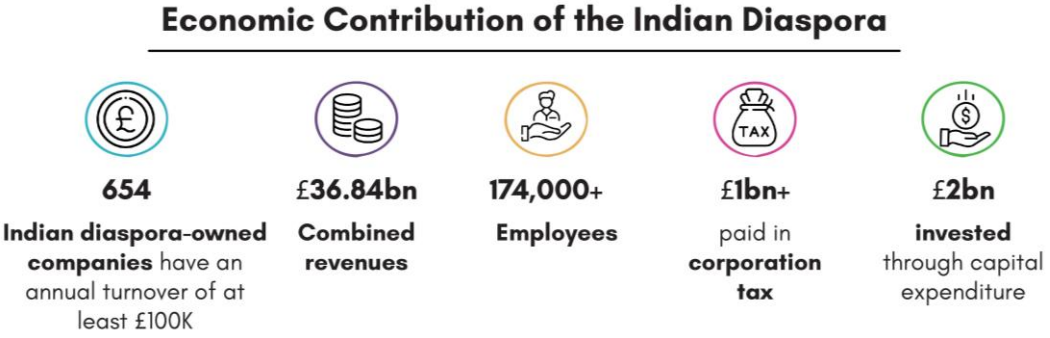
Dadabhai Naoroji, of Bombay Parsee origin, was the first Indian to be elected to Parliament in Britain.

Key contribution

- Dadabhai Naoroji was among the key proponents of the '**Drain Theory**', disseminating it in his 1901 book '**Poverty and Un-British Rule in India**'.
- He was the founder-editor of the journal RAST GOFTAR in Bombay in 1851.
- He was **Congress president thrice, in 1886, 1893, and 1906**.
- Naoroji helped found **The London Indian Society and The East India Association**
- Naoroji played a **pivotal role in mentoring future moderate** INC leaders, like Bal Gangadhar Tilak, Gopal Krishna Gokhale, and Gandhi.
- Naoroji spoke for the **underdog, for women, for the elderly, for Irish Home Rule,** and for the **abolition of the House of Lords in Britain.**

Significance of Indian diaspora for India

- **Remittance**: Indian diaspora brings in large scale remittances, one of the highest in the world.
  - They also help in the transfer of knowledge, resources, and expertise and also bridge the market for development.
- **Managing natural calamities:** The Indian community has formed a number of social, cultural, and political organizations in the UK. In times of national crisis, and natural calamities in India, community organizations raise generous contributions for relief.
  - With ongoing programmes to support people in need, charities like Akshaya Patra, British Asian Trust and Pratham UK point the way.
- **Agents of change:** Diaspora acts as agents of change by facilitating and enhancing investment, accelerating industrial development, and boosting international trade and tourism.



- **Creating pro-India political contexts:** Indian diaspora have strong affinity and links with India and its community. They have lent significant support to form pro-India lobby groups in three major political parties in the UK.
  - Indian Prime Minister has been invited to the G7 summit in 2021.
- **Soft power:** They spread the Indian Culture and traditions abroad benefitting India in general. For example Yoga, Ayurveda, Indian Cuisine etc.
  - **2017 was celebrated as the India-UK year of Culture** to mark the 70th anniversary of Indian independence.
  - There has been a **gradual mainstreaming of Indian culture** and absorption of Indian cuisine, cinema, languages, religion, philosophy, performing arts, etc.

Government Initiatives to connect with the Diaspora

- **Pravasi Bhartiya Diwas:** It is an initiative started by the Government in 2003 to mark the contribution of the Indian community overseas in the development of India.
- **The Ministry of Overseas Indian Affairs has been merged with the Ministry of External Affairs** to encourage and provide streamlined support to Indians overseas.
- **Know India Programme**: It is a three-week orientation program for diaspora youth conducted with a view to promoting awareness of different facets of life in India and the progress made by the country in various fields.
- **Social security agreements with foreign countries** for the protection of the Indian communities abroad.

Way forward to support and connect with the Diaspora

- **Strengthening the bilateral relationship:** Improved India-UK relationship will pave the way for improved people-to-people ties and better multi-faceted engagement.
  - For instance, improved bilateral relationship will help navigate the Visa problems and bring more opportunities for Indian students as well as workers.
- **Addressing problems of blue collars working overseas:**
  - Negotiating a standard Labour Export agreement with the host countries.
  - Monitoring and supervision of our overseas workers by our missions.
  - Compulsory insurance scheme covering the risk faced by our overseas workers.
  - **Cooperation between the Centre and state government** to effectively handle local problems faced by NRI.
- **Connecting at economic level with the diaspora:**
  - Diasporic professionals working in senior positions in the manufacturing industry can help promote India as an important destination for outsourcing.

- The government could consider issuing special infrastructure bonds for attracting NRI/PIO investments from the 'Diaspora Philanthropists'.

- **The Indian Council for Cultural Relations (ICCR)** can deepen relations with Diaspora by expanding the scope and activities of the cultural centres.
- **Establishing "Pravasi Bharatiya Bhavan**": It can provide a venue for commemorating the history and achievements of the diaspora and act as a focal point for promoting stronger links between India and the diaspora.

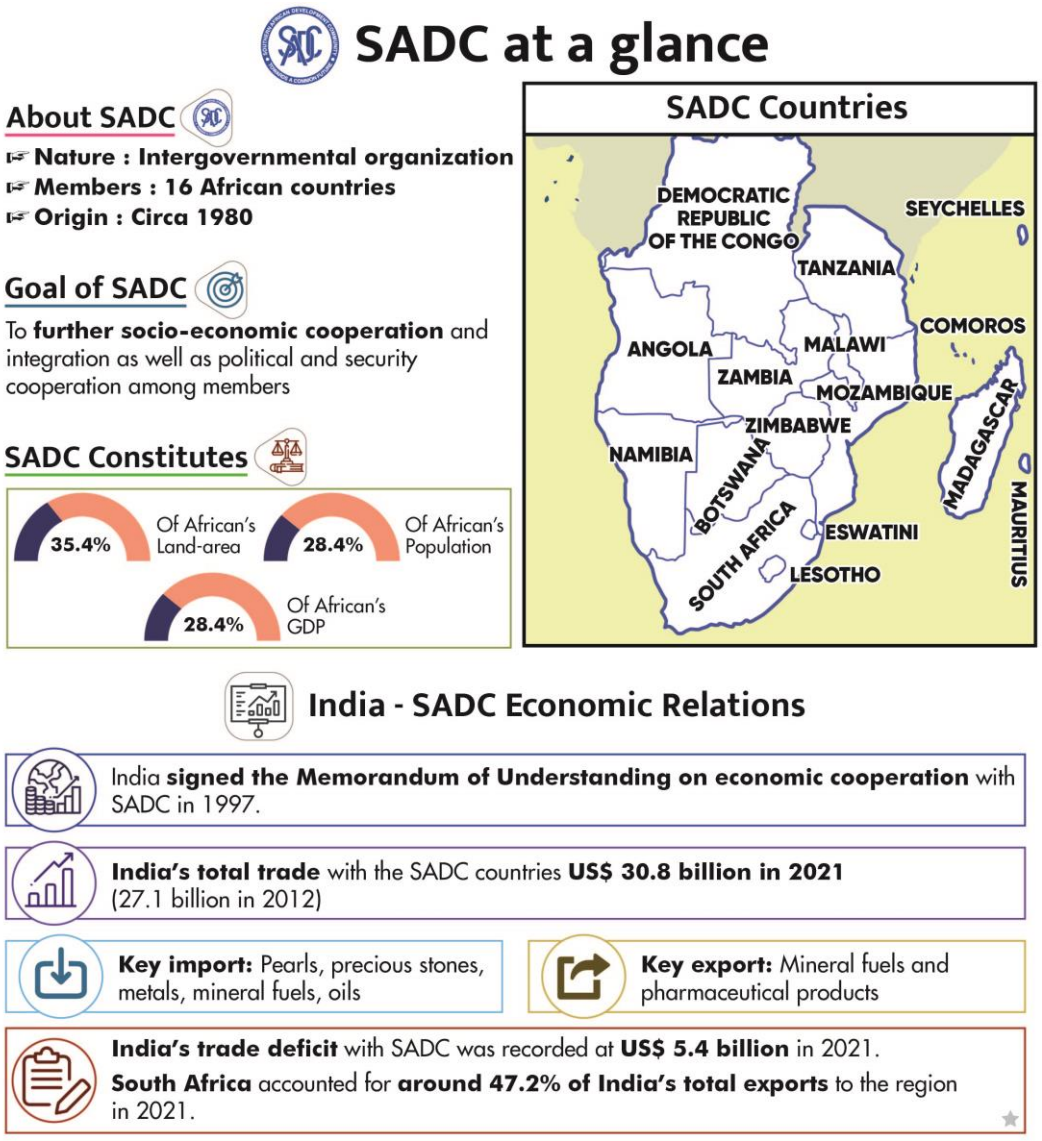
2.4. SOUTHERN AFRICAN DEVELOPMENT COMMUNITY (SADC)

Why in news?

Recently, the CII-Exim Bank Regional Conclave on India-Southern Africa Growth Partnership was held.

More on news

- The Conclave serves **as a platform for dialogues between India Southern African Development Community (SADC)**.
- The current conclave was aimed at enhancing the collaboration for realising the vision of **USD 150 billion investment and USD 200 billion trade between India and Africa by 2030.**
- At the conclave the **Exim bank** in a report titled **'Reinvigorating India's Engagements with Southern Africa'** provided strategies to enhance engagement with the SADC.



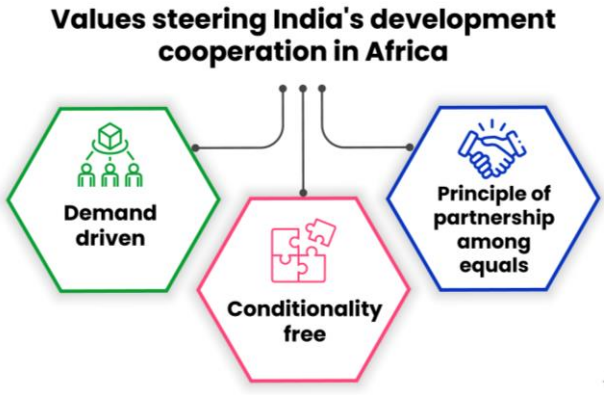
Need for enhancing India's Engagements with SADC

- **Sourcing critical minerals:** Southern Africa region is richly endowed in lithium, graphite, cobalt, nickel, copper, and rare earth minerals.
  - All of these are essential for building **the global green economy** of the future and they also comprise **new market opportunities for net-zero transitions.**
- **Preventing China's Monopoly:** The world's Rare Earth Elements (REE) market is largely controlled by China. With their rising demand, the risk of China forming a monopoly on the industry has also increased.
  - Africa is one of the regions targeted as an alternative source of REE commodities.
- **Maritime security:** Due to large coastlines SADC is an important stakeholder in ensuring a safe and secure maritime environment, especially in the Indian Ocean Region (IOR).
- **South South Cooperation:** With the increasing diversification of India's global trade towards other developing countries, SADC has emerged as important trading partner for India.

- **Investment Opportunities for India:** SADC countries offer opportunities in the economic sector, including transport, energy, and ICT, healthcare, and education.
- **Economic Sustainability for the region:** Scaling up private sector investment would also ensure better debt sustainability and management, innovation and efficiency, and enhance the competitiveness of their economies.

Challenges in enhancing India's Engagements with SADC

- **Poor Governance System**: Corruption, mismanagement, violence, insufficient infrastructure, poor government service delivery to impoverished communities and political instability may enhance the risk for businesses.
  - These factors have been exacerbated by the Covid-19 pandemic.
- **The China Challenge:** China's strategic approach, consistency, deeper pocket, technological capacity and vast resources give her a formidable edge in Africa as compared to India.
- **Lacks a clear strategy for cooperation:** Indian development aids have not been designed to achieve a larger development goal such as food and health security, education for all or clean energy.
  - Also, there is a **lack of effective synchronisation between different development instruments** which renders impact of India's development cooperation less effective.
- **Diversity:** There are multiple cultures and a number of different languages spoken in South Africa, which means adopting a bespoke approach to different regions is crucial.
- **Skilled labour:** Due to the poor state of the public education system, skilled labor can be difficult to find in many technical and professional segments.
- **Limits on Foreign Control:** For example, in South Africa the Broad-Based Black Economic Empowerment Act of 2013 (B-BBEE) requires levels of company ownership and participation by black South Africans to obtain bidding preferences on government tenders and contracts.



Strategies proposed by the EXIM Bank to Enhance India's Engagements with SADC

- **Strategic Alliance for Critical Minerals:** India could set up **joint exploration activities**, establish strategic investment funds or import credit lines for securing critical mineral assets like cobalt and lithium .
- **Developing Manufacturing Value Chains:** The SADC Industrialization Strategy and Roadmap aims to increase the **manufactured exports** to at least **50% of total exports by 2030** (at present less than 20%).
  - Indian companies could provide foreign capital and technical know-how to catalyze the development of manufacturing value chain.
- **Increasing Circularity in Africa's Mining Sector:** Indian companies investing in African mines could contribute to the environment by:
  - Using **water saving technologies**.
  - Providing **renewable energy solutions**.
  - **Repurposing waste** rock.
  - **Rehabilitate mines.**
  - **Recycling and reusing** vehicle parts, construction materials, etc.
- **Access to Trade Finance in Southern Africa:** For this, DFIs could develop financial instruments like risk participation and transaction guarantee agreements to support non-traditional confirming banks from emerging markets.

Initiatives for cooperation with African countries

- **Indian Technical and Economic Cooperation (ITEC) programme**: It provide technical assistance through human resource development.
- **SAGAR' (Security and Growth for All in the Region)**: It is the basis for the robust maritime partnership between India and Africa.
- **Asia Africa Growth Corridor (AAGC)**: It was launched by India in partnership with Japan to enhance growth and connectivity between Asia and Africa.
- **India-Africa Defence Dialogue (IADD)**: It was held in 2022 on the side-line of Defexpo, for enhancing defence cooperation.
- **Initiatives by EXIM Bank**: It has extended its own commercial Lines of Credits to various regional financial institutions and parastatal entities in Africa.
- **Humanitarian aid**: India has aided African countries by providing provided food, essential medicines and vaccines to African countries amid crisis like the COVID-19 pandemic.
- **Guiding principles:** In 2018, Prime Minister outlined the 'Ten Guiding Principles for India-Africa Engagement' often regarded as India's vision statement.

- According to the AfDB, the trade finance gap in Africa was US$ 81.8 billion in 2019 and has averaged US$ 91 billion over the past decade.

- **Maritime and Defence Cooperation:** India has emerged as a leading defence exporter in recent years and could fulfil Africa's maritime, aerospace and defence requirements.
  - According to the SIPRI International, India was the 23rd largest defence exporter during the period 2017 to 2021.

Conclusion

India must chart out a roadmap for its development cooperation programme in Africa that outlines a long-term strategy. Doing so will become even more important for India in the aftermath of the COVID-19 pandemic given the harsh economic impacts and the resultant inability to keep increasing its development cooperation budget without any tangible outcomes.

2.5. INDIA-UN DEVELOPMENT PARTNERSHIP FUND

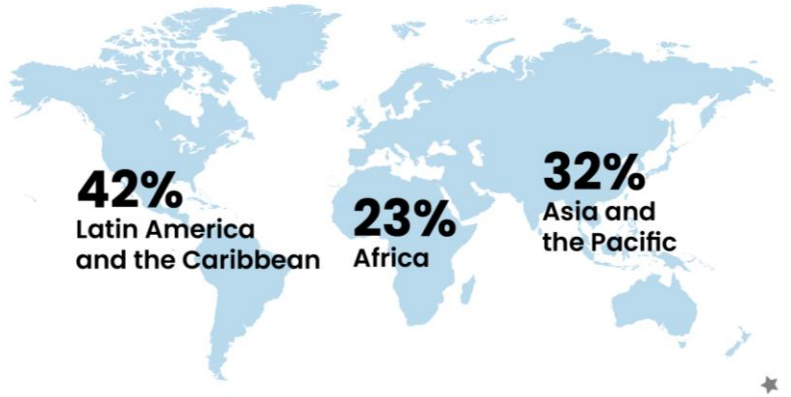
Why in news?

Recently India-UN Development Partnership Fund **celebrated 5 Years of South-South Collaboration.**

About UNDF

- It is a **dedicated facility established in 2017** within the **United Nations Framework Convention on Climate Change (UNFCCC).**
  - The Government of India has **committed $150 million over 10 years to the India-UN Fund.**
- It is managed by the **United Nations Office for South-South Cooperation (UNOSSC) a**nd implemented in collaboration with the United Nations system.
  - The UNOSSC **hosted by UNDP since 1974, was established by the UN General Assembly.**
  - Its mandate is to advocate for and coordinate **South-South and triangular cooperation** on a global and UN system-wide basis.
- **It supports Southern-owned and led, demand-driven, and transformational sustainable development projects** across the developing world.
  - It focuses on least developed countries and small island developing states.
- It is a **notable example of South-South cooperation with the system**.

INDIA-UN DEVELOPMENT PARTNERSHIP'S PROJECT PORTFOLIO DISTRIBUTION



About South-South Cooperation.

- South-South cooperation refers to the **technical cooperation among developing countries in the Global South.**
  - Operationally, it is a process **whereby two or more developing countries pursue their individual and/or shared national capacity** development objectives**.**

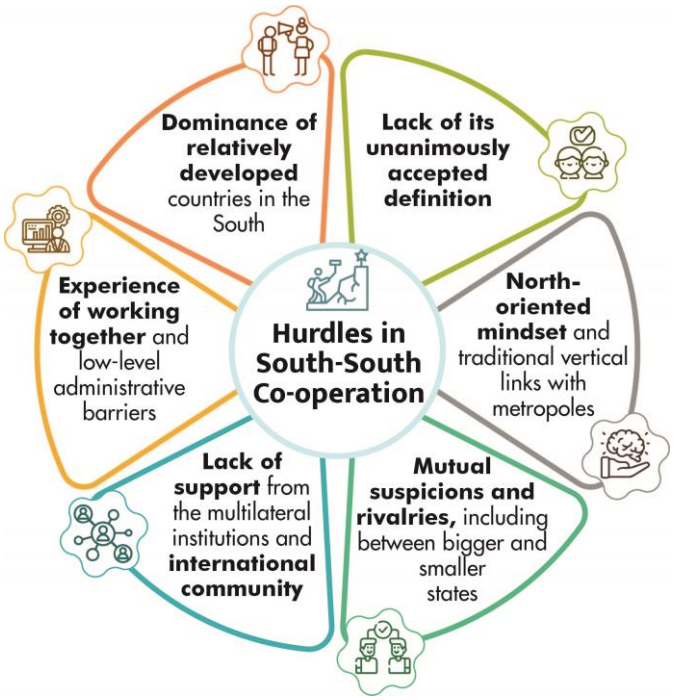
- It derives from **the adoption of the Buenos Aires Plan of Action for Promoting and Implementing Technical Cooperation among Developing Countries (BAPA)** by 138 UN Member States in Argentina.
    - The plan established a scheme of collaboration **among least developed countries, mostly located in the south of the planet.**
    - It **also established for the first time a framework for this type of cooperation**.
    - The **basic principles for co-operation are:** respect for sovereignty, non-interference in internal affairs and equality of rights, among others.

Other types of cooperation

- **North-South cooperation,** which is the most traditional type of cooperation, occurs when a developed country supports economically or with another kind of resources a less favored one, for example, with financial aid during a natural disaster or a humanitarian crisis.
    - **The division of "North" and "South"** is used to refer to the social, economic and political differences that exist between developed countries (North) and developing countries (South).
- **Triangular cooperation,** involves three actors, two from the South and one from the North.
    - The latter, which can also be an international organization, provides the financial resources so that the countries of the South can exchange technical assistance on a specific topic.

Conclusion

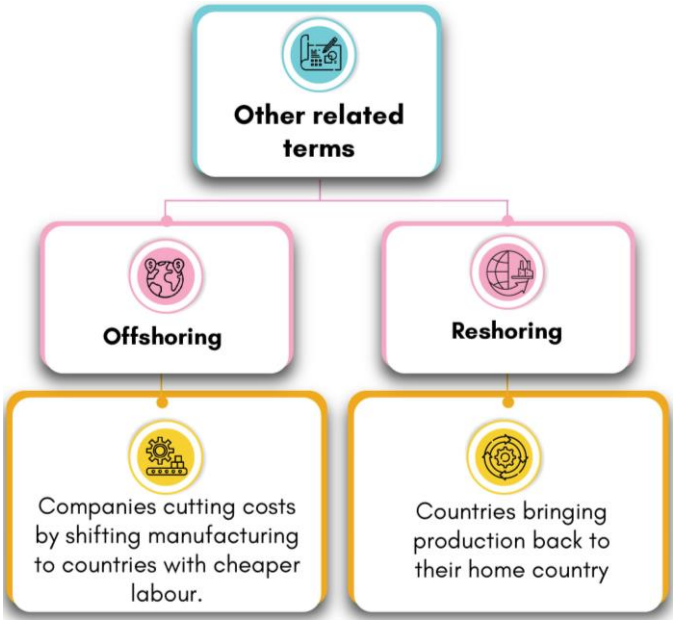
- **Focus on specific activities with multiplier and catalytic effects** – Such as placing internet in the service of South-South cooperation.
- **Institutionalism -** Promoting interaction between South-South mechanisms. For this, representatives of mechanisms with a global scope, such as G77 chapters, NAM coordinating bureau, G15, OPEC, etc. should come together with their learning and experiences, and lead to common activities.
- **Report on the state of South-South cooperation -** a regular report on the state of South-South cooperation needs to be prepared, as an essential and necessary tool for policy-making and action in this domain.



2.6. NEWS IN SHORTS

2.6.1. FRIEND-SHORING

- Citing deepening economic integration, **US Treasury Secretary pitched for friend-shoring** for India.
- Friend-shoring is pitched (by US) as a **means to insulate global supply chains from external disruption or economic coercion.**
    - Over the past few years, **world has experienced series of trade disruptions** -- **US-China trade war, COVID-19 pandemic, Russia's invasion** of Ukraine.
- Idea is for a **group of countries with shared values** to deploy policies encouraging companies **to spread manufacturing within that group.**
    - Sectors under importance are **semiconductor industry, green energy, telecommunications and mineral industries.**
- **Significance of Friend-shoring**
    - **Will prevent nations** (like China and Russia) **from unfairly leveraging their market position** in key raw materials, technologies or products to disrupt global economy.
    - **Diversifying global supply chains** that will also help **businesses become more resilient to external shocks** like wars, famine, political changes or next pandemic.
- **Concerns related to Friend-shoring**
    - **Considered part of a deglobalisation process,** which could see further supply shocks and higher prices in short term and lower growth in long run.
    - **Poor countries** needing global trade **might be excluded** from this.



2.6.2. CHINA-INDIAN OCEAN REGION FORUM

- China convened a first **"China-Indian Ocean Region Forum"** bringing together 19 countries from the region, and all of India's neighbors, **except India**.
  - It proposed to **establish a marine disaster prevention and mitigation cooperation mechanism** between China and countries in Indian Ocean region.
- It was organized by **China International Development Cooperation Agency which is Beijing's new development aid agency.**

2.6.3. INDO-PACIFIC REGIONAL DIALOGUE (IPRD) 2022 (4TH EDITION)

- IPRD is an **apex level international annual conference of Indian Navy.** It manifests Navy's engagement at the strategic-level.
- IPRD seeks **to foster exchange of ideas and promote deliberations** on regionally relevant maritime issues.
- It is **a Track 1.5 event** having a balanced **representation from government and non-government agencies** and institutions.

2.6.4. CURRENCY MONITORING LIST

- United States' Department of Treasury has **removed India from its Currency Monitoring List.**
- This is a **label given by US government to countries** it feels are engaging in "unfair currency practices" **by deliberately devaluing their currency** against dollar.
- An economy **meeting two of three criteria is placed on the Monitoring List:**
  - A **significant bilateral trade surplus** with US.
  - **A material current account surplus** equivalent to at least 2 percent of GDP over a 12-month period.
  - **Persistent, one-sided intervention** (Occurs when net purchases of foreign currency are conducted repeatedly).

QUIZ
SMART QUIZ
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3. ECONOMY

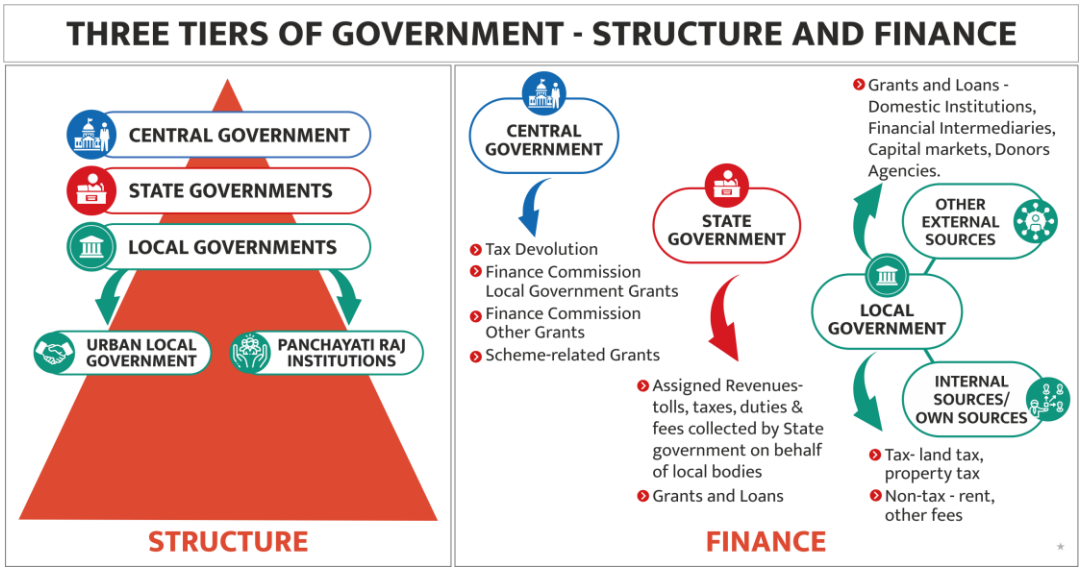
3.1. MUNICIPAL FINANCING

Why in news?

Recently the Reserve Bank of India (RBI) has released a report on municipal financing.

More on news

- The report is **a first ever comprehensive analysis of Municipal finances** and covers 201 municipal corporations (MCs) across all States.
- The report also suggests some innovative ways to strengthen the financial capacity of municipalities.



About Finance of Municipalities

- The **74th Amendment Act 1992**, through the 12th Schedule institutionalized the urban local bodies (ULBs) as the third tier of the government to promote grassroots level democracy (refer to the infographics).
- The Act also provides an illustrative list of **18 functions which the State governments may assign to the municipalities,** partly or wholly, through their municipal laws.
- However, the Amendment Act has **not provided for a corresponding 'municipal finance list'** in the Constitution and it has been completely left to the discretion of the State Governments.
  - This has resulted in **municipal finances varying widely across States**
  - **There is a gross mismatch between the functions assigned** to the ULBs and the **resources made available** to them to discharge the mandated functions.

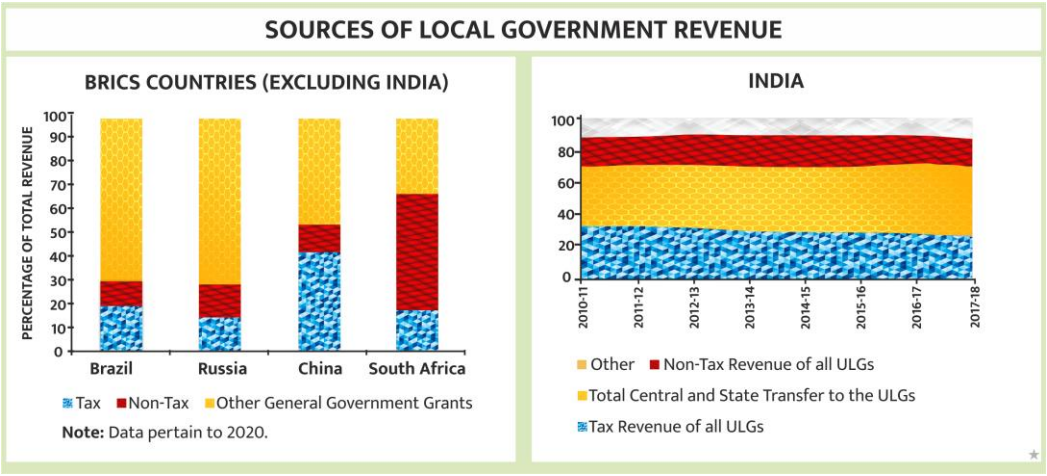
Overview of Municipal finance in India

- The **combined budget size of the municipal corporations (MCs)** in India is **much smaller** than that of the Central and State governments.
- There **was no distinct rise in overall municipal revenue in India** which remained broadly unchanged from 1946-47.
- The **composition of municipal revenue in India has changed considerably** over time, with increased reliance on transfers.
- The **overall borrowing by the MCs is miniscule** (less than 0.5%) and their market borrowings through bond issuances is negligible, dominated by a few large MCs.

Need for robust financial system of Municipalities

- **Urbanization:** The **rapid rise in urban population density** calls for better urban infrastructure, and hence, requires greater flow of financial resources to Local governments.
- **Essential services:** Civic infrastructure and services in most cities and towns are grossly inadequate even for the existing population.
  - The **availability and quality of essential services** for urban population depends on the improvement in the financial capacity of municipal corporations.
- **Financial autonomy:** Undue dependence on central or state government by the MC infringe upon their financial autonomy which in turn also affects their development priorities.
- **Sustainable development:** Inadequate financing renders municipalities unable to adopt innovative and appropriate technologies for waste treatment and disposal tackling of air and water pollution.

Reasons for weaker financial strength of municipalities



- **Data gap:** Information on the fiscal position of ULBs is **scanty** as
  - most municipalities in India **do not have balance sheets in public domain,**
  - many of them continue to follow **cash accounting system,**
  - Municipal **laws do not prescribe any uniform accounting standard** to be followed, rendering municipal accounts **largely incomparable** across States and even within a State.
- **Legal hurdles:** MCs in India are required by law to maintain a balanced/surplus budget and hence, they have not been able to tap capital markets sufficiently to supplement their revenues.
- **Tax regime:** A few of the taxes which were the prerogative of municipal corporations earlier, have been subsumed into the Goods and Services Tax (GST).
- **State Finance Commission (SFC):** State governments have not set up SFCs in a regular and timely manner even though they are required to be set up every five years.
  - SFCs are expected to spell out the principles to be applied for determining the allocation of funds to Local governments and the range of taxes and non-taxes to be devolved to them.
- **Bond market at nascent stage:** Lack of a secondary market for municipal bonds has been a critical constraint in attracting a more extensive investor base for these securities.
  - MCs **mostly rely on borrowings from banks**, financial institutions, and loans from centre/ state governments to finance their resource gaps in the **absence of a well-developed market for municipal bonds.**
- **Inefficient property tax collection:** Despite its dominance over other municipal taxes, property tax collection in India is much lower compared to the OECD countries due to factors like property undervaluation, incomplete registers, pending litigations, etc.
- **Gap in allocation and transfer of grant:** Generally, the actual release of grant by the Centre to the local bodies has been lower than the recommended amount by about 15%, primarily due to their failure to meet different conditionalities.

Initiatives for improving financial health of municipalities

- The 15th Finance Commission (FC-XV) recommended **4.36 lakh crore as grants to Local governments for the period 2021-22 to 2025-26** - the **largest share of grants** to be assigned for local bodies.
- The Department of Economic Affairs (DEA), Ministry of Finance has issued **guidelines on use of municipal bond financing for infrastructure projects**.
- The Central government has included **credit rating of MCs** in the reform agenda of the Smart Cities and **AMRUT programme.**
  - Of **the 94 cities that have been assigned credit ratings** in 2018, **59%** received a rating of **investment grade or above**, highlighting the underutilised potential for bond financing by Indian municipalities.

Steps needed to strengthen the financial health of municipalities

- **Tapping capital market:** ULBs can issue municipal bonds through an escrow account or finance through special purpose vehicles (SPVs) and State-pooled finance entities.
  - For example, China's Local Government Financing Vehicle (LGFV) is an investment company that sells bonds in the bond markets for financing real estate development and other local infrastructure projects.
- **Pooled financing:** The smaller ULBs' access to the capital market can be enhanced through pooled financing, under which a common bond is issued by pooling the resources of several local bodies.
  - This is because for smaller ULBs the initial cost of bond issuance can be prohibitively high.

- **Credit Rating of ULBs:** In India, the municipal bond market is at a nascent stage and hence, credit rating can play an important role in attracting new investors.
  - Credit rating performs the critical function of **providing an independent and credible assessment of the inherent risk of an instrument.**
- **Land based financing:** It is an area that is grossly under tapped and it has an enormous potential for revenue generation in the case of municipal corporations. Instruments may include:
  - Vacant land tax (VLT)
  - A two-part property tax with a higher rate for land than buildings
  - Sharing of stamp duty (collected by State governments) with Local governments
  - Development impact fees (DIF), land monetisation, etc.
- **Standardised accounting:** A double entry-based accounting system for municipal bodies would facilitate the **consolidation of Local government data.**
  - The Fifteenth Finance Commission's recommendation to **make audited accounts of municipal corporations available online** as a prerequisite for accessing grants is a step in the right direction.
- **Digitalisation:** Potential of a web-based e-governance system needs to be explored as it can be interactive and enhance the efficiency of the functioning of Local governments.
  - **Modernisation of local governance systems** will ensure **greater public participation** and more effective delivery of public services.

3.2. REPORT OF EXPERT COMMITTEE ON SVAMITVA SCHEME

Why in news?

Recently, Report of Expert Committee on SVAMITVA Scheme was released during the National Conference on SVAMITVA Scheme and Rural Planning, by Ministry of Panchayati Raj.

About SVAMITVA Scheme

- Survey of Villages Abadi and Mapping with Improvised Technology in Village Areas (SVAMITVA) is a **Central Sector Scheme of Ministry of Panchayati Raj (MoPR)**.
- It was launched to
  - Establish of **clear ownership of property in rural inhabited** (Abadi) areas,
  - **Provide 'Record of Rights'** to village household owners with issuance of legal ownership cards (Property cards).
- **Implementation**: By collaborative efforts of Ministry of Panchayati Raj (nodal ministry for implementation), State Revenue Department, State Panchayati Raj Department and **Survey of India**.
  - Survey of India is **National Survey and Mapping Organizatio**n under Department of Science & Technology.
  - It is the **oldest scientific department** of the govt. of India, set up in 1767.
- **Financial outlay:** Rs. 566 crore for 5 years, 2020-25.
- **Scheme involves**
  - mapping of land parcels using **drone technology.**
  - Establishment of **Continuous Operating Reference System (CORS):**

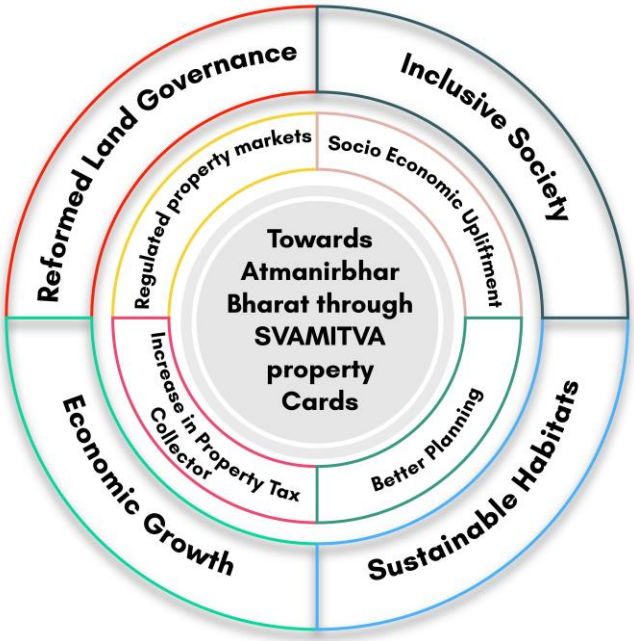
Gram Manchitra

- Gram Manchitra is a **spatial application** of the Ministry of Panchayati Raj.
  - It is a **Unified Geo-Spatial Platform** for all Gram Panchayats providing a decision support system for Panchayat Development Plan.
  - It helps in **Real-time tracking** of progress of work undertaken under different schemes.

- ✓ CORS is a **network of reference stations** that provide a virtual base station that allows access to long-range high accurate Network Real-Time Kinematic corrections.
- ✓ It supports **establishing ground control points**. It helps in accurate Geo-referencing, ground truthing and demarcation of lands**.**
- ✓ CORS has **applications in sectors** like Disaster Management and Emergency Response, Transport, Agriculture, Construction & Planning, asset management, etc.

- **Awareness generation** to sensitize rural population about surveying methodology and its benefits.
- Development of **Spatial Planning Application 'Gram Manchitra'**, leveraging digital spatial data/maps created under drone survey for the creation of spatial analytical tools to support the preparation of GPDP.

- **Progress a**s of October 2022:
  - **drone flying** has been completed in 1.87 lakh villages across 31 States/UTs.
  - **property cards** have been prepared in approx. 58,000 villages of nearly 91 Lakh property owners.



Identified broad areas of Impact of SVAMITVA

Area	Present scenario	How SVAMITVA helps
Creation of land records of the abadi area of villages	• Land records consist of **various types of information** (property maps, sale deeds) and are maintained across different departments. • These **departments work in silos**, creating discrepancies, • Inefficiencies and delays.	• Abadi area in villages will be mapped to **generate maps on the 1:500 scale.** • Based on these maps, **record-of rights** is prepared and **property cards are issued** to the owners.
Use Of Abadi Property as Financial Asset For Loans And Other Financial Benefits	• Though people own land and houses, there is **no authentic document** where these rights are recorded. • In the absence of such records, **banks do not provide loans** on the security of the Abadi land.	• SVAMITVA provides a "**Record-of-Rights**" to facilitate availing of loans on the security of such lands. • **Spatial record of property and geotagging** enable the prevention of fraud.
Management of property tax collection in rural area	• **Lack of accurate property registers** depicting size, area, and number of properties prevent the realization of the full potential of tax collection.	• Creating **digitized property register**, where properties are identified and marked with a unique number. • **Automatic tax assessment** through appropriate software, resulting in less of grievances and more tax collection. • Once the property register is digitized, system for **digital tax collection** can also be created.
Rural planning	• Spatial expansion of many Gram Panchayats, necessitates **preparation of a land use plan** for an orderly development. • However, there was there was **no framework for proper land use planning.**	• MoPR has introduced **Rural Area Development Formulation and Plan** (RADPFI) **Guidelines** in 2022. ○ RADPFI will guide in the preparation of a Master Plan for a Village. • SVAMITVA, along with RADPFI can enable **Spatial Budgeting** by unlocking the land use made available through Drone surveys and feature extraction. • For instance, an **inventory of Houses based on their conditions** (Pucca House, Semi-Pucca, and Kutcha) can be recorded. Kutcha houses are more prone to disaster, which can be addressed by suitable interventions.

Use of geospatial infrastructure and data of SVAMITVA by other agencies	• Data presently available is mostly in form of **sketches**. • Data under SVAMITVA is on **Nation Spatial Reference Frame.** ○ Having the **same reference frame will make the data suitable** to be integrated and seamless for other agencies.	• **Health Department**: Mapping of health centers for identifying a suitable location for a new health clinic. • **Education Department**: School facilities planning activities encompassing technology infrastructure, emergency preparedness, etc. • **Road Department**: To extend road infrastructure of new roads, route planning, and shortest path of roads through network analysis. • **Sanitation**: decision making of setting up a new public toilet for the department through distance analysis.

Recommendations by the committee

- Protect the data being created under the SVAMITVA. For this, MoPR should frame appropriate guidelines to ensure the **security of this data** and protecting privacy. Also, to maintain the **integrity of data**, it is very important to **establish ownership of data**.
- Preparation of **computerized land records** in the villages is part of the Digital India Land Records Modernization Programme (DILRMP). MoPR should ensure that all villages surveyed under the SVAMITVA scheme are included in the work plan of DILRMP on priority.
- Property cards under SVAMITVA must have a **QR code or any other unique identifier** which to verify the authenticity of the property card instantly. This will reduce the time taken in the usual verification of property documents for banks.
- States should upgrade their **property tax management system** with the integration of the SVAMITVA scheme data.
- There should be some **Public Private Partnership** model for the maintenance and updating of the developed data under the Scheme.
- **Data should be made available for industries** to make use of geospatial data to develop applications on the ground in near future.

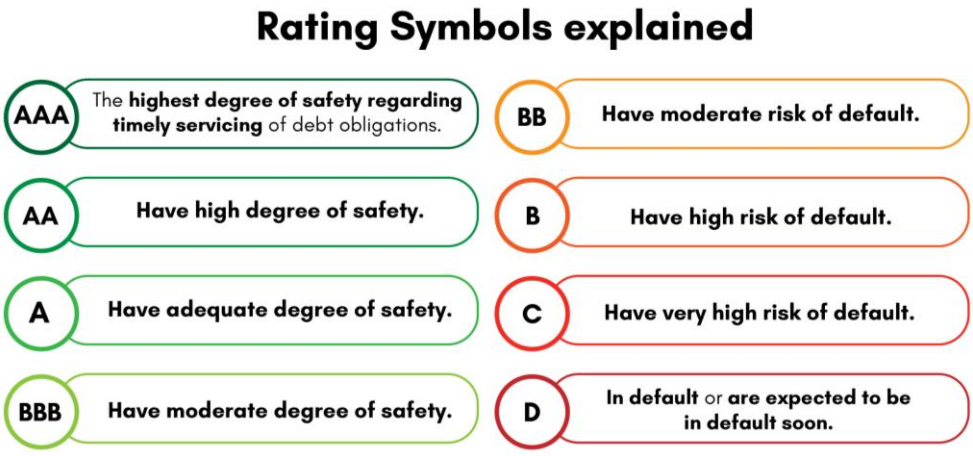
3.3. CREDIT RATING

Why in news

SEBI issues guidelines on Standardization of Rating Scales used by Credit Rating Agencies (CRAs).

More about news

- **Key highlights of guidelines**
  - **Standardised symbols and their definitions have been devised** for issuer rating or corporate credit rating**.**
    - ✓ **Rating Symbols** (AAA, AA, A, BBB, BB, B, C and D) should have CRAs first name as prefix.
    - ✓ CRAs can **use modifiers (+ or -)** to **reflect the comparative standing** within the **categories** of **AA to C.**
  - Provide **standard descriptors for Rating Watch and Rating Outlook.**
    - ✓ **Rating Watch:** It indicates **CRAs view on** expected direction of **rating movement in short term.**



Factors That Affect Credit Ratings

Factors that can influence the credit rating of a company or government borrower:

- The **organization's payment history**, including any missed payments or defaults.
- The **amount they currently owe**, and the types of debt they have.
- **Current cash flows and income**.
- The **market outlook** for the company or organization.
- Any **organizational issues that might prevent timely repayment** of debts.

- ✓ **Rating Outlook:** It indicates **CRAs view on** expected direction of **rating movement in near to medium term.**
- Given by CRAs, **standard descriptors on Rating Watch and Rating Outlook are –**
  - ✓ The rating descriptors for 'rating outlook' to be used: Stable, Positive, and Negative
  - ✓ For 'rating watch', the following will be the rating descriptors to be used:
    - Rating watch with positive implications,
    - Rating watch with developing implications and
    - Rating watch with negative implications.

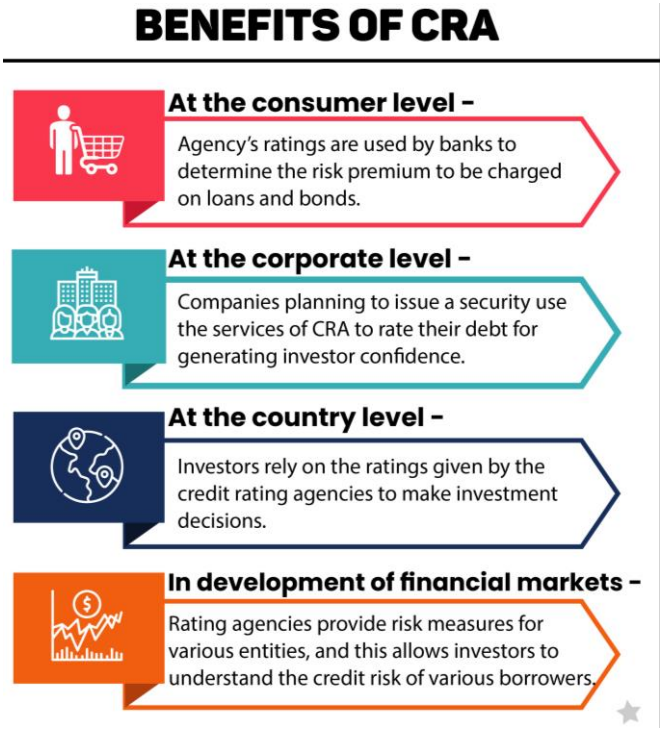
About Credit rating agency

- A credit rating is an **opinion of a particular credit agency regarding the ability and willingness of an entity (government, business, or individual) to fulfill its financial obligations** in completeness and within the established due dates.
  - A credit rating also signifies the likelihood a debtor will default.
  - **Users of Credit Ratings -** Credit ratings are used by investors, intermediaries such as investment banks, issuers of debt, and businesses and corporations.
- **Credit rating agency evaluates the credit rating of a debtor** by analyzing the **qualitative and quantitative attributes** of the entity in question.
  - It is not involved in the transaction of the deal and, therefore, is deemed to provide an independent and impartial opinion of the credit risk
  - Presently, there are **three prominent credit agencies that control 85% of the overall ratings market:** Moody's Investor Services, Standard and Poor's (S&P), and Fitch Group.
- **Types of Credit Ratings -** Investment grade ratings mean the investment is considered solid and Speculative grade investments are high risk.

India and CRA

India's CRA and outlook from three global rating agencies is

- Moody's- 'Baa3', the lowest investment grade, and persist with its "stable" outlook on the nation.
- Standard & Poor's - BBB- with stable outlook.
- Fitch - BBB- with stable outlook.



Issues with Credit rating and CRA

- **Pro-cyclicality of ratings**
  - This means ratings are conditionally better during a boom and conditionally worse during a downturn.
  - They therefore possibly **increase the risk of financial crises occurring and deepening.**
  - **The 1997–1998, Asian crisis** highlighted CRAs' potential for reinforcing booms-and-busts of capital flows.
- **Accuracy and performance of ratings**
  - A balance has to be found in the trade-off between accuracy and stability. Rating agencies are averse to reversing ratings within a short period of time.
- **Impact of ratings on policies pursued by borrowing countries**
  - For borrowing countries, a rating downgrade has **negative effects on their access to credit and the cost of their borrowing.**
  - There is a risk, therefore, that in order to avoid rating downgrades, **borrowing countries adopt policies that address the short-term concerns of portfolio investors, even when they are in conflict with long-term development needs.**
- **Transparency**
  - Many market participants have expressed concern over the **lack of transparency over CRAs' ratings methodologies, procedures, practices and processes.**

- **Accountability**
  - There is **no mechanism to protect investors and/or borrowers from mistakes** made by CRAs or any abuse of power on their part.
  - Also, they **follow an issuer pay model**, where the rating agency's principal revenue stream is received from the issuers whose products they rate.
- **Governance issues and conflicts in sovereign ratings –**
  - Major CRAs are US-head-quartered, largely funded by the institutions they rate. And the ratings business is extraordinarily profitable.
  - There is therefore an asymmetry of incentives and disincentives, as regards willingness of CRAs to downgrade advanced economies, versus emerging and developing economies, whose regulators have far less influence on CRAs decisions.
- **Barriers to entry and lack of competition as market is dominated by only a few CRAs.**

Way Forward

- **Refocus regulatory scrutiny**
  - Regulators need to focus more on the **form of the ratings process than on the substance of decisions** to check the conflict of interest.
  - **A global "super-regulator" of CRAs** would be best placed to address such issues.
- **Reducing dependency on credit ratings in regulation**
  - Studies on how rating agencies respond to a crisis, conclude that **rating agencies do not quite see through a crisis.** Rating agencies, moreover, react stronger when the crisis is deeper, and exceeds a minimum threshold.
- **Improving transparency of CRA methodologies**
  - This could be done by separating more explicitly the analysis of simulations and stress tests and more judgement-based (qualitative) analysis; which should be published separately, but within the same report.
  - This would clarify what the judgement element, e.g., on governance and politics of country, of the rating is, as opposed to more quantitative evaluation of risk of default.
- **Elimination of the "issuer pays" model**
  - There is a **need for the restoration of the "investor pays" pays" model**.
  - With this, the conflict of interests will be eliminated because the agencies will not be interested in overrating. If their ratings are incorrect, they will lose clients.

3.4. SOVEREIGN GREEN BONDS (SGRB)

Why in news?

Recently, Ministry of Finance has approved the final **Sovereign Green Bonds (SGrB) framework of India.**

More about news

- Earlier**, Union Budget 2022-23** announced the issue of Sovereign Green Bonds for mobilising resources for green projects.
- Government intends to issue bonds worth **Rs 16,000 crore** in this category in the current fiscal year.
- The released framework takes us close to the footsteps of India's commitments under '**Panchamrit**' as elucidated by the Prime Minister, at COP26 at Glasgow in November last year.

Green bonds as per SEBI

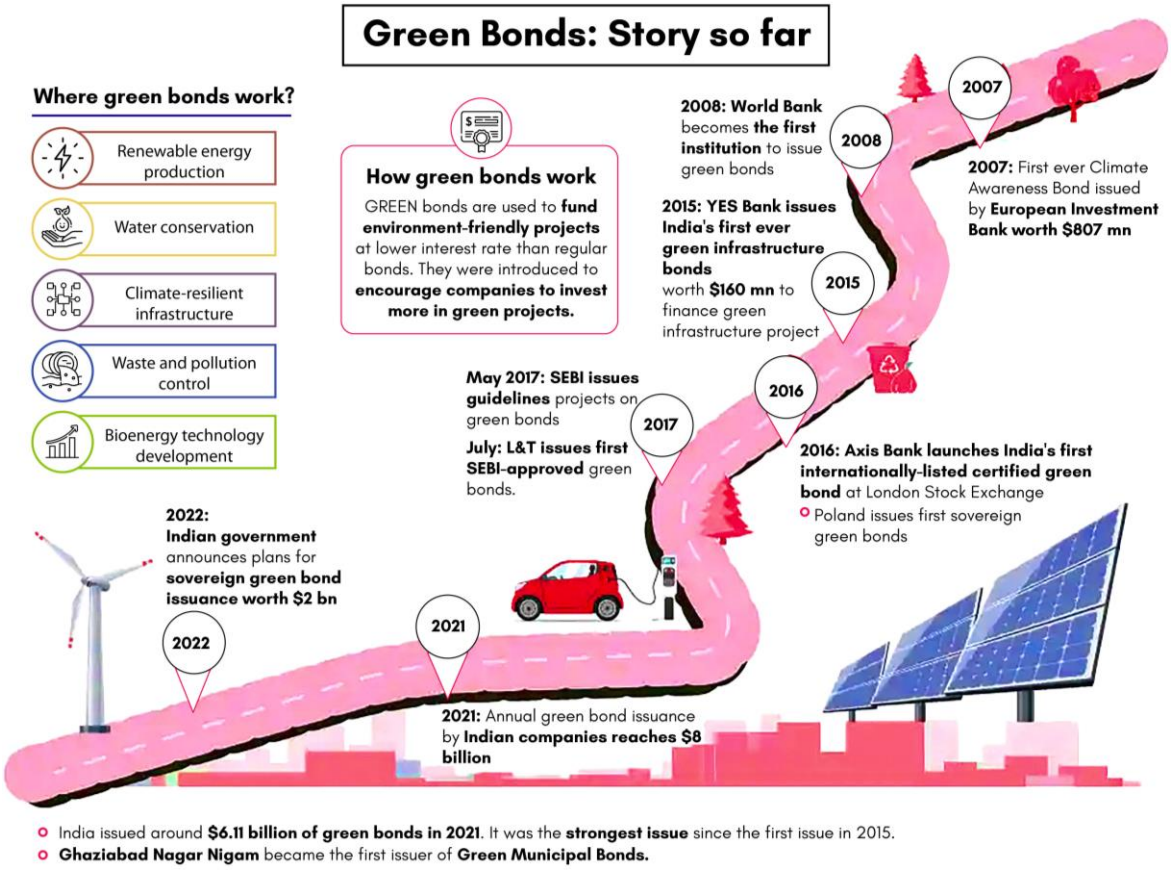
- In 2017, SEBI, in a circular **proposed a definition of 'green debt securities'.** A debt security could be considered 'green' if the funds are to be utilized for projects such as:
  - Renewable and sustainable energy, Clean transportation, Sustainable water management, Climate change adaptation, Energy efficiency etc.

About sovereign green bonds

- A **Green Bond** is a type of **debt security** created for funding or re-funding projects contributing positively to the climate and/or ecosystem.
- The significant **difference between Green Bonds and ordinary bonds** is that the funds raised are only used to support initiatives that have a good influence on the environment, such as green construction, renewable energy etc.

- When these bonds **carry guarantees** related to the repayment of principal and payment of interest **by the sovereign or the government**, they are called **sovereign green bonds (SGrB).**

Key features of the Framework



- **Under the framework, A 'green project' classification is based on the following principles:**
  - Encourages energy efficiency.
  - Reduces carbon and greenhouse gases emissions.
  - Promotes climate resilience and/or adaptation.
  - Values and improves natural ecosystems and biodiversity in accordance with SDG principles.
- **Eligible projects will use the raised proceeds from sovereign green bonds** for capitalisation or re-capitalisation.

Eligible Projects	Excluded Projects
• Renewable energy • Energy efficiency • Clean Transportation • Climate Change adaptation • Sustainable water and waste management • Pollution prevention and control • Sustainable management of natural resources • Green Buildings • Aquatic biodiversity conservation	• Projects involving new or existing extraction, • Production and distribution of fossil fuels, including improvements and upgrades • Nuclear power generation • Direct waste incineration • Alcohol, weapons, tobacco, gaming, or palm oil industries. • Renewable energy projects generating energy from biomass using feedstock originating from protected areas • Landfill projects • Hydropower plants larger than 25 MW

- **Green Finance Working Committee (GFWC)** will support Ministry of Finance with selection and evaluation of projects etc.
- The proceeds of SGrB will be **deposited to Consolidated Fund of India (CFI)**, and then funds from the CFI will be made available for eligible green projects.
  - **Public Debt Management Cell** will keep a track of proceeds.
- The framework complies with four components of International Capital Market Association **Green Bond Principles (2021),** which are: Use of proceeds; Project evaluation and selection; Management of proceeds; and Reporting.

Advantages of SGrB

- **To meet Climate pledges:** India has made commitments under Paris Agreement to fulfil Intended Nationally Determined Contributions (INDCs). An estimate suggest that **India would require at least $ 2.5 trillion** (at 2014-15 prices) to meet all its commitments by 2030.

- Also, according to the report of IFSCA Expert Committee, India would **require cumulative investments of $10 trillion to achieve the net zero target by 2070.**
- SGrB can help India tap this finance.

- **Lower risk for private players**: An important aspect of green bonds is that the payment of principal and interest **will not depend on the performance of the eligible projects**.
  - This makes sure that investors will **not bear any project-related risks**.
- **Leverage 'Greenium' (Green Premium)**: Greenium refers to pricing benefits based on the logic that **investors are willing to pay extra** in exchange for sustainable impact.
  - According to estimates, **greenium in emerging markets** is about 49 basis points for dollar-denominated bonds.
- **Create public goods:** Proceeds from the issuance of sovereign green bonds can be used in climate change adaptation projects that usually find it difficult to attract private capital as most of them are considered public goods.
- **Attract global investors**: There are specific global pool of capital, which are earmarked towards investment in Green Ventures.
  - This source of capital focuses primarily on environmental, social and governance (ESG) related aspects of the projects.
- **Benefits to investors:**
  - Investing in Green Bonds can be seen as an **active decision by investors** to "do their bit" and allocate capital in a way that makes a significant difference in the fight against climate change.
  - Green Bonds also tend to **exhibit lower volatility** than conventional bonds, making them a more attractive proposition for many investors.
  - When a company issues green bonds, it is also making a **statement that it is at the forefront of transition,** and investors work on the basis that such companies should carry less risk going forward.

Challenges to green bonds in India

- **Low sovereign credit rating:** If the government wants to go global to raise funds, India needs to improve its credit rating as **all bonds issued globally are closely linked to the credit rating of the issuing country.**
  - This could mean close scrutiny of the domestic policies, which the government should be transparent and open to.
- **Broad ambit**: Government is likely to consider non-green, for example, social aspects, in project selection rather than projects with the maximum potential to reduce carbon emissions.
  - A dominant **non-green agenda** can derail the very objective of issuing sovereign green bonds.
- **Untapped potential**: Whilst India has the second largest bond market among emerging markets after China, its green bond market is roughly less than a tenth of that of China's.
- **Challenges in monitoring progress of green projects:** Normally, there are cost overruns, which can upset the budget math. This can lead to compromises.
- **Possibility of Greenwashing**: Greenwashing means making **false or misleading claims about the green credentials** of a company or financial product, which is a major challenge for the market in green bonds.
- **Lower yield:** It is believed an SGrB **will have a lower yield**, in which case, there is no reason for banks holding G-secs in excess of their statutory liquidity ratio mandate to opt for a lower-yield bond.
- **Deciding the coupon rate**: The coupon rates of a green bond are not easy to determine as there are constant debates on whether to price them higher or lower than regular bonds with equal arguments on both sides.

Way forward

- **Emphasise transparency**: Global best practices on green bond issuance **emphasise transparency, accuracy, and integrity** of information on the usage of proceeds.
- **Stringent monitoring**: Monitoring of green projects needs to be stringent to ensure better completion rates.
- **Standardisation**: A robust green bond market would require **common standards and guidelines** for it to be connected to the mainstream capital markets and investors.
- **Tax incentives**: Direct financial incentivization is one such tool used globally. Subscribers to such SGrBs are provided with direct financial benefits, such as tax exemption on interest or tax deductions.

- **Create awareness**: Organise workshops, training content, and webinars on green bonds to increase familiarity and bring in new investors. Simplify the issuance and compliance process to reach to new investors in India and internationally.
- **Climate Budget Tagging:** It is a tool for monitoring and tracking of climate-related expenditures in the national budget system**.**
    - Most sovereign issuers went through a budget tagging exercise to determine exactly which expenditures were suitable for inclusion as a green expenditure.

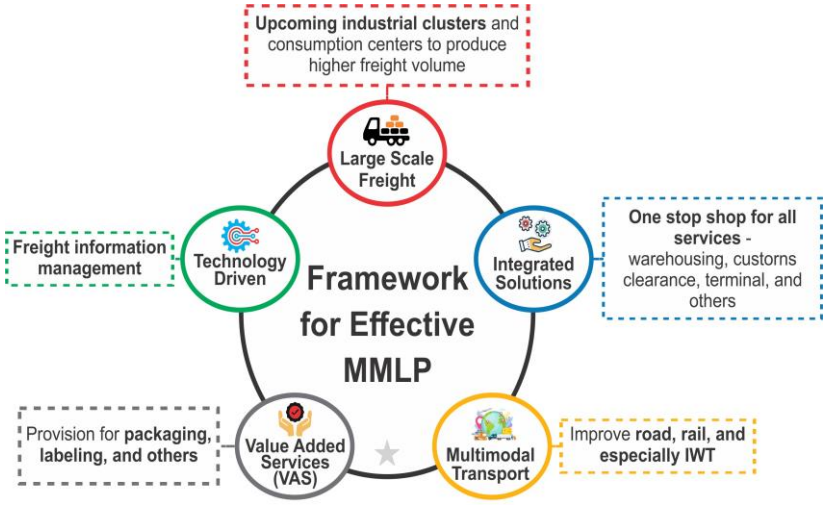
3.5. MULTI MODAL LOGISTICS PARK

Why in news?

Recently, the Government has awarded the contract of setting up India's first multi-modal logistics park (MMLP) near Chennai to Reliance Industries (RIL).

About Multi-modal logistics park

- A Multi-Modal Logistics Park (MMLP) as an **inter-modal freight-handling establishment comprising warehouses, dedicated cold chain facilities, freight or container terminals and bulk cargo terminals.**
    - It eases and optimizes merchandise movement via road, rail, waterway and air.
- Under the **'PM GatiShakti National Master Plan'**, the Government of India has announced that **contracts will be awarded through PPP model for implementation of MMLPs.**
- Earlier in 2015, MMLPs was proposed to be **set up by** Ministry of Road Transport and Highways (MoRTH) **under the Logistics Efficiency Enhancement Program** (LEEP).



IWT = Inland Water Transport, MMLP = Multi-Modal Logistic Park.

Significance of MMLP

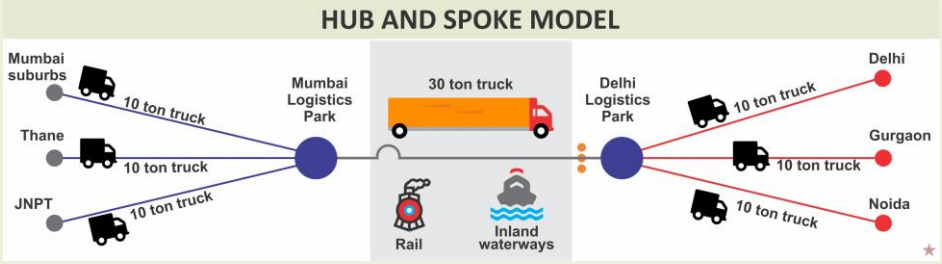
- **Reduce Logistics costs:** It aims to **reduce India's logistics costs from the current about 14% of GDP to less than 10% of GDP,** on par with international standards.
- **Warehousing cost reduction:** Shifting warehouses, currently being operated inside city limits, to logistics parks will enable reduction in warehousing cost, driven by lower rentals in logistics parks situated outside the city limits.
- **Inventory planning:** Regional logistics parks can provide end-to-end visibility of inventory, collaboration, agility and optimization.
    - Often, companies are unable maintain inventories for contingencies due to the dearth of storage infrastructure at the local level.
- **Achieving greater efficiency through technology:** MMLP's with appropriate information technology infrastructure and integrated Application Programming Interface (APIs) based platforms, can **help in digitizing the traditional supply chain, supporting big data analytics and disruptive technology** such as AI.
    - This can in turn help in achieving on-time performance and reduce cost to serve.
- **Proper Utilisation of Assets:** It helps in the proper utilisation of assets as the transit time is less and the goods vehicles and the other hardware are free to use for the other business or purposes.
- **Pollution reduction:** Increased freight movement on higher sized trucks and rail will enable in reduction in CO2emissions.
- **Other benefits:**
    - Create employment opportunities.
    - Help with the development and expansion of Small and Medium Enterprises (SME)

Challenges in setting up MMLP

- **Skewed modal transportation mix:** In India, 60% of freight moves by road, which is significantly larger than in many developed economies.
  - Coastal movement and inland waterways are at a nascent stage.
  - Rail transport is marginal, despite being 45% cheaper per ton–km than road, due to **adverse pricing and rake booking practices and lack of intermodal facilities to enable easy transfer.**
- **Procedural complexities:** Multiplicity of government agencies involved in setting up MMLPs which may hamper ease of business.
  - Numerous approvals are mandatory from several Central and State ministries for the fulfilment and carrying out of these MMLPs, which causes many delays in the successful completion of these projects.
- **Land:** Availability of land at an affordable rate and the challenges of land acquisition.
- **Underdeveloped material handling infrastructure:** Warehousing landscape is highly unorganized with the presence of many small, private, and unorganized warehouses.
- **Inefficient service model:** Efficiency is compromised as many firms try to compete through the factor advantage of low wages which have led to **hiring poorly skilled personnel** thereby hampering service quality.

India planning 35 MMLPs

- Cabinet Committee on Economic Affairs (CCEA) had mandated Ministry of Road Transport & Highways to develop 35 Multi Model Logistics Parks (MMLP) across the country.
- The **National Highways Logistics Management (NHLML),** a wholly owned special purpose vehicle (SPV) of the National Highways Authority of India (NHAI), **is the nodal agency for getting the 35 MMLPs up and running.**
  - These MMLPs are to be developed under **Public Private Partnership (PPP) on Design, Build, Finance, Operate and Transfer (DBFOT) mode.**
  - The 35 parks will handle 700 million metric tonnes of cargo at their peak capacity and be developed over 7,000 acres of land, catering to logistics activities in about 2.75 lakh sqm area across the country.
- This initiative aims to develop MMLP in a **hub-and-spoke model**.
  - A type of model where all the commodities come to a hub and are then sent to smaller distribution units called spokes and finally sent out to customers.



Way forward

- **Improve connectivity:** Identify gaps in trunk and multimodal interlinkages and bridge them while developing terminals for efficient multimodal freight transfer.
  - Increasing the share of rail transport
  - Optimising truck use
  - Promoting use of fuel-efficient vehicles and alternative fuels
- **Facilitate private sector participation:** The PPP is the preferred mode of implementing MMLPs. To encourage greater private participation, the MMLPAI could develop a model PPP framework to define the role and interdependencies between central and state governments and private players.
- **Single window approval:** Centralize MMLP approvals. A single window would facilitate the process of clearances.
- **Identifying location:** Optimize the location of park and easy land availability.
  - The location should not only have the requisite infrastructure but should also house industries.
- **Adopting digital solution**: Cutting edge information technology for delivery management also plays an important role for MMLPs to work effectively.

3.6. NEWS IN SHORTS

3.6.1. MONETARY POLICY COMMITTEE (MPC)

- For First Time, RBI held Monetary Policy Committee (MPC) meeting to discuss report on missing inflation target.
- RBI will submit a **report to the government on its failure to keep the retail inflation rate** below 6% for three consecutive quarters beginning January 2022.

- RBI will have to **mention the remedial actions** and **an estimated time** within which **inflation target will be achieved**.

- **About Inflation targeting**
  - It means **bringing the inflation to a targeted level** within a specific time horizon.
  - RBI adopted **flexible inflation targeting (FIT)** through the **signing of Monetary Policy Framework Agreement (MPFA)** in 2015
  - Section 45-ZA of the RBI Act, 1934 requires that the **central government in consultation with RBI, determine inflation target** in terms of Consumer Price Index (CPI), once in every five years.
    - ✓ Currently, the inflation target has been **set at 4% (with the upper tolerance level of 6% and the lower tolerance level of 2%) for the 5-year period** 2021 to 2026.
- **MPC,** constituted **by Central Government under RBI Act 1934,** determines the policy repo rate required to achieve the inflation target.
  - It has **6-member** of which three are from RBI including the **Governor (having casting vote) who is the ex officio** Chairperson.
  - MPC is required to **meet at least four times in a year.**

3.6.2. ISSUES WITH GLOBAL PERCEPTION INDICES

- A recent EAC-PM working paper analysed problems with different global perception indices.
- In recent years, **India's rankings and scores have declined on a number of global opinion-based indices** that **deal with subjective issues** such as democracy, freedom etc.
- **Need for considering ranking on these indices**
  - **Used as inputs for World Bank's World Governance Indicators (WGI)** that, in turn, has weightage in sovereign ratings.
  - **More important in future** as Environmental, Social and Governance (ESG) indices are **introduced into global business/investment decisions.**
- Economic Advisory Council to Prime Minister (EAC-PM) **working paper analyses three perception-based indices:** Freedom in the World Index, V-DEM indices, and EIU Democracy Index.
- **Issues highlighted with these indices**
  - Primarily **based on the opinions of a tiny group** of unknown experts.
  - **Questions that are used are subjective** and are worded in a way that is **impossible to answer objectively.**
  - There are **questions** that should be asked but **are excluded.**
  - Certain **questions used are not an appropriate measure of democracy** across all countries.

Global Perception Indices

Index	Published by	India's ranking
Freedom in the World Index	**Freedom House** (a non-governmental organisation headquartered in New York, United States).	**Partially free category**
Varieties of Democracy (V-DEM) indices	Varieties of Democracy Institute **at the University of Gothenburg in Sweden.**	**Electoral autocracy**
EIU Democracy Index	**EIU, research and consulting arm** of firm that publishes the Economist magazine	**Flawed Democracy**

3.6.3. STATE INSTITUTIONS FOR TRANSFORMATION

- Several states sought **NITI Aayog to constitute state institutions for transformation (SITs)**, along the lines of NITI Aayog, to boost **development and drive inclusive growth**.
  - It will also give effect to the **commitment of cooperative federalism.**
  - Recently, **Maharashtra Institution for Transformation (Mitra)** was set up on these lines.
- **Need for SITs**
  - **State Capacity & Governance Bottlenecks** are higher order challenges than availability of Finances in delivery of Basic services.
  - Weaknesses in service delivery **disproportionately hurts the poor.**
  - **Building "state capacity" is rewarding** as it is 10-20 times more cost effective.
- **Significance of SITs**
  - Locus of **democratic accountability can be shifted to states.**
  - Leverage **greater fiscal space of States,** post 14th Finance Commission.
  - Could become **valuable laboratories for experimentation**.
- **NITI Aayog initiatives to build state's capacities**
  - **'Development Support Services for States for Infrastructure Projects'** to achieve sustained delivery of infrastructure projects.
  - **State Finances and Coordination Vertical was formed** for maintaining a State-wise database on macroeconomic, financial, and social indicators.
  - **State Support Mission** will act as a multidisciplinary ecosystem to initiate cutting edge projects to catalyse development strategies of states, etc.

3.6.4. TRANSPORT 4 ALL CHALLENGE STAGE-2

- **The 'Transport4All' Challenge** is an initiative of **Ministry of Housing and Urban Affairs**.
- It **aims at enhancing the mobility experience** of citizens and focuses on digital innovation to improve mobility needs of all citizens.
  - Stage 1 of the Challenge was launched in 2021.
- It is **organised in partnership** with Institute for Transportation and Development Policy and **Word Bank**.

3.6.5. MAARG PORTAL

- **Department for Promotion of Industry and Internal Trade** has invited **start-up applications** for registration on MAARG portal.
  - MAARG (Mentorship, Advisory, Assistance, Resilience and Growth) portal is **to facilitate mentorship for startups across diverse sectors**, functions, stages, geographies, and backgrounds.
- **Objectives of portal:**
  - **Provide sector focused guidance**, handholding, and support **to startups**.
  - **Facilitate efficient mentorship** and a mechanism for timely tracking of **mentor-mentee engagements.**
  - **It includes customizable mentorship programs,** recognition for contributing mentors etc.

3.6.6. FRAMEWORK TO CHECK FAKE REVIEWS ON E-COMMERCE PLATFORMS

- **Department of Consumer Affairs unveiled new standard** (19000:2022) **made by Bureau of Indian Standards (BIS) to curb the menace of fake and deceptive reviews** of products and services.
  - Standards, initially voluntary, will be **applicable to every online platform** which publishes consumer reviews.
  - **Fake and misleading reviews violate a consumer's right** under Consumer Protection Act, 2019.
- **Key highlights**
  - Prescribes specific **responsibilities for review author and review administrator.**
  - **Responsibilities for organizations** and **grievance redressal mechanism** for consumers.

3.6.7. DRAFT STANDARDS NATIONAL ACTION PLAN (SNAP) 2022

- Bureau of Indian Standards (BIS) released Draft Standards National Action Plan (SNAP) 2022.
- SNAP proposes **a set of actions** that would enable BIS to **fulfil its mandate as the National Standards Body and deliver standards** according to the market needs in an efficient and timely manner.
  - A standard certification **implies a product or a service,** by its design and protocols, **meets certain qualities.**
- **Key features of the draft SNAP**
  - **Specific focus** in developing and updating standards with respect to **India's commitment on UN SDG 2030 and Paris Agreement.**
  - **Proposal to bring technologies** such as **semiconductors, IT services,** Information and Communications Technologies (ICT) such as **metaverse, and cybersecurity techniques under BIS.**
  - **Other key subject areas** to be taken up by BIS include **Environment, Health and Safety, Building, Construction & Urban Development**, Textiles, Transportation etc.
- **Need for standardisation**
  - **Facilitate free movement of goods and services** across international borders.
  - Promote trust on a **digital and data driven economy** by ensuring interoperability, reliability, security, and privacy
  - Assist in **building market confidence**, and integrating of global supply chains of domestic products.

About BIS

- BIS is **National Standard Body of India.** It functions **under Ministry of Consumer Affairs, Food & Public Distribution.**
- It is responsible for **development of activities of standardization**, marking and quality certification of goods etc.
- It got **statutory backing** with BIS Act 2016.

Different certification marks in India	
ISI	• Used for **standard industrial products** in India. • It is **mandatory for some products** like electronics and voluntary for others. • **Certified by BIS**.
AGMARK	• Applies to **agricultural products.** • Issued **by Directorate of Marketing and Inspection,** Ministry of Agriculture and Farmers Welfare
FPO MARK	• **Mandatory on all processed fruit products sold in India** such as packaged fruit beverages, fruit-jams etc. • **Issued by Ministry of Food Processing Industries.**
BIS Hallmark	• Hallmarking system for the **sale of precious metal like gold and silver jewellery** which certify the purity of the metal.

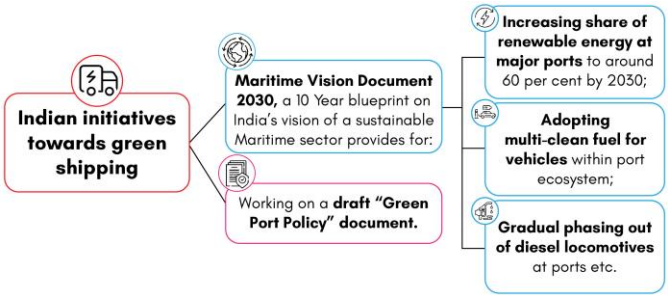
	• It verifies that jewellery **conforms to the standards set by BIS.**
Non-polluting Vehicle Mark	• Mandatory certification mark required on **all new motor vehicles** sold in India
Indian Organic certification	• Mark for **organically farmed food products** manufactured in India. • Issued by **testing centres accredited by Agricultural and Processed Food Products Export Development Authority**, Ministry of Commerce and Industry.

3.6.8. GOODS TRADE BAROMETER

- Latest **World Trade Organization (WTO) Goods Trade Barometer** hints toward **slowing of trade growth** in the rest of 2022 and into 2023.
- **WTO's Goods Trade Barometer index** is a **composite leading indicator** for world trade, providing real-time information on merchandise trade trajectory relative to recent trends.
- Its **baseline value** is **100**. A value **greater than 100** suggests **above trend growth** while a **value below 100** indicates **below-trend growth**.
    - The current **Goods Trade Barometer Index** reading is **96.2**.

3.6.9. INDIA'S FIRST NATIONAL CENTRE OF EXCELLENCE FOR GREEN PORT & SHIPPING (NCOEGPS)

- **NCoEGPS** is launched by the Ministry of Ports, Shipping and Waterways (**MoPSW)**.
- It aims **to develop a regulatory framework** and **alternate technology adoption roadmap for Green Shipping** to foster carbon neutrality and circular economy (CE) **in the shipping sector in India.**
    - **Green shipping i**s when people or goods are transported through ships using minimum resources and energy as possible, to protect the environment from the pollutants generated by the ships.
    - **Main source of CO2 emissions in ship operations**: Combustion of fossil fuels in main engines, auxiliary engines, boilers and incinerators.
- **Specific objectives of NCoEGPS are**
    - **Empower 'Make in India'** in Port, Coastal and Inland water transport, and Engineering
    - **Enable fast-track innovations** in these sectors.
    - Create a **pool of competent manpower** to the industry.
    - **Achieve self-sufficiency** in providing short term solutions through scientific studies technology development technical arm.
- The NCoEGPS will act as a **technological arm of MoPSW and will be working under the framework of the Sagarmala programme.**
- U.N. shipping agency the **International Maritime Organization (IMO)** aims to **reduce overall greenhouse gas emissions from ships by 50% from 2008 levels by 2050.**



3.6.10. THE STATE OF FOOD AND AGRICULTURE 2022

- The State of Food and Agriculture 2022: Leveraging automation to transform agrifood systems' report was released **by the Food and Agriculture Organization (FAO) of the United Nations**.
    - It looked at **how automation in our agri-food systems can contribute to achieving sustainable development goals.**
- **Benefits of Agriculture Automation (AA)**
    - **Increase labour productivity and profitability** in agriculture.
    - **Improve working conditions** and income for agricultural workers.
    - **Generate new entrepreneurship** opportunities in rural areas.
    - **Reduce food losses** and improve product quality and safety.
- **Challenges**
    - **Inaccessibility of automation deepens inequalities** thereby affecting small-scale producers and marginalized groups such as youth and women.
    - certain technologies – **large motorized machinery** – can also have negative **environmental impacts due to monoculture and soil erosion.**
    - **It can lead to unemployment** where rural **labour is abundant and wages are low agricultural automation**
    - **Wide disparities in adoption of automation** between and within countries, with adoption being particularly limited in most of sub-Saharan Africa.

- **Recommendation**
  - In labour-abundant contexts, **policymakers should avoid subsidizing automation**, but rather focus on creating an enabling environment for its adoption.
  - **Social protection** should be provided to the **least skilled workers,** who are more likely to lose their jobs during the transition.

3.6.11. SCHEME FOR PROCUREMENT OF AGGREGATE POWER LAUNCHED

- **Ministry of Power launched scheme** for Procurement of Aggregate Power of 4500 MW for 5 years **under SHAKTI** (Scheme for Harnessing and Allocating Koyala Transparently in India).
  - SHAKTI scheme was launched **to provide coal to stressed power units** which lack coal supply.
- Scheme **will help states that are facing power shortage** and also **help generation plants to increase their capacities.**
- **PFC Consulting Limited will be nodal agency** of scheme.

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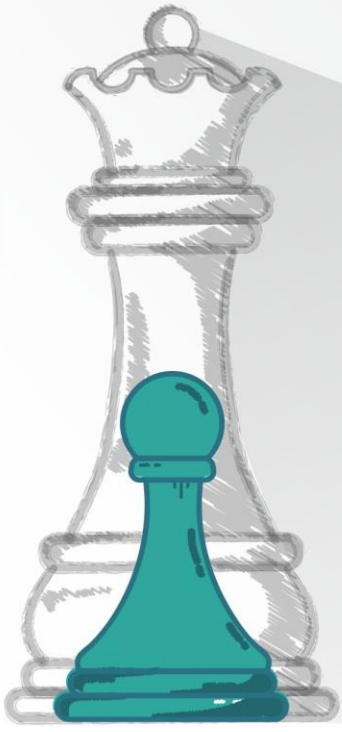

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4. SECURITY

4.1. DIGITAL PERSONAL DATA PROTECTION BILL, 2022

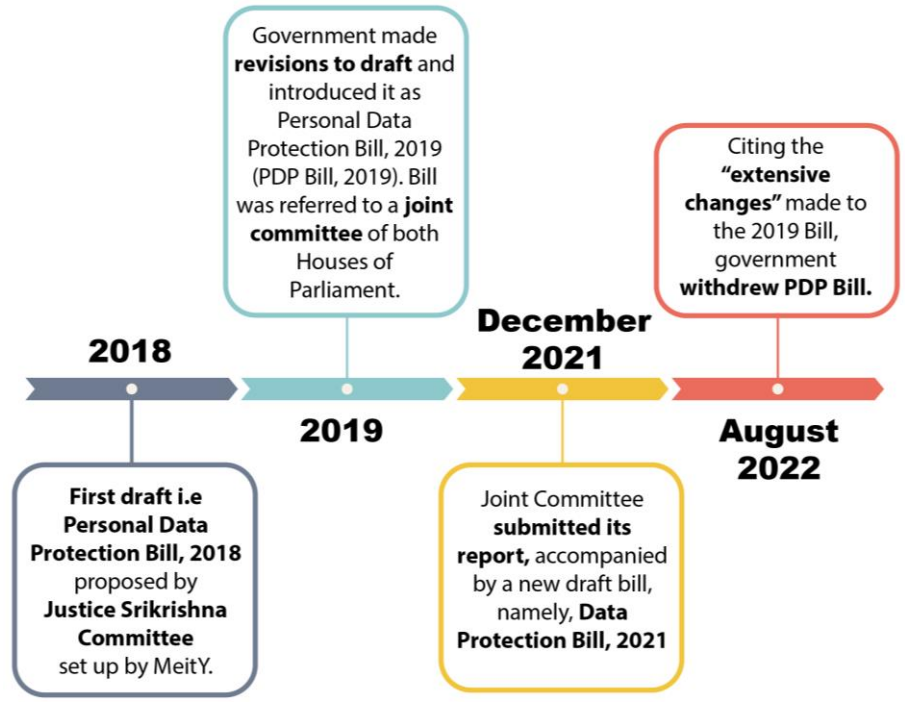
Why in news?

Ministry of Electronics and Information Technology (**MeitY**) has released a draft of **Digital Personal Data Protection Bill, 2022** for public consultations.

More about news

- The Bill will establish **comprehensive legal framework** governing digital personal data protection in India.
- The Bill seeks to provide for **processing of digital personal data** in a manner that recognizes **both right of individuals** to protect their personal data and **need to process it** for lawful purposes.

Brief background regarding attempts to bring data protection law in India



Features of the draft bill

- **Notice and Consent**: It contemplates **seeking prior consent** of data principal**,** which should disclose **description** of personal data sought and **purpose of processing** it.
  - The Data Principal may give, manage, review or withdraw her consent to the **Data Fiduciary through a Consent Manager.**
- **Obligations of the data fiduciary**: To ensure that personal data is **processed, stored or erased** in a safe and proper manner, bill imposes some **responsibilities like:**
  - If there is a breach, data fiduciary must **inform the Board and the data principal**.
  - **Deletion of personal data** once purpose for collection is **no longer served**, or the retention is **no longer necessary.**
  - Every data fiduciary must appoint a **Data Protection Officer** (**DPO)** to address data principal's queries and concerns.
  - **Additional obligations** while processing **personal data of children**, which includes seeking consent from parents/ guardians.
- **Significant Data fiduciary**: Central government can **identify** a data fiduciary as a significant data fiduciary if it handles **high volume of sensitive personal data, involves a risk of harm** to data principal and impact on **sovereignty and integrity of India, security of state, public order**, etc.

Key Definitions under the bill

- **Data Principal**: To denote the individual **whose data is being collected**.
- **Data Fiduciary**: Entity (can be an individual, company, firm, state etc), which decides **purpose and means of processing** of an individual's personal data.
- **Consent Manager**: The Consent Manager shall be a registered entity that is accountable to the Data Principal and acts on behalf of the Data Principal.
- **Personal data:** Any data about an individual who is **identifiable by or in relation** to such data.
- **Child:** An individual who has **not completed eighteen** years of age.
- **Data**: A representation of **information, facts, concepts, opinions or instructions** in a manner suitable for c**ommunication, interpretation or processing** by humans or automated means.
- **Person:** Includes: **an individual; a Hindu Undivided Family; a company; a firm; an association of persons or body of individuals**, whether incorporated or not; **State; and every artificial juristic person** (not falling within any of preceding sub-clauses);

- They must appoint an **Independent Data Auditor** (to ensure compliance with proposed Bill) and conduct a **Data Protection Impact Assessment and periodic audit** to ensure compliance.

- **Duties and Rights of the data principal**: Bill stipulates duties of the data principal, to the extent ensuring that it is not **registering a false grievance/complaint**, not providing **false or misleading** information, or **suppressing information**. Rights of data principal include:
  - **Right to information**, **right to correction or erasure** and **grievance redressal.**
- **Establishment of Data Protection Board**: It also provides for setting up of a Data Protection Board, which will **oversee compliance** by data fiduciaries and data principals.
- **Penalties imposed by Board**: Bill proposes 6 types of penalties which extend to a maximum penalty of ₹500 crore.
  - This is **substantially more than** maximum penalty stipulated **in PDP Bill**.
- **Transfer of data outside India**: It suggests that it will **notify a list of countries** to whom a data fiduciary may transfer personal data, in accordance **with such terms and conditions** as may be specified.

Application of the bill

- Processing of digital personal data **within territory** of India.
- Processing of digital personal data **outside territory** of India: If such processing is **in connection** with any **profiling** of, or **activity** of offering goods or services to **Data Principals within territory** of India.
  - Profiling means processing of personal data to **analyses or predict aspects** concerning **behaviour, attributes or interests** of a Data Principal.
- **Shall not apply to**:
  - **Non-automated** processing of personal data;
  - **Offline** personal data;
  - Personal data processed by an individual for any **personal or domestic purpose**; and
  - Personal data about an individual that is contained in a record that has been **in existence for at least 100 years.**

Concerns associated with the bill

- **Lacks timelines**: The Bill imposes certain obligations on data fiduciaries, but without providing a timeframe. Some examples include:
  - Lack of deadline for **deleting personal data** (in case of withdrawal of consent),
  - Lack of timeline for Board **to adjudicate** on a complaint,
  - No deadline for data fiduciary **to erase personal data** once the intended purpose is served, etc.
- **Missed crucial rights for Data Principal**: The **Right of Data Portability and Right to be Forgotten** are not part of the draft bill.

Significance of the bill

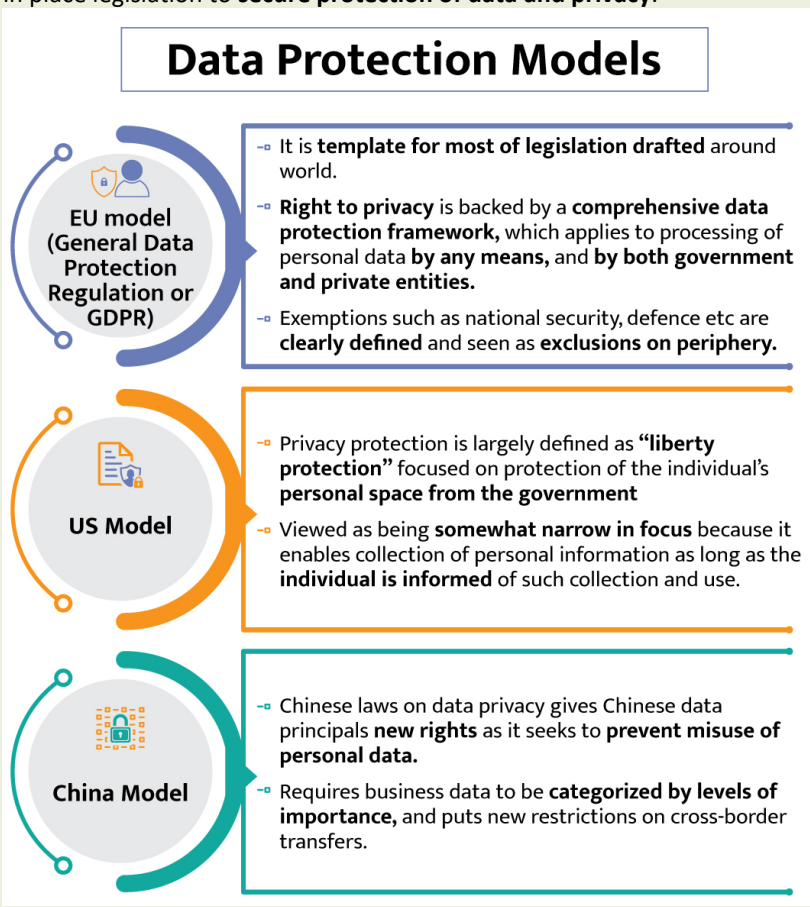
- **Attempts to address lacunae in current framework:** Current legal framework enshrined in **Information Technology Rules, 2011** is **wholly inadequate** to combat harms to data principals (right to privacy upheld as a fundamental right by Supreme Court in **K.S. Puttaswamy case** (2017)). **Inadequacy can be seen in:**
  - Extant framework is premised on privacy **being a statutory right** rather than a fundamental right.
  - It does not apply to processing of personal data **by the government**;
  - It has a **limited understanding** of the kinds of data to be protected;
  - It places **scant obligations** on the data fiduciaries which, moreover, can be overridden by contract;
  - There are only **minimal consequences** for data fiduciaries for **breach of these obligations**.
- **Condensed legislation**: While previous versions of proposed legislations were **dense and voluminous**, current bill is a **condensed, concise** and **more reader friendly.**
- **Transparent regime:** The Bill also seeks to **introduce some transparency** to the current system.
  - Usage of personal data by organisations must be done in a manner that is **lawful, fair and transparent** to individuals concerned.
- **Empowers individuals:** Considering the **linguistic diversity** of India, provision has been made for enabling individuals to access basic information in **8th schedule languages**.
- **Intends to create an easier compliance regime:** The Bill, taken as a whole, represents a **more forgiving framework for compliance**, and proposes several **welcome improvements** (such as deletion of Non-Personal Data).
  - It is also touted as a pro-business version, as it does away with **onerous data localisation** mandate imposed by the 2019 Bill.
  - **Relaxing rules on cross-border data flows** could bring **relief to the big tech companies**.
- **Others**
  - An important addition to right of data principals is that it recognises the **right to post mortem privacy** which was missing from the PDP Bill, 2019.
  - It would allow data principal to **nominate another individual** in case of death or incapacity.
  - **For first time in India's legislative history**, "**her" and "she"** have been used to refer to individuals **irrespective of gender**.

- The **right to data portability** allowed the data principal to receive in a structured format all the personal data they had provided to the data fiduciary.
  - ✓ It also has **data that the data fiduciary generated on the data principal while processing** for provisioning of its services.
- The **right to be forgotten** allows the data principal to ask the data fiduciary to stop the continuing disclosure of their personal data.

- **Wide definitions**: One of the major concerns is the **vast definition** of the term "public interest" for contemplating "deemed consent".
  - This definition includes any fair and reasonable purpose and appears to be giving data fiduciaries a **wide gamut of rights**.
  - Also, the Union government has the power to specify "fair and reasonable" purposes for which it can process personal data without consent.
- **Composition/powers of the Board**: The Bill **does not specify** the actual composition/strength of the Board, which has been raised about the **reduced independence** of the proposed Board.
- **Limiting penalties**: Bill seems to focus on the **severity of the non-compliance**, and not the non-compliance itself. It states that if non-compliance is not significant, Board may **choose to close the enquiry**. And **remedial measures** will be taken only in case non-compliance is **significant**.
  - The problem lies in terminology, since **"significant" is highly subjective** and may lead to a **potentially faulty** interpretation.
- **Wide set of exceptions:** It allows the Central government to exempt **any** data fiduciary from the provisions of the draft Bill.
  - Also, the government can have an exemption from most data protection obligations if the processing is undertaken "in the interests of prevention, detection, investigation of any offence or any other contravention of any law."

Data protection laws in other geographies

According to data from United Nations Conference on Trade and Development (UNCTAD), an e**stimated 137 out of 194 countries** have put in place legislation to **secure protection of data and privacy**.



- **Others:**
  - It appears to be **either postponing or delegating** much of the **complicated (yet important) issues** by simply adding **"as may be prescribed".**
  - It has **just 30 clauses** compared to more than 90 in previous one, mainly because a **lot of operational details have been left** to subsequent rule-making.
  - Though Bill does envisage penalties for non-compliances, there is n**o provision permitting data principals to claim monetary compensation** for breach of provisions of the law.

Conclusion

It is expected that several provisions of law will **be given teeth and operationalised by subordinate legislation** (Rules to Bill and other executive orders). Further, since Bill is open for public comments, **rightful concerns must be shared** by all stakeholders with the government.

To know more about Data Privacy and Innovation, please refer to our following Weekly Focus Document.

Data-Driven Innovations and Privacy	Data is the new oil and data-driven innovations are the new sources of growth. However, the story is incomplete without talking about the privacy of data generators. This document explains various types of data, their usage and the inter-relationships that exist between innovation and privacy. Further, it also provides an insight into how a middle path can be identified that can protect data privacy while promoting the culture of data-driven innovations.	

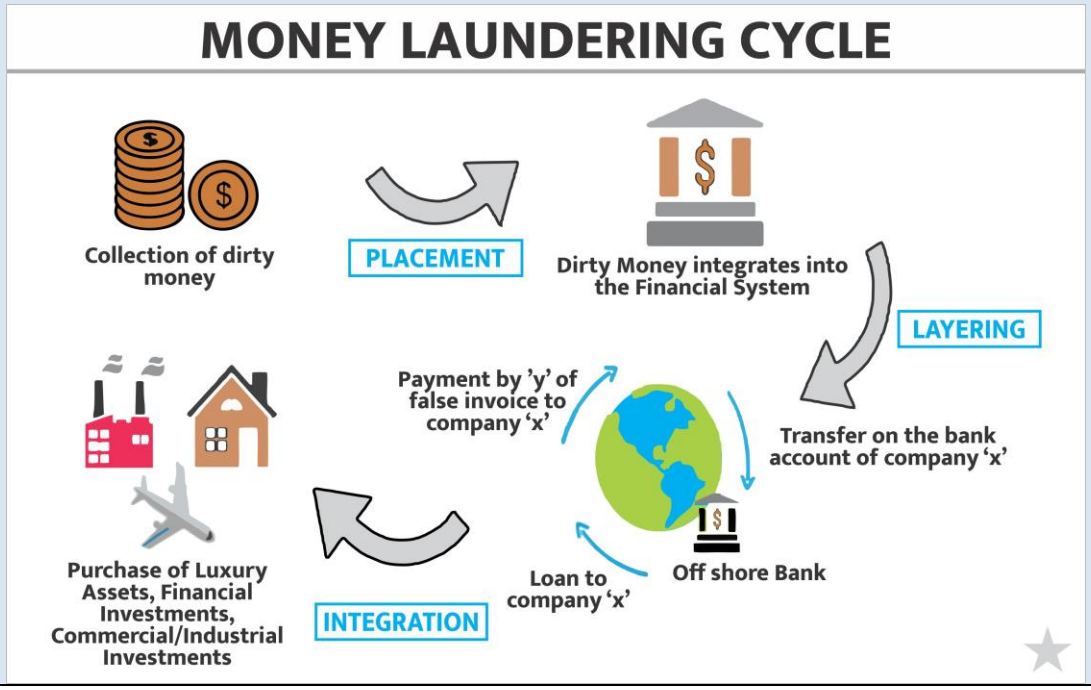
4.2. TERRORISM AND MONEY-LAUNDERING

Why in news?

Recently, the 3rd ministerial 'Countering Financing of Terrorism - No Money for Terror (NMFT)' conference was hosted by the Ministry of Home Affairs in New Delhi.

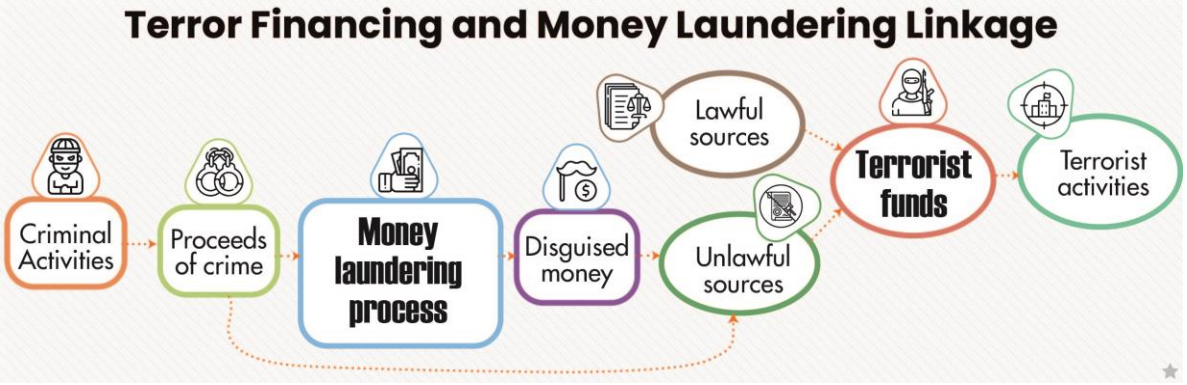
More about the news

- The NMFT started in **2018** as an **initiative of the French government.**
- It offers a platform for participating nations and organizations to deliberate on the effectiveness of the current international regime on Counter Financing of Terrorism.
- In **2019**, the conference was held in **Australia**. It was to be held in India in 2020 but was postponed due to the COVID-19 pandemic.

What are terrorism and money laundering?	
Terrorism	**Money Laundering**
It is the **unlawful use of force or violence against persons or property** to intimidate or coerce a government or its citizens to further certain political or social objectives.	It is the **process of making the proceeds of criminal activity appear to have been legally obtained.** 

What is the linkage between terrorism and money laundering?

- **Similar activities:** A clear similarity can be identified between terrorist financing and money laundering, as in both cases efforts are made to hide the funds from the scrutiny of state authorities. According to an estimate by the IMF and the World Bank, criminals around the world launder around 2 to 4 trillion dollars every year.
- **Symbiotic relationship:** Money laundering establishes channels of illicit funds over a period of time. Terrorists and other criminals alike exploit these channels to create wealth, and the laundering channel legalizes these proceeds.



- **Distinction between terrorism and money laundering:** The origin of the funds can also be legitimate in case of terror financing but not in case of money laundering, for example by the members of the terror organization (usually the newcomers) or obtained through abuse of non-profit organizations.
- **Methods of moving terrorist funds:**

Transfers through Banks	• Terrorism financing through the banking sector is **often small-scale and can be difficult to distinguish** from the large number of legitimate financial transactions undertaken each day.
Money Value Transfer Systems	• **Remittance providers** are the primary financial institution through which consumers can engage in **cross-border funds transfer activity.**
Physical Transportation of Cash	• Cash continues to be a prevalent aspect of terrorist operations through **smuggling**. Also, illicit trade in commodities (such as oil, charcoal, diamonds, gold, and the narcotics) enables the Cash ecosystem.
New Methods	• Use of **new financial technologies**, virtual assets like crypto-currencies, wallets etc.

What efforts have been made to counter Terror Financing?

- **The UNSCR resolution 1267 and UNSCR resolution 1373** formed the bedrock of the financial sanctions' regime for terrorist organizations and individuals.
- **Delhi Declaration of Counter-Terrorism Committee (CTC)** of the UN Security Council was unanimously adopted on countering the use of new and emerging technologies for terrorist purposes.
- **The Financial Action Task Force (FATF)**, a global money laundering and terrorist financing watchdog. The inter-governmental body sets international standards that aim to prevent these illegal activities and the harm they cause to society.
- **The Terrorism Prevention Branch (TPB) of the United Nations Office on Drugs and Crime (UNODC)** works on the legal aspects of countering the financing of terrorism.
- **The United Nations Office of Counter-Terrorism (UNOCT)** leads and coordinates an all-of-UN approach to prevent and counter-terrorism and violent extremism.

India's national efforts against terror financing

- **National Investigation Agency (NIA):** Federal agency established by the Indian Government to combat terror in India.
- **Unlawful Activities Prevention Act (UAPA):** Anti-terror legislation that seeks to designate an individual as a "terrorist".
- **National Intelligence Grid or NATGRID:** It has been conceived to enable intelligence sharing to enhance India's counter-terror capabilities.
- **India has proposed a permanent secretariat to coordinate bid to fight terror funding**: Overall approach of 'Beyond-Border Cooperation" is the basis for countering terror funding in the global level.

What are the prevalent challenges in countering terror financing?

- **Weaknesses at the International Level**: Lack of Coordination between International Organisations and the huge burden of legislation created on individual countries.
- **Inadequate Customer Identification Policies by banks:** The low level of overall compliance in this area as it contradicts the culture of banking which is that of gaining clients.
- **Lack of political will**: The absence of a strong political commitment at the level of policymakers and legislators is a significant hindrance to the development and implementation of a robust AML/CFT framework.
- **Lack of Collaboration**: Countries Fail to **Enhance Mutual Legal Assistance, Information Sharing, and Cooperation** with National Sectors and those Across Borders.
- **Non-Cash Methods: Increasing proliferation of new non-cash payment methods** such as prepaid cards, internet payments, cryptocurrency, digital money, and mobile payments has opened up new gateways for terrorist financing.

What can be done to overcome these challenges?

- **Strengthening Financial Intelligence:** Accurate and well-linked financial intelligence can reveal the structure of terrorist groups and also the activities of individual terrorists.
  - Financial intelligence from the **private sector should also be incorporated to foil terrorist acts**.
- **International Cooperation:** International cooperation between law enforcement authorities is a sine qua non for combating such cross-border challenges.
  - This includes actionable intelligence sharing among international actors.
- **Involvement of the Financial and Banking sector:** Collaboration and information exchange between the financial sector and the authorities responsible for legal procedures can increase overall supervision.
- **Technological upgradation:** The evolving threats of money laundering supported by emerging technologies need to be addressed with equally advanced **mechanisms like big data and artificial intelligence**.
- **Making Penal provisions proportionate:** Adding measures like Confiscation of Property in penal provisions would increase the deterrence quotient of the punishment for such crimes.

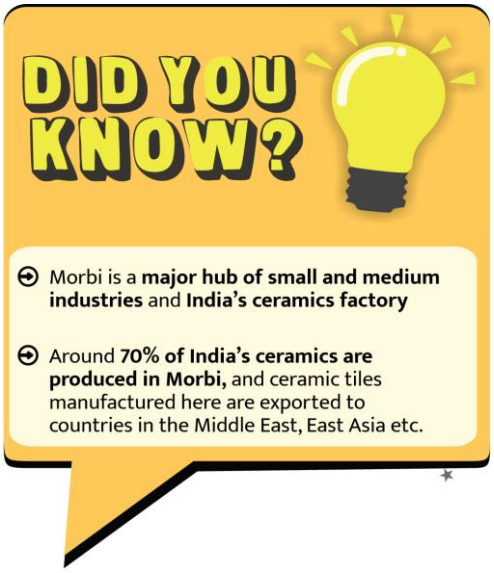
4.3. CROWD MANAGEMENT

Why in news?

Recent tragedies in Seoul, South Korea, and Morbi in Gujarat have put crowds and their management under the spotlight.

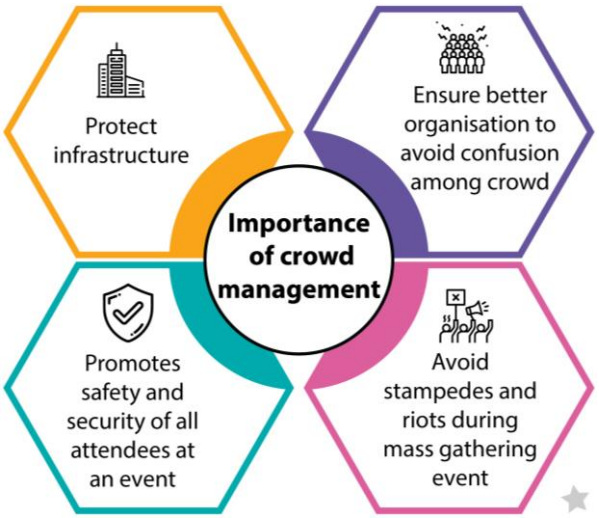
More on news

- Seoul crowd tragedy was a classic case of **crowd crush or collapse** in which more than 150 people have died while celebrating Halloween.
- **Crowd crush can occur when too many people push into a confined area** – either on the way in or trying to get out.
  - People can be squeezed to such an extent that they can **no longer inflate their lungs** and are at **risk of compressive asphyxiation**.



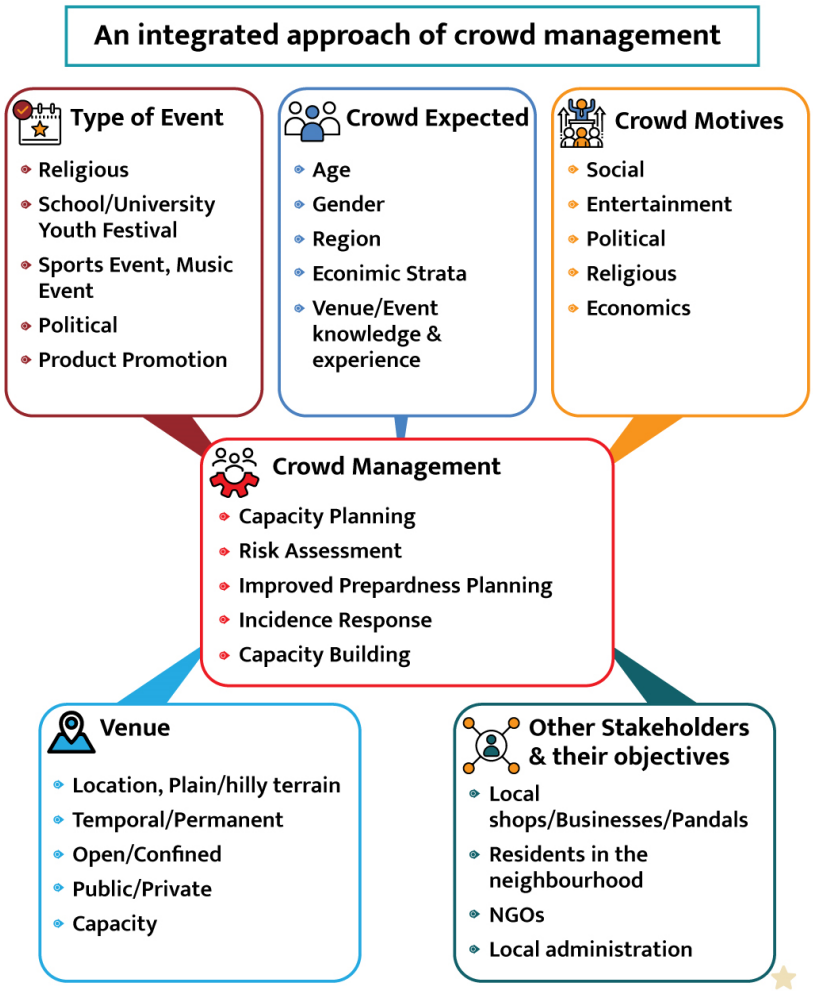
What is crowd management?

- Crowd management means a **public security practice in which crowds are managed to prevent the outbreak of crowd crushes,** affrays, fights, riots, or in which an assembly, protest or demonstration is dispersed.
- Crowd movements involve a combination of **voluntary and involuntary forces**.
    - As long as **crowd density is managed at an optimal level,** people in crowds are **governed by social force, a voluntary force,** which is a physical response to a social interaction.
    - However, if **crowd density reaches a critical level**, people's movements within it are **governed by involuntary forces** i.e., physical forces that are produced by pushing each other from behind or from sides and so on in a packed-together situation.



What are the causes of disaster associated with crowd?

- **Structural failures**: It is due to **structure collapse of barricades, poor guard railings, difficult terrain, absence of emergency exits**, unauthorised construction etc.
    - For instance, **bridge collapsed** in Morbi (Gujarat) across Machchhu river was due to **structural failure** and **management apathy.**
- **Fire/ Electricity**: Such disaster occurs due to **non-availability of fire extinguishers, unauthorized fireworks in enclosed places**, fire code violations, short circuit from electrical generator etc.
- **Security**: Under deployment and **inadequate briefing of security personnel on crowd control** before deployment, **lack of CCTV surveillance** of crowd, **lack of effective wireless system** with police etc., led to disasters.
- **Poor coordination between Stakeholders**: This happens due to **lack of understanding of range of duties entrusted, communication delays,** coordination gap between agencies etc.
- **Crowd behaviour**: It becomes difficult to manage crowd behaviour due to rush during distribution of disaster relief supplies, last minute change in platform for train arrival/departure etc.



What are the National Disaster Management Authority (NDMA) guidelines on crowd management?

- **Planning:** Detailed understanding on event/venue, visitors, and stakeholders as the first requirement in the planning process.
- **Risk Analysis:** Identification of foreseeable hazards like stampede etc., evaluating the risks associated with them and formulating a mitigation strategy to ensure safety of visitors.

- **Emergency Response Plan**: Plan should be formulated including **alert mechanisms, early warnings, resource mobilization, media management** and information dissemination in case of an unforeseen incident.
- **Safety and security measures**: Barricades, roadblocks and fencing may be deployed in target areas to control the flow of pedestrians, hostile groups, and vehicles.
- **Health, Hygiene and Medical Services**: Events of mass gathering need to consider crisis situation for planning their resources.
    - The need is to **develop mechanism for awareness creation, ensure availability of trained first-aid staff, kits**, emergency life- saving medicines and devices etc.
- **Information Management and Dissemination**: Timely information exchange between various stakeholders viz. government administration, security agencies, NGOs, media, etc. will ensure that crowd gathering events run smoothly and successfully without any incidents.

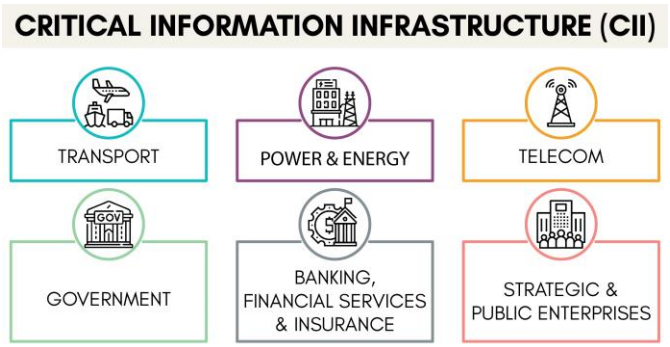
What can be done to improve crowd management?

- **Technology**: Use of Information and Communication Technology (ICT) like remote sensing, GIS etc. will **improve the crowd experience and crowd control**.
- **Training:** Training crowd management personnel, providing instructions on normal and emergency crowd movement and conducting mock drills is essential to prevent crowd disasters.
- **Role of Media**: Media can keep a watch on anti-social elements and highlight suspected anti-social activities to **avoid crowd disasters and restoring peace and harmony**.
- **Infrastructure:** Assessment of carrying capacity of venue/infrastructure should be carried out along-with planning for over-attendance and addressing infrastructural gaps to avoid mishaps.

4.4. NEWS IN SHORTS

4.4.1. CRITICAL INFORMATION INFRASTRUCTURE (CII)

- Census, **National Population Register (NPR)** databases notified as Critical Information Infrastructure (CII).
- Notification means that any **tampering or unauthorized access to data associated** with Census applications, NPR database or data centres of Registrar General of India (RGI) **will be punishable by ten years imprisonment**.
- **CII**, also known as critical infrastructure, refers to **a physical or cyber-based system,** incapacitation or **destruction of which** shall have debilitating **impact on national security, economy, public health or safety.**
    - CII is **declared by government under Section 70 of Information Technology (IT) Act, 2000** (amended in 2008).
- **Threats to CI include** Natural (Earthquakes, Tsunami etc.), Human-caused (Terrorism, economic espionage etc) and Accidental (power grid/safety system failure etc.).
- **Measures taken to protect CI**
    - **National Critical Information Infrastructure Protection Centre (NCIIPC)** is the nodal agency for taking all measures to protect CIIs.
    - **Indian Computer Emergency Response Team (CERT-In)** is nodal agency for responding to computer security incidents.
    - **National Cyber Security Coordinator (NCSC)** to coordinate with different agencies at the national level for cyber security matters.
    - **National Cyber Security Policy 2013** to build a secure and resilient cyberspace.



4.4.2. INTERNATIONAL COUNTER RANSOMWARE INITIATIVE (CRI)

- In the face of enhanced ransomware attacks globally, **CRI has decided to deepen its institutional collaboration.**
- CRI is a **grouping of 36 countries** (including **India**) and **European Union** that aims **to disrupt ransomware attacks** and strengthen international cybersecurity agenda.
    - India, along with Lithuania, leads the network resilience working group of CRI.

- In the recent summit, **CRI also decided to establish an International Counter Ransomware Task Force** (ICRTF) to coordinate resilience, disruption, and counter illicit finance activities.

4.4.3. BLUEBUGGING

- It is a form of hacking that lets attackers **access a device through its discoverable Bluetooth connection.**
- Once a **Bluetooth connection is established**, hackers use brute force attacks to bypass authentication.
- Once a device is blue bugged, a hacker can **listen to the calls, read and send messages and steal and modify contacts.**
- **To prevent:** Turning off Bluetooth when not in use, updating the device, limited use of public Wi-Fi, etc.

4.4.4. HIGH-ENERGY LASER SYSTEM (HELS)

- SFO Technologies has partnered with DRDO to develop high-energy laser system (HELS).
- The collaboration with DRDO's **Center for High Energy Systems and Sciences (CHESS)** is to develop a 2 kW single-mode continuous wave fiber laser.
  - CHESS is a **defence lab** under DRDO for research and works on HELS.
- **About HELS**
  - HELS weapons emit enough **thermal energy to directly render a target ineffective** without using a conventional munition.
  - They could **affect targets across the domains of air, ground, sea, and space.**
- **HELS** is a **laser weapon belonging** to **Directed Energy Weapon** (**DEW**) Category.
- DEW is an umbrella term covering technologies that produce a beam of **concentrated electromagnetic energy or atomic or subatomic particles.**

  - The weapon India is developing is **Directionally Unrestricted Ray-Gun Array (DURGA II).**
  - **Other projects:** Kilo Ampere Linear Injector (KALI), Project Aditya and air defence dazzlers.
- **Russia, France, Germany, United Kingdom, Israel and China** have robust programmes to develop DEWs.

4.4.5. SUBMERSIBLE PLATFORM FOR ACOUSTIC CHARACTERIZATION & EVALUATION (SPACE)

- It is a **state-of-the-art testing and evaluation facility** (launched by DRDO) **for sonar systems** developed for use by Indian navy.
  - Sonar (Sound Navigation and Ranging) is **helpful for exploring and mapping ocean** because **sound waves travel farther in water than do radar and light waves.**
- SPACE is one-of-a-kind facility in the world with **specially designed submersible platform,** which **can be lowered up to depths of 100 meters**.
- SPACE will be **mainly utilized for evaluating Sonar systems**, allowing for quick deployment and easy recovery of scientific packages such as sensors and transducers.

4.4.6. ROHINI 200 ROCKET (RH 200)

- **RH-200 sounding rocket of ISRO** recorded 200th consecutive successful flight.
  - Sounding rockets are used by the scientific community for carrying out **experiments on meteorology, astronomy** and similar branches of space physics.
  - **First sounding rocket** to be launched from India was **American Nike-Apache in 1963.**
  - ISRO launched its own version, **Rohini RH-75, in 1967.**
- RH 200 is a **solid motor-powered expendable rocket** capable of **climbing up to a height of 70 km** bearing payloads designed to study the upper atmosphere.

4.4.7. EXERCISES IN NEWS

- **Indo-Pacific Endeavour 2022:** It is a **Maritime Partnership Exercise** involving **Royal Australian Navy and Indian Navy.**
- **Garuda Shakti:** It is a bilateral **joint training exercise between India and Indonesia** amongst the Special Forces of both the sides.
  - **Note: Garuda** is a joint air force exercise between **India and France**.
- **Yudh Abhyas 22**: It is an **annual India-US exercise.**
- **Exercise HARIMAU SHAKTI**: It is an annual training event **between the Indian and Malaysian Army.**

4.4.8. ERRATA

Due to Typographical error in Article 4.3.5 - **Collective Security Treaty Organization (CSTO)** in October 2022, the map shows Uzbekistan as a CSTO member. However, the correct information is that **Uzbekistan is not its member.** The **CSTO member countries include Belarus, Russia, Kyrgyzstan, Tajikistan, Kazakhstan, and Armenia** (refer to infographic).

5. ENVIRONMENT

5.1. 27TH CONFERENCE OF THE PARTIES (COP 27)

Why in news?

The 27th Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change (UNFCCC), **held at Sharm El-Sheikh, Egypt**, recently concluded.

About United Nations Framework Convention on Climate Change (UNFCCC)

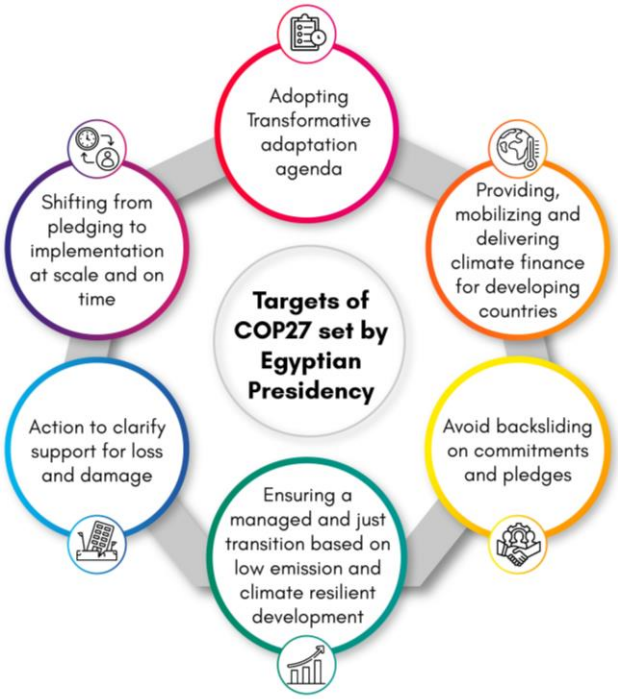
- UNFCCC emerged from the Earth Summit in Rio de Janeiro in 1992 and **was formally adopted in 1994 with near-universal membership**.
- It **became the first ever global treaty to explicitly address climate change**, with the core objectives of stabilizing the concentration of greenhouse gases in the atmosphere and preventing "dangerous" human interference with the climate system.

About Conference of the Parties (COP)

- The COP is the **supreme decision-making body of the UNFCCC.**
- **State Parties gather annually, along with stakeholders from scientific community and civil society**, to discuss a wide range of subject matter like mitigation, adaptation goals, climate finance, international carbon markets etc.

About COP27

- COP27 holds significance as it **aims to build on previous successes, including the Glasgow Climate Pact of COP26** and pave the way for higher ambition on mitigation, adaptation and climate finance, with focus on loss and damage.
  - Earlier, **26th session of the COP (COP26), held in 2021 in Glasgow**, had concluded with parties agreeing to the Glasgow Climate Pact which delivered several pivotal outcomes like **adoption of first-ever COP decision to explicitly target action against fossil fuels calling for a "phasedown of unabated coal" and "phase-out" of inefficient fossil-fuel subsidies**, etc.
- The conference also included the 17th session of the COP serving as the meeting of the **Parties to the Kyoto Protocol (CMP 17)**, and the fourth session of the COP serving as the meeting of the **Parties to the Paris Agreement (CMA 4).**
- In addition to holding roundtables, the Egyptian presidency also split the conference into **11 "thematic days"**: finance; science; youth and future generations; decarbonisation; adaptation and agriculture; gender; water; age and civil society; energy; biodiversity; and solutions.
- The conference concluded with release of **Sharm el-Sheikh Implementation Plan**.



Key outcomes of the COP27

Areas of discussion	Important Decisions and Developments
Climate targets	• Countries have been requested to **revisit and strengthen their 2030 climate targets by the end of 2023,** as necessary to align with the Paris Agreement.
Mitigation	• **Finalised the details of Mitigation work programme** to urgently scale up mitigation ambition and implementation in this decade.
Adaptation	• **Development of a framework for the global goal on adaptation** to be undertaken through a structured approach under the **Glasgow–Sharm el-Sheikh work programme in 2023 at COP28**. • **New pledges, totalling more than USD 230 million**, were made to the Adaptation Fund.
Finance	• **Sharm el-Sheikh dialogue launched on Article 2.1c** of the Paris Agreement, which says "financial flows" should be aligned with global temperature targets. ○ It will report back at COP28.
Loss and damage	• **New funding arrangements established** for assisting developing countries that are particularly vulnerable to the adverse effects of climate change, in responding to loss and damage. ○ **A transitional committee** to be set up to make recommendations for the operationalization of the new funding arrangements at COP28.

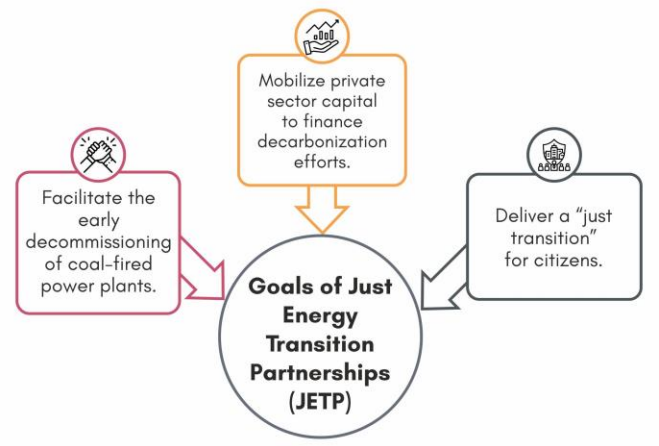
	• **Institutional arrangements made for operationalization of the Santiago network**. The host of the secretariat of the network will be selected by 2023.
Energy	• Parties called upon to transition towards **low-emission energy systems** and accelerate efforts towards the **phasedown of unabated coal power** and **phase-out of inefficient fossil fuel subsidies**.
Financial system reform	• For transformation of the financial system and its structures, **multilateral development banks and international financial institutions have been encouraged to reform their operational model, channels and instruments** to address the global climate emergency.
Just transition	• **A work programme on just transition was launched**, including annual "high-level ministerial round tables", with the first taking place at COP28 next year.
Agriculture	• **Koronivia Joint Work for Agriculture (KJWA) given another four-year lease** by establishment of the four-year Sharm el-Sheikh joint work on implementation of climate action on agriculture and food security.
Technology transfer and deployment	• **First joint work programme of the Technology Executive Committee** and the **Climate Technology Centre and Network**, set up for 2023–2027, which will facilitate the transformational change needed to achieve the goals of the Convention and the Paris Agreement.
Other	• For the first time, a COP cover decision mentioned **food, rivers, nature-based solutions, tipping points and the right to a healthy environment**.

Contentious Issues that remain

- **No commitments were made to phase out all fossil fuels**, as demanded by multiple countries including India.
- **Lack of stringent mitigation targets:** The **Sharm el-Sheikh Implementation Plan** does not call for global emissions to peak as soon as possible and by 2025 at the latest, which the IPCC said was a necessity for staying below 1.5°C.
- **Finance related issues**:
  - **Inadequate climate finance**: About USD 4 trillion per year needs to be invested in renewable energy up until 2030 to be able to reach net zero emissions by 2050, and furthermore, a global transformation to a low-carbon economy is expected to require investment of at least USD 4–6 trillion per year.
  - **Lack of clarity on loss and damage funding**: There is no agreement yet on how the finance should be provided and where it should come from.
  - **Large gap between current flows and developing nations' needs**: Finance flows in 2019-2020 were roughly one-third of what is required to achieve the Paris Agreement's 1.5C target.
    - ✓ **Developing nations face several inequities in access to climate finance** due to shortage of grant-based finance, complex terms and conditions, and economic vulnerability to climate change.
  - **Unfulfilled pledges of developed countries to the Adaptation Fund**, which aims to finance projects and programmes to help vulnerable communities in developing countries adapt to climate impacts.
  - **Unclear definition of "climate finance"** within the UN system, meaning donor countries interpret it as they like.

Related news: Indonesia Just Energy Transition Partnerships (JETP)

- Recently, **Indonesia Just Energy Transition Partnership to mobilise $20 billion** was presented at the side-lines of theG20 summit.
- JETP are climate finance agreements in which donor countries work together to **accelerate the early retirement of high-emission infrastructure** in partner countries and provide supports for investment in renewable energy and related infrastructure.
- First JTEP was announced in **2021 by South Africa and an International Partners Group (IPG)** of France, Germany, the United Kingdom, the United States of America, and the European Union.



- **Full rules of procedure for Article 6.2 remain unresolved**: Several contentious issues were deferred, including how to treat emissions removals, whether to allow credits for emissions avoidance and when carbon credits could be revoked.

- **Loose provisions on confidentiality and the potential double-claiming** of certain types of carbon units also remained concerning.

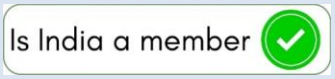
- **Greenwashing**: There is a growing tendency among firms and governments to mark all kinds of activities as something that would lead to emissions reduction, or avoidance of emissions, based on misleading information about their products or processes and unverifiable claims.
  - Greenwashing presents a false picture of the progress being made on the climate change front, thereby pushing the world towards disaster, while at the same time rewarding entities for irresponsible behaviour.
- **Fossil fuel lobbying:** A report by the NGOs Corporate Accountability, Corporate Europe Observatory and Global Witness released during the summit found that 636 "fossil-fuel lobbyists" had registered for COP27 – an increase of 25% from COP26.

Way Forward

- **Enhancing mitigation targets**: As per IPCC, limiting global warming to 1.5 °C requires rapid, deep and sustained reductions in global greenhouse gas emissions of 43% by 2030 relative to the 2019 level.
  - **Gradual phase out of fossil fuel** is thus needed to achieve the 1.5 °C target.
- **Scaling climate finance:** This would require proactive involvement of private sector as well as multilateral finance institutions.
  - Further, developed nations should fulfil the commitments made during COP26 towards adaptation fund.
- **Promote Just Energy Transition Partnerships (JETPs):** These are poised to play an expanded role in financing the energy transitions of emerging economies.
- **Establishing clear source and commitments for funding loss and damage**: In this regard, developed nations have a historic responsibility towards helping vulnerable nations overcome loss and damage from extreme as well as slow onset events arising from climate change.
- **Adopting clear definitions for climate finance** that reflect the principle of common but differentiated responsibilities (CBDR).
- **Bridging the finance gap for developing countries**: Developing countries need easy access to grant based finance to fulfil their adaptation needs and for just transition towards low-carbon economy.
- **Setting standards to quantify and measure emission reductions** can help reduce instances of greenwashing.

Related Development

Breakthrough Agenda sets priorities



- Signatories to Breakthrough Agenda have mapped out Priority Actions, to be delivered by COP28 climate summit, to help make clean technologies cheaper and cleaner.
- Breakthrough Agenda was launched at COP26 by a coalition of about 45 world leaders (India is also a signatory).
- **Objective**: To provide a framework for countries, businesses and civil society to strengthen their actions in key emitting sectors. Priority Actions aim to speed up **decarbonisation under five key sectors of power, road transport, steel, hydrogen and agriculture**.
- Priority Actions include agreements to:
  - Develop common definitions for low-emission and near-zero emission steel, hydrogen and sustainable batteries.
  - Ramp up deployment of essential infrastructure projects.
  - Set a common target date to phase out polluting cars and vehicles, consistent with Paris Agreement.
  - Stimulate global demand for green industrial goods.
  - Drive investment in agriculture research, development & demonstration
- These priority actions are being supported by various initiatives including:
  - **First Movers Coalition**: launched at COP26 to help drive industrial decarbonisation (India also joined).
  - **Climate Investment Funds**: largest multilateral climate fund focused on transformational climate innovation in 72 middle- and low-income countries (including India).
  - **Mission Possible Partnership**: an alliance of leading climate organizations

For details on Initiatives launched during COP27, please refer to the 'Appendix: Major Initiatives launched during COP27' at the end of the document.

5.1.1. INDIA AND COP27

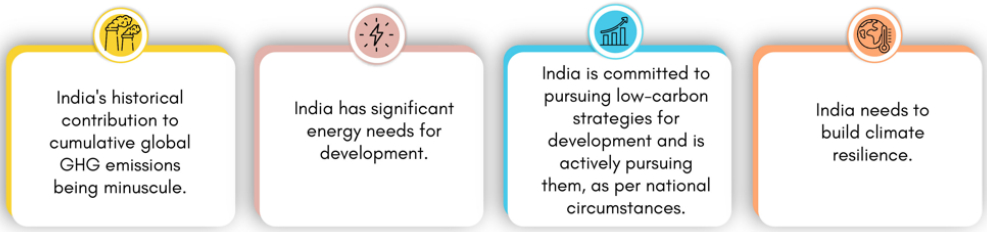
Why in news?

India has submitted its **Long-Term Low Emission Development Strategy (LT-LEDS)** to the United Nations Framework Convention on Climate Change (UNFCCC) recently.

About India's Long-Term Low Emission Development Strategy (LT-LEDS)

India's Long-Term Low Emission Development Strategy (LT-LEDS)

Key considerations for India's approach



- India's LT-LEDS lays out the steps to achieve net zero by 2070 and rests **on 7 key transitions to low-carbon development pathways**.
- Parties to the UNFCCC agreed to formulate and communicate long-term low greenhouse gas emission development strategies (LT-LEDS**)** under **Article 4.19 of the Paris Agreement.**
    - LT-LEDS are formulated mindful of Article 2 taking into account **common but differentiated responsibilities and respective capabilities**, in the light of different national circumstances.
- During COP 26 at Glasgow, Parties that have not yet done so had been urged to communicate their LT-LEDS by COP 27.
- India's LT-LEDS is also informed by the **vision of LiFE, Lifestyle for the Environmen**t, that calls for a world-wide paradigm shift from mindless and destructive consumption to mindful and deliberate utilization.

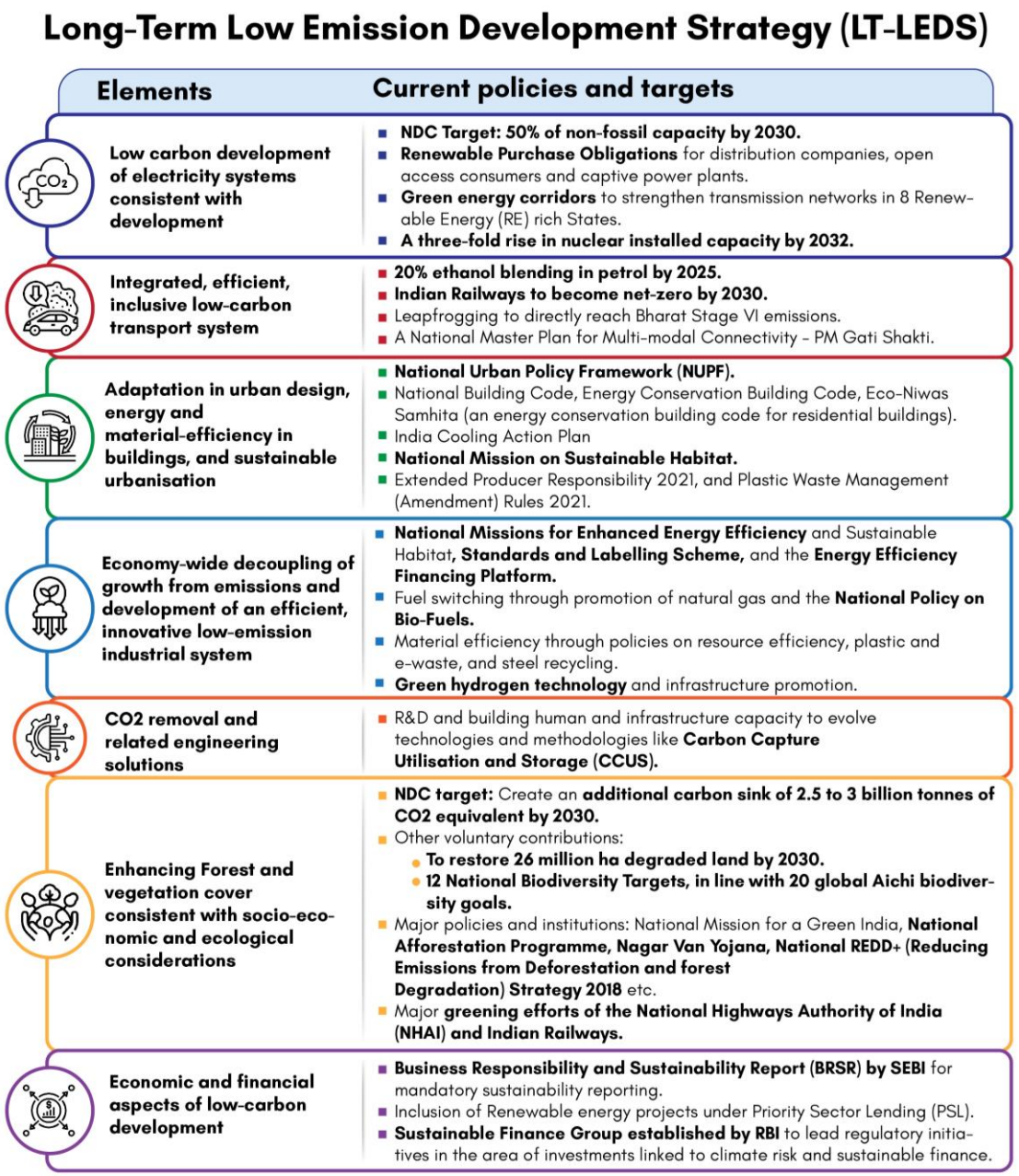
'In Our LiFEtime' campaign

- **Launched by:** National Museum of Natural History (NMNH), under the Ministry of Environment Forest and Climate Change and United Nations Development Programme (UNDP)
- **Objective**: To encourage youth between the ages of 18 to 23 years to become message bearers of sustainable lifestyles.
    - The youth will be encouraged to submit their climate actions that contribute to lifestyles for the environment within their capacity, which are sustainable and scalable, and serve as good practices that can be shared globally.

Concerns raised by India in COP 27

- **Gap in operationalizing the principles of equity and climate justice**: The enhanced NDCs from all parties should follow the principles of '**equity and climate justice'** and '**common but differentiated responsibilities and respective capabilities (CBDR-RC), in light of different national circumstances'** underlined in the Paris Agreement.
- **Mindless consumption and utilization of carbon budget**: The rapidly shrinking global carbon budget must be equitably shared among all countries and used responsibly, especially by countries responsible for historical emissions.
    - E.g., Since India's contribution to the world's cumulative emissions so far is less than 4% and annual per capita emissions are about one-third of the global average, it should be provided a greater share of remaining carbon budget. Simultaneously, developed countries should strive towards sustainable consumption, acknowledging their historical consumption of carbon budget.
- **Developmental needs of developing countries should be given due consideration**: Just transition to cleaner sources of energy cannot be equated to all countries striving for the same level of decarbonisation.
- **Introduction of carbon border measures:** Unilateral measures and discriminatory practices, such as Carbon Border Adjustment Mechanism, could result in market distortion and aggravate the trust deficit amongst Parties.
    - Carbon border adjustment mechanism is a plan from the European Union (EU) to tax carbon-intensive products, such as iron and steel, cement, fertiliser, aluminium and electricity generation, from 2026.
- **Extending the scope of mitigation to agriculture under Koronivia Joint Work on Agriculture (KJWA)**: Agriculture, the mainstay of livelihoods of millions of smallholder farmers, will be hard hit from climate change. So, they should not be burdened with mitigation responsibilities.

- **Selective singling out of sources of emissions:** Labelling selected sources of emissions, such as coal, more harmful or others as greener and more sustainable, even when they are all sources of greenhouse gases has no basis in the available science.
    - Further, global oil and gas emissions are 25% higher than coal emissions.
- **Unclear definition of climate finance:** Without a common definition, non-concessional loans are being considered climate finance.
- **Shortage of climate finance**: India would need tens of trillions of dollars by 2050 to transition to a low-carbon development path that would take it to the promised net-zero status by 2070.



Way Forward

- **Enhanced mitigation efforts from Developed countries**: Based on cumulative historical responsibility for current warming, developed countries should aim to **achieve the net zero emissions status not in 2050, but by 2030**.
- **Sustainable consumption**: Developed countries should focus on **transitioning to sustainable lifestyles and sustainable patterns of consumption and production**, as highlighted by India's **"In our LiFE campaign".**
- **Just transition for developing countries requires low-carbon development**: Developing countries need independence in their choice of energy mix, and in achieving the SDGs.
    - E.g., for India, just transition means the transition to a low-carbon development strategy over a time scale that ensures food and energy security, growth, and employment, leaving no one behind in the process.
- **Need for a united solidarity response by developing countries** to any unfair shifting of responsibilities from developed to developing countries.
- **Long-term goal of phasing down all fossil fuels**: The world must phase-down all fossil fuels, and not just coal.
- **Defining and implementing Article 2.1(c)**for the developing countries to be able to accurately assess the extent of finance flows for climate action.

- Article 2.1(c) of the Paris agreement calls for making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

- **Scaling up climate finance** by delivering on the promise of $100bn under Green Climate Fund and setting up a target of $1tn climate finance per year**.**

Glossary: Key terminologies explained	
Loss and damage	• **Impacts of climate change that cannot be adapted to**, and where losses are permanent. • It **covers both slow-onset processes** like sea-level and temperature rise, and **extreme events** such as floods, hurricanes and tropical cyclones.
Just transition	• Greening the economy in a way that is as **fair and inclusive** as possible to everyone concerned, creating decent work opportunities and leaving no one behind.
Net Zero	• Cutting greenhouse gas emissions to **as close to zero as possible**, with any remaining emissions re-absorbed from the atmosphere, by oceans and forests for instance.
Greenwashing	• Coined by environmentalist **Jay Westerveld** in 1986, it is practice of marketing a company or organization as being environmentally friendly when in practice its activities pollute the environment.
Koronivia Joint Work on Agriculture (KJWA)	• KJWA is a landmark decision under United Nations Framework Convention on Climate Change (UNFCCC) that **recognizes unique potential of agriculture in tackling climate change**. • It was set up in **2017 at COP23 in Bonn**, as a subject under both subsidiary bodies. • It addresses six interrelated topics on soils, nutrient use, water, livestock, methods for assessing adaptation, and socio-economic and food security dimensions of climate change across agricultural sectors.
Common but Differentiated Responsibilities and Respective Capabilities (CBDR–RC)	• It is a principle within the United Nations Framework Convention on Climate Change (UNFCCC) that acknowledges the different capabilities and differing responsibilities of individual countries in addressing climate change. • According to the principle, **higher responsibility of climate action,** including contribution in climate finance, emission reduction targets etc., is to be **placed upon developed countries since they have been historically responsible for large share of GHG emissions**, exhausting the carbon budget.
Carbon Budget	• The carbon budget is the maximum amount of cumulative net global anthropogenic CO_2 emissions that would result in limiting global warming to a given level (1.5°C or 2°C) with a given likelihood.
Climate equity	• Climate equity ensures the **just distribution of the benefits of climate protection efforts and alleviates unequal burdens created by climate change**. • It ensures that the climate goals are achieved in a sustainable manner, without unjust burden or fallouts on certain sections.
Santiago network	• Santiago network was established during **COP19 (2013) as a part of the Warsaw International Mechanism** for Loss and Damage to catalyse the technical assistance for averting, minimizing and addressing loss and damage associated with the adverse effects of climate change.
Article 6.2 of Paris climate Agreement	• It governs bilateral cooperation via "**internationally traded mitigation outcomes" (ITMOs),** which could include emissions cuts measured in tonnes of CO2 or kilowatt hours of renewable electricity.

5.2. CLIMATE FINANCE

Why in News?

Discussion surrounding climate finance formed an important part of at the UN Climate Change Conference COP27 in Sharm el-Sheikh.

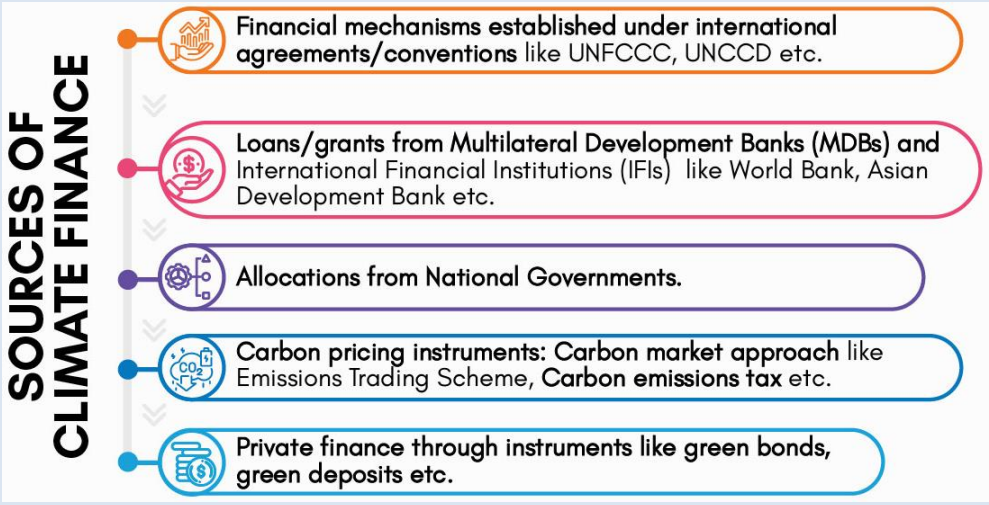
About Climate finance

- According to the United Nations Framework Convention on Climate Change **(UNFCCC), climate finance is local, national or transnational funding** from public, private and alternative sources that seeks to **support climate change mitigation and adaptation actions.**
- **Scale of finance needed:** As per**,** Sharm el-Sheikh Implementation Plan, released during COP27-
  - **~ USD 4 trillion per year needs to be invested in renewable energy up until 2030** to be able to reach net zero emissions by 2050.
  - A global transformation to a low-carbon economy is expected to require investment of **at least USD 4–6 trillion per year**.
- **Significance of Climate finance**: In the current scenario climate finance is highly significant for-
  - **Just transition**, including transformation of the low-carbon energy systems to.
  - **Addressing loss and damage** and responding to the growing vulnerability of developing countries to climate change.
  - **Restoring the damage to natural capital and biodiversity**.

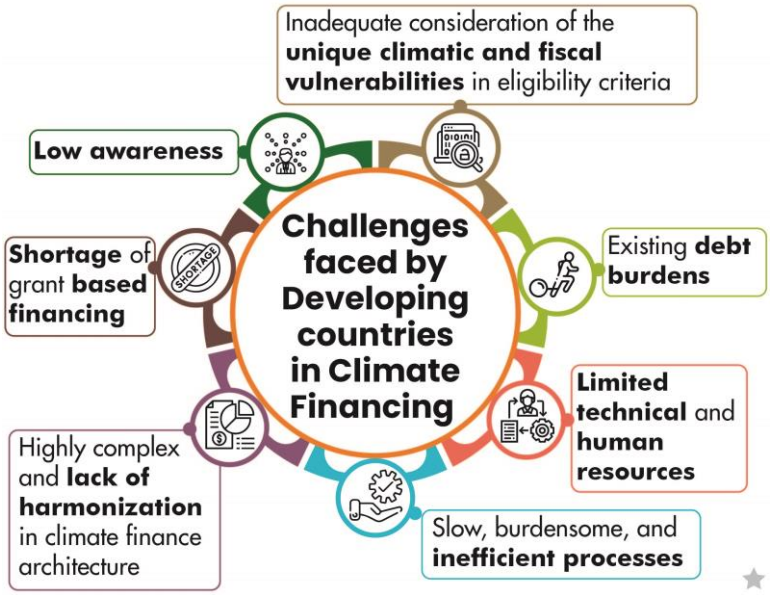
Progressive measures for Climate finance taken during COP27

- **Sharm el-Sheikh dialogue launched on Article 2.1c** of the Paris Agreement, which says "financial flows" should be aligned with global temperature targets.
- **New pledges, totalling more than USD 230 million**, were made to the Adaptation Fund.
- **New funding arrangements made for loss and damage.**
- **Multilateral Development Banks (MDBs) and International Financial Institutions (IFIs) encouraged to reform their operational model, channels and instruments.**
- **Initiatives like Sustainable Debt Coalition Initiative launched with provisions of financing**, Global Shield against Climate Risk, Forest and Climate Leaders' Partnership (FCLP) etc.

Financial mechanisms established for Climate Finance under UNFCCC and related Agreements	
Funds managed by Global Environment Facility (GEF)	• **Special Climate Change Fund (SCCF)**, established in 2001, to finance projects relating to: ○ Adaptation. ○ Technology transfer and capacity building. ○ Energy, transport, industry, agriculture, forestry, and waste management. ○ Economic diversification. • **Least Developed Countries Fund (LDCF)**, established to support a work programme to assist Least Developed Country Parties (LDCs) carry out the preparation and implementation of national adaptation programmes of action (NAPAs).
Adaptation Fund	• Established in 2001 to **finance concrete adaptation projects and programmes in developing country Parties to the Kyoto Protocol.** • **5% share of proceeds from new market-based UNFCCC mechanism established by Article 6.4 of the Paris Agreement**, to be delivered to the Adaptation Fund to support concrete adaptation projects in developing countries around the world.
Green Climate Fund (GCF)	• Established in COP 16, 2010. • **Developed countries pledged to mobilise US$ 100 billion per year by 2020** to support developing countries raise and realize their NDC ambitions towards low-emissions, climate-resilient pathways.



Problems surrounding Climate Finance



- **Insufficient in amount:** The Intergovernmental Panel on Climate Change (IPCC) estimates that global mitigation investments need to increase by the factor of 3 to 6.
- **Trust issues**: The failure of developed nations to deliver the climate finance commitment of $100 billion per year by 2020 made by developed countries at successive COPs has eroded trust.
- **Low participation of private sector, especially in developing nations:** Private investment is low due to factors like perceived high risks of investing, weaker policy settings, lack of 'investment ready' low-carbon/ climate-resilient projects, greenwashing etc.
- **Lack of common definitions**: The definitions related to climate finance differ on account of what climate-related activities should be financed, how finance should be accounted for and which actors should be included.
    - **For instance,** several countries demand funds for loss and damage from India due to its status as major polluter, despite its low historical contributions.
- **Low share of grants**: Loans (both concessional and non-concessional) accounted for the largest share of public climate finance between 2016 and 2020, amounting to 72% of the total public finance provided.
- **Underfunding of adaptation**: Most financing between 2016 and 2020 focused on mitigation activities in developing countries (67%).

Climate Finance and India

India's climate finance needs

- **Cumulative investments of up to 6–8 trillion USD** required during 2015–2030 to implement the actions required to transform the current energy systems in India.
- **India needs around USD 10 trillion to achieve net-zero by 2070.**

Steps taken to mobilize climate finance

- **National Adaptation Fund for Climate Change (NAFCC)** was established in August 2015 to meet the cost of adaptation to climate change for the State and Union Territories that are particularly vulnerable to the adverse effects of climate change.
- **Priority Sector lending to renewable energy projects**.
- **Issuance of Green Deposits and Green Bonds** by several banks in India to support environmentally friendly projects or avenues.
    - India's first green bond was **issued by Yes Bank in 2015.**
- **Sustainable Finance Group (SFG) was set up under RBI** to co-ordinate with other national and international agencies on issues relating to climate change.
- **RBI joined the Network for Greening of Financial System (NGFS)—**a group of central banks and supervisors willing to share best practices and contribute to the development of environment and climate risk management in the financial sector.

Way Forward

- **Increase the efficiency of financial market** through interventions like the provision of better information, including taxonomies and transparency, on climate risks; protection of consumers of ESG-related services against 'greenwashing', etc.
- **Set up climate clubs and cross-border finance initiatives** like just transition partnerships.
- **Transformation of MDBs and IFIs**: This includes reforming operational practices and priorities, aligning and scaling up funding, ensuring simplified access and mobilizing climate finance from various sources.
- **Expanding availability of low-cost and debt-free finance**: A doubling of concessional finance is needed from developed countries by 2025 from 2019 levels.
    - Further, **developed nations need to deliver on the goal of $100 billion as soon as possible.**

- **Creating common language and standards for climate finance** to bring coherence.
- **Enhance financing avenues for adaptation such as through innovative instruments** like special drawing rights, voluntary carbon markets, philanthropy, concessional and risk capital vehicles, and guarantees etc.
- **Mobilize domestic finance through central banks:** Central Banks can help address climate crisis through measures like priority sector lending and credit quotas; creating new asset classes for climate in banking/ investment regulation etc.

Related news: Climate finance delivery plan progress report: advancing the ten collective actions

- The report was published by **Canada and Germany**.
- It **sets out a list of ten collective actions** to deliver on the USD100 billion goal, respond to the needs and priorities of developing countries, and build on previous experience to deliver more effective and enhanced climate finance.

5.3. ADAPTATION GAP REPORT 2022

Why in news?

The Adaptation Gap Report 2022**: 'Too Little, Too Slow – Climate adaptation failure puts world at risk',** was recently released by the **UN Environment Programme (UNEP).**

Key Findings of the report

- **More than 8 out of 10 countries** (84% of Parties to the UNFCCC) have at least one national adaptation planning instrument.
- **More than a third of all 198 Parties** to the UNFCCC have incorporated **quantified and time-bound adaptation targets**.
- **Nearly 90% of planning instruments** analysed display consideration for **gender and/or historically disadvantaged groups,** such as indigenous peoples.
- Combined **adaptation and mitigation finance flows in 2020 fell at least US$17 billion short** of the US$100 billion pledged to developing countries.
- **Adaptation finance gap** in developing countries is likely **5 to 10 times greater than current international adaptation finance flows**.

Issues identified in adaptation efforts by the report

- **Targets are not outcome oriented**: Majority of adaptation targets do not capture the outcomes of adaptation action, such as the degree to which people and ecosystems are more resilient or less vulnerable to climate change.
- **Widening adaptation gap**: Accounting for inflation, estimated annual adaptation costs/needs will be in the range of US$160–340 billion by 2030 and US$315–565 billion by 2050.
- **Exclusion of marginalized groups:** Involvement of stakeholders, including women, indigenous peoples and local communities in in adaptation design and implementation is inadequate.
- **Maladaptation**: Retrofitting development activities as adaptation actions without specifically addressing climate risks can result in marginal resilience benefits or maladaptation (such as hydropower reducing food security or irrigation increasing energy consumption).
- **Lack of long-term planning**: Adaptation solutions have short-term focus and neglect of future climate risks.
- **Narrow definitions of adaptation success:** It does not incorporate elements encompassing social transformation and climate justice.
- **Inadequate metrics:** Success of adaptation efforts is often difficult to validate and interpret in terms of climate risk reduction.
- **Adaptation limits**: Accelerating global warming is increasing climate impacts, putting countries at serious risk of experiencing adaptation limits and intolerable losses and damages.

About UN Environment Programme (UNEP)

- It is an **intergovernmental organization established** in June 1972 as an outcome from the United Nations Conference on the Human Environment (Stockholm Conference, 1972).
- It works under the **umbrella of the UN 2030 Agenda for Sustainable Development,** identifying and addressing the most relevant environmental issues of our time.
- It **sets the global environmental agenda**, promotes the coherent implementation of the environmental dimension of sustainable development and serves as an authoritative advocate for the global environment.
- **Headquarter:** Nairobi, Kenya.
- **Other reports by UNEP**
  - Global Environment Outlook (GEO) Report
  - Triple Emergency
  - Cooling Emissions and Policy Synthesis Report (published by UNEP in association with Cooling Emissions and Policy Synthesis Report)

Way Forward

- **Significant acceleration in adaptation finance**: Doubling of 2019 finance flows by 2025 needs to be met, as suggested by Glasgow Climate Pact.
- **Better labelling of financial support** could help clarify its contribution to adaptation.
- **Data to quantify adaptation effectiveness and adequacy** are urgently needed, especially for higher levels of warming and complex or cascading risks.
- **Focusing on long term viability**: To be effective and adequate in the longer term, solutions must be **context-specific and address the root causes of vulnerability**, such as underlying structural inequities and gendered disadvantages.
- **Taking adaptation and mitigation jointly into account** in planning, finance and implementation to enhance opportunities for co-benefits and limit trade-offs and maladaptation.
- **Urgent scaling-up of mitigation and adaptation beyond incremental change** is needed to avoid hard adaptation limits.

Related news: Principles for Locally Led Adaptation (LLA)

- The Global Commission on Adaptation developed a set of principles to strengthen locally led adaptation.
  - The Global Commission on Adaptation was established by Netherlands and the leaders of 22 other **convening countries (including India)** in 2018 with the mandate to accelerate adaptation by elevating the political visibility of adaptation and focusing on concrete solutions.
- The Principles for Locally Led Adaptation are intended to **guide the adaptation community** as it moves programs, funding and practices towards adaptation that is increasingly owned by local partners.
- The principles were launched at the 2021 Climate Adaptation Summit.

- As of August 2022, **over 100 organizations have endorsed these principles**, committing to make changes and strengthening existing efforts to meet this urgent adaptation agenda.

- **Need of LLA**
  - **Local communities are at the frontlines** of climate change impacts.
  - **Imbalance of power**: Local communities lack effective voice in prioritizing, decision-making, and implementing the adaptation actions that most affect them.
  - **Inequitable distribution of funding for adaptation:** Less than 10% of global climate fund finance was dedicated to the local levels between 2006-2016.

5.4. METHANE EMISSION

Climate and Clean Air Coalition (CCAC)

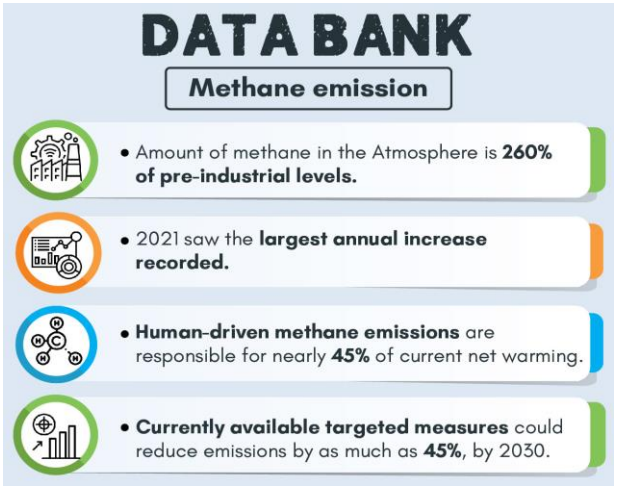
- It is **voluntary partnership of governments**, civil society, and private sector to **protect the climate and improve air quality** through actions to reduce short-lived climate pollutants.
- Initial focus is **on methane, black carbon, and Hydrofluorocarbons (HFCs).**
- **India joined the CCAC in 2019**.

Why in news?

Recently, the **'Global Methane Assessment: 2030 Baseline Report'** was released by **Climate and Clean Air Coalition (CCAC)** and **United Nations Environment Programme (UNEP).**

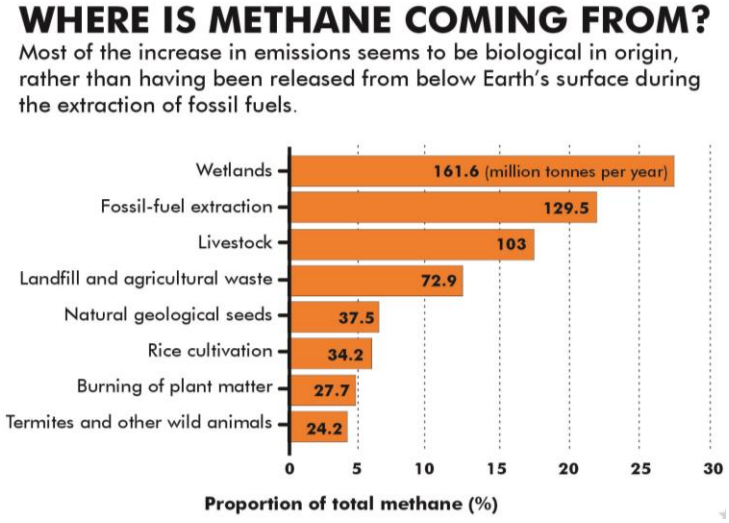
More on news

- Report was launched at **Climate and Clean Air Ministerial Meeting at 27th Conference of Parties (COP27)** to United Nations Framework Convention on Climate Change (UNFCCC).
  - Report **examines baseline projections of methane emissions** over the coming decade and **implications for Global Methane Pledge (GMP)** target.



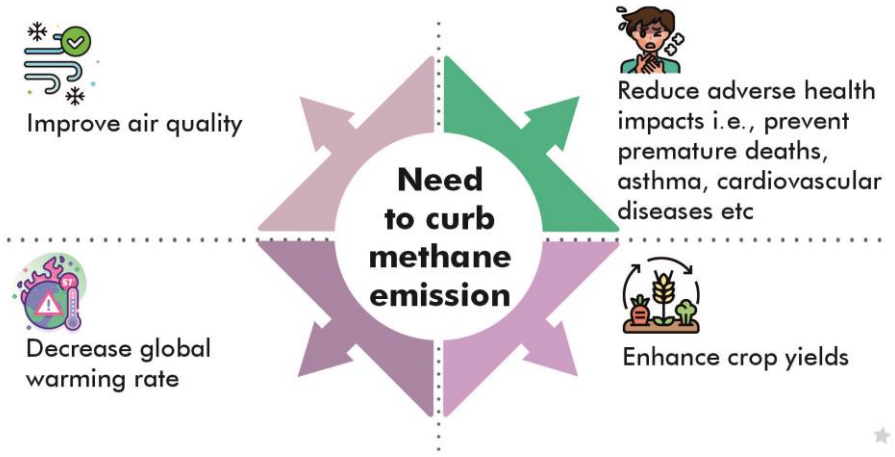
What is Methane?

- Methane (CH_4), **primary component of natural gas**, is responsible for **more than 25 percent of the warming**.
  - It is a **powerful greenhouse gas** (20 years lifespan), with a Global Warming Potential more than **80 times greater than that of carbon dioxide (CO_2)**.
  - It is **responsible for around half of the growth** in **tropospheric ozone** formation.
  - It is **colourless, odourless gas** that occurs abundantly in nature and as a product of certain human activities.
  - **India** is among the **top 5 methane emitters in world.**



Methane emission source	How emissions can be reduced?
Agriculture	• **Improve manure management** and animal feed quality. • **Apply intermittent aeration** of continuously flooded rice paddies. • **Improve animal health and husbandry** by combining herd and health management, nutrition and feeding management strategies. • **Introduce selective breeding** to reduce emission intensity and increase production. • **Promote farm-scale anaerobic digestion** to control methane emissions from livestock.
Fossil fuels	• **Carry out pre-mining degasification** and recovery and oxidation of methane from ventilation air from coal mines. • **Reduce leakage from long-distance gas transmission** and distribution pipelines. • Extend recovery and utilization from gas and oil production. • Recover and use gas and fugitive emissions during oil and natural gas production.
Waste management	• **Separate and treat biodegradable municipal waste**, and turn it into compost or bioenergy. • **Upgrade wastewater treatment** with gas recovery and overflow control. • **Improve anaerobic digestion** of solid and liquid waste by food industry. • Divert organic waste. • Collect, capture, and use landfill gas.

Initiatives taken by India to reduce methane emissions



- **Direct Seeded Rice**: The system **reduces methane emissions as it does not involve raising nurseries**, puddling and transplanting. Unlike transplanted paddy cultivation, standing water is not maintained in this system.
- **Crop Diversification Programme**: Methane emissions is avoided due to **diversion of paddy to alternate crops** like pulses, oilseeds, maize, cotton, and agroforestry.
- **GOBAR (Galvanizing Organic Bio-Agro Resources) Dhan scheme**: It supports biodegradable waste recovery and conversion of waste into resources and reduction of GHG emissions.
- **National Livestock Mission**: It was implemented by Department of Animal Husbandry and Dairying which includes **Breed Improvement and Balanced Rationing**.
  - Feeding livestock with superior quality balanced ration is helping to reduce methane emissions from the livestock.
- **India GHG Program**: It is an **industry-led voluntary framework** to measure and manage greenhouse gas (GHG) emissions.
  - It builds a comprehensive measurement and management strategies to reduce emissions and drive more profitable, competitive, and sustainable businesses and organisations in India.

What can be done to reduce methane emission?

- **Implement policies**: World must implement methane reduction policies covering all three main anthropogenic sectors immediately to avoid the worst impacts of climate change.

Global Initiative to curb methane emission?

- **Global Methane Pledge (GMP):** GMP was announced in 2021 at CoP26. The goal is to **slash global methane emissions by at least 30 percent** from 2020 levels by 2030.
  - India is not a member of GMP initiative.
- **Methane Alert and Response System (MARS):** It was launched at CoP27 to track methane emissions. It will go live in January 2023.
- **Seaweed based animal feed additive formulations**: It was developed by Central Salt & Marine Chemical Research Institute (CSMCRI) to **reduce methane emissions from cattle** and **boost immunity of cattle and poultry**.
- **International Energy Forum (IEF) Methane initiative**: It was launched in 2021 to **develop a methane emissions measurement methodology**, enabling its member countries to collect standardized data to mitigate methane emissions from the energy industry.
- **MethaneSAT**: MethaneSAT is a state-of-the-art satellite designed **to detect global methane emissions** with unprecedented accuracy.

- **Technology:** Methane emissions occur along the entire oil and gas supply chain, especially from leaking equipment, deliberate flaring, and venting.
  - Technology like **Gas Mapping LiDAR (Light Detection and Ranging) can be used** to detect methane and thus curb emissions.
- **Mapping hotspots:** Global methane emitters monitoring tool along with satellite, aerial surveys, and drones can help detect and map methane emitting hotspots.
- **Collaboration:** Catalyzing greater action by engagement of policymakers, industries, NGOs etc. to embrace a common vision of reducing methane emissions.
- **Methane as Fuel:** Methane's lifespan in the atmosphere is relatively short compared to those of other greenhouse gases, it is more efficient at trapping heat than are those other gases. There is a need to develop a process to capture methane that would otherwise be released to the atmosphere and use it as a fuel.
  - For example, methane from wastewater treatment plants or dairies can be captured and used as a fuel to reduce the amount of methane entering the atmosphere as well as reduce dependency on fossil fuels.

Related News
Methane 'Super-Emitters' Mapped by NASA's Earth Surface Mineral Dust Source Investigation (EMIT)
- EMIT mission **helped to identify more than 50 super-emitters of methane gas** in central Asia, west Asia and southwestern United States.
  - Super-emitters are **facilities, equipment, and other infrastructure,** typically in the fossil-fuel, waste, or agriculture sectors, **that emit methane at high rates**.

5.5. CARBON CAPTURE, UTILIZATION AND STORAGE (CCUS)

Why in news?

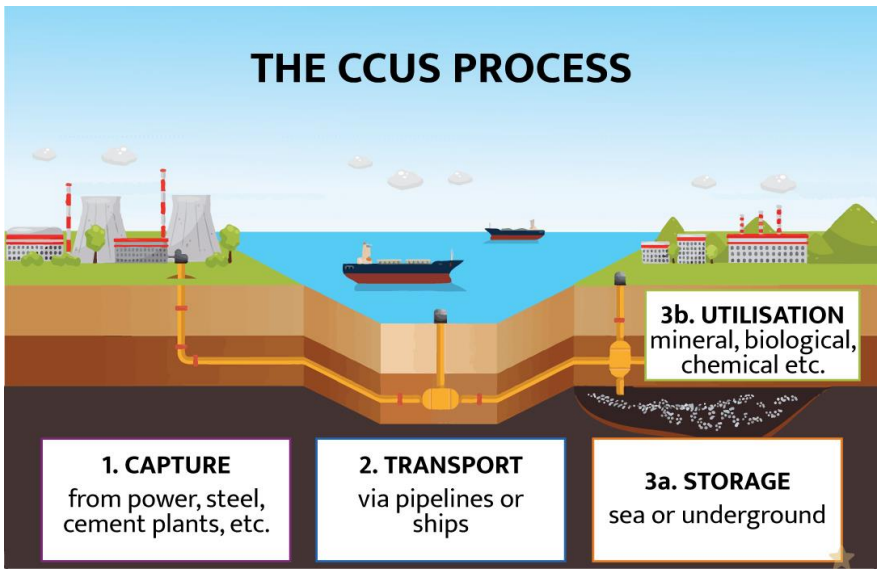
Recently, NITI Aayog released the report titled '**Carbon Capture, Utilisation, and Storage (CCUS) Policy Framework and its Deployment Mechanism in India'**.

More on news

- CCUS policy framework aims to **develop and implement a practicable framework to accelerate research and development** on CCUS in India.
- It explores the **importance of the technology as an emission reduction strategy** to achieve deep decarbonization from the hard-to-abate sectors like steel, cement etc.

What is Carbon Capture, Utilization, and Storage (CCUS)?

- CCUS encompasses technologies to **remove CO_2 from flue gas and the atmosphere**, followed by **recycling the CO2 for utilization** and determining safe and **permanent storage options**.
  - Flue gases are produced when coal, oil, natural gas, wood or any other fuel is combusted in an industrial furnace, a power plant's steam-generating boiler, or other large combustion device.
- **CO_2** captured using CCU technologies are **converted into fuel (methane and methanol),** refrigerants, building materials etc.
  - Captured gas is used **directly in fire extinguishers, pharma, food and beverage industries** as well as the **agricultural sector**.
- Different Carbon Capture technologies for different applications are as follows:



Technology	Details
Chemical Solvent	• Preferred when **dealing with gas streams that are lean in CO_2 and have relatively lower pressures** such as flue gas streams from power plants etc.
Physical Solvent	• Work well on **gas streams with relatively higher CO_2 concentration and pressure** such as pre-combustion capture in case of gasification projects.
Adsorption	• Suitable for gas streams with **moderate to high pressure and moderate CO_2 concentration** such as steam methane reforming (SMR) flue gas.
Cryogenic Separation	• Preferred in cases where **cost of power is low**.

What is the need of Carbon Capture, Utilisation, and Storage (CCUS)?

- **Achieve net zero target:** India has committed to **reduce CO_2 emissions by 50 percent by 2050** and achieve net zero by 2070.
  - As **India is third largest emitter of CO_2** in world after China and US, CCUS is an essential imperative for India to reach its Decarbonisation Goals.
- **Sustainable development**: CCUS is key to ensure sustainable development and growth in India particularly for **production of clean products and energy**, thus **leading to an Atmanirbhar Indian economy.**
  - It **adds economic value to CO_2** by converting it into useful chemicals or fuels of commercial importance.
- **Employment generation:** About 750 mtpa of carbon capture by 2050 can **create employment opportunities of about 8-10 million** on full time equivalent basis in a phased manner.
- **Circular economy:** CCUS can provide **opportunities to convert the captured CO_2 to value-added products** like urea, polymers etc. with ready market in India, thus contributing to the circular economy.
- **Boost Oil industry:** CCS can be particularly useful in the oil industry, as the process of injecting carbon dioxide into underground oil reservoirs can boost production.
  - When injected, the gas pressurizes the oil, improving its mobility and allowing it to flow more easily.

Initiative for CCUS in India

- **National Centres of Excellence:** Establishment of two National Centres of Excellence in CCUS at IIT Bombay and JNCASR, Bengaluru.
  - These centres will facilitate capturing & mapping of current R&D and innovation activities in the domain and also develop networks of researchers, industries and stakeholders.
- **Mission Innovation Challenge on CCUS**: It aims to enable near-zero **CO_2** emissions from power plants and carbon-intensive industries.
- **Accelerating CCS Technologies (ACT):** This initiative aims to facilitate R&D and innovation that can lead to development of safe and cost-effective CCUS technologies.

What are concerns associated with CCUS?

- **High Cost**: Upfront capital **investment for carbon capture technology, transport pipelines and geological storage is high**, and significant energy and water usage is required to capture and compress the CO2.
- **Transportation**: Impurities in CO_2 stream including water can **cause damage to pipelines** and lead **to leaks and explosions** as the compressed fluid rapidly expands to a gas.
- **Uncertain Storage Capacity**: Lack of CO2 transport and storage sites near industries or power generation point sources throughout the world.
- **Public support**: NIMBY (Not in My Back Yard) i.e. People **rejecting large projects like CCS being built near them** because of the perceived **risks to health,** groundwater contamination, property damage etc.
- **Lack of regulations**: CCUS project construction involves **multiple components,** namely site selection, geological assessment, etc. However, these **components are not currently regulated by a uniform standard.**
- **Insufficient geological information**: Due to lack of geological survey technology, **companies lack geological information** before the project is carried out.
  - Therefore, they **cannot accurately predict the risks of project,** which **reduces incentive for companies to retrofit carbon capture equipment** and hinders the promotion of CCUS technology.

Way forward

- **Develop a geological CO_2 storage atlas**: Capturing **CO_2** without the knowledge of sites where they could be sequestered is of very little relevance. Hence, there is an immense need for development of source and storage Atlas that will map the source as well as storage sites.
- **Tax incentives:** Promote the CCUS sector in India through tax and cash credits**.**

- Establish early-stage financing and funding mechanisms for CCUS projects.

- **Environmental and social justice:** Protect communities and jobs affected by climate change by ensuring distribution of economic value created by CCUS.
- **Low- Carbon products**: Public procurement of low-carbon products from CCUS-equipped plants may be encouraged.
- **Risk mitigation**: There is a need to de-risk CCUS projects by **limiting the liability and ownership of CO_2 across the CCUS value chain** and monitoring risk through Verification and Accounting frameworks.
- **Technology transfer**: Technology transfer of commercially proven CCUS technologies should be facilitated.
- **Research and Development (R&D)**: India should **promote an ecosystem to foster R&D, innovation in CO_2 utilization technologies** and new products & applications.
- **Transportation infrastructure**: To safely carry the condensed, highly pressurized CO_2, **pipelines must be specially designed** as existing oil and gas pipelines cannot be used.

Related news

- Recently, NITI Aayog released the Report of Inter-Ministerial Committee (IMC) on strategies for decarbonization and deployment of Low Carbon Technologies (LCTs) in industry, particularly steel and cement.
  - IMC on LCTs was formed under **India-US Sustainable Growth Pillar of Strategic Clean Energy Partnership (SCEP).**
- Low carbon technology (LCT) is the term given to **technologies that emit low levels of CO_2 emissions**, or no net CO_2 emissions.
  - LCTs are harmonious, sustainable, efficient, and international.
- **LCT mainly includes,**
  - **Carbon reduction technology** (energy- saving technology in area of high energy consumption and high emission),
  - **Carbon-free technology** (nuclear energy, solar energy, wind energy, biomass etc.),
  - **Carbon removal technology** (colleting, burying, using of carbon dioxide),
  - Carbon management technology,
  - Resource saving and recycling technology.
- **Need of LCTs**: Achieve net zero emission by 2070, **reduce GHG emissions and prevent global warming**, **enhance productive energy use**, create **jobs and entrepreneurial opportunities**, promote sustainable development etc.
- **Examples for LCT** include **increase utilization ratio of available resources** (heat pumps, combined heat and power, etc.), **make use of inevitable emissions (CCUS)** or convert desired products from renewable resources (photovoltaic, geothermal heating, hydrogen, etc.).

- **Awareness**: There is need to **raise public awareness** across the world on carbon dioxide capture and storage (CCS) technologies and **develop regulations for CCS** to ensure public acceptability.

5.6. DYNAMIC GROUNDWATER RESOURCE ASSESSMENT 2022

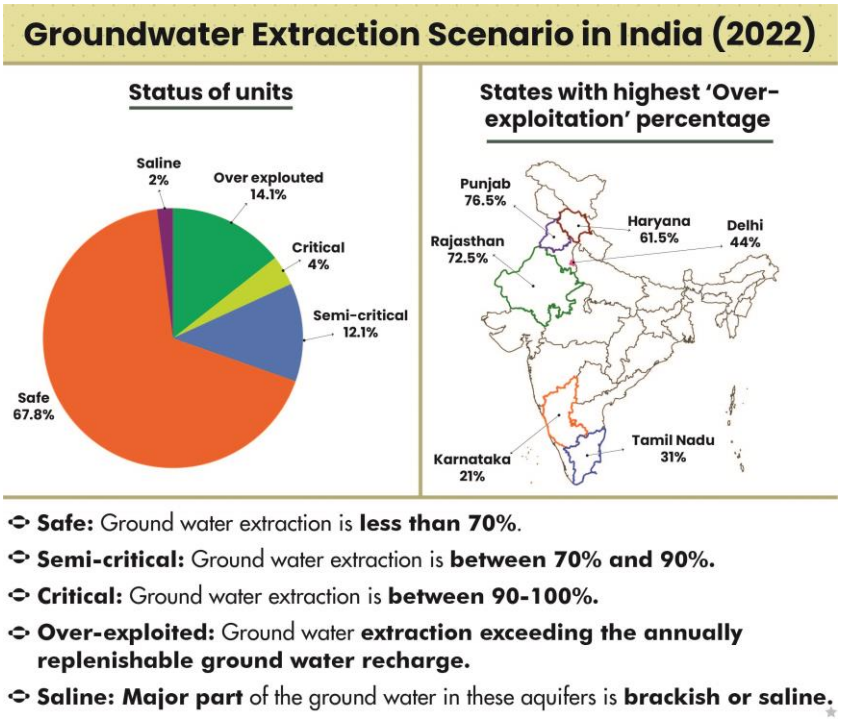
Why in news?

The Union Minister of Jal Shakti recently released the Dynamic Ground Water Resource Assessment Report for the year 2022.

Key Highlights of the report

The assessment was carried out jointly by Central Ground Water Board (CGWB) and States/UT.

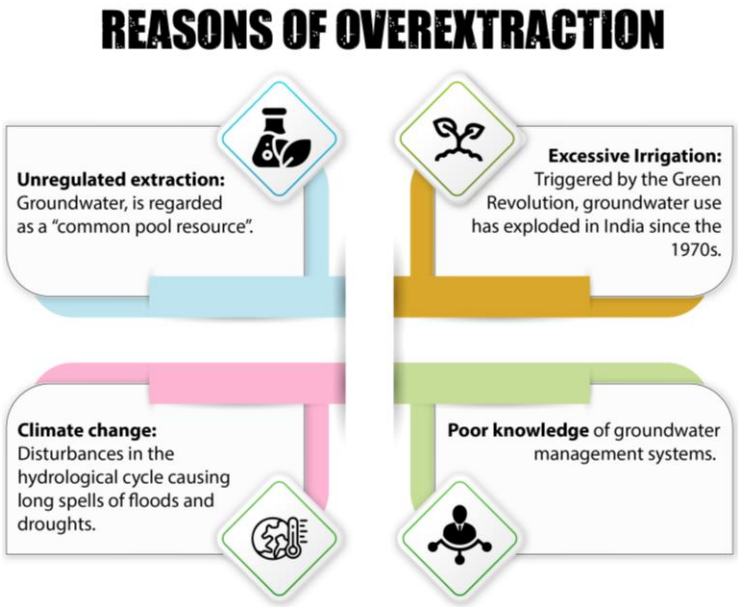
- **The total annual groundwater recharge** for the entire country has been assessed as 437.60 billion cubic meters (bcm). From which, **8% as total natural discharges** and **92% as annual extractable groundwater resource**.
  - Also, stage of **Groundwater extraction in India is currently at 60%.**
- **The overall contribution of rainfall recharge** to the country's total annual groundwater recharge is 61 % and the share of recharge from 'Other sources' is 39 %.



- **Overall decrease in the number of over-exploited** areas has been observed when compared with the 2017 report.

Challenges associated with excessive Groundwater extraction

- **Lowering of the Water Table:** Excessive pumping can lower the groundwater table, and cause wells to no longer be useful.
- **Increased Costs:** As the water table lowers, the water must be pumped farther to reach the surface, using more energy. In extreme cases, using such a well can be cost-prohibitive.
- **Reduced Surface Water Supplies:** Groundwater and surface water are connected. When groundwater is overused, the lakes, streams, and rivers connected to groundwater can also have their supply diminished.
- **Land Subsidence:** Land subsidence occurs when there is a loss of support below ground. This is most often caused by human activities, mainly from the overuse of groundwater, when the soil collapses, compacts, and drops.
- **Water Quality Concerns:** Excessive pumping can cause saltwater to move upward, resulting in saltwater contamination of the water supply.



Way Forward

- **Water balance studies**: Holistic water resources management interventions require a proper understanding of the interactions between the different components of the hydrological cycle.
  - Hydrological Cycle includes rainfall, surface water, soil moisture, and evapotranspiration apart from groundwater.
- **Studies on aquifer-stream interactions** are required to understand the contribution of groundwater to streams and the requirement of environmental flows for the sustainability of water resources.
- **Groundwater modelling with predictive system:** The concept of Groundwater modelling must be included with predictive simulation.
  - This would give an idea of the future availability of Ground water resources with respect to the changing climate and extraction patterns.
- **Agriculture sector management:** Water-efficient irrigation systems like drip, and sprinklers, avoiding water-extensive crops, and use of treated wastewater for irrigation should be adopted.
- **Assessment with management:** Evaluation of the groundwater management interventions and consequent changes in the groundwater should be analysed.
  - Such studies would help bring out the efficacy of various management interventions on the groundwater regime.
- **Surface waterbody management:** Restoration of ponds, lakes and other traditional water resource structures should be an integral part of the development projects. Also, it will substantially develop groundwater potential.

Government Initiatives

- **Central Ground Water Board**: It develops and disseminates technologies, and monitors and implements national policies for the Scientific and Sustainable development and management of India's Ground Water Resources.
- **Atal Bhujal Yojana**: Aim to implement appropriate management actions led by the community through the convergence of various ongoing /new central and state schemes.
- **MGNREGA:** Water conservation measures are also taken up as a part of the MGNREGA.
- **Central Ground Water Authority:** It has been constituted under the Environment (Protection) Act, 1986 to regulate and control the development and management of groundwater resources in the country.
- **Pradhan Mantri Krishi Sinchai Yojana (PMKSY): Its** objective is to achieve convergence of investments in irrigation at the field level, and improve on-farm water use efficiency to reduce wastage of water.
- **Jal Shakti Abhiyan:** It was launched in 2019 in **256 water-stressed districts in the country to improve water availability including ground water conditions in these areas.**

Related News

State of Global Water Resources Report: World Meteorological Organization (WMO)

The WMO has published its **first State of Global Water Resources report** to assess the effects of climate, environmental and societal change on the Earth's water resources.

- **Aim:** To support the **monitoring and management of global freshwater** resources in an era of growing demand and limited supplies.
- **The report's looks at-**
  - **Streamflow** – the volume of water in a river channel at any given time.
  - **Terrestrial water storage** - all water on the land surface and sub-surface.
  - **The cryosphere** -frozen water.

The key finding of the report

- Currently, **3.6 billion people face inadequate access** to water at least a month per year, which is expected to increase to more than 5 billion by 2050.
- Between 2001 and 2018, UN-Water reported that **74% of all-natural disasters were water-related**.
- Large areas **recorded drier than normal conditions in 2021** due to climate change and the La Niña event.
- The annual glacier run-off typically increases at first, until a turning point, often called **"peak water",** is reached, upon which run-off declines.
  - This point is **different for every glacier** and **depends on the geometry and temperature** profile of that glacier.

Recommendation

- To accelerate the **availability and sharing of hydrological data**, including river discharge and transboundary river basin information.
- There is a need to fill **the knowledge gap and provide a concise overview of water availability** in different parts of the world.
- Development of **end-to-end drought and flood early warning systems.**

5.7. GLACIERS AND CLIMATE CHANGE

Why in news?

According to UNESCO's World Heritage Glaciers Report, a third of Glaciers among the World Heritage sites will disappear by 2050.

More about the news

- The World Heritage Glaciers Report is **jointly released by UNESCO and IUCN** (International Union for Conservation of Nature and Natural Resources).
- **Key findings of the report:**
  - Glaciers have been identified in **50 sites on the UNESCO World Heritage List**. Around 18,600 glaciers have been identified in these sites, representing almost 10% of the Earth's glaciered area.
  - They have been **retreating at an accelerated rate since 2000** due to rising CO_2 emissions.
  - The report also states that, if emissions are drastically cut to **limit global warming to 1.5°C** relative to pre-industrial levels, glaciers in **two-thirds of World Heritage sites could be saved.**

Importance of Glaciers

- **The keystone of life:** As giant freshwater reservoirs, they **support the planet's life systems** and influence our day-to-day lives, even for communities who live far away from them.
  - This includes ecosystem services such as sediment sinks and habitats for biodiversity.
- **Resources:** Glacial ecosystems provide vital resources to a significant proportion of the global population. The benefits include freshwater for domestic use, agriculture, industry and hydropower, as well as climate regulation.

- **Global climate system:** They serve as a global thermostat regulating ocean circulation, and their white ice cover cools the atmosphere by reflecting sunlight (albedo effect).
- **Cultural importance:** Glaciers carry huge cultural and spiritual significance for many local communities. For example, Gangotri glacier is a celebrated pilgrimage in Uttarakhand.
- **Sentinels of climate change:** They are early indicators of climate change that will have a somewhat more delayed impact on other parts of the earth system.
- **Economic importance:** Provides economic importance through recreational and tourism associated with them.

Climate change is melting glaciers in every region of the world. Average global temperatures are expected to rise 1.4ºC -5.8ºC by the end of the 21st century. Projections state that, a 4ºC rise in temperature would eliminate nearly all of the world's glaciers.

Impact of melting of glaciers

- **Habitat loss:** While many species are likely to be affected by changes in stream flow and sea level associated with glacier melting, animals that dwell on or near glaciers may be pushed towards extinction. For example, tiny ice worm.
- **Contaminants:** Persistent organic pollutants (POPs) such as PCBs (Polychlorinated Biphenyls) are transported in the air from their source to cooler areas where they condense and are deposited in glacial ice. Rapid melting has begun to release them back into the environment.
    - For example, in some Canadian lakes, glacial meltwater is the source of 50-97% of the various POPs entering the lake.
- **Water shortage:** Seventy percent of the world's freshwater is frozen in glaciers acting as a buffer for freshwater supply. Consequently, melting of these glaciers will impact water security.
- **Flooding:** Rapid melting of glaciers can lead to flooding in rivers. Also, continued melting or calving of ice chunks into lakes can cause catastrophic glacial lake outburst floods. E.g., recent Glacial Lake Outbursts in the Himalayan Region.
- **Sea level rise:** Sea-level rise will affect coastal regions throughout the world, causing erosion and saltwater intrusion into aquifers and freshwater habitats.
    - For example, Coral reefs may get starved of energy from the sun when sea levels rise.
- **Economic impact:** Industries that thrive on vibrant fisheries will be affected as warmer waters change where and when fish spawn.
    - Also, coastal communities will continue to face billion-dollar disaster recovery bills as flooding becomes more frequent and storms become more intense.
- **Global climate pattern:** As this ice melts, darker patches of ocean start to emerge, eliminating the effect that previously cooled the poles, creating warmer air temperatures and in turn disrupting normal patterns of ocean circulation.

Steps taken by India to protect Glacial Ecosystem

- **National Mission for Sustaining the Himalayan Ecosystem:** Development and adoption of new methods for assessing the health of the Himalayan ecosystem including those of glaciers and creating a database of the same.
- Ministry of Earth Sciences (MoES) engages in glacial research through its **National Centre for Polar and Ocean Research (NCPOR)** glaciers in the western Himalayas.
    - It also maintains India's permanent stations in Antarctica, Maitri, and Bharati, and also the research base in the Arctic, Himadri.

Steps taken globally to protect Glaciers

- **Antarctic Treaty System:** This is to ensure in the interests of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord.
- **UNESCO's action to protect glaciers:** UNESCO has been proactively supporting international scientific research and monitoring initiatives such as the World Glacier Monitoring Services.

- **A state-of-the-art field research station 'Himansh'** established in the Chandra basin (Himachal Pradesh) and operational since 2016 for conducting field experiments and expeditions to glaciers.
- **National Institute of Hydrology (NIH):** NIH has been conducting several studies for the assessment of runoff from the melting of glaciers at catchment and basin scales across Himalayas.

Way Forward

- **Improve monitoring Network:** Glacier monitoring is in many ways the starting point to assess different downstream impacts and develop effective response measures.
  - Monitoring strategies need to be improved and different techniques such as **in-situ measurements, remote sensing, satellite data and modelling** must be combined to generate high-quality products.
  - Monitoring strategies need to be more **inclusive and proactively involve Indigenous Peoples and local communities.**
- **Integrated Approach:** Considering importance of glaciers for water security, approaches and strategies **for integrated water resources management** should be developed.
- **Awareness:** On-going efforts to raise awareness of the importance of glaciers in international fora should continue and be strengthened. For instance, the Intergovernmental Panel on Climate Change (IPCC) launched a special report on the ocean and cryosphere.
- **Stakeholder engagement and communication:** Stakeholders (including communities, civil society, private sector, governments, etc.) should adapt to the changes and prepare for hazards that come with glacial decline, like short-term flooding and glacial outbursts.
- **Early Warning System:** As a major element of an integrated risk management strategy, early warning system will be an essential tool for mitigating climate change-related risks. It prevents loss of life and reduces the economic and societal impacts.

5.8. NATIONAL BIOENERGY PROGRAMME

Why in news?

Recently, **Ministry of New and Renewable Energy (MNRE)** has notified that **National Bioenergy Programme (NBP) will continue from FY 2021-22 to 2025-26** with a budget outlay of ₹858 crore for the first phase.

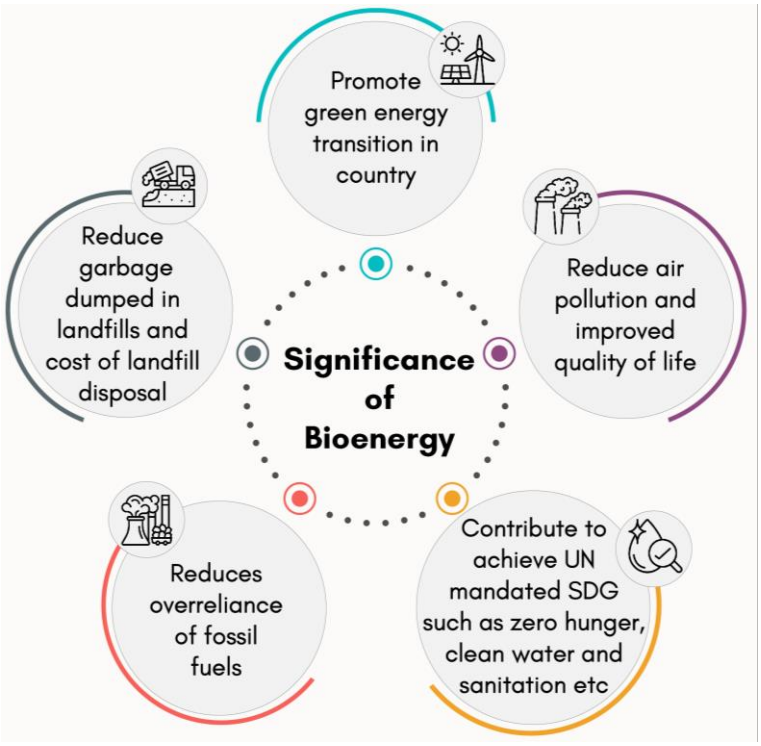
More on news

- Bioenergy refers to **electricity and gas that is generated from organic matter, known as biomass.**
- NBP will comprise the three sub-schemes namely **Waste to Energy Programme, Biomass Programme, and Biogas Programme**.
  - Biomass is **renewable organic material** that comes from **plants and animals**. Biomass is the **raw material to produce biogas.** Major component of biomass is **carbon.**
  - Biogas is a **renewable fuel produced by the breakdown of organic matter** such as food scraps and animal waste by microorganisms **in absence of oxygen**.
  - Biogas is composed mostly of **methane (CH4), and carbon dioxide (CO_2).**

Sub-scheme	Objective	Scope	Advantages
Waste to Energy Programme (Programme on Energy from Urban, Industrial and Agricultural Wastes /Residues)	• To support the setting up of Waste to Energy projects for generation of **Biogas/ Bio-CNG/ Power plants** (excluding municipal solid waste to power project)**/ producer or syngas** from urban, industrial and agricultural wastes/residues. • **Indian Renewable Energy Development Agency (IREDA)** will be the implementing agency. ○ IREDA, established in 1987, is a **Mini Ratna (Category-I) Enterprise under administrative control of MNRE**.	• Provides **Central Financial Assistance (CFA)** to **project developers and service charges to implementing/inspection agencies** in respect of successful commissioning of waste to energy plants.	• **Safe, technologically advanced means of waste disposal** that reduces greenhouse gases, generates clean energy and recycles metal.

Biomass Programme (Scheme to Support Manufacturing of Briquettes & Pellets and Promotion of Biomass (non-bagasse) based cogeneration in Industries)	• To support setting up of **Biomass Briquette/Pellet manufacturing plants** and to support Biomass (non-bagasse) based **cogeneration projects** in Industries. • **IREDA shall be the implementing agency.**	• Provides **CFA to project developers and service charges to implementing agency and inspection agencies** in respect of setting up of Briquette / Pellet manufacturing plants and Biomass (non-bagasse) cogeneration projects in industries.	• Reduce **stubble burning.** • Provide additional source of income to farmers and **better environmental practices and reduced pollution.**
Biogas Programme	• Setting up of biogas plants for small power needs of users. • Implemented by designated **Programme Implementing Agency (PIA) of State/ Union Territory/**Biogas Development and Training Centres (BDTC). • IREDA, NABARD/ RBI approved Financial Institutions may also implement it in consultation with PIAs.	• Covers setting up of **small and medium biogas plants ranging from 1M^3 (cubic meter) to 2500 M^3** biogas generation per day for individual user, farmers, poultry etc.	• **GHG reduction, improved sanitation**, Employment Creation, and digested slurry from biogas plants can supplement / reduce use of chemical fertilizers.

Issues associated with Bioenergy



- **Technological barriers**: Inconsistencies in the nature of bioenergy technologies and **uncertainties in technological performance** are a key concern for policymakers.
  - For example, in Gasification, variations in power delivered depend on quality of biomass. Ensuring either quality of biomass or governing the power delivered is still not robust.
- **Food vs. fuel**: Food crops such as corn, sugar, and vegetable oils, are most commonly used energy feedstock's, thus agricultural land may be diverted to production of bioenergy crops.
- **Quality Raw material**: High **moisture content in biomass causes biological degradation**, mold formation and losses in the organic contents during storage could reduce the yield of the fuel produced.
- **Biodiversity loss**: Areas considered to have good potential for dedicated bioenergy crops overlap with protected areas, thus negatively impacting the biodiversity.
- **Financial barriers**: High initial cost of gasifier, engine generator etc. act as a key barrier to the penetration of Bioenergy technology (BET) vis-à-vis conventional fossil fuel-based technologies.
- **Competition**: Energy pricing policies and subsidies in India favour **fossil fuel-based energy sources** (kerosene, LPG, petrol, diesel), thus there is **no level playing field for the new technologies** that compete with them.

Way Forward

- **Research and Development**: Rigorous R&D aimed at cost reduction, improved reliability and efficiency is important for the large-scale spread of BETs in India.
  - The costs of construction of biomass preparation unit, electricity distribution network need subsidisation.
- **Training and skilling**: Entrepreneurs and skilled personnel are required to build and maintain biomass power systems along with necessary skills to integrate the novel technologies into their functioning.

- **Revise tariff structures**: Feed-in-tariffs (FITs) have been a successful tool in the promotion of renewable energy-based power systems. Tariff models must be developed through interactions with the local, rural population, as done in Hosahalli in Karnataka and Sundarbans in West Bengal.
- **Algae-Based Technologies**: Research should **focus on cultivation and production of algae** as algal biofuels have relatively high yield and the lack of competition with food crops.
- **Market development**: There is need to **develop bioenergy applications market by creating special funds** for projects demonstrating new technologies and by promoting collaboration between industry and academia.
- **Environmental considerations**: Due consideration needs to be given to environmental management through instituting measures to ensure sustainable exploitation and development of bioenergy resources.

Initiatives taken by Government for Bioenergy

- **GOBAR (Galvanizing Organic Bio-Agro Resources) - DHAN scheme:** Launched as part of **Biodegradable Waste Management component under Swachh Bharat Mission (Grameen)** to impact village cleanliness and generate wealth and energy from cattle and organic waste.
  - Launched by then **Ministry of Drinking Water & Sanitation** in 2018 (Now under Ministry of Jal sakti).
- **SATAT (Sustainable Alternative Towards Affordable Transportation) scheme**: It aims to set up Compressed Bio-Gas production plants and make CBG available in market for use as a green fuel.
  - Launched under **Ministry of Petroleum & Natural Gas.**
- **REPLAN (REducing PLAstic from Nature) project**: Plastic waste is de-structured, degraded, diluted and used with paper pulp while making handmade paper and thus reduces plastic waste from nature.

5.9. E-WASTE (MANAGEMENT) RULES 2022

Why in the news?

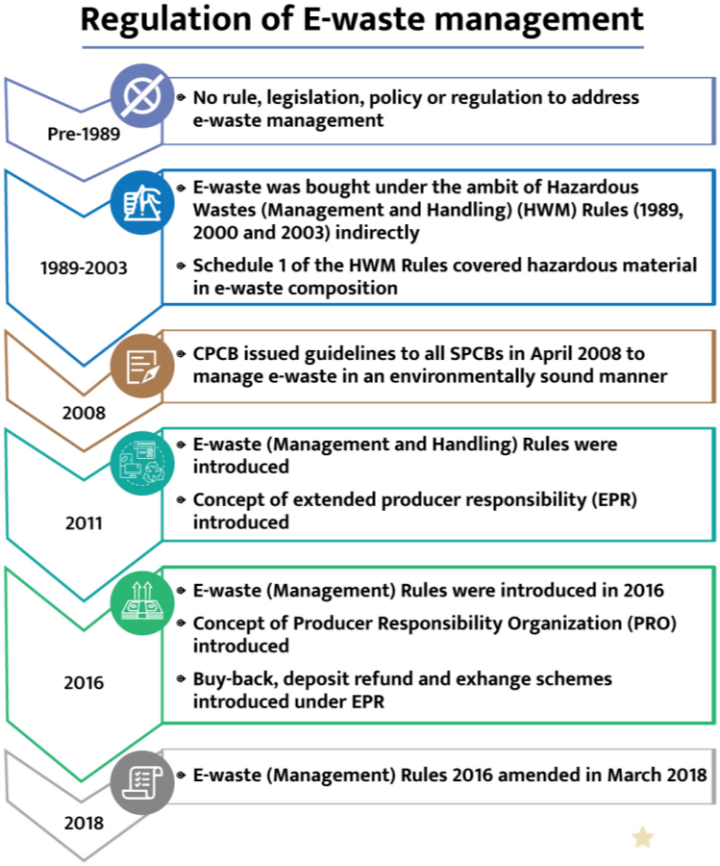
The Ministry of Environment, Forest and Climate Change (MoEF&CC) has notified E-waste (management) Rules 2022, in the exercise of the powers conferred by the Environment (Protection) Act, 1986.

Key Provisions mentioned in E-waste (management) Rules 2022

- **Definition:** 'E-waste' means electrical and electronic equipment, whole or in part discarded as waste, as well as rejects from manufacturing, refurbishment and repair processes.
- **Application:** These rules shall apply to every manufacturer, producer, refurbisher, dismantler, and recycler involved processing of e-waste with **certain exceptions** (refer infographic)**.**
- **Registration:** The manufacturer, producer, refurbisher, or recycler of the e-products need to compulsorily **register with Central Pollution Control Board (CPCB).**
- **Extended Producer Responsibility Certificates**: Rules aim to incentivize registered electronic waste recyclers by introducing **Extended Producer Responsibility (EPR) certificates (which were not part of 2016 Rules).**
  - **EPR** means responsibility of any producer of electrical or electronic equipment **for meeting recycling targets to ensure environmentally sound management of e-waste.**
- **Monitoring:** CPCB shall conduct random sampling of electrical and electronic equipment placed on the market to monitor and verify the compliance of reduction of hazardous substances provisions.

Entities not covered in E-waste (management) Rules 2022

Entity	Covered in
Waste batteries	Battery Waste Management Rules, 2022
Packaging plastics	Plastic Waste Management Rules, 2016
Micro enterprises	MSME Development Act, 2006
Radioactive waste	Atomic Energy Act, 1962



- **Environmental Compensation:** CPCB shall also lay down guidelines for the imposition and collection of environmental compensation on the producer in case of non-fulfilment of obligations.
- **Responsibilities:**

Manufacturers	• Make the **end product recyclable.** • **Component** made by different manufacturers should be **compatible with each other.**
Producers	• **Obtaining and implementing extended producer responsibility targets** (**at least 60% of their electronic waste** is collected and **recycled by 2023** with increasing them to 70 and 80 percent in 2024 and 2025, respectively). • **Creating awareness.**
Recycler	• Ensuring that the recycling **processes and facilities are in accordance with the regulatory standards.** • **Maintain a record** of e-waste collected.
State government	• They have to **earmark space for e-waste dismantling and recycling** in the existing and upcoming industrial parks, estates, and industrial clusters. • **Undertaking industrial skill development** and establishing measures for protecting the health and safety of workers engaged in the dismantling and recycling facilities for e-waste.

Status of E-waste generation in India

- India has emerged as **3rd largest Electronic waste producer** in the world after China and United States.
  - India produces **about 4 mMT (million Metric Tonnes)** of e-waste. This is expected to increase 40-fold by 2050.
- **Computer devices** accounts for nearly 70% of annual e-waste production, followed by telecom sector, medical equipment and electric equipment.
- **Only 1.5% of electronic waste generated** in India is recycled through **institutional processes.**
  - Uttar Pradesh, Uttarakhand, Tamil Nadu, and Haryana are among the States that have a bigger capacity to dismantle and recycle e-waste.

Global status of E-waste

- According to the UN, in 2021 each person on the **planet produces on average 7.6 kg of e-waste**.
- **Only 17.4%** of this electronic waste, containing a mixture of harmful substances and precious materials, is recorded as being **properly collected, treated, and recycled.**
- The United Nations Environment Programme (UNEP) also estimated in a 2015 report that **60-90 percent of the world's electronic waste is illegally traded or dumped each year.**

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**: E-waste contains over 1,000 toxic materials, which contaminate soil and groundwater. Exposure can cause headaches, irritability, nausea, vomiting, and eye pain. Recyclers may suffer from liver, kidney, and neurological disorders.
- **Inadequate norms:** The nodal body on excise and customs lacks the protocol, resources, and expertise to differentiate between e-waste and second hands goods.
- **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.

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.
- **Strict vigilance of the 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.
- **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.
- **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.
  - The **Harmonized System** is a standardized numerical method of classifying traded products. It is used by customs authorities around the world to identify products when assessing duties and taxes.
- **Inventory Management:** By reducing both the extent of hazardous materials used in the progression and the amount of surplus raw materials in stock, the magnitude of waste generated can be reduced.

5.9.1. RIGHT TO REPAIR

Why in news?

Government is planning to set up a **unified national portal for multi-brand gadget repair**.

More on news

- The single-point portal will roll out the Ministry of Consumer Affair (MoCA) 'Right to Repair (RTR)' policy.
- MoCA has written to leading consumer electronics firms such as Samsung, Phillips etc., to **provide brand manuals, repair charges, service centres and overhaul costs**, which will be accessible on the unified portal.
- Decision to set up portal is in line with **LiFE (Lifestyle for Environment) movement**.
  - Earlier, Department of Consumer Affairs (DCA) set up **committee on RTR to emphasize on LiFE movement** through sustainable consumption.

LiFE (Lifestyle for Environment) movement

- Idea of LiFE was introduced by Prime Minister during 26th UN Climate Change Conference of the Parties (COP26), 2021 at Glasgow.
- Its vision is to **live a lifestyle that is in tune with our planet and does not harm it**. People living such a lifestyle are called "Pro-Planet People (P3)".
- Mission seeks to create an ecosystem that will reinforce and enable environmentally friendly behaviours to be self-sustainable.

What is Right to Repair?

- It refers to a framework that **requires manufacturers to disclose product details to customers** so that they can repair devices by themselves or through third parties rather than relying on the original producers.
  - It aims to **cut down restrictive practices** introduced by some manufacturers.
  - Key sectors identified for RTR framework include **Farming Equipment, Mobile Phones/ Tablets, Consumer Durables** and Automobiles & Automobile Equipment.
- While there is **no specific law on RTR in India**, Competition Commission of India (CCI) in **Shamsher Kataria v. Honda Siel Cars India Ltd. case, 2014** determined that **exclusive access to spare parts only to authorised repairers** of vehicle manufacturers amounted to an **anti-competitive practice**.
  - Thus, CCI mandated that **manufacturers need to make spares available to all the repairers** to promote healthy market competition.

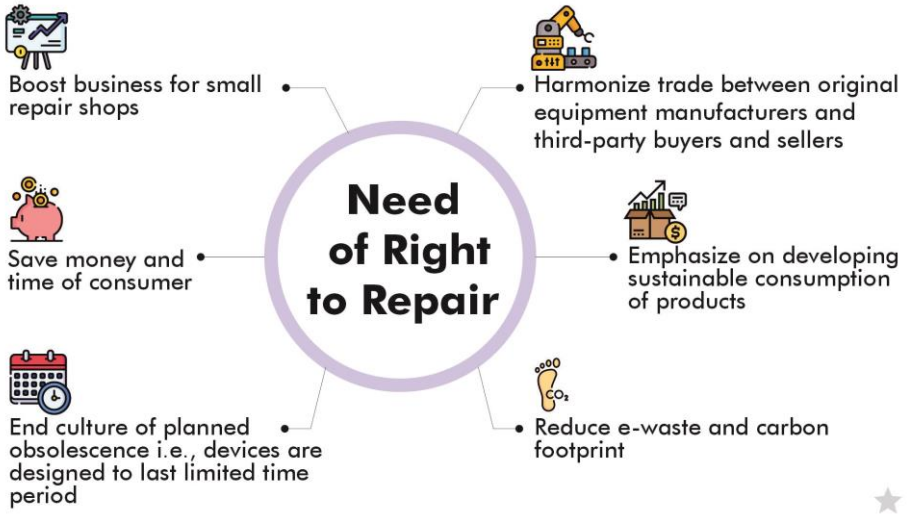
RTR movement in other countries

- **USA:** RTR found its **first legislative recognition in USA**. Massachusetts in **USA enacted RoR Act, 2012** requiring manufacturers to provide the necessary documents and information to allow anyone to repair their vehicles.
- **European Union:** EU requires manufacturers to **supply parts of products to professional repairmen for a period of 10 years**.
- **UK:** All electronic appliance manufacturers provide consumers with spare parts for getting repair done either by themselves or by local repair shops.
- **Australia:** Australia has **repair cafes** that are free meeting places where volunteer repairmen gather to share their repairing skills.

What are the concerns associated with Right to Repair?

- **Violating IPR**: To ease repair, tech companies like Apple, Microsoft etc. need to share product details, schematics etc. and give **access to third party repair services**, thus **violating their intellectual property rights (IPR).**

- **Innovation:** Repairing gadgets rather than upgrading them will act as a **hindrance to innovation** and hamper investment in new cutting-edge technology.
- **Privacy:** Opening of intellectual property to third party repair services could impact the safety and security of consumers devices.
    - Tesla, for instance, has fought against right to repair advocacy, stating that such initiatives threaten data security and cyber security.



- **Shrinking Technology**: Modern tech products often require special tools that are not readily available to everyone and can even require licensing to use.
    - **For example,** Apple using proprietary pentalobe screws in iPhones so that repair shops cannot pry the devices open; they need to be Apple-certified to receive the specialized tools.
- **Efficiency:** To make products more repairable, one would have to reduce their efficiency by accommodating modulation and reparability. Manufacturers cannot afford that in an environment where products are constantly compared to others.

Way ahead

- **Regulations**: It is important to learn from good regulations and practises in other countries, such as the prevalence of repair cafés in Australia.
- **Bring legislation**: Well-drafted legislation will help the country achieve a **balance between intellectual property and competitive rules**. Also, companies would be **compelled to manufacture long-lasting gadgets.**
- **Servicing tools:** Parts and tools to service devices, including diagnostic tools should be made available to third parties, including individuals so that the product can be repaired in case of minor glitches.
- **Transparency:** Tech companies should **provide complete product knowledge**, **access to manuals**, schematics, and software updates to ease repairing.
- **Expert committee:** Committee engaging various stakeholders like ICEA (India Cellular and Electronics Association), consumer activists and manufacturers should be formulated to address issues in implementation of RTR.

5.10. GREAT NICOBAR MEGA DEVELOPMENT PROJECT

Why in news?

Ministry of Environment, Forests and Climate Change (MoEFCC) has granted **environmental clearance for diversion of 130.75 sq. km of forest in Great Nicobar Island** (GNI) for mega ₹72,000-crore multi-development projects.

More in news

- Key condition for the environmental clearance is the submission of a **detailed scheme for compensatory afforestation,** which is to be **done on non-notified forest land**.

About the Mega multi development project

- NITI Aayog has come up with a plan for the **Holistic Development of Great Nicobar Island**.
    - Project implementation agency is the **Andaman and Nicobar Islands Integrated Development Corporation (ANIIDCO).**

Great Nicobar Island (GNI)

- It is **India's southernmost point** and strategically important area.
- It extends from **north of Campbell Bay to Indira Point** and further up to **Pemayya Bay area in south**.
- It is occupied by **Shompen and Nicobarese tribes**.
- Project area falls near **two national parks – Galathea Bay National Park and Campbell Bay National Park**.
- It is home to a **UNESCO World Heritage Site i.e. Great Nicobar Biosphere Reserve.**
- It covers **tropical evergreen forest ecosystems**.

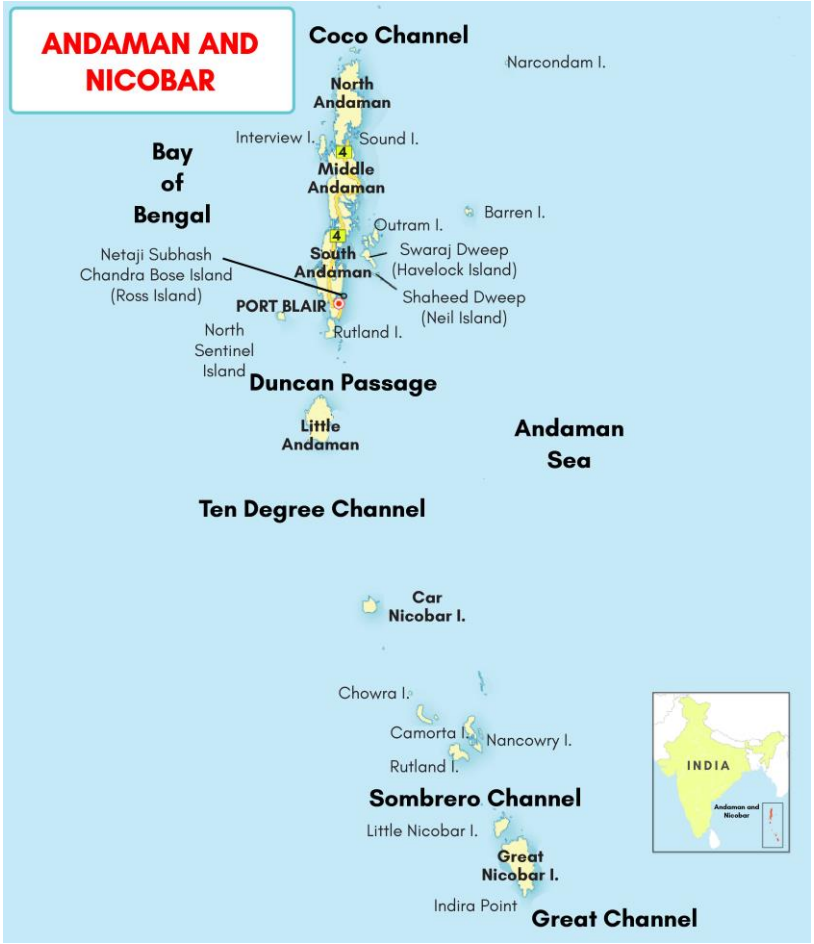
- Mega project includes **international container trans-shipment terminal (ICTT)**, a **military-civil dual use airport**, a **solar power plant** and an **integrated township**.

Significance of project

- **Strategic Importance:** Great **Nicobar is equidistant from Colombo to the southwest and Port Klang and Singapore to the southeast, and positioned close to the East-West international shipping corridor**, through which a very large part of the world's shipping trade passes.
  - It will Strengthen India's presence in the Andaman Sea and the Southeast Asian region.
- **Security:** The island provides a natural base for India to tackle major challenges in the Indian Ocean region like piracy, smuggling, and intrusions by Chinese ships.
  - China has occasionally grown its footprints through fishing vessels; these vessels have at times entered India's EEZ without prior notice.
- **Trade Hub:** Create an economic hub in the Andaman & Nicobar Islands that functions simultaneously as a major cargo trans-shipment centre and a global tourism destination.
- **Promote tourism:** The proposed project will support the tourism sector, which will attract international and national tourists to Great Nicobar to experience the outstanding natural environment and participate in sustainable tourism activities.
- **Employment:** Creating employment opportunities for its citizens and improving quality of life for current and future residents of Great Nicobar Island.

Compensatory Afforestation

- The Forest (Conservation) Act, 1980 provide that under compensatory afforestation, **when forest land is diverted for non-forest use like mining or infrastructure, the project proponents are required to**
  - provide funds to the state forest department to do afforestation in a non-forest land of equal size or
  - improve a degraded forest land of double the size of the diverted land.
- The government enacted **Compensatory Afforestation Fund Act 2016** to provide a proper institutional mechanism for compensatory afforestation matters.
  - To streamline the management of the funds, **Compensatory Afforestation Fund Management and Planning Authority (CAMPA)** has been set up at the state level to monitor, assist and evaluate compensatory afforestation activities in the respective states.
  - The state-level CAMPAs are monitored by a National CAMPA Advisory Council.



Concerns associated with the Nicobar Project

- **Infrastructure**: 8.5 lakh trees will have to be cut in Great Nicobar for development of infrastructure in an ecologically important and fragile region.
- **Tribals**: Due to massive infrastructure development on the island, there is persistent threat of livelihood, culture, health etc., to **indigeneous tribes on islands which include Shompen and Nicobarese tribes**.
- **Coral reefs and mangrove**: Loss of tree cover will lead to **increased runoff and sediment deposits in the ocean**, impacting the coral reefs in the area and loss of 12 to 20 hectares of mangrove cover.
  - Around 10 hectares of coral cover will have to be translocated.
- **Threat to fauna**: Due to massive deforestation Leatherback Sea turtles, Nicobar megapode, Nicobar Macaque, and saltwater crocodiles are the rare fauna that will be affected.

Conclusion

Successful development of GNI requires a sensitive and holistic approach as the island is home to a dwindling number of indigenous people whose traditional culture is considered an international resource.

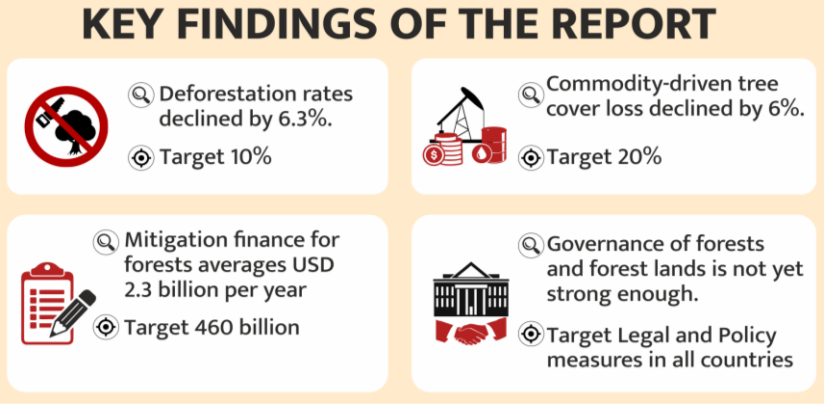
Steps taken by Government to address concerns

- **Coral reef:** India has successfully **translocated a coral reef from Gulf of Mannar to Gulf of Kutch** earlier.
  - Zoological Survey of India (ZSI) is currently in the process of assessing how much of the reef will have to be relocated for the project.
- **Plan for turtle**: A conservation plan for the **leatherback turtle** is also being put in place.
- **Green cover**: Project site is **outside the eco-sensitive zones** of **Campbell Bay and Galathea National Park**.
  - Development area is a small percentage of the area of the island and its forest cover, and that **15 percent of the development area** itself will be **green cover and open spaces.**

5.11. GLOBAL FOREST DECLARATION ASSESSMENT REPORT (2022)

Why in news?

Recently, the Global Forest Declaration assessment was published**.** The report assesses progress towards halting deforestation and restoring 350 million hectares of degraded land by 2030.



About Global Forest Declaration Assessment

- It is an **independent, civil society-led initiative.**
- These goals are set through international manifestos. These include **the New York Declaration on Forests (2014) and the Glasgow Leaders Declaration on Forests and Land Use (2021).**
- The Report divides the assessment in **4 major themes.**

Themes of the assessment: Finding and corresponding recommendations

Themes	Findings	Recommendations
Overarching forest Goals i.e., Ending the loss and degradation of natural forests by 2030.	• **Deforestation rates** have only declined by 6.3%. • **Land use change, including deforestation and degradation**, accounts for 10-12 percent of global GHG emissions.	• A **10% annual reduction** in deforestation rates is needed. • Highest priority efforts should be directed **towards safeguarding primary forests from losses.**
Sustainable Production and development	• We are not on track to achieve the private sector goal to **eliminate deforestation from agricultural supply chains by 2025.** • There is **limited transparency** on **how policymakers integrate forest goals into their decision-making**. • **Corporate action** remains limited for this sector.	• Governments, companies, and civil society **must collaborate to accelerate forest action, supported by transparency and accountability.** • **Stronger mandates for forest protection and sustainable management.** • Development interventions such as **community forestry, payments for environmental services schemes, and extension services for farmers**. • **Environmental and social impact assessments** should be required to be conducted early in the mining life cycle
Forest Governance including legal, policy, and institutional frameworks	• **Governance of forests and forest lands is not yet strong enough** to curb deforestation and degradation. • **More inclusive approaches to policy development, implementation, and enforcement** have been adopted.	**Governments must take urgent steps to strengthen forest governance, including**: • **Halt and reverse the weakening of legal frameworks** and institutional capacities. • **Implement inclusive processes for forest governance**, including embedding the participation and inclusion of forest-dependent

	• **Law enforcement has also improved in a few tropical forest countries**.	communities in forest decision-making into the legal frameworks. • **Strengthen land-use planning**, including evidence-based spatial planning analyses and processes.
Finance for forest	• Achieving international forest goals requires **substantial public and private investments**. • Currently, domestic and international mitigation finance for forests averages USD 2.3 billion per **year less than 1 percent of the necessary total.** • The contribution of **carbon market finance** is still minor compared to other green finance sources.	• Incorporate forest risks and impacts **into public budgeting frameworks**. • Move from **voluntary to mandatory disclosure of forest-related risks and progress** against pledges to increase transparency and allow investors to reconsider their capital allocation decisions. • Developed countries should fulfil their **target of climate financing**.

Other recommendations on Finance for Forests: UNEP

- **Increasing incentives:** A boldly increased forest carbon floor price of USD30-50 and a sufficient volume of payments would be able to unlock supply and leverage demand.
- **Encouraging investment:** Accelerated upfront finance for REDD+ readiness and implementation.
- **Maintaining integrity:** High integrity with robust quantification mechanisms to deal with leakage and reversals, and strong adherence to safeguards, among others, is key for ensuring real emissions reductions.
- **Ensuring equity:** Effective and equitable participation and benefits sharing, with indigenous peoples, local communities, and women as partners and not just beneficiaries must be the foundation of forest actions and finance.

Conclusion

Achieving the 2030 target will require a drastic reduction in the conversion and degradation of all natural ecosystems and a very large increase in restoration and reforestation activities. Also, the measures must be pursued through equitable and inclusive measures.

5.12. URBAN AGRICULTURE

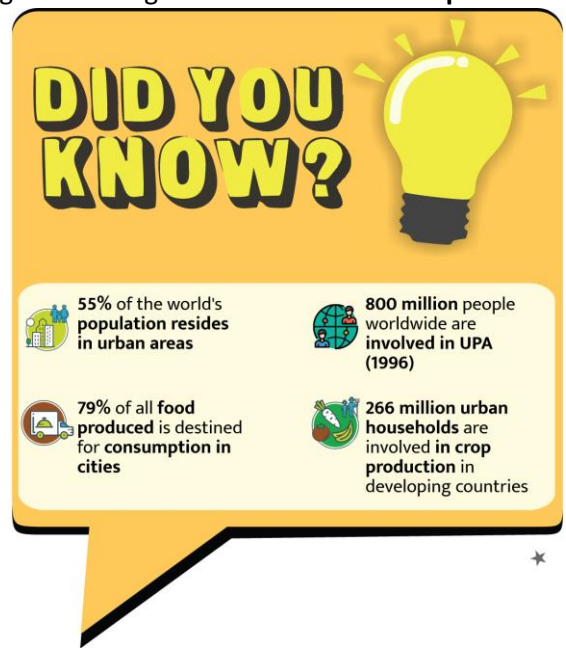
Why in news?

Many cities of India such as Mumbai, Delhi, Chennai, Bengaluru and Kolkata have adopted **urban agriculture**.

About Urban agriculture (UA)

- It refers to agricultural practices in **urban and peri-urban areas.** Peri-urban areas are those:
  - **Transitioning from rural land uses** (such as for agriculture or livestock production) to urban ones (such as the **built environment, manufacturing, services** etc.), and
  - Are located between **outer limits** of urban and regional centres and **rural environment.**

- Urban agricultural practices are geared towards cultivating or growing a wide range of **food and non-food products.**
  - It includes activities such as **rearing livestock, aquaculture, beekeeping, and commercial-scale floriculture.**
- In recent years, urban and peri-urban areas worldwide are estimated to have produced **between 5 percent to 10 percent of legumes, vegetables, and tubers, and 15 percent to 20 percent of all food.**
- **Food and Agricultural Organization (FAO)'s Urban Food Agenda** aims to enhance sustainable development, **food security and nutrition** in urban and peri-urban areas, and nearby rural spaces.



Significance of Urban agriculture

- **Food and nutritional security**: Estimates suggest that **222 million urban residents** could be served by cultivation in **about 5 percent of all urban areas** in India.
- **Building resilience of a city's food supply:** Food supply chain is influenced by many factors like changes in **price of crude oil** or policies **governing import and export** of agricultural commodities.
  - "Report on state of food security in urban India" by **M. S. Swaminathan research foundation** found that **UA** can provide **fresh produce to city dwellers** by **reducing time and distance from farm to fork** and build a resilient food supply chain**.**
- **Environmental management**: UA can **combat urban heat island effects**.
  - They can help in **reducing carbon emission** in urban areas by **cutting down need of fossil fuel consumption** in transportation, packaging and selling food.
- **Waste management:** O**rganic waste** can be **composted and used** in food production that can reduce **total quantum of waste**, thereby, reducing **requirement of landfills.**
- **Others:**
  - Being labour intensive, it will also provide jobs and can **become a source of income** and thus contribute to **poverty alleviation.**
  - Enables **efficient and productive** use of unused and underutilized lands.

Main Verte' (Green Thumb) programme of Paris

- In response to growth of **spontaneous collective gardens on vacant urban lots**, Paris government granted **legal status to the gardens** via the '*Main Verte'* (green thumb) programme.
- It allows community to use such lands for urban agriculture activities **until the lots are reclaimed** for development.

Constraints faced by UA

- **Limited and exclusive practice:** Due to **high rents, limited accessibility** to land, and high input costs, farming on private land remains an **exclusive practice.**
- **High water demand:** Urban farmers are using water from **potable municipal water supplies**, which can lead to **water shortages** in the cities.
- **Widely unrecognised nature of UA**: UA is largely **invisible from government policies** for urban areas. There is **no support system** for farming activities in urban areas.
  - For instance, farming on Yamuna floodplain was traditionally **regarded as a nuisance** and **remained unrecognised** for long time**.**
- **Others**
  - it is **prone to sun and radiant heat problems** as practiced in areas where there is concrete, pavement and large structures.
  - Usage of pesticides and harmful chemicals can lead to presence of **heavy metals and other toxic chemicals in water soil and air.**
  - Concerns regarding **food produces being theft and destroyed** by the people, street dogs, etc.

Measures that can be taken to promote Urban Agriculture in India

Type of Measures	Details
Legal	• Incorporate **urban agriculture in city plans** and identify areas where farming can be practised. • **Increase tax** on vacant plots, houses and apartments to **optimize land use** in cities. • **Provide tax incentives** for housing societies to undertake urban agriculture activities. • Enact laws that would help **landless women obtain credit and access to land** for farming activities. • Include urban agriculture as part of **poverty alleviation programmes.**
Institutional	• **Lease land** along railway lines, under power lines, premises of government buildings and other vacant government land **for farming.** • Set up procedures to **connect land owners to potential farmers** and to rent/lease land. • Introduce concepts like **'share your backyard and 'Rent a field'.** • **Make available treated water** from sewage treatment plants for farming.
Policy	• **Encourage participation by private sector** through Public Private Participation projects which is supported under the **Rashtriya Krishi Vikas Yojana.** • Increase **cultivation of exotic fruits** for which there is a growing market and are presently being imported. • Encourage **setting up of protected farms and precision farms** including vertical farms. • Establish a **favourable climate** for the setting up of agribusiness companies.
Technology	• Set **up decentralized sewage treatment plants**, wherever economically viable, and make available the treated water for farming • Provide **facilities for technicians** to visit the premises to solve any problem faced in farming. • Urban Local Bodies can provide **technology extension services** through soil and water **testing laboratories.** • **Provide training** in farming and related activities.

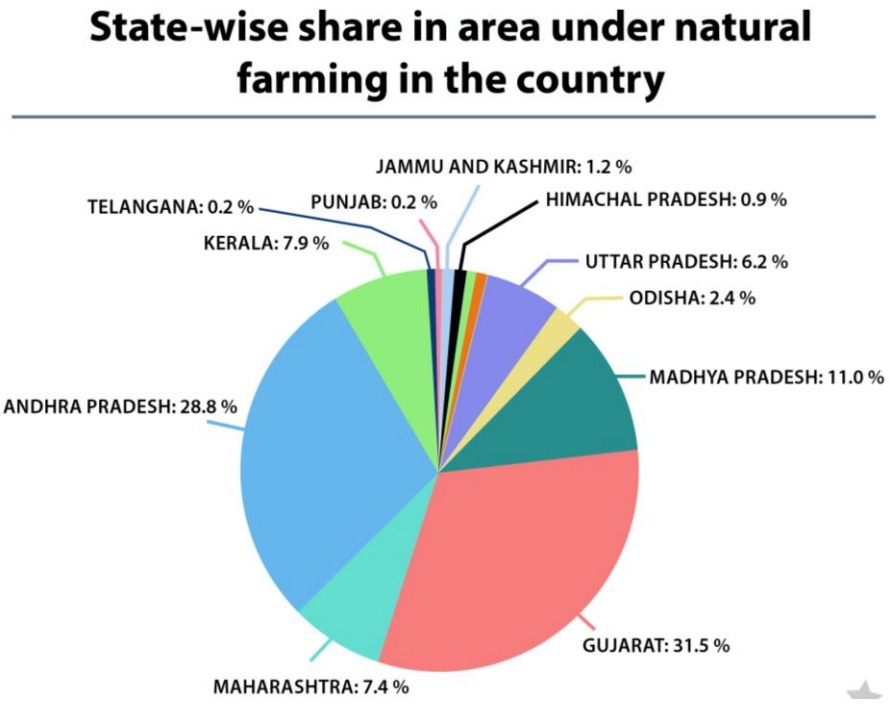
5.13. NATIONAL MISSION ON NATURAL FARMING

Why in news?

Recently, the Government launched a portal on National Mission on Natural Farming (NMNF) for the benefit of the farming community.

More about news

- **The portal has been developed by the Union Ministry of Agriculture and Farmers Welfare.**
- It **contains all the information** about the mission, implementation outline, resources, implementation progress, farmer registration, which will help in **promoting natural farming** in the country.
- Presently, **more than 10 lakh ha. area** is covered under natural farming in India.



About Natural farming

- It is an **ecological farming approach** where farming system works with the natural biodiversity, encouraging the soil's biological activity and managing the complexity of living organisms to thrive along with food production system.
- It is **chemical- free farming and livestock based**.
- It aims at **promoting traditional indigenous practices** which is largely based on **on-farm biomass recycling**.
- Internationally, it is considered a **form of regenerative agriculture which is a prominent strategy to save the planet**.

About National Mission on Natural Farming

- In India, Natural farming is promoted as **Bharatiya Prakritik Krishi Paddhati Programme (BPKP)** under centrally sponsored scheme- Paramparagat Krishi Vikas Yojana (PKVY).
    - **Bharatiya Prakritik Krishi Paddhati (BPKP)** is a sub-mission under the Paramparagat Krishi Vikas Yojana (PKVY), which falls within the umbrella of the National Mission on Sustainable Agriculture (NMSA).
- BPKP is being up-scaled as **'National Mission on Natural Farming (NMNF)/ (Bhartiya Prakratik Krishi Paddhati)'** for implementation all across the country.
- The scheme has a total **outlay of Rs 4645.69 crore** for the period of six years **(2019-20 to 2024-25)**.
- It will be a demand driven programme and states shall prepare a long-term perspective plan with year-wise targets and goals.
- **National Institute of Agricultural Extension Management (MANAGE)** as knowledge partner for natural farming extension.
- **National Centre of Organic and Natural Farming (NCONF)** shall work towards development of certification programme for Natural Farming, establish secretariat for certification management, portal development, management, maintenance and integration with other portals.

- **Objectives of the mission**
    - To promote alternative system of farming for **freedom from external purchased inputs, cost reduction and thereby increasing income of farmers**
    - To **popularize integrated agriculture-animal husbandry models** based on desi cow and local resources.
    - To **collect, validate and document Natural Farming practices** being practiced in various parts of the country and to encourage participatory research with farmers on further up scaling
    - To **undertake activities for awareness creation**, capacity building, promotion and demonstration of Natural Farming.
    - To **create standards, certification procedure and branding for Natural Farming products** for national and international markets.

Challenges

- **High Input Costs:** Organic inputs are more expensive than industrially produced chemical fertilizers and pesticides.
- **High Price of Organic Produce:** Organic produce prices in India are higher than conventional. This has a profound impact on the organic produce market in India which has consequential effects on **costly organic farming methods, limited production, supply chain irregularities, storage, preservation, and market competition**.

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**
  - 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$
- **Natural farming**
  - 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

- **Shortage of Organic Seeds:** Due to a lack of certified organic seeds, farmers use conventional seeds, as they could be treated with chemicals.
- **Convincing the farmer:** Most farmers cannot afford the cost of organic farming and continue to rely on chemical fertilizers.
- **Not enough expertise and knowledge:** Officials responsible for ground-level implementation lack expertise in organic/natural farming.
- **Budgetary allocation:** Minuscule budgetary allocations to promote organic compared to subsidies to chemical fertilizers (Rs 70,000-80,000 crore per annum).
- **Inadequate infrastructure**: State governments are yet to formulate a credible mechanism and necessary policies for implementation. Presence of very few organic certification agencies in each state.

Other initiatives taken by Government for Natural Farming

- **Paramparagat Krishi Vikas Yojana (PKVY)**
  - 30,934 clusters have been formed since 2015-16
- **Namami Gange Project**
  - **Villages along the river Ganga in Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal are being developed for Organic farming**
  - The Ministry of Jal Shakti has **identified 75 Sahakar Ganga villages** in the first phase by signing an MoU with Sahkar Bharti and training has been given to the farmers.
  - A target has been set to work in every block and master training has been done.
- **Large Area Certification (LAC)**
  - Large contiguous areas under traditional organic farming systems with no synthetic input / chemical input use history are **declared certified Organic under LAC**
  - It has been recognized in Car Nicobar - 14,445 ha, Lakshadweep – 2,700 ha area, Ladakh – 5000 ha area.

Way forward

- **Promotion of organic and biofertilizers:** Measures to adequately produce and make available quality organic fertilizers and biofertilizers at low cost should be the priority.
- **Organic certification**: Organic certification process should be improved to make it farmer-friendly and low cost.
- **Build rigorous scientific data** on the benefits of organic and natural farming.
- **Input cost:** The cost control with government support and a proper supply chain mechanism will attract more farmers to shift to Organic farming.
- **Enhance budgetary allocation**: A targeted, ambitious and well-funded nation-wide programme to drive the transformation towards organic and natural farming.
- **Awareness**: An **integrated and community-based approach** is necessary which can be similar to **'Swachh Bharat' for 'Swachh Food'**.

5.14. INTERNATIONAL YEAR OF MILLETS (IYM) 2023

Why in news?

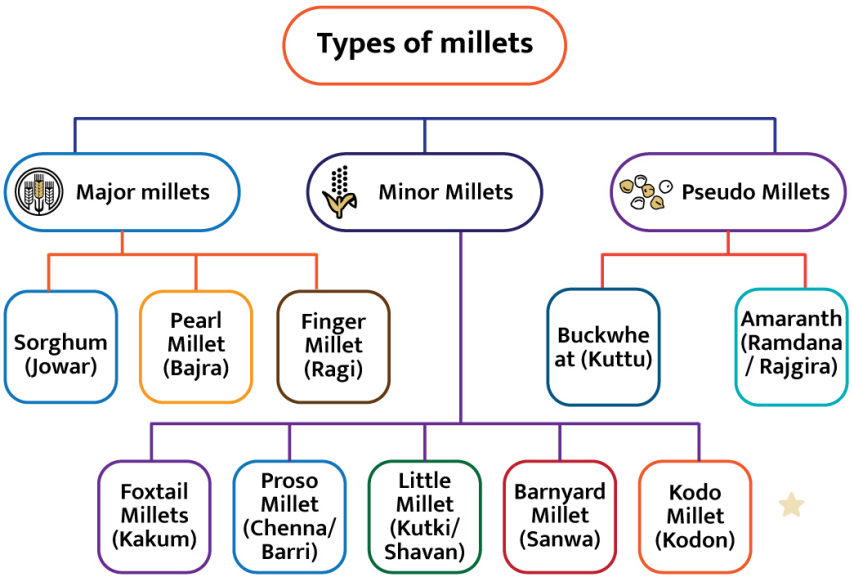
Recently, The Food and Agriculture Organization (FAO) of the United Nations, organized an opening ceremony for the International Year of Millets – 2023 (IYM2023) in Rome, Italy.

About millets

- Millets are a diverse family of **small-grained cereals** (Poaceae family)**, indigenous to various parts of India**.
- They are popularly known as **Nutri-cereals** as they provide most of the nutrients required for normal functioning of the human body.
- They contain **7-12% protein, 2-5% fat, 65-75% carbohydrates and 15-20% dietary fibre.**
- **Before the Green Revolution**, millets were **one of the largest grown staples in India**, cultivated on 37 million hectares of land.
    - Now, down **to 14 million hectares,** millets have been reduced to a **marginal fodder crop to feed livestock.**
    - With an annual production of approximately **16 million tonnes.** India produces **20% of the globe's production** that is led by Africa and the Americas.
    - India exports millets products worth of **USD 34.32 million during 2021-22.**
- The top five millet-producing states in India are Madhya Pradesh, Gujarat, Karnataka, Rajasthan, and Maharashtra.

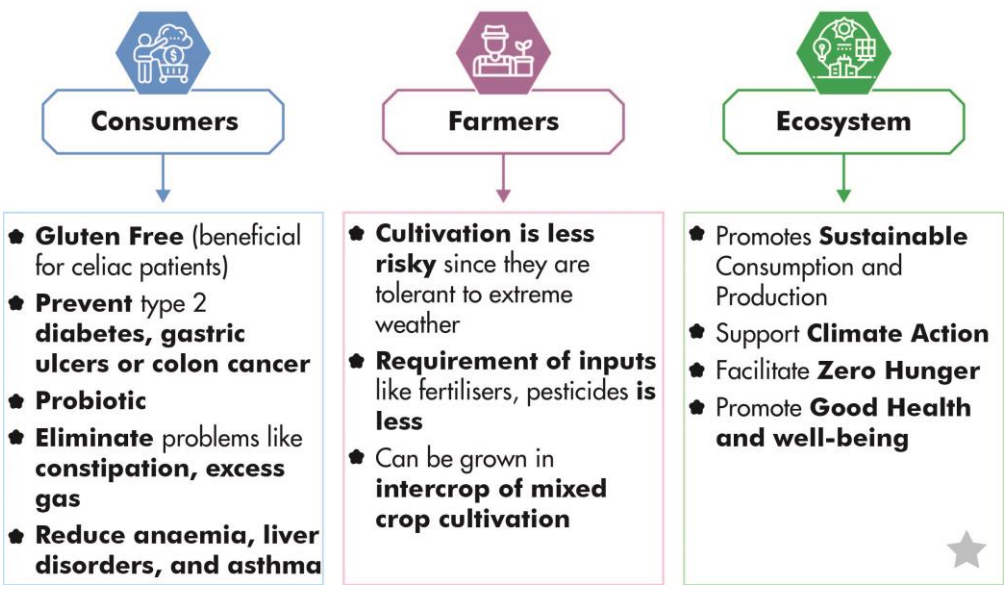
About International Year of Millets (IYM) 2023

- The **United Nations 2021** has adopted **India's proposal** to declare 2023 as the IYM.
- The IYM 2023 will **raise awareness** about the **importance of millets in food security and nutrition.**
- The IYM 2023 will provide an **opportunity to:**
    - **increase** global **production,**
    - **efficient processing** and better use of crop rotation,
    - **promote millets as a major component** of the food basket,
    - promote research and development on millet.



Challenges in adoption of millet

- **Demand side constraints**
    - **Lack of public awareness** about nutritional benefit of millets has led to limited adoption of millet-based products.
    - **Preference for wheat**, it might either be the farmers or consumers, they always tend to attract towards wheat cultivation.
    - **Increased demand for ultra-processed and ready-to-eat foods** which are high in sodium content, sugar, trans-fats, and even carcinogens



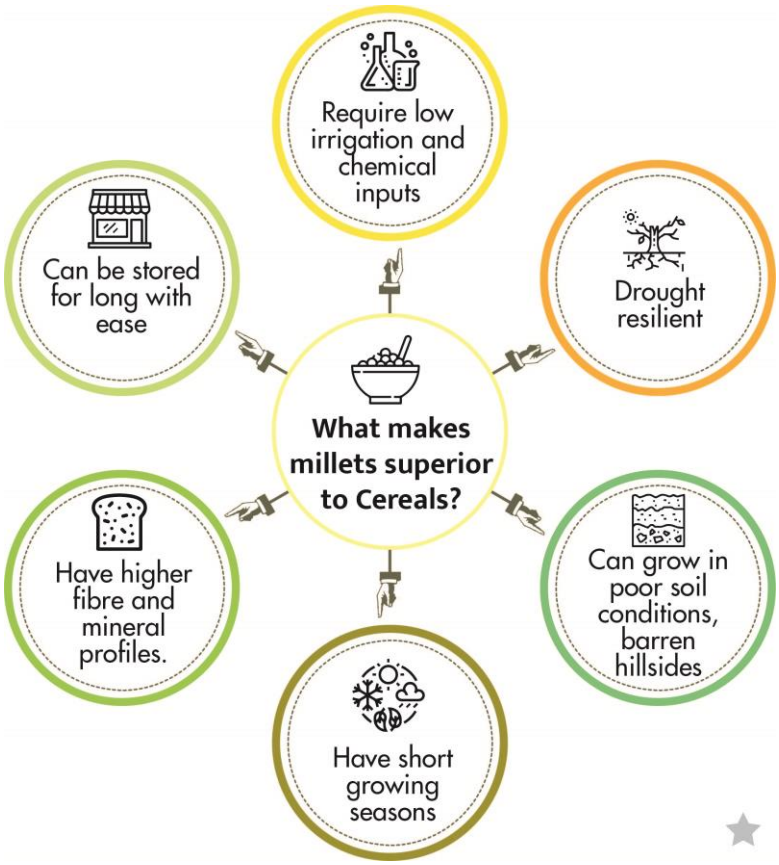
- **Supply side constraints**
  - Millet supply chain suffers from **inconsistent supply and demand** that prevents its commercial viability.
  - Limited distribution and lack of market knowledge has led to **sub-optimal reach, lower price realization and wastage.**
  - Millet-based **snacks are not yet a strong substitute** for cheaper and seemingly tastier alternatives.

Initiatives taken to promote adoption of millet

- **National year of millets** was observed in 2018 and since then millets were given the name nutri-cereals due to their nutritional value and the anti-diabetic properties
- **Increase in Minimum Support Price (MSP)** to support millet cultivators.
- Supply of **seeds and** inputs to farmers through farmer producer organizations (FPO'S).
- The **2022-23 Union Budget** provided support for **post-harvest value** addition, enhancing domestic consumption and branding of millets, etc.
- **Saksham Anganwadi and Poshan 2.0** mandates supply of millets at least once a week in midday meal scheme.
- **National Food Security Mission provides incentives to millet cultivators for:**
  - Quality seed production/distribution
  - Field-level demonstrations and trainings
  - Primary processing clusters
  - Research support
- **Indian missions abroad** tasked with branding and publicising Indian millets.

Way ahead to enhance the millet adoption

- **Enhancing demand:** To increase the demand make a stronger case for their nutritional benefits to consumers worried about immunity and health especially in the post pandemic world.
- **Improve processing:** Develop and fabricate machinery to improve the dehulling of millets without causing a loss of the nutritional content (the outer seed coat is inedible).
- **Input availability:** Create diverse seed banks to ensure the availability of planting material.
- **Enhance bargaining power of producer:** The millet producers' bargaining power, in both the domestic and global markets, could be enhanced by:
  - linking small and marginal millet farmers Electronic Agricultural National Market (e-NAM)
  - Setting up of farmer producer organisations (FPOs)
- **Maintaining diversity:** The point of promoting a transition to millets is that their diversity matters as much as their sustainability.
  - Different varieties of millets, suited to different agro-ecological zones, should be promoted. Therefore, introducing a MSP for different varieties is imperative.



Conclusion

Promoting millet cultivation at scale can not only help secure livelihood of farmers in the face of climate change, but might go a long way in saving their lives. A comprehensive policy response that incentivises farmers, builds strong market linkages, and encourages biodiversity is urgently needed.

5.15. CITES (CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA)

Why in news?

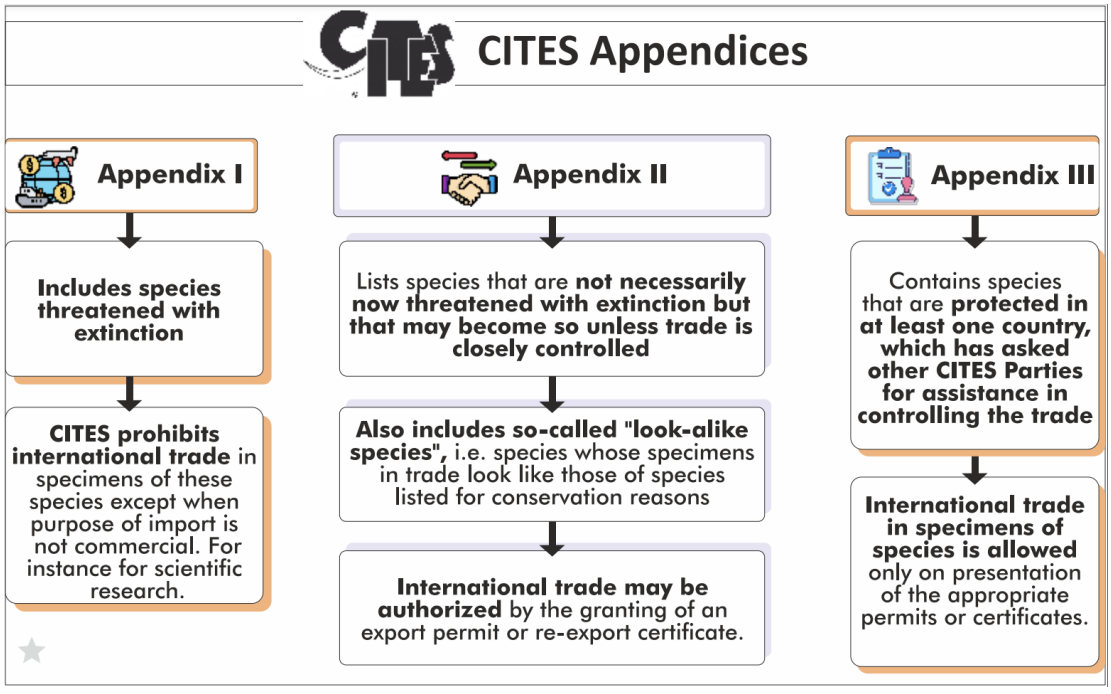
The 19th Meeting of Conference of the Parties (CoP 19) to **CITES** was held in Panama.

About CoP19

- CoP of CITES is also known as the **World Wildlife Conference**.
- CoP19 brought multiple species of **sharks and rays**, **trees**, **amphibian**, **turtle and tortoise**, and several songbirds under CITES' protection.
  - It has accepted a proposal to **include sea cucumbers in Appendix II** of Convention.
- On India's initiative a proposal to **clarify the quantity of Shisham (Dalbergia sissoo) items** such as furniture was considered.
  - Shisham is included in **Appendix II** of convention, thereby requiring to follow C**ITES regulations for trade** of the species.
  - Indian **rosewood or the shisham tree is used to make durable dark-reddish tables**, beds, bookshelfs or chairs.
  - It is also the state tree of Punjab.
- The resolution documents on tortoises and fresh water turtles specifically mentioned commendable result achieved by India's **Operation Turtshield (by Wildlife Crime Control Bureau).**
- Proposal to allow a **regular form of controlled trade** in ivory was defeated.
  - Abandoning its **decades-old stance** of strongly opposing **ivory trade**, India **for the first time abstained** from voting.
  - International ivory trade **was banned in 1989** when all African elephant populations were put in CITES Appendix I.
  - Later, populations of several countries including Namibia, Botswana etc. **were transferred to Appendix II.**

About CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora)

- It is an **international agreement** between governments to ensure that international trade in specimens of wild animals and plants **does not threaten their survival.**
- CITES was drafted as a result of **a resolution adopted in 1963** at a meeting of members of **IUCN (World Conservation Union).** Text of Convention was **finally agreed** in Washington in 1973 and **entered into force in 1975.**
- The **CITES secretariat** is administered by **United Nations Environment Programme** and is located at **Geneva, Switzerland.**
  - There are **currently 184 parties** (including India) to the Convention.
  - All 184 Parties to CITES have **right to attend**, to **put forward proposals** to consider, and to **vote on all decisions.**
- Although CITES is **legally binding** on the Parties, it **does not take the place of national laws**. Rather it provides a framework to be **respected by each Party**, which has to **adopt its own domestic legislation** to ensure that CITES is implemented at the national level.
- The species covered by CITES are listed **in three Appendices**, according to the **degree of protection** they need (Refer infographic).



Importance of CITES

- **Strengthens international regime to protect endangered species:** CITES provides a **framework for promoting cooperation among CITES members**, known as CITES Parties.
  - It is also successful in establishing **cooperation with numerous international organisations** - **ITTO**, **FAO**, **ICCWC** etc, non-governmental organisations and research institutes.
  - It also **improves local capacities** and **increase awareness** of public in general.
  - Its networking with police and customs authorities all over the world **improves efficiency in the highly globalised fight** against wildlife trafficking.
- **Importance of CITES recognised by UN:** In a 2015 resolution, UNGA emphasized important role of **CITES' legal framework** in combating wildlife trafficking.
- **Protection guaranteed to several species**: With CITES, **over 35,000 species** of animals and plants are now under **some form of international trade regulation**.
  - As one of the examples of successes, Elephants **saw a steep decrease in poaching** after the international ban in 1989 until a **new wave of illegal killing** began in 2007.
- **Wide ranging resolutions:** These include resolutions on **demand reduction strategies** to combat illegal trade, measures to **detect and counter corruption**, and so on.
- **Sustainability discourse in combating wildlife trade:** It has taken steps to address the **socio-economic dimensions** of wildlife trade.
  - COP also addressed **cybercrime aspects** of wildlife trafficking and **community awareness** of the crime-type.

Limitations of the CITES

- **Structural gap limiting the effectiveness of CITES**: The Convention is a trade agreement and o**nly applies to flora and fauna that is traded internationally**.
  - CITES has **no application to domestic markets** and wildlife trafficking **occurring intra-state**. This is left to the respective governments.
- **Issues with the listing**: CITES' application is restricted by its appendix **listing system**. Species not listed in an appendix are **afforded no protection** by the Convention.
  - For example, only about 8 percent of **world's known reptile species** are listed. This is despite reported trade in the skins of many non-listed reptiles.
- **Political nature of negotiations:** CITES is a **consensus-orientated body** but can take decisions by **two-thirds majority** when required.
  - During the lifetime of CITES, **84 species were moved from Appendix I to Appendix II**. It means that parties could accept a relaxation of the degree of protection.
- **Inadequate attention to welfare of animals:** CITES system **does not devote great consideration** to the welfare of animals traded pursuant to its provisions.
  - Welfare of animals relates to his health, comfortable, well-nourished, safe, able to express innate behaviour.

India and CITES

- **Extensive use of Appendix III**: Since its ratification of CITES in 1976, India has **listed 39 taxa in Appendix III**.
  - Through the listings, important international trade data was gathered that supported **decision for application to a different CITES Appendix (**with stricter trade controls).
- **Monitoring the Illegal Killing of Elephants (MIKE) programme**: It is an international collaboration that measures the **levels, trends and causes of elephant mortality**.
  - There are currently **28 sites participating** in MIKE programme in Asia, distributed **across 13 countries** (India has 10 sites).
- The **Director of Wildlife Preservation, Government of India has been designated responsibility as the Management Authority for CITES (CITES-MA**) in India.
- In addition, **Government of India has also appointed five Scientific Authorities which assist the CITES MA** on scientific aspects of CITES. These are
  - **Zoological Survey of India (ZSI), Kolkata.**
  - **Botanical Survey of India (BSI), Kolkata.**
  - **Central Marine Fisheries Research Institute (CMFRI), Cochin.**
  - **Wildlife Institute of India (WII), Dehradun.**
  - **Institute of Forest Genetics and Tree Breeding (IFGTB), Coimbatore.**
- **International trade in all wildlife species of India**, including the species covered under CITES in particular, is **regulated collectively through the provisions of the**
  - **Wild Life (Protection) Act of 1972,**
  - **Export–Import Policy (EXIM Policy) under the Foreign Trade (Development and Regulation) Act of 1992 and**
  - **Customs Act of 1962.**

- **CITES reservation weakening system:** States Parties may **enter reservations to certain species** being included in an Appendix, where the Party finds the listing of the **species unacceptable**.
  - This is usually due to reserving party having a **legitimate economic or trading interest** in the species.
  - **Notable examples** include reservation of Japan, Norway, and Iceland with regard to **certain species of whale**.
  - Where a reservation is entered, the **party is treated as being a non-party State** by other States Parties with regard to trade in the species.
- **Others:**
  - Several widely traded species have become **critically endangered or extinct** despite their **inclusion in the CITES' Appendix system**.
    - ✓ For example, Northern White Rhinoceros, while listed in CITES Appendix I, **became functionally extinct** in 2018 following excessive poaching.
  - **Incomplete data** on trade of species and the effect of trade on numbers in the wild also **negatively affect efficacy of system.**

Road Ahead

- **Strengthening implementation mechanisms**: Proposed actions in this regard include strengthening information and intelligence sharing, trafficking on internet, species identification, seizures and disposal, public awareness and empowerment and so on.
- **Bringing clarity on penalties:** CITES should **prescribe particular penalties** which will ensure **uniformity among countries** in terms of penalties imposed.
  - Currently, penalties for offences under domestic law **vary greatly.**
- **Cooperation and coordination with other relevant organisations**: The effectiveness of CITES can be significantly enhanced by enhancing engagement with **World Customs Organisation** and utilising infrastructure of **INTERPOL and** United Nations Office on Drugs and Crime (**UNODC),** among others.

Conclusion

Though CITES **does not address all aspects** of wildlife trafficking, it remains **only piece of international environmental law** that can be used to counteract it. By defining rules that wildlife traffickers seek to circumvent, it is single most coherent approach to a topic of **considerable international complexity**.

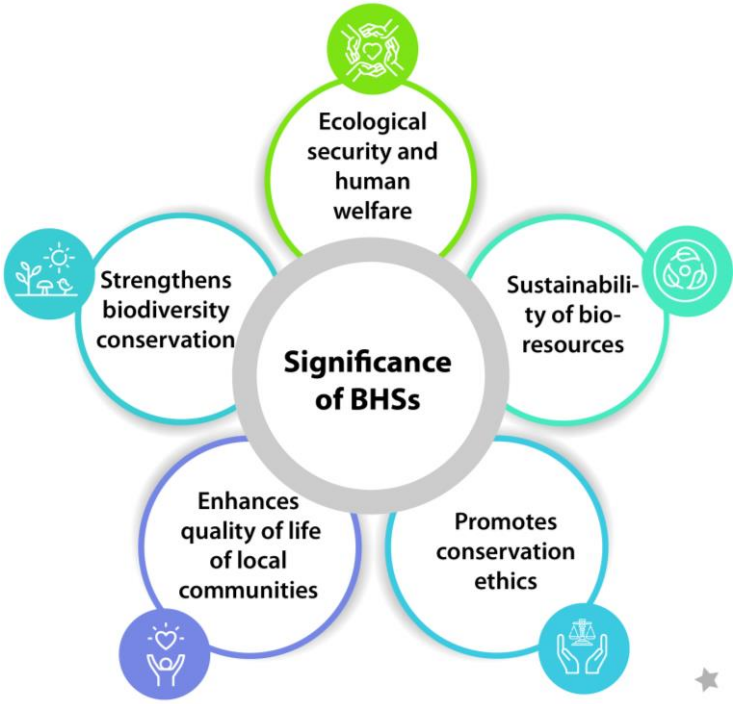
5.16. BIODIVERSITY HERITAGE SITES (BHSS)

Why in news?

Tamil Nadu issued a notification declaring **Arittapatti and Meenakshipuram villages** in Madurai district **the first biodiversity heritage site in State.**

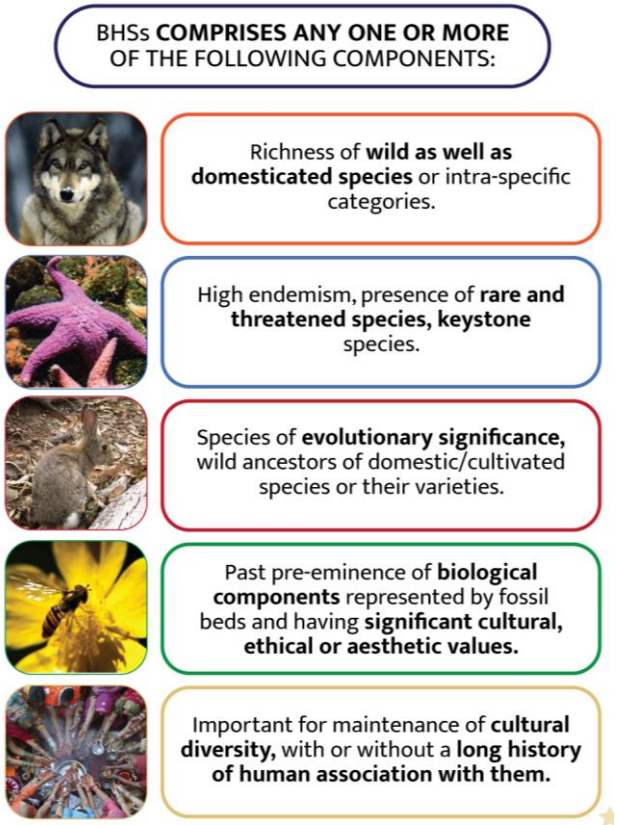
About Arittapatti Biodiversity Heritage site

- Arittapatti village houses several species of birds including three important raptors: **Laggar Falcon**, the **Shaheen Falcon and Bonelli's Eagle**. It is also home to wildlife such as the **Indian Pangolin, Slender Loris and pythons**.
- It houses **Anaikondan tank**, built during the **reign of Pandiyan kings** in the 16th century. It also has **megalithic structures**, **rock-cut temples, Tamil Brahmi inscriptions, Jain beds etc.**



About Biodiversity Heritage Sites (BHSs):

- They are **well defined areas** that are **unique, ecologically fragile** ecosystems. They are spread over **terrestrial, coastal and inland and marine waters** having rich biodiversity.
- BHS may be identified and notified as per the provisions of the **Section 37 of the Biological Diversity Act.**
  - As per this section, the State Governments are **empowered to notify in the official gazette**, in consultation with **'local bodies'**, areas of biodiversity importance as BHSs.
  - State Government in **consultation with Central Government may frame rules** for the management and conservation of BHS.
- Creation of BHSs **may not put any restriction** on prevailing practices and usages of local communities, other than those **voluntarily decided** by them.
  - State Governments are also empowered to **frame schemes for compensating or rehabilitating any person** or section of people economically **affected by such notification**.
- **State Biodiversity Boards (SBB)** may invite suggestion for declaration of BHSs through **relevant community institutions** (Gram sabhas, panchayats, urban wards, forest protection committees, tribal councils).



- Nallur Tamarind Grove in Bengaluru, Karnataka was the **first Biodiversity Heritage Site of India**, declared in 2007.

For more information on Declared Biodiversity Heritage Sites in India, refer to the appendix.

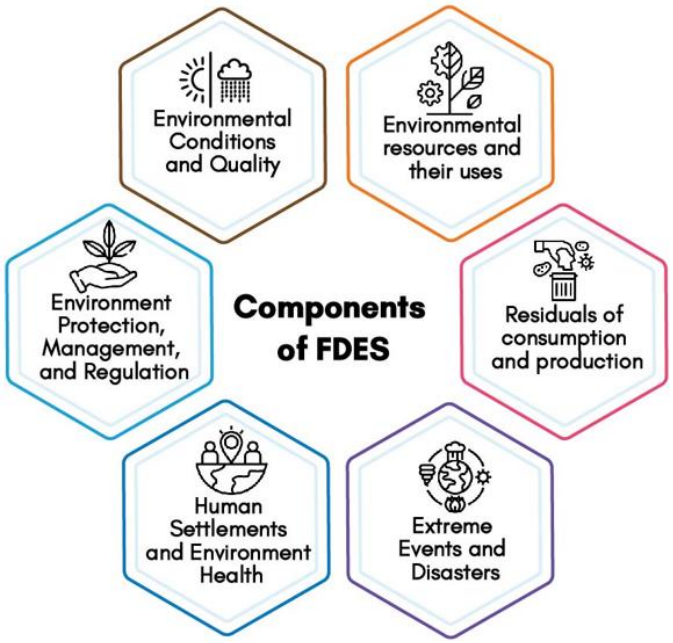
5.17. NEWS IN SHORTS

5.17.1. ENVISTATS INDIA 2022

- Recently, the **National Statistics Office (NSO)** came up with a publication EnviStats-India 2022 Vol. I: Environment Statistics.
- EnviStats brings together a large number of statistics bracketed in a **single publication** which is **sourced from the coordination of multiple public institutions.**
- Environment statistics **aims at providing statistical information to improve knowledge of the environment.** It helps-
  - to support evidence-based policy and decision-making.
  - to provide information for the general public, as well as for specific user groups.
- The data in EnviStats is **categorized in six sections based on the division in Framework for Development of Environment Statistics** (FDES 2013).

Framework for Development of Environment Statistics (FDES 2013)

- The FDES 2013 is a **multipurpose conceptual and statistical framework** that is comprehensive and integrative in nature.
- The FDES is based on a conceptual foundation that considers **people and their demographic, social, and economic activities as integral parts of and interacting with the environment.**

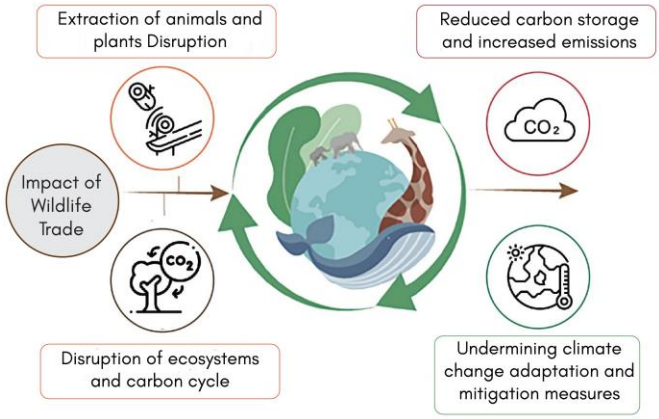


5.17.2. CLIMATE AND DEVELOPMENT: AN AGENDA FOR ACTION

- Recently, **World Bank Report** on '**Climate and Development: An Agenda for Action'** was released.
  - Report **compiles and harmonizes results from the World Bank Group's 'Country Climate and Development Reports' (CCDRs).**
    - ✓ CCDRs are new core diagnostic reports that integrate climate change and development considerations.
    - ✓ They will help countries prioritize the most impactful actions that can reduce greenhouse gas (GHG) emissions and boost adaptation, while delivering on broader development goals.
  - It covers **24 countries** that account for 34% of the world's greenhouse gas (GHG) emissions.

5.17.3. ILLEGAL WILDLIFE TRADE AND CLIMATE CHANGE

- United Nations Office on Drugs and Crime (UNODC) released A paper on Illegal Wildlife Trade and Climate Change.
- Paper highlights **cascading impacts of Illegal wildlife trade (IWT), on ecosystem functions and processes** that affect the climate.
- It documents **five types of relationships between IWT and climate change:**
  - **Large-bodied species storing carbon -** removal of **hardwood species like timber** from the wild **stops long-term sequestration, affects soil carbon, and limits forest regeneration.**
  - **Ecosystem engineers:** Many animal species targeted by IWT are also ecosystem engineers, species that modify their environment in a significant manner.
  - **Species with unique functional traits,** such species lead to more rapid collapse of ecosystem service supply. E.g. Pangolins regulate insects population.
  - **Co-location of biodiversity and ecosystem services:** Habitats heavily affected by IWT can geographically overlap with sites that offer important ecosystem services, including carbon stocks.
  - **Governance overlaps -** IWT is a reflection of **weak environmental governance** associated with weak monitoring and enforcement, organized crime etc.
- United Nations Office on Drugs and Crime (UNODC) is **a global leader in addressing problem of illicit drug use and transnational crime**.
  - It is **mandated** to assist Member States in their struggle against illicit **drugs, crime and terrorism.**



5.17.4. STATE OF THE CLIMATE IN ASIA 2021 REPORT

- Published by **World Meteorological Organization**.
  - It is second in the series of the report.
- **Key highlights**
  - Economic losses from consequent extreme weather events like floods and droughts amounted to **more than US$ 35 billion in 2021**.
  - India suffered **an economic loss of $4.4 billion** due to **storms,** and an **additional $3.2 billion due to flooding.**

5.17.5. PROVISIONAL STATE OF THE GLOBAL CLIMATE IN 2022 REPORT'

- **Released by:** World Meteorological Organization (WMO)
- **Key observations**

Atmospheric concentrations of greenhouse gasses (GHGs).	• **Carbon dioxide rose by 149%,** Methane 262% and Nitrous oxide 124% of pre-industrial levels. • Increasing emissions of CO2 and GHGs cause a **positive radiative imbalance** at the top of the atmosphere. ○ This leads to an **accumulation of energy in the form of heat** in Earth system that is driving global warming.
Global Mean Surface Temperature	• Last 8 years are likely to be the **8 warmest years on record**. • It is about **1.15°C** above the **1850-1900 pre-industrial average**.
Ocean Heat Content	• 55% of the ocean surface experienced at least one **Marine heatwaves** during 2022. • Oceans **store around 90% of the accumulated heat** from human emissions of greenhouse gases.
Sea-ice extent	• **Greenland Ice Sheet** ended with a **negative total mass balance** for the **26th year in a row.**

- **Recommendations**
  - **Adaptation measure** like Multi-Hazard Early Warning System.
  - **Mitigation strategies**, like retrofitting buildings to make them more energy efficient; adopting renewable energy sources like solar, etc.

5.17.6. GLOBAL CARBON BUDGET 2022 REPORT

- Released by: **Global Carbon Project (GCP).**
  - **Established in 2001**, GCP is shared partnership between
    - ✓ International Geosphere-Biosphere Programme,
    - ✓ International Human Dimensions Programme on Global Environmental Change,
    - ✓ World Climate Research Programme and Diversitas.
  - Aim is to **develop complete picture of global carbon cycle**.
- **Key highlights of the Report**
  - **Global CO2 concentrations** set new record of **417.2 parts per million**.
  - Atmospheric CO2 concentrations are now **51% above** pre-industrial levels.
  - Projected CO2 emissions decrease in China and European Union, but **increase in US, India (6%), and rest of world.**

5.17.7. GREEN ENERGY OPEN ACCESS PORTAL

- **Union Minister of Power** and New & Renewable Energy **launched Green Energy Open Access Portal.**
- Portal will allow **consumers to access green power** easily through transparent and **streamlined procedure.**
- Any **consumer with a connected load of 100 kW or above** can get Renewable Energy (RE) **through open access** from any RE generating plant.
  - Open access means **non-discriminatory access to electricity transmission and distribution** system to eligible consumers, generators and state distribution companies (DISCOMS).

5.17.8. HIMALAYAN YAK

- **Food Safety and Standard Authority of India** has accepted Himalayan Yak as a '**food animal**'.
  - Food Animals are animals that are **raised and used for food production** or **consumption**.
  - It is expected to **check its population decline** by making it part of the conventional milk and meat industry.
- **Himalayan Yak** (Scientific Name: **Bos Grunniens**), also known as **mountain cow**, is a **high-altitude bovine.**
- **IUCN Status: Vulnerable**.
- **Habitat:** Found throughout the Himalayan region of Indian subcontinent.
- **Threats:** Habitat loss; Genetic hybridization with domestic yaks; and Poaching.

5.17.9. ACECLOFENAC

- Indian Veterinary Research Institute has demanded a ban on using aceclofenac in cattle.
  - **Aceclofenac is a veterinary painkiller.**
- This is because study showed that **aceclofenac metabolises into diclofenac in water buffaloes and cows** which eventually threatens **vulture populations** in the country.
  - Diclofenac, an anti-inflammatory drug, was **banned in 2006 as it was the main cause of dramatic decline (99 per cent) of vulture population** across Asia.

5.17.10. FUJIWHARA EFFECT

- Recently two cyclones, namely **Hinnamnor and Gardo interacted showcasing Fujiwhara Effect.**
- Fujiwhara effect is **any interaction between tropical storms** with the **following features:**
  - Storms are formed **around same time in same ocean region.**
  - Their centres or eyes are at a **distance of less than 1,400 km.**
  - **Intensity that could vary between** a **depression** (wind speed under 63 km per hour) and a **super typhoon** (wind speed over 209 km per hour).
- **Outcome of Fujiwhara effect**
  - **Changes in track and intensity** of either or both systems.
  - In rare cases, two systems **could merge to form a bigger storm.**

5.17.11. DROUGHT MONITORING TOOL

- A next generation of South Asia Drought Monitoring System (SADMS) is being developed which aims at **addressing the existing and potential challenges to drought management** and at providing a framework for proactive drought mitigation measures across nations in South Asia.
- It is a **new satellite-based drought-monitoring tool** which will indicate:
  - Presence of drought
  - Level of severity of drought

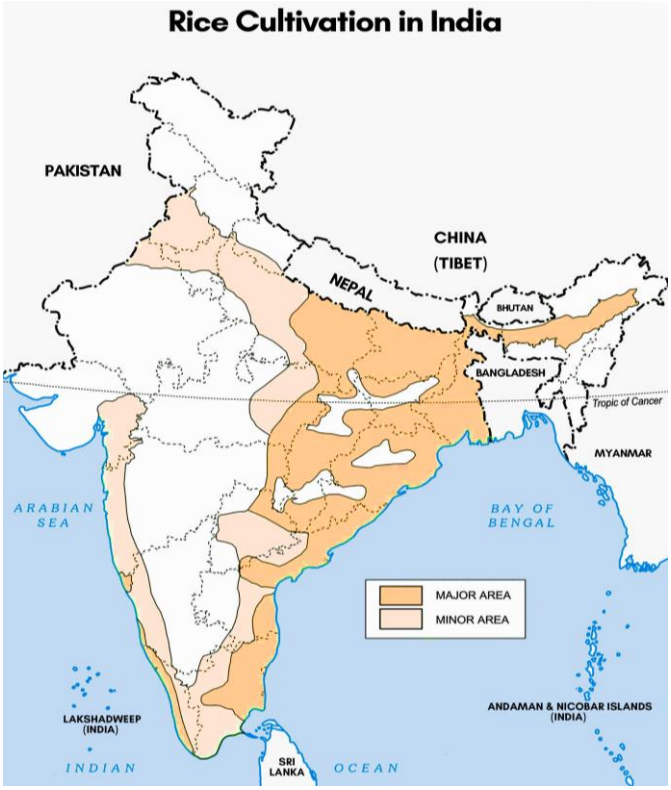
- The data from the drought-monitoring system is available at grid level and can be visualised up to taluk level.
- It will help farmers **to obtain drought-tolerant seeds, develop supplementary irrigation and apply potassium nitrate** (which helps seedlings cope better with dry conditions).
- This will also allow **south Asian countries to plan for a common strategy** on a region to harness the potential, synergize efforts and south-south cooperation.

South Asia Drought Monitoring System (SADMS)

- SADMS, established in 2014, is a **weekly map of drought conditions that is produced and maintained at the International Water Management Institute (IWMI).**
  - IWMI is an **international, research-for-development organization** that works with governments, civil society and the private sector to solve water problems in developing countries and scale up solutions.
- Through the SADMS website, the IWMI provides a wide array of precipitation and related **information garnered primarily from the freely available satellite imagery**.
  - It aims to **improve current capabilities in drought monitoring and prediction** and provide regional to district scale information about drought's effect on agriculture.
- It has been **tested in India, Pakistan, Bangladesh, Sri Lanka, Nepal, Maldives, Afghanistan and Bhutan**.

5.17.12. CHINA DEVELOPS PERENNIAL RICE VARIETIES

- **Rice variety named PR23 does not need to be planted every year** and can **yield eight consecutive harvests across four years** (as these plants with stronger roots grow back vigorously after each harvest).
- **Key benefits of perennial rice varieties**
  - **Reduce cost of inputs** as it requires **less labour, seeds and chemical inputs** (saved 58% in labour and 49% in other input costs).
  - **Remarkable environmental benefits** such as soils accumulating close to a ton of organic carbon (per hectare per year) along with increase in water availability to plant.
  - **Counter the impact of climate change** on food security and rural incomes.
- **Concerns raised:** needs one to two more herbicide treatments than regular rice, more work to resow the perennial rice when its yield falters etc.
- Earlier, **Indian Agricultural Research Institute** also launched an **herbicide-tolerant rice** that can be directly sown into soil, cutting expenditure on water and farm workers.
- **Rice cultivation in India**:
  - **India is world's second largest rice producer**, after China, and largest exporter.
  - It is a **kharif crop.**
  - Needs **high temperature** (21 to 37º C throughout life period of crop), **high humidity, prolonged sunshine and an assured supply of water.**
  - **Soils with good water retention capacity** with **high amount of clay and organic matter** are ideal.



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. WORLD POPULATION GROWTH

Why in news?

The world's population, recently, reached 8 billion according to estimates from the **United Nations Population Fund (UNPFA).**

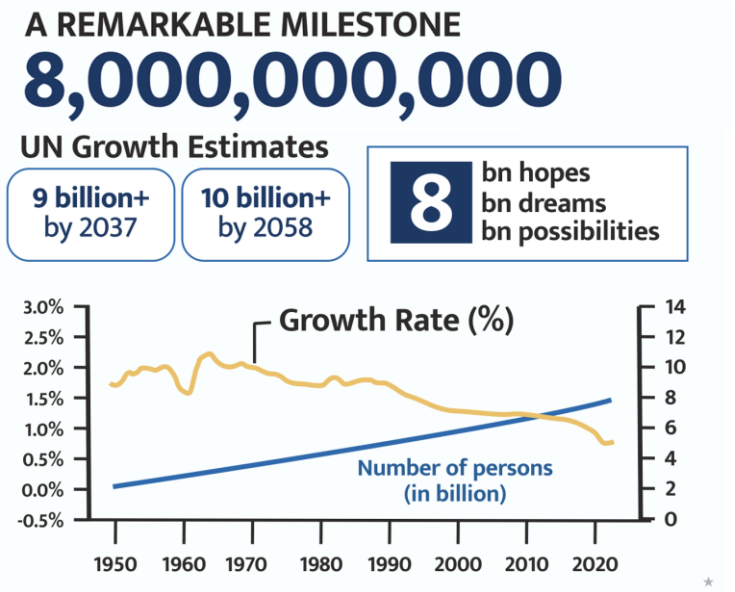
About UNPFA

- Established in 1969, UNFPA is the sexual and reproductive health agency of the United Nations.
- **Headquarters: New York**, USA
- **Mission:** To deliver a world **where every pregnancy is wanted**, every **childbirth is safe and every young person's potential is fulfilled.**
- In 2018, **UNFPA launched efforts to end**
  - unmet need for family planning
  - preventable maternal death
  - gender-based violence and harmful practices

Trend in World population growth

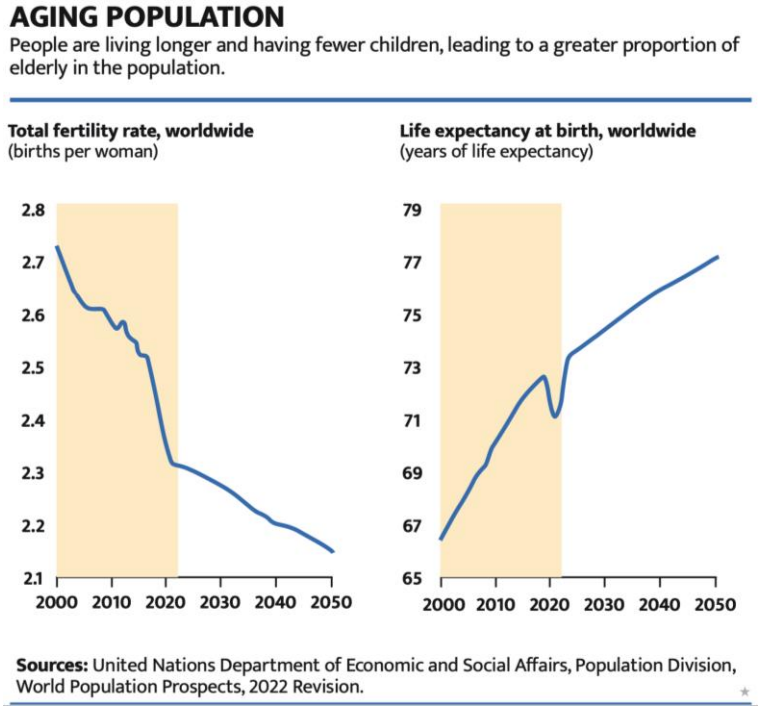
- **Temporal disparity:** Much of the **world's population growth has come in the last century** as better living standards and health advancements extended life expectancy.
  - While the human population reached the first one billion in **hundreds of thousands of years**, it reached from 7 billion to 8 billion just since 2010.
- **Spatial disparity:**
  - **Declining population growth in developed countries:** Population growth slowdown is largely driven by wealthy countries particularly on account of burden of raising a child and falling marriage rates.
  - **Rising population in low income countries (LICs):** They would drive much of the population growth with just eight accounting for the majority of a projected increase until 2050.
    - ✓ These countries are the **Democratic Republic of Congo, Egypt, Ethiopia, India, Nigeria, Pakistan, the Philippines** and the **United Republic of Tanzania.**
- By 2050, India would become the most populous country **surpassing China.**
- **Average life expectancy:** Global life expectancy soared from 34 years in 1913 to 72 years in 2022 and is expected to continue on that long-term trajectory.
- **Slow growth rate:** The global population is growing at its slowest rate since 1950 and has fallen under 1% in 2020.
  - It took the global population 12 years to grow from 7 to 8 billion, but will reach 9 billion in about 15 years, in 2037.

Challenges associated with population growth



- **Reversal of development:** Countries that are driving population growth already suffer from relatively low incomes per capita.
  - Thus, eradicating poverty and hunger, increasing the coverage of health and education systems would be difficult.
- **Rising resource conflict:** The increasing chasm between the global haves and have-nots would further the existing tensions and mistrust, crisis and conflict in the world.
- **Damage to environment:** Population growth has also contributed to environmental damage, while aggravating global warming and deforestation.
- **Pandemic outbreaks:** The exponential growth of human population has led to expansion of humans in wild habitat and made them prone to contact with infectious agents.
  - For example, the recent outbreak of the COVID-19 pandemic, monkeypox.
- **Ageing population:** More older people, living longer due to rise in average life expectancy driven by better health facilities.
  - These shifts portend a colossal set of health, social, and economic challenges in the coming decades.

- **Gap in life expectancy:** The gap between average life expectancy at birth in low-income countries (65 years) versus high-income ones (83 years) is 18 years.
- **Existential threats to some societies:** Slowing growth rates in populous nations like China and the United States have caused some alarm, threatening to upend their societies.



Way ahead to harness the benefits of population growth

- **Supporting Reproductive Justice:** Provide every person autonomy to make the best reproductive choice for themselves and enhance access to high-quality reproductive health-care services.
    - Provisions of safe and effective methods of family planning could help reduce fertility and accelerate economic and social development.
- **Education for all:** Improving educational attainment, particularly of girls, enhances intergenerational formation of human capital and has a positive impact on demographic behaviour with respect to nuptiality, fertility, health, etc.
- **Foster Inclusive Growth:** Expanding trade and investment on an environmentally sound basis, increasing investment in human resource development, and developing democratic institutions and good governance would facilitate equity in the society.
- **Facilitate migration:** Reduction of barriers to migration across the world would help bridge the demand and supply of the workforce.
- **Reverse the loss of environmental resources:** There is a need for investment in technological and social innovations to adapt to and mitigate climate and environmental changes.
- **Social security:** The 65+ age category is going to grow quite fast and it faces several challenges which could be minimised through better geriatric care, health insurance and pension facilities.

Conclusion

As further increases in population numbers are inevitable, particularly in the poorer and most vulnerable countries, steps to reduce the inequality and ensure affordable health and education are a prerequisite for peace and prosperity of the world.

6.2. REPORTS ON SCHOOL EDUCATION IN INDIA

Why in news?

Recently, Department of School Education and Literacy (Ministry of Education) released two reports on school education, **Unified District Information System for Education Plus report 2020-21 and the Report on Performance Grading Index (PGI) for States/UTs for 2020-21.**

Unified District Information System for Education Plus (UDISE+) report 2020-21

- UDISE+ has a mandate of collecting information from all recognized and unrecognized schools imparting formal education from Pre-primary to XII.
- Information collected by UDISE+ is utilized for the planning, optimized resource allocation and implementation **of various education-related programs** and **program** assessments.
- UDISE+, **collects information through an online Data Collection Form**. The schools which get onboarded successfully on the platform are provided a UDISE Code, which acts as a **national level unique identifier**.

- UDISE+ has the **school as the unit of data collection** and the **district as the unit of data distribution.**
- In UDISE+ 2021-22, additional data on important indicators viz., **digital library, peer learning, hard spot identification, number of books available in the school library**, etc. have been collected for the first time to align with the NEP 2020
- **Key highlights**

Parameters	Trends in 2021-22 in comparison to 2020-21
Total enrolment in schools (Class 1 to 12)	• **Increased by 0.76 %** • **Enrolment:** Boys- 13.28 Crore and girls-12.28 Crore
Number of teachers	• **Declined by 1.95 %** • **More than 51% are female teachers**.
Major infrastructural facilities like electricity connection, Drinking water, Girls toilet, Library/ Reading room, Playground etc.	**Improved**
Gross enrolment ratio (GER)	**Primary level: Increased to 104.8% in 2021-22** in comparison to 101.3% in 2018-19
	Secondary Level: Increased to 79.6% in 2021-22 from 76.9% in 2018-19.
Dropout rate	**Primary:** Increased
	Secondary: Declined
Pupil-Teacher Ratio (PTR)	**Improved to 26 in 2021-22** from 28 in 2018-19.
Total number of schools	• **Declined to 14.89 lakhs** in 2021-22 from 15.09 lakhs in 2020-21. • The decline is **mainly due to the closure of schools under private** and other management.
Others highlights • **Gender Parity Index (GPI) of GER** is 1 or more at all levels of school education. ○ **GPI value 1 or more** shows that the **GPI is favorable to the girls**, while GPI of less than 1 shows relative under representation of girls.	

Report on Performance Grading Index (PGI) for States/UTs for 2020-21

- It is a tool to **provide insights on the status of school education** in States and UTs including key levers that drive their performance and critical areas for improvement.
- It **pinpoints the gaps** and helps States/UTs in **prioritising the areas for intervention** to ensure that the school education system is robust at every level.
- So far, **3 PGI reports** were released, **starting 2017-18.**
- PGI evaluation **classifies States and UTs into grade**/ levels, as opposed to ranking.
- PGI comprises of total weightage of **1000 points across 70 indicators**.
- The indicators are grouped under **2 Categories**:
  - **Outcome (**which includes, Learning Outcomes, Access, Infrastructure & Facilities, Equity).
  - **Governance & Management** (Governance Process).
- **Key highlights**
  - **None of the States attained the highest Level** (Level 1- points above 950).
  - No state reached the top 2 levels in 2017-18 and 2018-19 whereas in 2020-21, **7 States have reached Level-2.**
  - **No state has performed below Level VII (points below 650) in 2020-21.**
  - The deviation between the **maximum and minimum scores** obtained by States is 39 %, of the minimum points.
    - ✓ This disparity was 51 % in 2017-18 indicating that, PGI **helped to bridge the performance gap among States/UTs over the years.**

To know more about School Education, please refer to our following Weekly Focus Document.

School Education: Mind is a Tabula Rasa

Foundational learning forms the basis of all future learning. Just as we would not build a house without solid foundations, we cannot expect a child to thrive without solid foundational skills. Yet today, most of the these foundations of learning are not strong enough. This document analyses what India has achieved in terms of improving the quality and accessibility of school education and how NEP 2020 envisions to fill the gaps.

6.3. NEWS IN SHORTS

6.3.1. PROGRESS ON THE SUSTAINABLE DEVELOPMENT GOALS: THE GENDER SNAPSHOT 2022

- Report is published by **UN Women and the UN Department of Economic and Social Affairs.**
- **Key findings**
  - **World is not on track** to achieve gender equality by 2030.
  - **380 million** women and girls live in **extreme poverty.**
  - **Nearly 1 in 3** women face **food insecurity.**
  - **Unsafe abortion** is a leading but preventable cause of maternal mortality.
- In India, in a **quarter of rural households' women and girls** devote more than 50 minutes per day to collecting water.

6.3.2. 'CITIES ALIVE: DESIGNING CITIES THAT WORK FOR WOMEN' REPORT

- **Released by:** by United Nations Development Programme.
- Report stresses the need to **directly engage women in decision-making processes,** across all aspects **of urban planning and development.**
- **Key challenges faced by women:**
  - **Safety and security:** Unsafe streets and public spaces, reduced mobility due to safety concerns, disproportionate exposure to climate hazard.
    - ✓ **32%** of women survey respondents **feel unsafe in public spaces at night.**
  - **Justice and equity:** Limited **gender equity in** urban governance, limited voice in decision-making and leadership.
    - ✓ **Just 29% of women** in business globally are in senior decision-making positions.
  - **Health and wellbeing:** Inadequate public spaces, Inadequate healthcare, water, hygiene etc.
    - ✓ 76% of female respondents feel **lack of safe routes** as a barrier to their health and wellbeing.
  - **Enrichment and fulfilment: Prejudice and obstacles** to education and employment, Inadequate leisure, and Poor sense of belonging.
    - ✓ **17% of global population** find it unacceptable when a **female family member has a job**.
- **Strategies suggested**
  - Create **safer streets and provide safer mobility**, integrate **gender-responsiveness** in urban climate strategies.
  - Collection of **gender-disaggregated data**, protect **women's right to property**.
  - Increase **access to physical and mental healthcare** and nutrition facilities.
  - Accessible and **inclusive leisure and cultural space.**

6.3.3. MOTHER TONGUE SURVEY OF INDIA (MTSI)

- **Ministry of Home Affairs recently completed MTSI.**
- **MTSI surveys the mother tongues,** which are returned consistently across two and more Census decades **and analyses their linguistic features.**
- As per analysis of 2011 linguistic census data, **more than 19,500 languages or dialects are spoken in India as mother tongues.**
  - **Hindi is the most widely spoken** mother tongue, with **43.6 per cent** of population declaring it as mother tongue.

6.3.4. DIGITAL SHAKTI 4.0

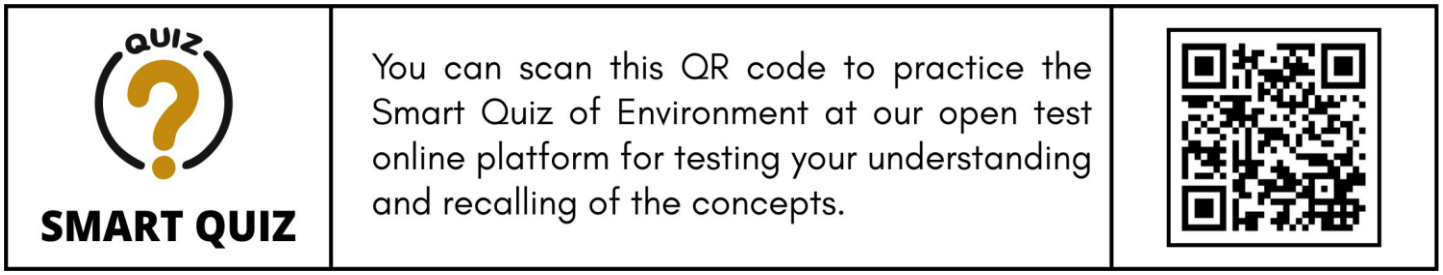
- It was launched by **National Commission for Women,** in collaboration with CyberPeace Foundation and Meta, **to create safe cyberspace for women and girls.**
- It is a pan-India project for making **women digitally skilled** and **aware to** stand up against **any illegal/inappropriate activity online.**
  - It aims to sensitize **more than 1 million women across India.**
- Its **first phase was launched in 2018** and **over 3 Lakh women across India have benefited.**

6.3.5. ATAL NEW INDIA CHALLENGE (ANIC)

- Atal Innovation Mission (AIM) has launched **women centric challenges** under its **ANIC program** to address the major issues faced by women from all spheres of life.
- ANIC is a **flagship program** of **AIM**, **NITI Aayog**.
  - It aims to **seek, select, support** and **nurture technology-based innovations** that **solve** sectoral **challenges** of national importance and societal relevance.
- It provides **funds** up to **₹1 crore** through a **grant-based mechanism** and open for:
  - **Any Indian Company** incorporated under the **Companies Act**,
  - **Any company registered** as a **Start-up**, recognized by **Department for Promotion of Industry and Internal Trade**.

6.3.6. NATIONAL SUICIDE PREVENTION STRATEGY

- Ministry of Health and Family Welfare announced National Suicide Prevention Strategy recently.
- **In line with WHO's South East-Asia Region Strategy** for suicide prevention, strategy calls for **time-bound action plans and multi-sectoral collaborations** to achieve **reduction in suicide mortality by 10% by 2030** (from 2020 level).
  - **Around 1.6 lakh suicides were reported** in India during 2021 showing an increase of 7.2% in comparison to 2020.
  - **Family Problems and illness** were the major causes of suicides.
- **Key objectives of strategy**
  - **Establish effective surveillance mechanisms** for suicide within **next three years**.
  - **Establish psychiatric outpatient departments** that will provide suicide prevention services through District Mental Health Programme **in all districts within next five years.**
  - **Integrate a mental well-being curriculum** in all educational institutions **within next eight years.**
  - Developing **guidelines for responsible media reporting of suicides** and restricting access to means of suicide.
- **Strategy delineates 'REDS' path for suicide prevention** and intends to:
  - **Reinforce** leadership, partnerships, and institutional capacity.
  - **Enhance** capacity of health services.
  - **Develop** community resilience and societal support for prevention and reduce associated stigma.
  - **Strengthen** surveillance and evidence generation.
- **Initiatives taken for suicide prevention**: National Mental Health Policy, Mental Healthcare Act, National Mental Health Program etc.



7. SCIENCE AND TECHNOLOGY

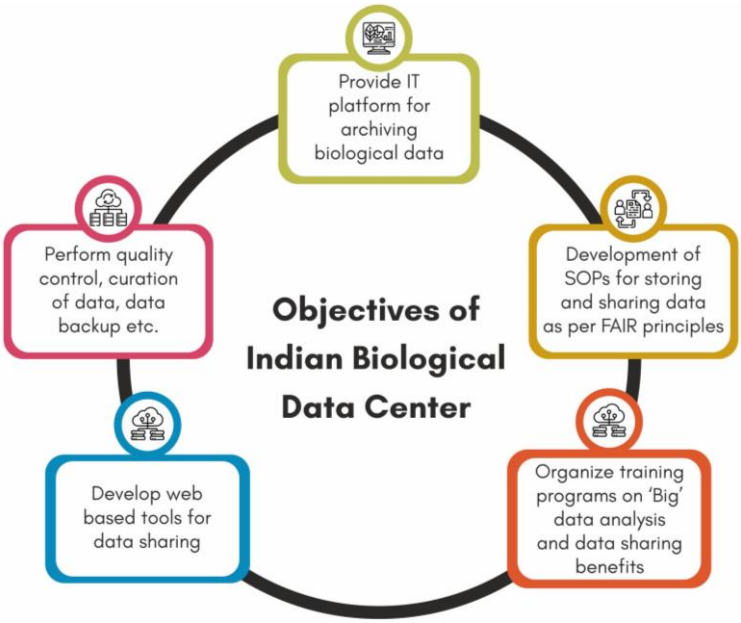
7.1. INDIAN BIOLOGICAL DATA CENTER

Why in news?

Recently, **Indian Biological Data Center (IBDC) was inaugurated at Faridabad, Haryana**.

About IBDC

- IBDC is the **first national repository for life science data** in India.
- It is envisaged to **emerge as a major data repository for all life science data** emerging from India.
    - Also, as per the **Biotech-PRIDE guidelines**, released last year, IBDC is mandated to archive all life science data generated from publicly-funded research in India.
- It is being established at **Regional Centre of Biotechnology (RCB), Faridabad** in collaboration with **National Informatics Centre** (NIC).
- The digitised data will be stored on a four-petabyte **supercomputer called 'Brahm'**.
- It is supported by **Department of Biotechnology (DBT)**.
- IBDC is committed to the **spirit of data sharing as per FAIR (Findable, Accessible, Interoperable and Reusable) principle.**
    - FAIR Data Principles, published 2016, are **a set of guiding principles proposed by a consortium of scientists and organizations to support the reusability of digital assets.**
- The database also contains most of the 2.6 lakh Sars-Cov-2 genomes sequenced by the **Indian Sars-CoV-2 Genomic Consortium (INSACOG).**
- Under IBDC, currently, **two sections have been developed**. These include:
    - **Indian Nucleotide Data Archive (INDA)** shall archive nucleotide sequence data generated from publicly funded research projects in India and provide internationally accepted data accession numbers. the digitised genetic makeup of humans, plants, animals, and microbes.
    - **Indian Nucleotide Data Archive – Controlled Access** (INDA-CA).
- IBDC would have majorly two data access types i.e. **Open access/time-release access and Restricted access.**



What is biological data?

- Biological data means **all information related to living organisms**, including their nucleic acids, protein sequence, metabolites, and other molecular and functional characteristics.
    - Examples include, DNA sequence data, Genotype data, Epigenomic data, Duration of Data, etc.

Biotech PRIDE (Biotech Promotion of Research and Innovation through Data Exchange) Guidelines 2021

- Released by: **Department of Biotechnology (DBT)**
- These guidelines **enable exchange of information** to promote research and innovation in different research groups across the country.
- These will be helpful to **harmonize, synergize and encourage the data sharing for research and analysis** in the country and to promote scientific work and foster progress by building on previous work.
- These Guidelines are **applicable for all biological data** generated through research conducted within the country.

Indian SARS-CoV-2 Genomics Consortium (INSACOG)

- It is a **consortium of 54 Laboratories** to **monitor genomic variations in the SARS-CoV-2.**
- The network carries out whole genome sequencing of SARS-CoV-2 virus across the nation, aiding the **understanding of how the virus spreads and evolves**, and provide information to aid public health response.
- It is **jointly initiated by Ministry of Health**, and Department of Biotechnology (DBT) with Council for Scientific & Industrial Research and Indian Council of Medical Research.

Significance of IBDC

- **Aid modern research**: Modern biology has become **data intensive and data dependent**, often requiring integrative analysis.
  - However, in the absence of any central data repository for life sciences and biotechnology data in India, both data-sharing and data-dependent research are restricted.
- **Securing data**: There is a lot of sensitive human and biodiversity data that needs to be stored securely and in a manner that is accessible to appropriate scientists. IBDC will provide platform for this.
- **Ensuring data availability for all:** At present, most Indian researchers depend on the European Molecular Biology Laboratory and National Center for Biotechnology Information databases for storing the biological data.
- **Indian data for Indian solutions**: Many of our researchers still depend on other countries for such large databases, but the Indian phenotype is very different and solutions based on others' data might not be optimal.
- **Studying zoonotic diseases**: The database currently stores the genomic sequences of crops such as rice, onion, tomatoes. With genomes of humans, animals, and microbes present in the same database, it will also help researchers in studying zoonotic diseases.
- **Research for vaccines:** The database will store the 25,000 sequences of mycobacterium tuberculosis.
  - This will help in understanding the spread of multi-drug and extremely drug resistant TB, and aid the search for targets for new therapies and vaccines.

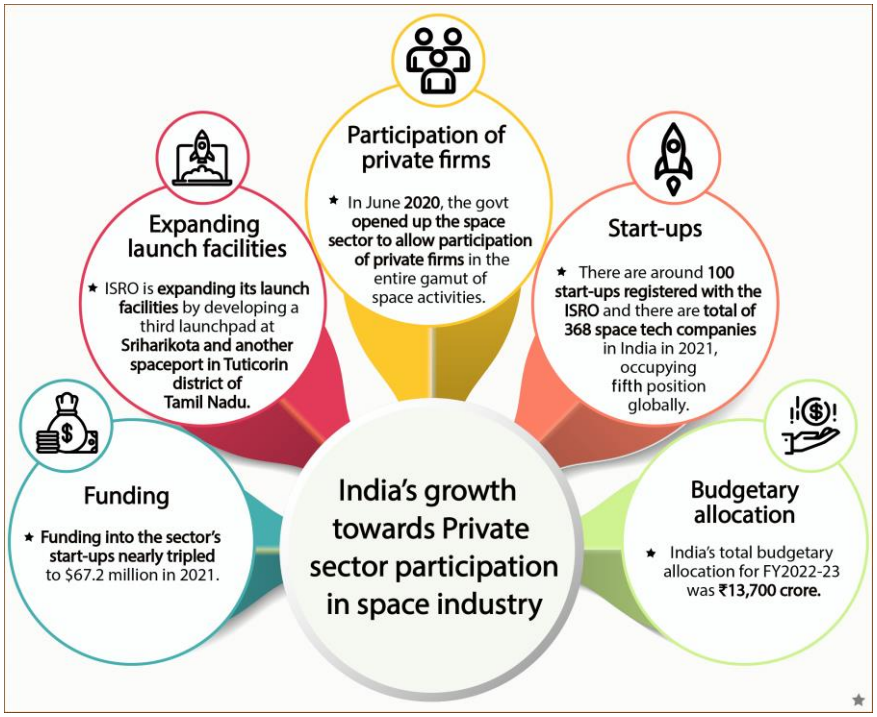
7.2. PRIVATE SECTOR PARTICIPATION IN SPACE SECTOR

Why in news?

Vikram-S, India's first privately built rocket was launched recently from Sriharikota, Andhra Pradesh.

More about the launch

- Named '**Mission Prarambh'**, it is India's **first private space mission**.
- The rocket has been **developed by Hyderabad-based Skyroot Aerospace**, a company that was started in 2018.
- It was launched with **support from ISRO and IN-SPACe** (Indian National Space Promotion and Authorisation Centre).
- It is called Vikram-S, **named after Vikram Sarabhai**, the founder of India's space programme.
- The rocket reached an altitude of 89.5 km. The target for the rocket was to reach space, **which begins at an altitude of around 80 km**, and to attempt touching the Karman Line located at around the 100-km altitude mark.
  - The **Kármán line** is a boundary that borders Earth's atmosphere and the beginning of space.



Need of Private sector participation in space industry

India's space programme is one of the most well-developed in the world and is driven by a state-owned agency, ISRO. However, **enhanced private sector participation will be necessary to penetrate** satellite-based services and ground-based system segments.

- **Rapidly rising space industry:** Global space industry could reach **$1 trillion in 2040**, up from $400 billion currently.
  - The **Indian space sector** is projected to **increase at a ~48% CAGR over the next five years to reach US$ 50 billion**. Private sector can drive this growth.
  - Also, at present, **India accounts for only about 2% of the space economy as compared to US which accounts for 56.4%** of all companies in the space-tech ecosystem, possible because of robust private sector.
- **Shift from supply driven model to demand driven model**: Almost every sector, starting from agriculture to transport, weather department and even urban development, now wants satellite data and space technology. **Private sector can fill this gap.**
- **Focus on R&D:** Right now, a lot of ISRO's resources are being consumed by routine activities, which is causing a delay in its strategic objectives.
  - If private companies take over these activities, ISRO can more focus on research and development activities, new technologies, exploration missions and human spaceflight programme.
  - Many private space companies are ambitious and futuristic – they also **plan to mine extra-terrestrial bodies rich in resources from outer space.**
- **Promote Make in India**: With active private participation, India can aspire to become a satellite manufacturing hub and a launchpad for the world with a variety of rockets ranging from the Small Satellite Launch Vehicle to the Geosynchronous Satellite Launch Vehicle.
- **Efficiency and competitiveness**: Private companies have **a greater degree of autonomy in making decisions**, as compared to taxpayer-funded institutions, which enables them to take up new projects.
- **Overall benefits to economy**: The growth in the space industry also provides **employment to millions**, and the rise in the number of private space companies promotes competition amongst them and encourages constant improvements and advancements.

Related News

India's first private launch pad unveiled at Sriharikota

- Facility has been **designed by Agnikul** (a startup) **and executed in support with ISRO and IN-SPACe** (Indian National Space Promotion and Authorization Center).
  - It is specifically built **to support liquid-stage controlled launches** while also addressing ISRO's need for **monitoring key flight safety parameters during launches.**

Institutional measures

- **Indian National Space Promotion and Authorisation Centre (IN-SPACe)**: It acts as a **single window nodal agency** to address the needs of the private sector in India's space programme.
- **'New Space India Limited (NSIL)**: A PSU under the Department of Space, it is the commercial arm of ISRO responsible for **enabling Indian industries to take up high-tech, space-related activities and commercial exploitation of the products and services** emanating from the Indian space programme.
- **Indian Space Association (ISpA):** Launched in 2021, it is the apex, **non-profit industry body** exclusively working towards successful exploration, collaboration, and development of private and public Space Industry in India.
  - It will undertake **Policy Advocacy, Engage and Operate with all Stakeholders** and act as a **catalyst for accelerating** the exchange of knowledge, technology of space-related domains.
- **Antrix Corporation Limited**: Incorporated as a **marketing arm of ISRO**. It handles ISRO's commercial deals for satellites **and launch vehicles with foreign customers.**
- **Space Entrepreneurship & Enterprise Development (SEED):** Conceived as a competitive early-stage encouragement programme to startups and MSMEs in focus areas of interest to ISRO.

Challenges of private sector in space

- **Multiplicity of regulations:** Despite the government steps to boost private sector participation, companies have often cited multiplicity of approvals and procedural ambiguity as barriers.
  - Satellite companies need to obtain approvals from Department of Space, ISRO, Antrix, and in case of communication satellites, the Department of Telecommunications.
- **Capital intensive nature**: Given the long gestation period and capital-intensive nature of space technology, private players would need access to 'patient' capital, which can be achieved from the government or global private equity markets.

- At present, private players (operating satellites) have a 100% FDI limit that is subject to government approval. However, this approval may be prolonged for years.

- **Absence of independent regulator**: ISRO is both a regulator and an operator, this conflict of interest is likely to manifest during dispute resolution between private players and ISRO entities.
  - Though IN-SPACe is meant to be an independent agency, it falls under the ambit of ISRO. An independent body through legislation on the lines of TRAI is needed.
- **Possibility of polarisation of market**: Privatisation might result in the polarisation of space reach and formation of an oligopoly in the space industry with only the few dominating at the top.
- **Increase in space debris:** Estimates say there are already 23,000 pieces of debris larger than 10 centimeters and over 500,000 pieces of smaller junk circling Earth**.**
  - This is the **Kessler Syndrome that is a self-sustaining cascading collision of space debris** creating more debris.
  - **Monitoring this debris is going to be a major issue** as private space travel and the space economy grow.
- **Issue of liability of private entities**: Multilateral treaties of international law, are outdated and do not correspond well with contemporary reality.
  - They do not comprehensively regulate the responsibility in relations between states and, even more so, with private entities.
- **Strategic concerns**: Space is linked to security and strategic areas. Private sector in this arena can compromise security by providing confidential information about or control of critical assets to hostile actors.

Way forward

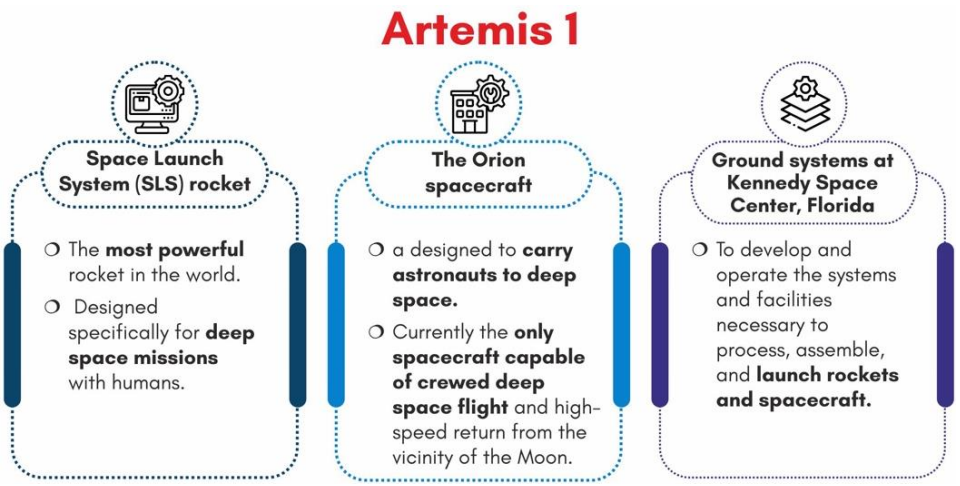
- **Regulatory clarity**: Improved regulatory clarity would mean fewer barriers of entry for private firms and better synergies between ISRO and private collaborators.
- **Need for new space policy**: India's new space policy must incorporate our **learning from the successful deregulation of telecom, insurance and civil aviation**.
  - **Draft Space Activities Bill, 2017** was also brought in aimed at regulating and promoting private participation in India's Space sector. It needs to revaluated and introduced with necessary modifications.
- **Intellectual Property (IP) protections**: The private sector remains concerned about sharing its IP with the government.
  - If ISRO is serious about partnering with the private sector, policymakers will have to view the industry as more than just a collection of manufacturers or service providers.
- **Promoting satellite manufacturing:** Indian Space Association (ISpA) seeks a PLI scheme for satellite manufacturing just like the one the government has announced for handsets and telecom equipment.
- **Handhold private sector:** ISRO can act as an enabler for boosting research and development by way of technology transfer, collaborations, and sharing of infrastructure that shall help achieve wider participation from the industry.

7.3. ARTEMIS 1

Why in news?

Recently, NASA's Artemis 1 mission successfully lifted off from the Kennedy Space Centre.

About Artemis 1 mission



- It will be the first in a series of increasingly complex missions to build a **long-term human presence at the Moon for decades to come.**
- It will be an **uncrewed flight test** that will provide a foundation for **human deep space exploration.**
- It will be the **first integrated test of NASA's deep space exploration systems**, which include:

- **Artemis 1 mission objectives**
  - Demonstrate **Orion's heat shield can withstand the high speed and high heat conditions** when returning through Earth's atmosphere.
  - **Study the radiation environment of deep space** that is present for missions to the Moon and beyond.
  - **Retrieving Orion after splashdown** will provide information to engineers for future missions.
  - Accomplish flight test objectives like **certifying Orion's optical navigation system**, deploying CubeSats (small satellites), etc.
  - **Study the Moon** to learn more about the origin and history Earth, the Moon, and our solar system.
- **Artemis1 will be followed by Artemis II (**Planned for 2024**) and Artemis III (**Planned for 2026**):**
- With Artemis missions, NASA is planning to land the **first woman** on the Moon.

Major missions to the Moon so far

Country	Mission
USSR	• **Luna 1, Luna2, Luna 3.** • Luna 2 was the **first spacecraft to impact the Moon's surface.**
USA	• **Lunar Orbiter 1** • **Apollo 11: First humans to land** on the Moon. • **Lunar Reconnaissance Orbiter (LRO)**
Japan	• **Hiten**
China	• **Chang'e 1: First Chinese** Moon mission.
India	• **Chandrayaan-1** • **Chandrayaan-2**

Destination Mars

- The **ultimate objective of the Artemis program** is what NASA calls the "**next giant leap -- human exploration of Mars".**
- Creating a "**base camp" on the Moon** is part of the plan with astronauts staying on the lunar surface for up to two months.
- Artemis is the first step in the next era of human exploration. Together with commercial and international partners, NASA will establish a **sustainable presence on the Moon to prepare for missions to Mars.**

Related term: Retrograde orbit

- After getting closer to the moon, the Orion spacecraft will swoop down close to the lunar surface and use the gravitational kick it receives to enter a so-called "**distant retrograde orbit**."
- Retrograde means that **it will orbit the moon in the opposite direction** to the one in which the moon spins.
- Orion will stay in that orbit for some days. Then it will swing back down toward the moon for another kick to help power its **journey back to Earth.**

7.4. JAMES WEBB SPACE TELESCOPE

Why in news?

James Webb Space Telescope has provided astronomers with a **glimpse of the early universe** in a new image.

Webb vs Herschel Space Observatory

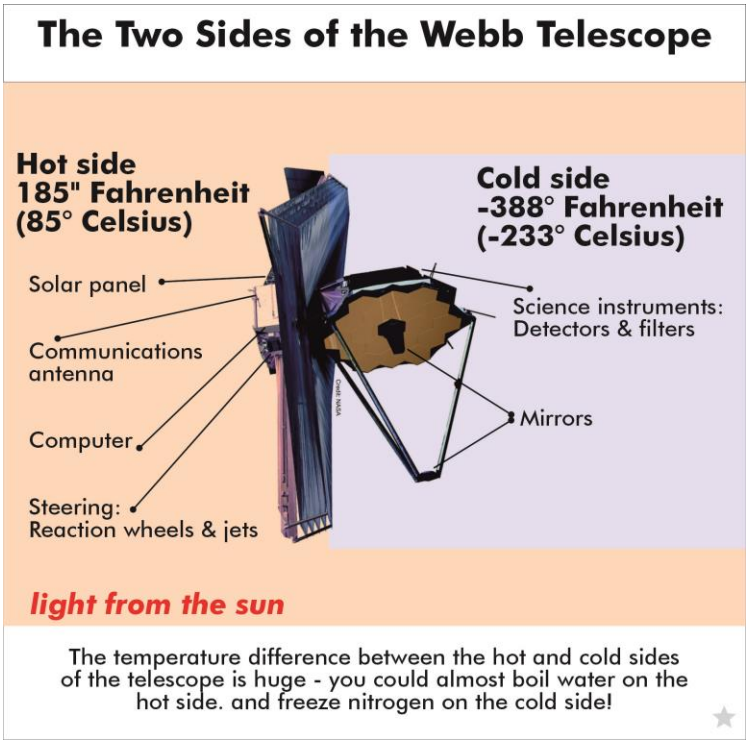
- In 2009, **European Space Agency** launched an infrared telescope named **Herschel Space Observatory. Like Webb,** it also **orbits Sun**.
- Primary difference is the wavelength range: Webb goes from 0.6 to 28 microns, while **Herschel covers 60 to 500 microns**.
- Also, Herschel's **mirror** (3.5 metres in diameter) is **smaller than** Webb's.

More about news

- Telescope captured an image of a **galaxy cluster called MACS0647**, as well as **distant galaxy MACS0647-JD**.
  - Scientists believe that this might be an event of a galaxy merger in the early universe.
- The **distant galaxy is visible** because of a certain type of observational phenomenon **called gravitational lensing (refer glossary)**.

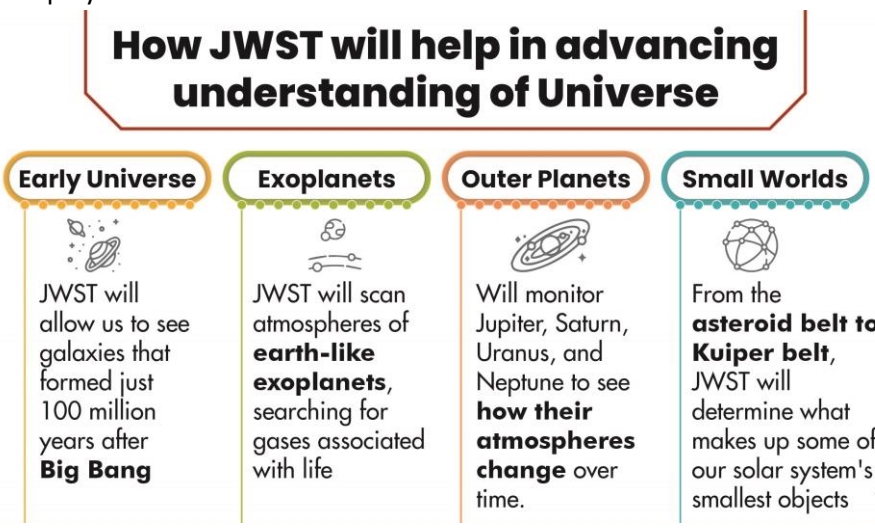
About James Webb Space Telescope

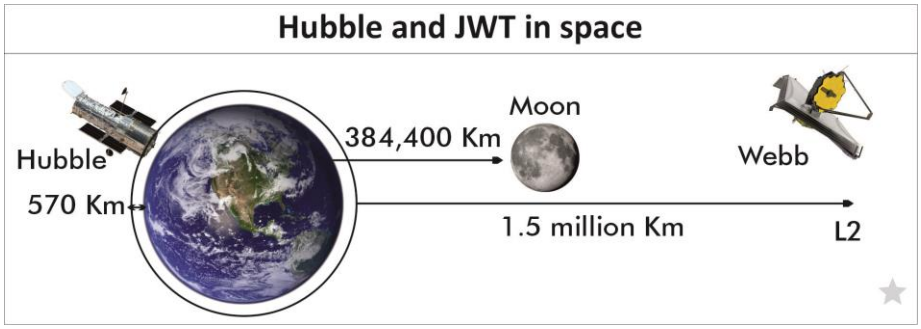
- Also called JWST or Webb, it is NASA's **largest and most powerful** space science telescope.
  - JWST is more powerful than its predecessors.
  - It will be **able to see further into space** to discover distant planets in far-off galaxies.
  - It will build on the **legacy of the Hubble Space Telescope.**
- It is an international collaboration between **NASA, the European Space Agency (ESA), and the Canadian Space Agency (CSA).**
  - It was formerly known as the "**Next Generation Space Telescope" (NGST).**
- The multipurpose observatory launched in **December 2021** on an **Ariane 5 rocket** from Europe's Spaceport in **French Guiana** on the north-eastern coast of South America**.**



Key features of Webb

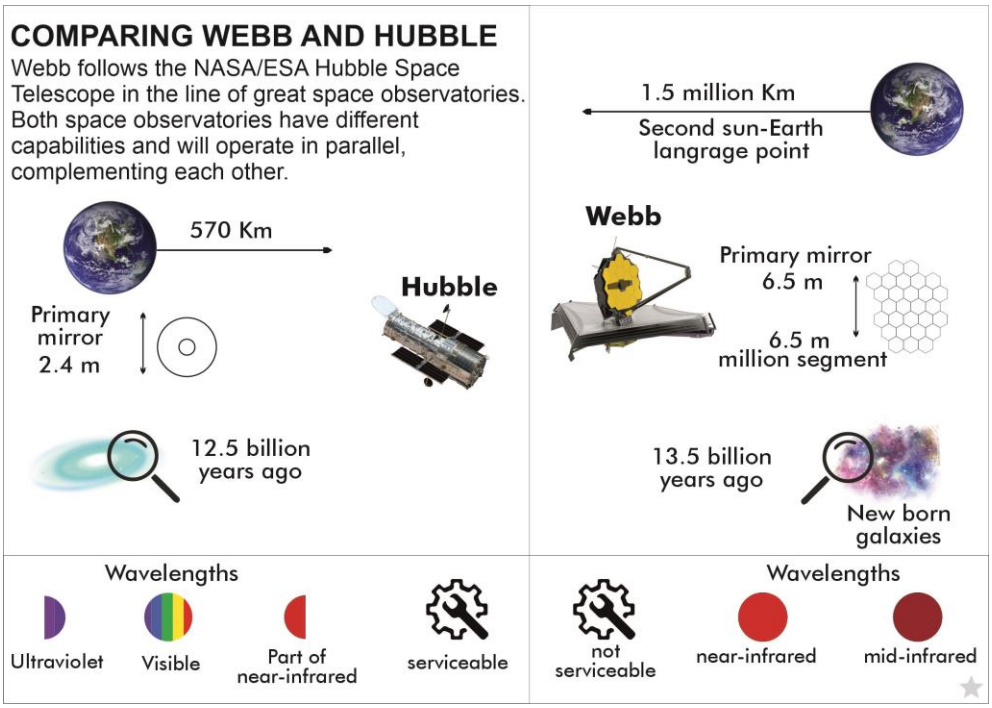
- **Vision:** Webb views the universe in infrared. It is a zone on electromagnetic spectrum with **slightly longer wavelengths** than visible light.
  - It will be the **only infrared-specialized telescope** in space that can see long distances.
- **Mirrors:** Its primary mirror is **6.5 metres in diameter**, **bigger than any mirror previously launched** into space.
  - The size heightens the **sensitivity of the telescope**, larger the mirror area collecting light, **more details it can capture** of a star or galaxy.
  - Recently, a secondary mirror was also deployed. It is a **small, circular mirror** which plays a vital role in reflecting light from **primary mirror to the instruments**.
- **Location/Orbit:** It will **not be in orbit around Earth** but will **orbit Sun**, 1.5 million kilometers away from the Earth at **second Lagrange point or L2.**
  - **L2** lets telescope **stay in line with Earth** as it moves around Sun.
  - This allows satellite's large sunshield to protect telescope from light and heat of Sun and Earth (and Moon).
  - It has been a **popular spot for several other space telescopes**, including the **Herschel Space** Telescope and the Planck Space Observatory.
- **Major elements:** Webb's instruments are contained within the **Integrated Science Instrument Module (ISIM)** which is one of three major elements that comprise JWST.





- The others are **Optical Telescope Element (OTE) and Spacecraft Element (Spacecraft Bus and Sunshield).**

- **Main instruments:** The ISIM is the heart of Telescope, called **main payload**. It houses the **four main instruments** that will detect light from distant stars and galaxies, and **planets orbiting other stars. Four instruments are:**
  - Near-Infrared Camera (NIRCam),
  - Near-Infrared Spectrograph (NIRSpec),
  - Mid-Infrared Instrument (MIRI) and
  - Fine Guidance Sensor/ Near InfraRed Imager and Slitless Spectrograph (FGS/NIRISS).



Conclusion

Webb has been designed to answer **outstanding questions about the Universe** and to make breakthrough discoveries in **all fields of astronomy.** It will have a unique and profound role in transforming our understanding of astrophysics and **origins of galaxies, stars, and planetary systems.**

Observations made from images revealed by Webb

- **SMACS 0723 (Called Webb's First Deep Field):** It is a cluster teeming with thousands of galaxies, including **the faintest objects ever observed** in the infrared.
- **WASP-96b (spectrum)**: Detailed observation of this **hot, puffy planet outside our solar system** reveals clear **signature of water**, along with evidence of **haze and clouds** (that previous studies did not detect).
- **Southern Ring Nebula**: This planetary nebula is approximately **2,000 light-years** away.
  - Here, Webb's powerful infrared eyes bring a **second dying star into full view** for the first time.
- **Stephan's Quintet**: Webb's view of this compact group of galaxies, located in **constellation Pegasus** revealed **velocity and composition** of gas near its supermassive black hole.
- **Carina Nebula**: Webb's look at **"Cosmic Cliffs"** in the Carina Nebula unveils the **earliest, rapid phases of star formation** that were previously hidden.

Glossary

- **Kuiper Belt**: A donut-shaped region of icy bodies **beyond orbit of Neptune**. It is a region of le**ftovers from the solar system's** early history.
- **Asteroid belt:** A region of space between the **orbits of Mars and Jupiter** where most of the asteroids in our Solar System are found **orbiting the Sun**.
- **Exoplanet:** Any planet **beyond our solar system**. Most orbit other stars, but **free-floating exoplanets, called rogue planets**, orbit the galactic center and are untethered to any star.
- **Lagrange points**: At Lagrange points, the **gravitational pull of two large masses** precisely equals the **centripetal force required for a small object** to move with them.
- **Black hole:** It is a place in space where **gravity pulls so much that even light cannot get out**. The gravity is so strong because matter has been **squeezed into a tiny space**.
- **Gravitational lensing:** IT occurs when a huge amount of matter, like a cluster of galaxies, creates a **gravitational field that distorts and magnifies** light from distant galaxies (that are behind it but in same line of sight). The effect is like looking through a **giant magnifying glass**.
  - It allows researchers to **study the details of early galaxies too far away** to be seen with current technology and telescopes.
- **Nebula:** It is a giant **cloud of dust and gas** in space. Some nebulae (more than one nebula) come from gas and dust thrown out by **explosion of a dying star**, such as a supernova. Other nebulae are regions where **new stars are beginning** to form.

7.5. NEWS IN SHORTS

7.5.1. GLOBAL VACCINE MARKET REPORT 2022

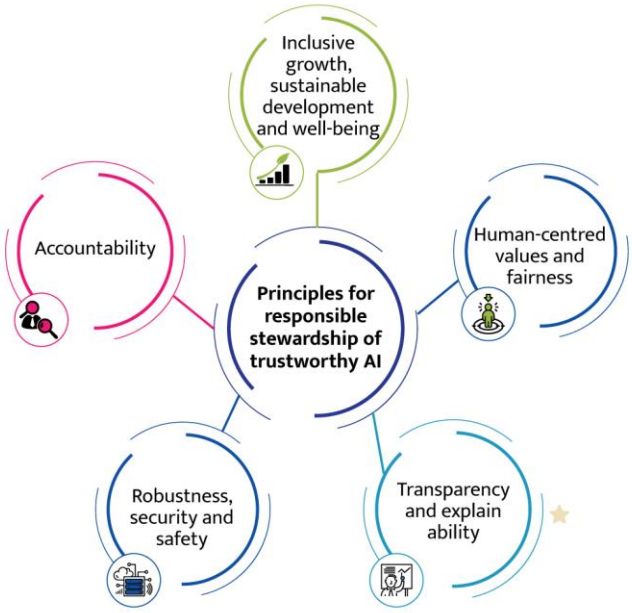
- **Released by:** World Health Organization **(WHO).**
- This is the first report **to capture the implications of COVID-19 on global vaccine markets.**
- **Key highlights:**
  - Vaccine **supply base remains highly concentrated**- ten manufacturers alone provide 70% of vaccine doses (excluding COVID).
  - **Lack of equitable distribution**- African Region received **just 3% of all COVID-19 vaccine doses.**
  - **Predictable country demand** is key to guiding investments thus efforts should be focused on enhancing its predictability.
- **Recommendations**
  - **For government:**
    - ✓ Establish early, **evidence-informed strategic goals**.
    - ✓ **Investing in new vaccine technologies** and enabling **regulatory harmonization.**
    - ✓ **Ensure transparency** in terms of **intellectual property rights** and **circulation of related inputs.**
  - **For industry:**
    - ✓ R&D efforts focused on the **WHO list of priority pathogens.**
    - ✓ Ensure **transparency** along the **vaccine value chain.**
    - ✓ Allow **equity-driven allocation** of products.
  - **For International Organizations**
    - ✓ Prioritize **global public health** per the **Immunization Agenda 2030.**
    - ✓ **Support country-driven initiatives** and **avoid creation of duplicate efforts.**
    - ✓ Continue to call for **technology transfer** and for application of resolutions on **market transparency** for health products.

7.5.2. INCOVACC

- It is **world's first Intranasal Vaccine**, which received approval for **Covid booster doses** from Drugs Controller General of India (DCGI).
  - It is a **recombinant replication deficient adenovirus virus vectored vaccine**.
  - Adenovirus is a **nuclear-replicating DNA virus** with a linear double-stranded genome.
- **COVID Suraksha Program** of Department of Biotechnology helped to partially finance product development and clinical trials.

7.5.3. GLOBAL PARTNERSHIP ON AI (GPAI)

- India to take over the Chair of Global Partnership on AI (GPAI) from France.
- Launched on June 15, 2020, **GPAI is an international and multistakeholder initiative** to guide the responsible development and use of artificial intelligence consistent with human rights, fundamental freedoms, and shared democratic values.
  - The alliance will look to **bridge the gap between theory and practice** by supporting advanced research and applied activities on AI-related priorities.
- At present, **GPAI has twenty-five member states** including the US, the UK, EU, Australia, Canada, France, Germany, etc.
  - **India joined the group as a founding member in 2020**.
  - **Membership in GPAI is open to all countries**, including emerging and developing countries.
  - **Its secretariat** is hosted at the **Organisation for Economic Cooperation and Development (OECD).**



- **AI is expected to add $967 billion to the Indian economy by 2035** and $450-500 billion to India's GDP by 2025, accounting for 10 per cent of the country's $5 trillion GDP target.

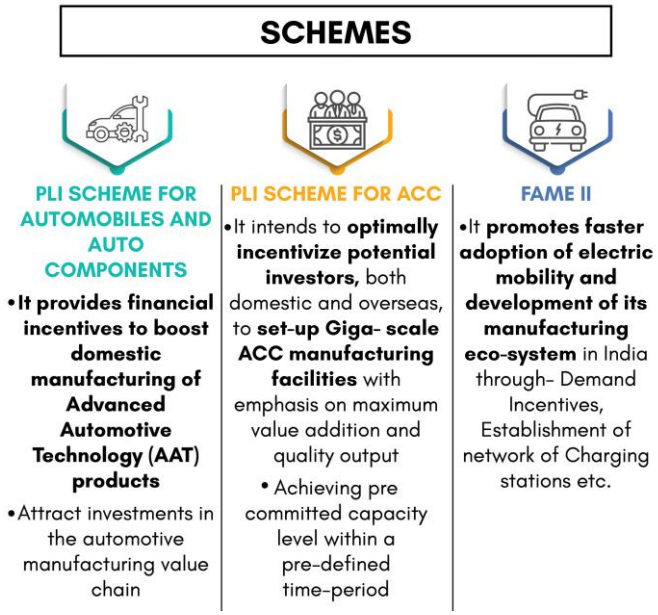
7.5.4. YOTTA D1

- **Country's biggest 'Data Centre'** was recently inaugurated in Uttar Pradesh.

- North India's first hyperscale data centre **'Yotta D1'**, has been built at a cost of Rs 5,000 cror, in Greater Noida.
    - The data centre will **increase data storage capacity of the country**, which until now stood at **2%.**
    - This is despite India having **650 million internet users** in the world are from India, using **20 percent of data**.
- **About Data Centre**
    - It is a **dedicated secure space within a centralized location where computing and networking equipment is concentrated** for purpose of collecting, storing, processing, distributing or allowing access to large amounts of data.
    - It provides **Network infrastructure** (connects servers etc. to end-user locations); **Storage infrastructure** (to store data); **and Computing resources** (provide processing, memory, etc. that drive applications).
- **Need for data centres**
    - **Data localisation norms** make it **crucial to set up a robust data centre infrastructure** India.
    - Necessary to protect **digital sovereignty** in connected world.
- **Steps taken to promote data centres**
    - **Infrastructure status** to Data centres to get easier access to **institutional credit**, attract foreign investments etc.
    - **Draft Data Centre Policy 2020**, aims to make India a **Global Data Centre hub.**

7.5.5. NEW SAFETY TESTS FOR ELECTRIC VEHICLES

- **Ministry of Heavy Industries (MHI) announced a list of safety tests that will be mandatory** for EVs manufacturers **from April 2023 to receive subsidies under** following EV promotion schemes:
    - **Production Linked Incentive (PLI) Scheme for Automobiles and Auto Components.**
    - **PLI Scheme for Advance Chemistry Cell (ACC).**
    - **FAME (Faster Adoption and Manufacturing of Electric Vehicles) II.**
- These tests, **carried at 3 levels** (Battery Pack, Battery Management System (BMS) and Cell Level), **are accepted internationally for safeguarding Human Safety.**
    - Currently, **there are no centralised testing facilities for EVs in India** and manufacturers have their own benchmarks.
- In recent months, **safety concerns have been raised due to multiple instances of fires** in EVs.
    - **Possible reasons for fire incidents** include manufacturing defects, external damage, faults in the deployment in BMS, faulty charging etc.
- **Initiatives taken for EV Safety**
    - **Automotive Research Association of India** to set up **infrastructure for testing, certification.**
    - Issuance of **performance norms for lithium-ion battery packs** and **traction systems** (in line with **broader ISO norms**) by **Bureau of Indian Standards**.
    - Ministry of Road Transport and Highways released **additional safety requirements for EV batteries** under Central Motor Vehicles Rules of 1989.



7.5.6. OCEANSAT-3 EARTH OBSERVATION SATELLITE (EOS)

- PSLV-C54 rocket successfully placed **Oceansat-3 and eight other nanosatellites** into sun-synchronous orbits (SSO).
    - Satellites in SSO or polar orbits usually **travel past Earth from north to south** passing roughly over Earth's poles.
- **Oceansat-3 is third-generation satellite** in OceanSat series, designed and developed for **ocean studies.**
    - Follow up to **OceanSat-1 and OceanSat-2** launched in 1999 and 2009, respectively.
- **Key payloads include:**
    - **Ocean Color Monitor (OCM-3):** Expected to provide improved accuracy in **daily monitoring of phytoplankton**.
    - **Sea Surface Temperature Monitor (SSTM):** To provide **various forecasts** ranging from fish aggregation to cyclone genesis and movement.

- **Ku-Band scatterometer (SCAT-3)**: Will provide a **high-resolution wind vector** (speed and direction) at ocean surface.

- EOS are is also known as the **Earth remote sensing satellites**. These satellites **observe the planet Earth from space for several purposes.**
  - Useful in areas like **environmental monitoring**, **cartography, navigation**, environment & eco-system management, ocean & atmospheric studies, and **disaster mitigation** etc.
  - Military also use EOS **for spying and communication**.

7.5.7. SARAS 3 TELESCOPE

- Shaped Antenna measurement of the background Radio Spectrum (SARAS 3) Telescope s has **helped determine properties of the earliest radio luminous galaxies** formed 200 million years after the Big Bang, a period known as the Cosmic Dawn.
- SARAS 3 is a **precision radio telescope** to detect extremely **faint radio wave signals from Cosmic Dawn.**
  - It is the **first telescope worldwide to reach the required sensitivity.**
- It is indigenously **designed and built at Raman Research Institute** (an autonomous institute of the Department of Science & Technology).
  - It is **deployed over Dandiganahalli Lake** and Sharavati backwaters, **in Karnataka.**

7.5.8. CORONAL HOLES

- NASA's Solar Dynamics observatory observed the **phenomenon of coronal holes in ultraviolet light** as these are typically invisible to our eyes.
- **About Coronal holes**
  - **Coronal holes** are **regions on the sun's surface from where fast solar wind gushes out into space.**
  - Because they **contain little solar material**, they have lower temperatures and thus appear much darker than their surroundings.
  - The holes are **not a unique phenomenon**, appearing throughout the sun's approximately 11-year solar cycle.
  - These coronal holes can **cause a solar storm on Earth** as they **release a complex stream of solar winds.**
- These fast solar wind streams **interact with earth's magnetic field** and creates **geomagnetic storm (GMS).**
  - GMS is a **disturbance in earth's magnetosphere**, which is the area around the planet controlled by its magnetic field.
  - **Earth's magnetosphere protects** its inhabitants from most of the particles emitted by the sun.
- **Impact of geomagnetic storms**
  - **Disrupt high-frequency radio broadcasts** and global positioning system devices.
  - **Damage satellite electronics and expose astronauts** to increased levels of radiation.
  - Voltage surges due to altered magnetic activity can **affect power supply on earth** and cause outages.

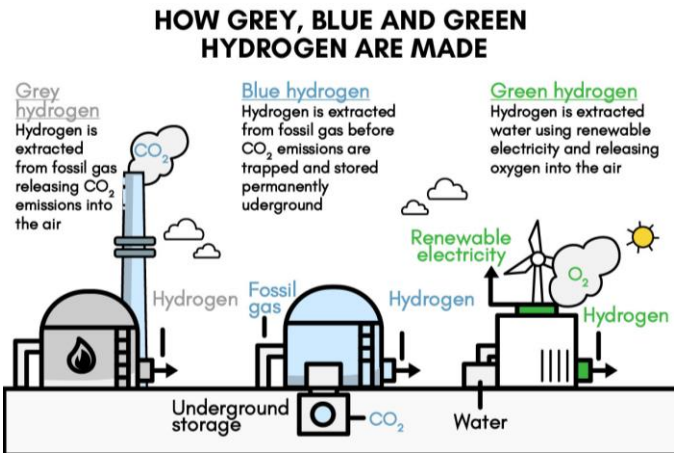
7.5.9. LEAP SECOND

- The **General Conference on Weights and Measures (CGPM)** passed a resolution to do away with the leap second from **2035**.
  - CGPM is the **supreme authority** of the **International Bureau of Weights and Measures (BIPM)** that decides on global standards for how things are measured.
  - BIPM is the **intergovernmental organization** established in **1875** under the terms of the **Metre Convention**.
- Leap Second is the 'Second' inserted in international clocks to align **Universal Coordinated Time** with the **Earth-tracking Universal Time**.
- Introduced in **1972**, so far, there have been **27 leap seconds**.

7.5.10. HYDROGEN INTERNAL COMBUSTION ENGINE

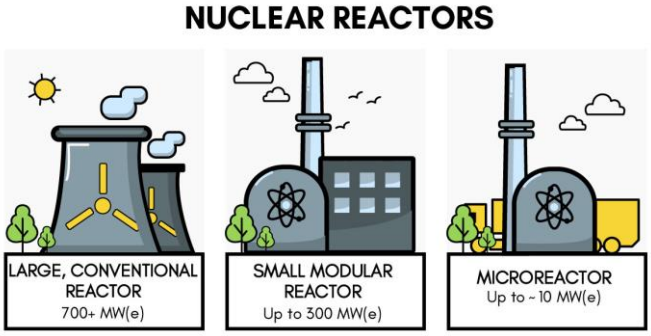
- In a first, Rolls-Royce successfully tested hydrogen-powered jet engine.
- Test was aimed at **proving that hydrogen fuel can safely and efficiently deliver power for small-mid size aircraft** from the mid-2030s onwards.
  - **Green hydrogen**, created by wind and tidal power, **was used.**
- A hydrogen internal combustion engine (ICE) **works on the same principles as a traditional ICE**, except that it **uses hydrogen in place of a petroleum-based fuel.**
  - Burning the hydrogen fuel produces the energy needed to drive the engine.
- A hydrogen ICE is **not the same as a hydrogen fuel cell,** which has been used in some electric vehicles.
  - **In hydrogen fuel cell, hydrogen powers the cells** leading to creation of electricity **that will drive the vehicle's engine.**
- **Benefits of hydrogen ICE**
  - **Near zero-carbon fuel** of the future.
  - **Wider flammability range** (temperature band within which hydrogen can be combusted) **allows for a wider range of fuel-air mixtures.**
  - **Greater thermal efficiency** than hydrocarbon fuel engines.
  - **Able to operate with lower grade hydrogen.**

- **Challenges in using hydrogen as a fuel:** difficult to transport, risk of engine backfire and premature ignition etc.



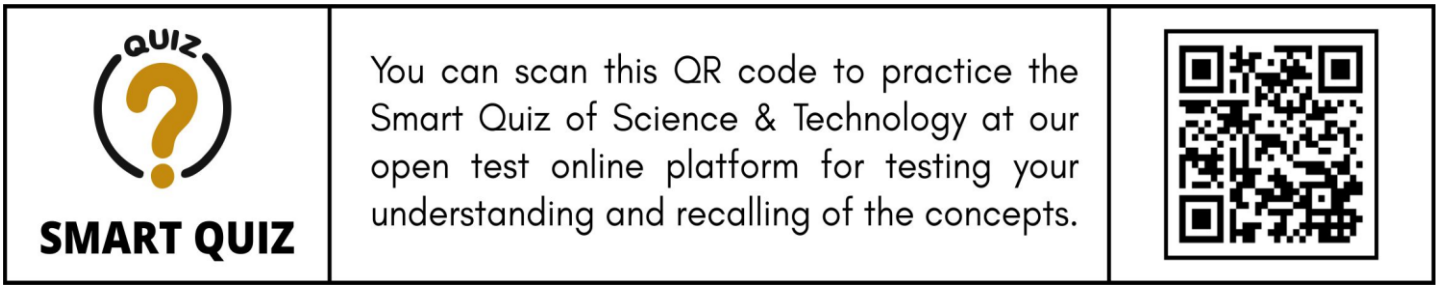
7.5.11. SMALL MODULAR REACTORS (SMR)

- SMRs advanced **nuclear reactors with power capacity of up to 300 MW(e) per unit**. SMRs are:
  - **Small**- physically a fraction of the size of a conventional nuclear power reactor.
  - **Modular**- making it possible for systems and components to be factory-assembled and transported as a unit to a location for installation.
  - **Reactors**- harnessing nuclear fission to generate heat to produce energy.
- In **2020**, Russia's **Akademik Lomonosov** built the **world's first floating nuclear power plant** producing energy from **two SMRs** for commercial use.
- SMRs **advantages over large reactors**:
  - Low cost and construction time due to **factory-built SMRs**, not built on-site.
  - **Simpler and Safer** due to reduced fuel requirements.
  - **Specific** and **Incremental deployment**. E.g. Industrial Applications, Remote Areas with limited Grid Capacity, etc.
- Present **installed nuclear power capacity** in the country is **6780 MW** comprising 22 operational nuclear power reactors.



7.5.12. GUIDELINES FOR UPLINKING AND DOWNLINKING OF SATELLITE TELEVISION CHANNELS IN INDIA, 2022

- Cabinet has revised the guidelines for **Satellite Television Channels** after a period of 11 years.
- **Communication going** from a **satellite to ground** is called **downlink**, and going from **ground to a satellite** it is called **uplink**.
- **Key Provisions:**
  - **Obligation to telecast content** in **National/Public Interest** for **30 minutes every day**.
  - Mandatory for channels uplinking in frequency band other than **C-band** to **encrypt their signals**.
  - Indian teleports may **uplink Foreign channels**.
- **No prior permission** for **live telecast** of events; only **prior registration of events to be telecast live** would be necessary etc.

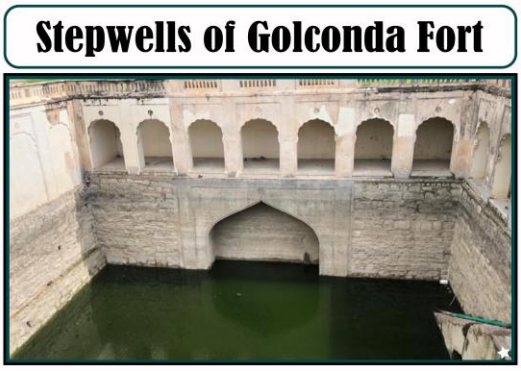


8. CULTURE

8.1. QUTB SHAHI ARCHITECTURE

Why in news?

Recently, the step wells at the Qutb Shahi tombs of the Golconda fort was awarded **UNESCO's Asia-Pacific award (2022) for cultural heritage conservation**.



More on News

- **Step wells of Golconda fort, Telangana** is a 16th century well. This structure is made in Persian style. Also, historians suggest that Elephants used to fetch water from the step well.
- The monument got the **Award of Distinction.**
  - **The award has 6 categories of recognition:** Award of Excellence, Award of Distinction, Award of Merit, Award for New Design in Heritage Contexts, and the Special Recognition for Sustainable Development.
- **UNESCO Asia-Pacific Awards** for Cultural Heritage Conservation programme **started in 2000.**
- It recognises the efforts of **private individuals and organisations** in restoring, conserving and transforming structures and buildings of heritage value in the region.

Other Awardees from India (2022)

Award of Excellence	**Award of merit**	
Chhatrapati Shivaji Maharaj Vastu Sangrahalaya Museum, Mumbai, Maharashtra	**Domakonda Fort, Kammareddy, Telangana**	**Byculla Station, Mumbai, Maharashtra**
It is a part of Victorian Gothic and Art Deco ensembles of Mumbai's World Heritage. It is formerly known as **the Prince of Wales Museum of Western India**, is one of the premier art and history museums in India	It was built during **18th Century** and it has an elevated compound of **granite rocks that forms the fort wall.**	**Asia's oldest railway station** commissioned in **1853**.

About Qutb Shahi Architecture

Located in the city of Hyderabad, capital of the state of Telangana, **Golconda Fort, Qutb Shahi Tombs and Charminar are the landmarks that symbolize the Qutb Shahi Dynasty.**

Key features of **Qutb Shahi Architecture** are:

- **Minars in place of domes** are used.
- **Ornamentation and decoration** of buildings particularly the **parapets.**
- **Surface in stucco or cut plaster** with **occasional use of tiles.**
- **Frequent use of black basalt.**

Golconda Fort

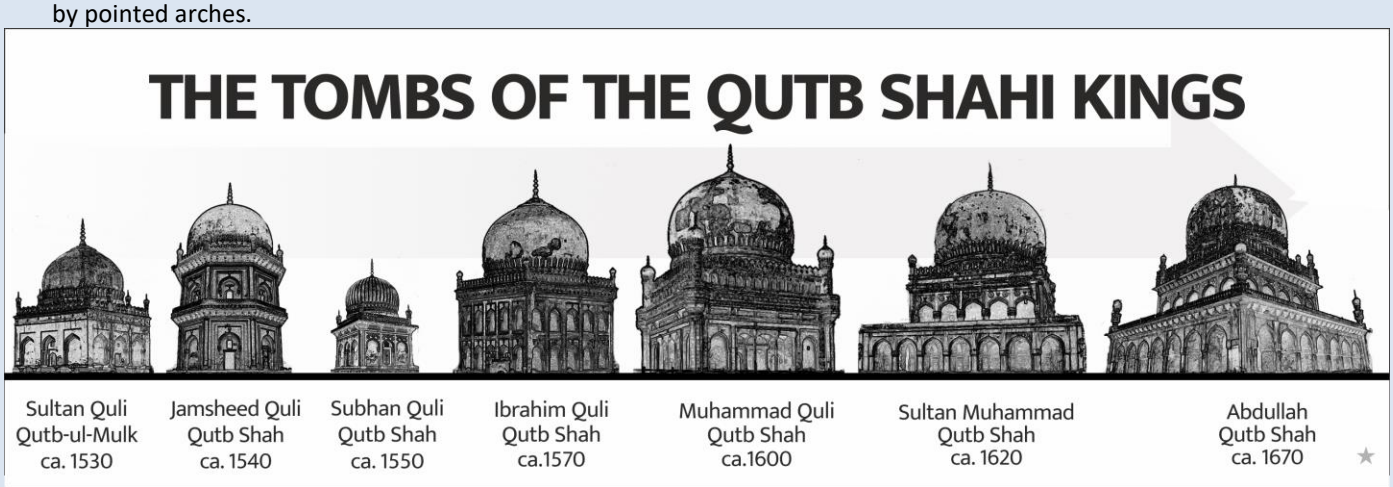
- Golconda is a fortified **citadel** and an early capital city of the Qutb Shahi dynasty.
- The monuments in the complex blend **Persian, Pathan and Hindu** architectural styles and are built with local granite.
- Surfaces of the historic buildings are ornamented with **intricate incised plasterwork and few monuments also bear glazed tile work.**
- The tomb structures are derivations of the **geometrical designs** of the earlier **Bahmani tombs of Bidar,** though the **stucco ornamentation** carried out here is more intricate and on a far greater scale.

Charminar

- Charminar is the archetype of the chaubara or "**four-fold house**" marking the intersection of four cardinal avenues, affording a series of impressive vistas.
- Built in **16th century**. It was the **first monument in the world** constructed using **lime mortar** and **granite**.
- The urban ensemble of Charminar and the Char Kaman resonates deeply with symbolic and ceremonial meaning to commemorate the beginning of the **second Islamic Millennium** and is a remarkable example of Shia city planning.

Qutb Shahi Tombs

- The Qutb Shahi Tombs comprises **major seven tombs of the rulers of Qutb Shahi dynasty.** The overall complex consists of 30 tombs, mosques and a mortuary bath.
- The material used for constructing these tombs was **grey granite embellished with stucco ornamentation.**
- The tombs form a **large cluster and stand on a raised platform**. They are domed structures built on square bases surrounded by pointed arches.



Other key monuments of Qutb Shahi Architecture:

- **Charkaman:** Charkaman or the **Four Arches** was constructed in 1592 A.D.
  - The **Northern arch is called Machli Kaman** (fish arch), the **Southern arch is Char Minar** arch, **Eastern arch is the Kali Kaman** or **Kaman of Shamboo Pershad** (the Black arch) and the **Western arch is Sher Dil or Sihr Batil**.
- **Mecca Masjid:** The Mosque may be split into two classes, the great Mosque (Djami) and small Mosque (Masjid).
  - A large **rectangular court** (Sahn) is surrounded by arcades (Riwak) and the flat roof (Sakf) of which rests on arches (Tak) supported by columns (Amud) of stone (Hadjar) or pillars (Rukn) of brick (libn).
- **Daru-Ul-Shifa:** The double storied building was built in 1595. A.D. It was a hospital as well as a college of Unani Medicine.

- **Badshahi Ashur Khana:** It was the house of Alams or conventional copies of standard carried by Imam Hussain. The entire hall is enamelled with tiles of beautiful floral decorations. On the western wall, there is an inscription in the Tughra style.

About Qutb Shahi Dynasty

Founded by Sultan Quli Qutbul Mulk, this dynasty spanned 171 years and ruled the Deccan region from **1518-1687 AD.** (This dynasty was the successor of the Bahamani Kingdom.)

- **Major cities:**
  - **Muhammad Nagar**: Sultan Quli Qutbul Mulk established Muhammad Nagar, which grew rapidly and earned fame as one of the leading cities of the east, well known for its trade in diamonds and precious stones.
  - **Hyderabad:** It was planned and founded by Muhammad Quli Qutub Shah.
- **Language: Persian** was the court language whereas **Telugu** was the language of the people.
  - **Ibrahim Quli Qutub Shah** patronized and encouraged the learning and writing of Telugu in the kingdom.
- **Socio-religious conditions:**
  - The Qutb Shah Sultans belonged to the **Shia sect of the Muslims.** Shias had taken high positions in administration of Qutb Shahis.
  - **Social evils** such as child marriages, dowry system, sati was prevalent among Hindus of the kingdom.
  - The contemporary **Telugu author Ponnaganti Telaganarya** in his work Yayathi Chritra informs about the **poor status of women in society**.

The dynasty ended with Mughal Emperor Aurangazeb seizing the fortress of Golconda for a period of 8 continuous months. In 1687, the Mughals stormed the fortress and the last king was taken prisoner.

8.2. NEWS IN SHORTS

8.2.1. MANGARH MASSACRE

- A horrifying tragedy had occurred in Mangarh (Banswada) in Rajasthan in 1913 where around 1,500 tribals and forest dwellers were killed by the British.
- Rajasthan and Madhya Pradesh faced great **troubles at the hands of the rulers of the princely states and the British**.
  - The great famine of 1899-1900 across the Deccan and Bombay Presidency, which killed over six lakh people, only made the situation worst for the Bhils.
- In November 1913, thousands of Bhil tribals gathered on the call of tribal leader Govind Guru against the suppression being faced by them in the form of **forced labour, bonded system, and taxes on farmers during the famine.**
- **British soldiers fired cannons and machine guns** at a large crowd of unarmed tribals who had gathered in an open space on the hilltop of Mangarh.
  - The British were **worried about their participation** in the Indian freedom struggle, the princely states were concerned about social reform that could lead to the tribes demanding an independent Bhil state.
- **About Govind Guru**
  - Govind Guru was a **revolutionary leader** of the tribals of present-day **Udaipur, Dungarpur and Banswara in Rajasthan, Idar in Gujarat, and Malwa in Madhya Pradesh.**
  - He was a living legend for uniting tribals among the **Bhil and Garasiya tribal communities**.
  - To improve the condition of Bhils, Guru Govind began the **Bhagat Movement in 1908** in which he propagated practices such **as vegetarianism and abstinence from alcohol**.
    - ✓ He also asked his supporters to **reject bonded labour and fight for their rights**.

- ✓ He advocate boycotting foreign goods, ending forced labour, educating girls, and resolving mutual disputes among tribes instead of taking them to the courts.
- Unlike in the Jallianwala Bagh case, following the killings, Govind Guru was **sentenced to 20 years of imprisonment** on an isolated island by the British.
  - ✓ Owing to his popularity and good conduct in jail, he was released from Hyderabad Jail in 1919 but banned from entering many of the princely states where he had a following.
  - ✓ He settled down in Kamboi near Limbdi in **Gujarat and died in 1931**.

8.2.2. LACHIT BARPHUKAN

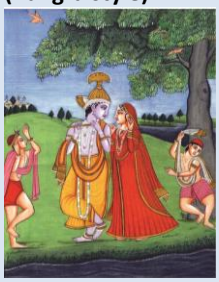
- Recently, a three-day long celebration of the 400th birth anniversary of **Ahom General Lachit Barphukan** began in New Delhi
  - The aim of organizing the celebration was to **sensitize the people of the country** on the bravery and war skills of Lachit Barphukan.
- Born on November 24, 1622, Lachit Borphukon is a 17th-century commander of the Ahom forces.
  - He was chosen as one of the **five Borphukans of the Ahom kingdom by king Charadhwaj Singha**, and given administrative, judicial, and military responsibilities.
    - ✓ Unlike the Mughals who preferred battles in the open with their massive armies, **Borphukan preferred guerrilla tactics** which provided an edge to his smaller, but fast moving and capable forces.
- Lachit Borphukan **is best known for fighting off the Mughals**, defeating them in the Battle of Saraighat in 1671 on the banks of the Brahmaputra near Guwahati.
  - The legacy of his unflagging valour, determination, and war skills has become an integral part of Assamese culture and identity.
- Lachit Borphukan died about a year after the victory at Saraighat due to natural causes.
- His remains lies in rest at the **Lachit Maidaam built in 1672 by Swargadeo Udayaditya Singha** at Hoolungapara l6 km from Jorhat.

About Ahom kingdom

- The Ahoms ruled Assam for over 600 years **between 1228 and 1826** and have a record of being one of the **longest reigns in the world.**
- It had been **attacked by the Turkic and Afghan rulers of the Delhi Sultanate and later by the Mughals.**
  - They acted as a **threshold that protected the entire South East Asia from ruthless invasions.**
- The Ahoms engaged in a **series of conflicts with the Mughals from 1615-1682**, starting from the reign of Jahangir till the reign of Aurangzeb.
  - According to records, there were **17 wars between the Ahoms and the Mughal**s, and the Ahoms won most of them.
- The Mughals had **won a major war in 1663 when they occupied the Ahom capital.**
- The counter-offensive to reclaim lost Ahom territories started under Ahom King Swargadeo Chakradhwaja Singha.
- After the Ahoms enjoyed some initial victories, Aurangzeb dispatched Raja Ram Singh I of Jaipur in 1669 to recapture the lost territory — eventually **resulting in the Battle of Saraighat in 1671.**
  - The Battle of Saraighat was the last battle in last major attempt by Mughals to extend their empire into Assam.
  - The Ahom army defeated Mughal army.
- **Ahom's Victory at the Saraighat** helped to preserve the Ahom kingdom's independence and protected the culture and civilisation of Assam.

8.2.3. CRAFTS IN NEWS

Recently, the Prime Minister gifted the heads of states different craft pieces from India at the G20 summit in Bali.

Gifts	Description
Pahari Miniature Painting (Kangra style) 	• It is a style of miniature painting and book illustration that developed in the **independent states of the Himalayan foothills in India.** • Painting in the Kangra region blossomed under the **patronage of a remarkable ruler, Raja Sansar Chand (1775–1823).** • The **Kangra style** is by far the **most poetic and lyrical of Indian styles** marked with serene beauty and delicacy of execution. • **Characteristic features** of the Kangra style are delicacy of line, brilliance of colour and minuteness of decorative details. • Most popular themes that were painted were the **Bhagvata Purana, Gita Govinda, Nala Damayanti, Bihari Satsai, Ragamala and Baramasa.**

Mata Ni Pachedi 	• It means **'behind the mother goddess'** and is a cloth that constitutes a temple of the goddess. ○ The story goes that when the **nomadic Vaghari community from Gujarat who worship Mata**, were not allowed to enter temples, they instead created their own places of worship with illustrations of the Mother Goddess (Mata) on pieces of cloth. • Mata ni Pachedi is **also called the Kalamkari of Gujarat** due to its resemblance to the art of Kalamkari from South India and the same method of painting, namely using a pen (kalam) made out of bamboo.

Pithora Paintings
 	
	• The Pithora paintings **trail back long into history and find their roots in the cave paintings**, thousands of years old.
	• The Pithora paintings are done by the **Rathwa, Bhil, Nayak and Tadi tribes of Gujarat, parts of Rajasthan and Madhya Pradesh.**
	  ○ These paintings speak of the social, cultural and mythological life and beliefs of the tribals.
	• Pithora paintings are **characterized by the seven horses** representing the seven hills that surround the area where the Rathwas reside.
	• Pithora paintings are **more of a ritual than an art form**.
	  ○ These rituals are performed either to thank God or for a wish or a boon to be granted.

Agate Bowls	• Agate or akik is the semi-precious stone is found in underground mines of Rajpipla and Ratanpur in riverbeds and extracted to produce a variety of ornamental objects such as these bowls. • Agate is also said to have **healing properties for balancing energies** either within a person or even in the surroundings. • In the 18th century, the seaport of Khambhat (now in Anand dist.) was the centre of the agate industry.
Patan Patola 	• The ancient art of double ikat or Patola is woven in pure silk and **dates back to the 11th century.** • The Patola fabrics bear an **equal intensity of colours and design on both sides.** • This peculiar quality has its origins in an intricate and difficult technique of dyeing or knot dyeing, known as **'bandhani'**, on the warp and weft separately before weaving.
Kinnauri Shawl 	• These are **famous shawls from Himachal Pradesh.** • It's **geometric designs are heavily influenced by the Central Asian culture** and consists of motifs that usually **symbolise religions and cultures.** • The base colours are natural i.e. grey, black, brown and white and are embellished with orange, blue, green, etc. • These shawls are **mostly woven in 2 parts** and then joined together from the centre with extensive hand-stitching.

8.2.4. SHADANI DARBAR

- Pakistan issued visas to **Indian pilgrims to** allow them to **participate in 314th birth anniversary celebrations of Sant Shadaram Sahib**.
  - Under **Pakistan-India Protocol on Visits to Religious Shrines of 1974,** pilgrims from both countries are allowed to travel to some shrines across every year.
- Shadani Darbar temple is **located in Pakistan's Sindh province and is a sacred place for Hindu devotees** from across the globe.

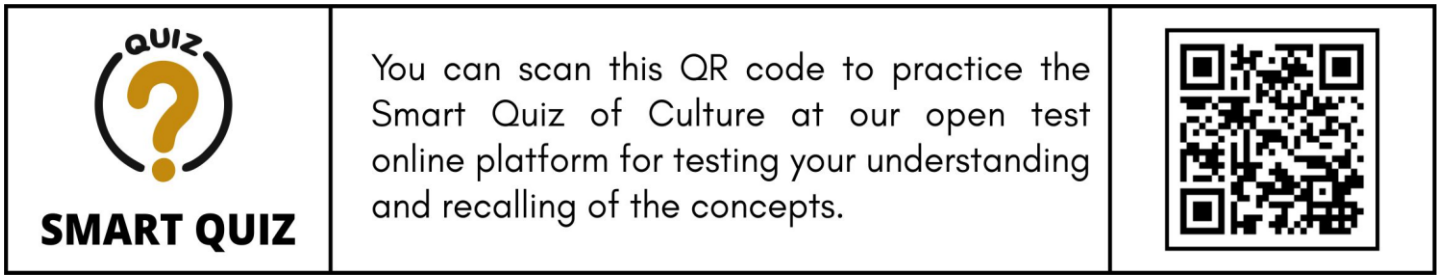
- It was **founded in 1786 by Sant Shadaram Sahib** who is believed to be descendent of Lord Ram's son, Lav, and also an avatar of Lord Shiva.

8.2.5. INDIRA GANDHI PRIZE FOR PEACE, DISARMAMENT AND DEVELOPMENT

- Indira Gandhi Prize for Peace, Disarmament and Development **of 2021** was awarded to **Pratham**, an NGO functioning in the field of education.
  - The award recognises Pratham's work in **ensuring quality education for children**, particularly **during the COVID-19 pandemic.**
- Instituted in memory **of former prime minister**, it consists of a **monetary award** of ₹25 lakh along with a citation.
  - **Accorded annually** by Indira Gandhi Memorial Trust to **individuals or organisations.**

8.2.6. ERRATA

- Due to Typographical error in Article 8.5.4 **Asia-Pacific Institute for Broadcasting Development (AIBD)** in September 2022, it was incorrectly mentioned that "AIBD is a regional inter-governmental organisation of United Nations Economic and Social Commission for Asia and Pacific (UN-ESCAP) in field of electronic media development."
  - The correct information is "**AIBD was established in 1977 under the aegis of UNESCO**. It is a unique regional inter-governmental organisation **servicing countries of the UN-ESCAP in the field of electronic media development**."



9. ETHICS

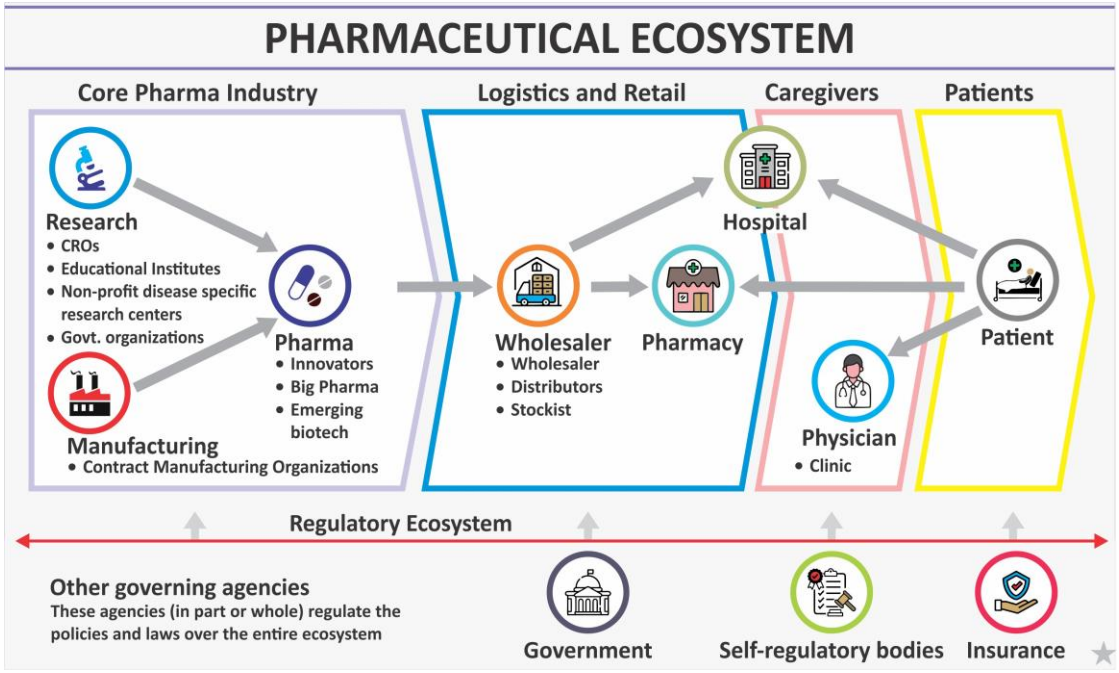
9.1. ETHICS OF PHARMACEUTICAL ECOSYSTEM

Introduction

In a capitalist free market, the goal of business is to sell a product to satisfy demand. In this context, a company's objective is to maximize profit. However, there are industries where social good should take precedent over profit. Pharmaceutical Industry is one such sector. But the recent issue of 'Dolo-650' has highlighted the underlying dominance of 'profit agenda' in the ecosystem.

How does pharmaceutical ecosystem work?

A pharmaceutical ecosystem is an **interconnected set of entities and organizations each playing a role in providing healthcare to a patient**. It includes Providers, Doctors and also a distribution supply chain among others.



What are the interests of these stakeholders from the ecosystem?

Core Pharma Industry including research and manufacturing	Pharmacy (both wholesale and retail level)	Doctors and Hospitals	Patients	Regulatory agencies
The Pharma Industry aims to **develop solutions to human ailments**. Although, this pusuit is **largely motivated by the associated economic benefit**.	Pharmacies act as the **vital cog connecting the medicial supply chain** in the ecosystem. They perform this role for both hospitals and patients.	Doctors and Hospitals aim to provide **best possible diagnosis and services** to patients respectively. The **associated cost of service is also of vital importance** in the ethical analysis.	They seek **best possible care from the system at fair and affordable price**. This includes treatments, medical services, timely care and medicines.	The agenda for regulatory agencies is **create a balance between interests** of all stakeholders and ensure that the **care provided to patients is safe, accessible and affordable**.

Several times in this ecosystem, the interests of different stakeholders come at loggerheads with each other. This creates ethical issues for the ecosystem.

What are the Ethical issues in the Pharmaceutical ecosystem?

- **Ensuring ethics in clinical research:** To reach the market, drugs must be studied in animals

The Freebie problem of the Pharma Sector

There have been cases where drug manufacturing companies offer **freebies in cash and kind to physicians** to incentivise them to prescribe 'their drugs'. These incentives include-

- Helping doctors in **reputation-building exercises** such as articles publication etc.
- **Making doctors lead investigators** in clinical trials, for which they are heavily paid.

On the flip side, Pharmaceutical companies argue that they offer **branded souvenirs** like pen stands, calendars, diaries or sanitizers to doctors. However, these practices **do not ensure doctors will prescribe their drugs.** It is simply a **marketing strategy.**

The Supreme court in **M/s Apex Laboratories Pvt Ltd** held that the act of pharmaceutical companies giving freebies to doctors is clearly 'prohibited by the law'.

and humans. These studies are plagued with ethical dilemmas about weighing the benefits and risks to subjects, and the goal of advancing medical science.

- **Transparency and accountability towards patients**: The Ecosystem does not actively communicate the manufacturing processes and the side-effects of drugs to patients.
- **Profit maximization at the cost of affordability:** There have been instances of overpricing of drugs for increasing profits. Also, some pharmaceutical companies use 'freebies for doctors' as a tool to ward-off generic drugs (which are more affordable).
- **Evergreening Practices**: Companies utilize patent rules and modest adjustments to extend their monopoly privileges on drugs.
- **Prescription Data Mining:** Pharmacy information regarding doctors' prescribing behaviors is purchased by drug firms from pharmacies. This information is then used to target specific doctors in their sales calls and other marketing activities.

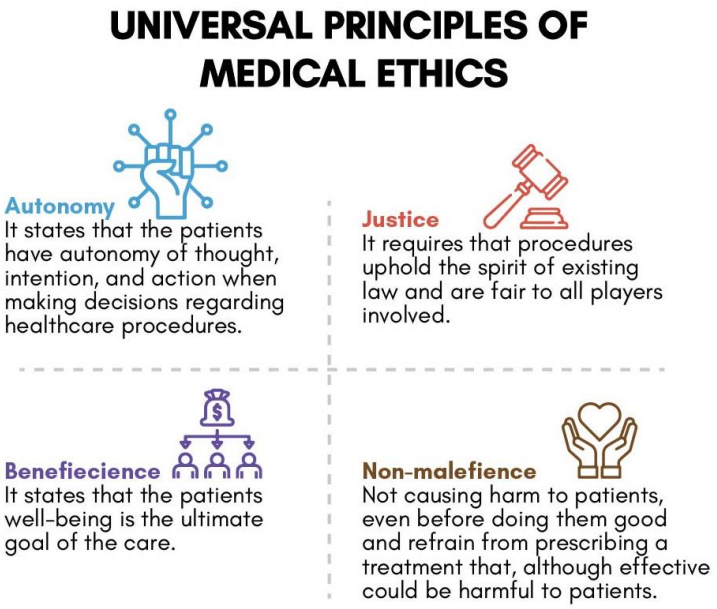
Uniform Code for Pharmaceutical Marketing Practices (UCPMP)

- **Gifts and other benefits:** No gifts, pecuniary advantages, or benefits in kind may be supplied, offered, or promised to persons qualified to prescribe or supply drugs.
- **Free Samples:** Free samples of drugs shall not be supplied to any person who is not qualified to prescribe such product.
  - Each sample shall be accompanied by a copy of the most up-to-date version of the Product Information (As required in Drug and Cosmetic Act, 1940) relating to that product.
- **Claims**: Claims for the usefulness of a drug must be based on an up-to-date evaluation of all the evidence.
- **Information on promotional materials** must be given clearly and legibly and must be an integral part of the promotional material.
- **Comparison of drugs:** Comparison of drugs must be factual, fair, and capable of substantiation.
- **Committee for complaint handling:** There should be a committee for handling the complaints named as "ethics committee for pharma marketing practices".

To overcome these issues, the Government of India has provided for a code of conduct of Pharmacies (In operation since 2015).

What can be done to overcome such ethical issues in the long run?

The creation of such a policy framework should revolve around four universally accepted principles of medical ethics – **Autonomy, Justice, Beneficence and Non-maleficence.** These principles can be incorporated in following objectives:



- **Treating ethics as an integral part of medical policy** by emphasizing on more ethical allocation and distribution of resources in healthcare and breaking the vicious cycle in medical exploitation.
- **Establishing clear communication** through training, increasing availability of open information, and creating clear consent frameworks.
- **Protecting the patients** by strengthening enforcement of the relevant regulations and legislations.
- **Understanding the rights of physicians and duties of patients** through awareness generation and creating zero tolerance for unacceptable behavior.
- **Embracing the role of technology**, research, and innovation in medicine.
- **Making adherence to medical ethics as part of the culture** rather than an enforced behavior.

10. SCHEMES IN NEWS

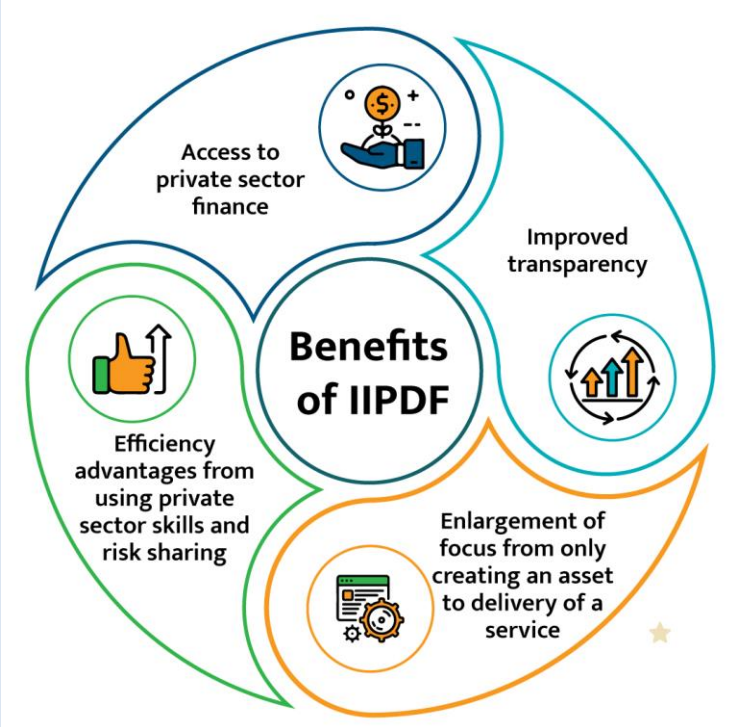
10.1. INDIA INFRASTRUCTURE PROJECT DEVELOPMENT FUND (IIPDF) SCHEME

Why in news?

Department of Economic Affairs (DEA), **Ministry of Finance** has notified the IIPDF Scheme, a **Scheme for Financial Support for Project Development Expenses of PPP Projects**.

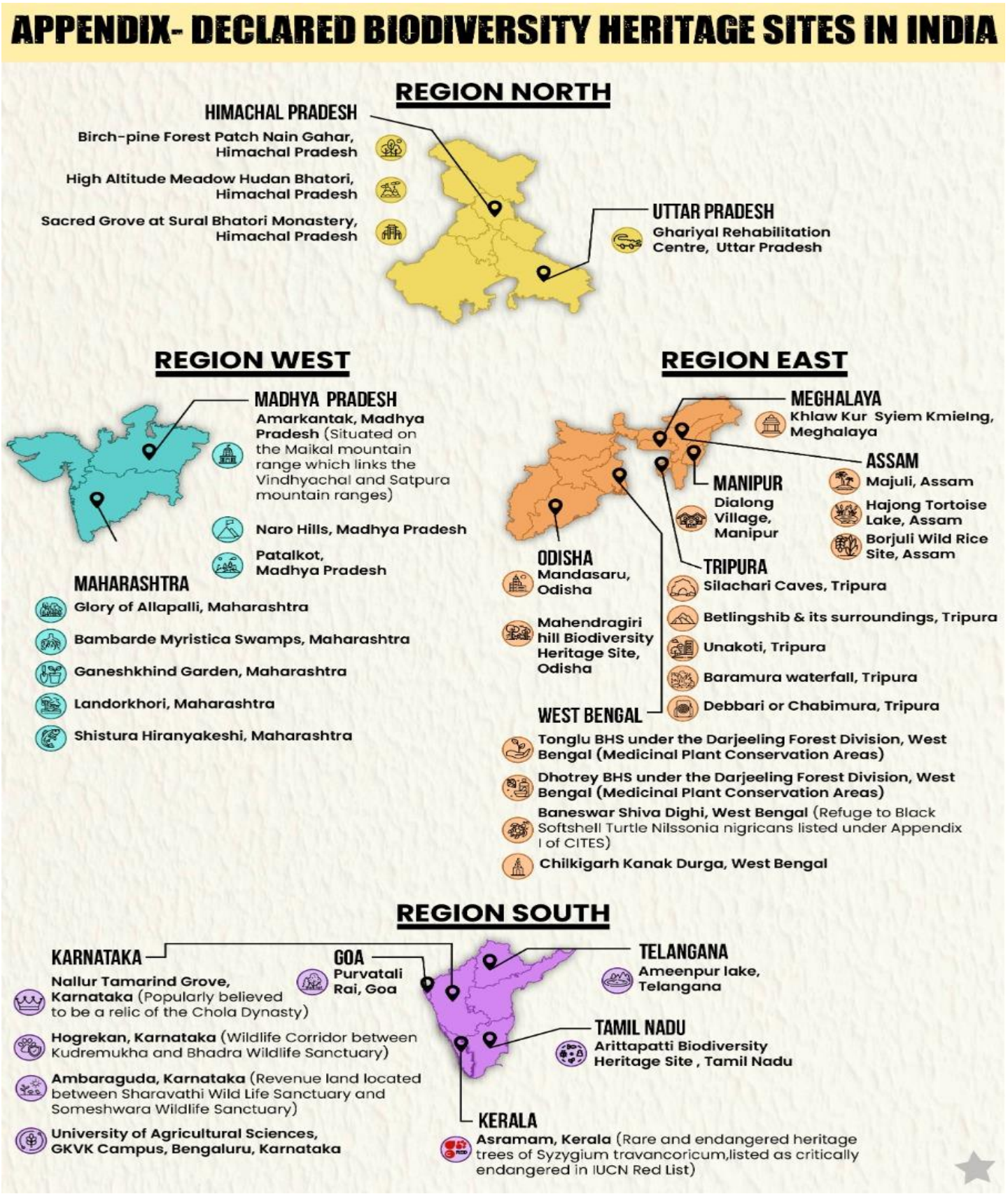
Objectives	Salient Features

• To provide **support to project sponsoring authorities**, both in **Central and State Governments,** for meeting the cost of transaction advisors and consultants engaged in development of PPP projects.
• To **create a shelf of bankable viable PPP projects** for achieving the vision of modern infrastructure for the country.
• Fund will **help the sponsoring authority (SA) to cover a portion of PPP transaction costs** thereby reducing the impact of costs related to procurement on their budgets.
	• IIPDF was **set up in 2007**.
	• The features of existing IIPDF are enhanced and the **fund is restructured as a Central Sector Scheme with total outlay of Rs 150 crore for a period of three years from 2022-23 to 2024-25**
	• **Eligibility:**
	  ○ Proposals for assistance under scheme must be **sponsored by Central Government Ministries/Departments, State Governments, Municipal or Local Bodies** or any other statutory authority.
	  ○ To seek financial assistance from IIPDF, it would be necessary for SA to **create and empower a PPP Cell to undertake PPP project development activities** and address larger policy and regulatory issues.
	  ○ IIPDF will **contribute up to 75% of project development expenses to SA as an interest free loan**. The balance **25% will be co-funded by SA.**
	  ○ On completion of bidding process, project development expenditure would be recovered from successful bidder. However, in case of failure of bid, loan would be converted into grant.
	  ○ In case SA does not conclude bidding process for some reason, entire amount contributed would be refunded to IIPDF.
	• **Funding:** Funding under IIPDF Scheme is **in addition** to the already operational **Scheme for Financial Support to PPPs in Infrastructure (VGF Scheme).**
	  ○ VGF supports PPP projects that are **economically justified but commercially unviable** due to large capital requirements, long gestation periods and inability to increase user charges to commercial levels.
	• IIPDF will be **administered by the Empowered Institution (EI).** EI will:
	  ○ Select projects for which project development costs will be funded.
	  ○ Set **terms and conditions under which funding will be provided** and recovered.
	  ○ Set milestones for disbursing and recovering (where appropriate) the funding.



11. APPENDIX

11.1. DECLARED BIODIVERSITY HERITAGE SITES IN INDIA



11.2. MAJOR INITIATIVES LAUNCHED DURING COP27

11.2.1. AGRICULTURE AND FOOD INITIATIVES

APPENDIX: AGRICULTURE AND FOOD INITIATIVES

Initiative	Launched by	Objective and other information
Agricultural Innovation Mission for Climate (AIM4C or AIM4Climate)	**UAE** • *India is not a member.*	● Aim: To **boost investment and other support for climate-smart agriculture and food systems** innovation over five years (2021-25) to the tune of $8bn.
Initiative on Nutrition and Climate Change (I-CAN)	**Egypt as COP27 Presidency, in partnership with WHO, FAO,** other UN agencies and partners.	● Aim: To support Member States in delivering climate change adaptation and mitigation policy action which simultaneously- ➢ **improves nutrition** and ➢ **triggers transformative action to deliver** ➢ **healthy diets** from sustainable food systems
International Drought Resilience Alliance (IDRA)	**Spain and Senegal led 30 countries and 20 organisations.** • *India is not a member.*	● Aim: To lend **support to countries exposed to the continued threat of drought** by mobilising resources, transferring technology and knowledge, and fostering innovation. ● IDRA was first announced at the UN General Assembly in September 2022 by the President of Spain.
Food and Agriculture for Sustainable Transformation Initiative (FAST)	It is designed as a catalyst, **building on ongoing global and regional initiatives and coalitions** to drive effective actions, and avoiding duplication.	● Aim: To implement concrete actions that would result in improving the quantity and quality of climate finance contributions to **transform agriculture and food systems by 2030,** to support adaptation and maintain a 1.5-degree pathway whilst supporting food and economic security.

APPENDIX: FINANCE INITIATIVES

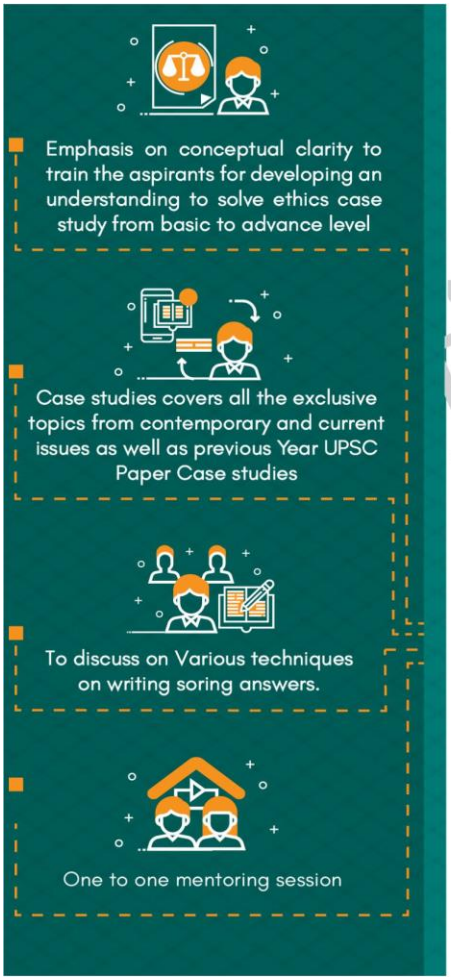
Initiative	Launched by	Objective and other information
Sustainable Debt Coalition Initiative	**Egypt**	● Aim: ➢ **Highlight the difficult fiscal position of emerging market and developing economies** and its debilitating impacts on climate action and development ➢ Spur Coalition partners to align on a set of new crucial commitments to **alleviate the debt burden.** ➢ **Launch a new track for consultations at the intersection of debt, climate, and development.**
Global Shield against Climate Risk	**G7 and V20** ('the Vulnerable Twenty').	● Aim: To provide climate **risk insurance and social protection schemes in developing countries.** ● The **World Bank Group has announced a Global Shield Financing Facility** to support the initiative. ● V20 is a dedicated cooperation initiative of economies systemically vulnerable to climate change. It was established in 2015 at Lima, Peru. ➢ V20 Group membership stands at 58 economies. ➢ *India is not a member.*
Industry Transition Programme	**Climate Investment Fund (CIF)**	● It is the **world's first large scale dedicated finance programme for developing country industry transitions.**

APPENDIX: FOREST AND LAND INITIATIVES

Initiative	Launched by	Objective and other information
Mangrove Alliance for Climate (MAC)	The **United Arab Emirates (UAE) and Indonesia.** • *India is a member.* • Other members include Sri Lanka, Australia, Japan, and Spain.	● Aim: To **educate and spread awareness worldwide on the role of mangroves in curbing global warming** and its potential as a solution for climate change.
Forest and Climate Leaders' Partnership (FCLP)	**The UK and world Leaders from 26 countries** (India not a part) and **EU** launched. • *India is not a member.*	● Aim: To **boost action to implement a commitment made by over 140 countries at COP26 in Glasgow last year to halt forest loss and land degradation by 2030** and to convert ambition into results on the ground. ● Its action areas include: ➢ Mobilizing public and donor finance to support implementation. ➢ Supporting Indigenous Peoples' and local communities' initiatives. ➢ Incentivizing conservation of high-integrity forests.
Enhancing Nature-based Solutions for Climate Transformation (ENACT)	**COP27 Presidency, in collaboration with the IUCN**	● It will **serve as a hub for Party and non-state actors working on Nature-based Solutions (NbS)** to foster collaboration and bring global coherence to activities. ● The ENACT partnership will function as an enabler and accelerator of progress towards multilaterally established global targets such as- ➢ the **UN Decade on Restoration,** ➢ the **proposed 30x30 target under the CBD Global Biodiversity Framework,** and ➢ the **G20 Global Initiative on Land Degradation under the UNCCD.**

APPENDIX: HEALTH AND NUTRITION

Initiative	Launched by	Objective and other information
Alliance for Transformative Action on Climate and Health (ATACH)	Co-convened by the **UK and Egypt**	➢ Aim: To realize the **ambition set at COP26 to build climate resilient and sustainable health systems.** ➢ It will use the **collective power of WHO Member States and other stakeholders** to drive this agenda forward at pace and scale; and promote the integration of climate change and health nexus into respective national, regional, and global plans.



ETHICS

Case Studies Classes

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APPENDIX: INITIATIVES WITH FOCUS ON AFRICAN REGION

Initiative	Launched by	Objective and other information
Africa Just & Affordable Energy Transition Initiative (AJAETI)	**COP27 Presidency**	➢ Aim: ▪ **Provide all Africans with access to clean energy,** whilst meeting the energy requirements for Africa's economic development. ▪ **Driving economic growth and supporting job creation across Africa** to build a modern, resilient, and sustainable energy systems across the continent. ➢ The initiative will **engage the International Energy Agency (IEA) and International Renewable Energy Agency (IRENA).**
Decent Life for a climate resilient Africa Rationale	**President of the Arab Republic of Egypt**	➢ Aim: **To improve the quality of life in 30% of the most vulnerable and poorest villages and rural areas** in the continent by 2030, in a climate-sensitive manner.
African Women's Climate Adaptive Priorities	**COP27 Presidency**	➢ Aim: To **ramp up the inclusion of women for a climate-resilient future.**
African Carbon Markets Initiative (ACMI)	The initiative was inaugurated at COP 27 in collaboration with the **Global Energy Alliance for People and Planet (GEAPP), Sustainable Energy for All (SEforALL), and the UN Economic Commission for Africa.**	➢ Aim: To support the **growth of carbon credit production and create jobs in Africa.**
Friends of Greening National Investment Plans in Africa and Developing Countries initiative	**Egypt's Ministry of Planning and Economic Development** and supported by the United Nations Development Programme (UNDP)	➢ Aim: **Shaping the process of planning and designing the economic policies in a manner that factors in the impact of climate change.**
Global Waste Initiative 50 by 2050	It will leverage **voluntary engagements from over 180 countries.**	➢ Aim: To **treat and recycle at least 50% of the solid waste produced in Africa by 2050.** The initiative is **first of its kind global coalition that proposes a collaborative platform for all stakeholders involved in waste management** to holistically address all solid waste types and contribute to an ambitious target at the scale of the African continent.

APPENDIX: MOBILITY AND URBAN TRANSFORMATION INITIATIVES

Initiative	Launched by	Objective and other information
Low Carbon Transport for Urban Sustainability (LOTUS) initiative	**SLOCAT and BCG (Boston Consulting Group)** and developed in collaboration with the UN Environment Programme	➢ Aim: To activate systemic change to **improve and decarbonize the urban mobility landscape.**
Accelerating to Zero (A2Z) Coalition	**UK,** the High-Level Champions, the International Council on Clean Transportation, The Climate Group, and the Drive Electric Campaign.	➢ Aim: **To promote and support the transition to zero emission vehicles globally.** ➢ It's the **world's largest transportation coalition with over 200 organizations** including governments, industry and civil society. ➢ **It builds off the foundation of the "Zero Emission Vehicles Declaration" (ZEV Declaration)** generated at COP26, which is the agreement that establishes the 2035 and 2040 zero-emission goal.
Collective for Clean Transport Finance	It is a strategic collaboration between the **High-Level Champions and the Smart Freight Center, World Bank, WBCSD, and the Nand & Jeet Khemka Foundation.**	➢ Aim: To create the **tools to change the risk profiles of investment in zero-emission transport.**
Zero Emission Vehicles Emerging Market Campaign (ZEV-EM-C)	**USA**	➢ Aim: It is a one-year campaign that **seeks to accelerate zero-emission passenger vehicle deployment in emerging markets.**
Sustainable Urban Resilience for the next Generation (SURGe) initiative	**COP27 Presidency, in collaboration with UN-Habitat and with the facilitation of ICLEI.**	➢ Objective: To effectively **address some of the barriers that limit urban emissions reductions,** adapting urban systems to climate change, and building urban system resilience. ➢ It will track **buildings and housing, urban water, urban mobility, urban waste and consumption, and urban energy.**
Beat the Heat: Nature for Cool Cities Challenge	**Cool Coalition**	➢ Cities in developing countries are invited to participate in the challenge **by pledging to increase nature based solutions in their urban areas by 2030** and demonstrate tangible progress by 2025. ➢ Participants will be supported via funding, technical assistance, partnership opportunities, and communications support.

APPENDIX: CLIMATE MITIGATION AND ADAPTATION TARGETS INITIATIVES

Initiative	Launched by	Objective and other information
First Movers Coalition (FMC) Cement & Concrete Commitment	**First Movers Coalition (FMC)**	➢ First movers pledged to **purchase at least 10% near zero carbon cement and concrete by 2030.** ➢ FMC is a coalition of companies using their purchasing power to create early markets for innovative clean technologies across eight hard to abate sectors. ⊙ *India is a Government Partner of the coalition.*
LeadIT (Leadership for Industry Transition) Summit 2022	**Hosted by India and Sweden**	➢ The summit concluded with the adoption of the summit statement by the members of LeadIT which **re-emphasized the commitment to continue pursuing the low-carbon transition of the** industry. ➢ LeadIT (Leadership for Industry Transition) initiative focuses on low carbon transition of the hard to abate industrial sector. ⊙ It was **launched by the governments of Sweden and India at the UN Climate Action Summit in September 2019** and is supported by the World Economic Forum.
Middle East Green Initiative (MGI) Summit 2022	**Saudi Arabia led regional dialogue** to bring together leaders from across the MENA region (Middle East/North Africa) and beyond.	➢ **Aim:** To mitigate the impact of climate change on the region and to collaborate to meet global climate targets. ➢ MGI Summit 2022 was held in Sharm El Sheikh, in tandem with COP27. ⊙ MGI is a Saudi Arabia led regional dialogue on climate launched in 2021 to bring together leaders from across the MENA region (Middle East/North Africa) and beyond. ⊙ *India is one of the endorsing countries.*

		➢ **Targets MGI:** ⊙ Reducing carbon emissions from regional hydrocarbon production by more than 60%. ⊙ **Plant 50 billion trees across the Middle East and restore an area equivalent to 200 million hectares** of degraded land.
Methane Alert and Response System (MARS)	**UNEP's International Methane Emissions Observatory.** ➢ Initial financial support for MARS is provided by the European Commission, the U.S. Government, the Global Methane Hub, and the Bezos Earth Fund.	➢ Aim: To **accelerate implementation of the Global Methane Pledge** by transparently scaling up global efforts to detect and act on major methane emissions sources. ➢ It is a **new satellite-based system** that will alert governments, companies and operators about large methane sources to foster rapid mitigation action.
Climate TRACE Coalition	**Spearheaded by former U.S. Vice President Al Gore**	➢ Aim: To make meaningful climate action faster and easier by **mobilizing the global tech community to track greenhouse gas (GHG) emissions with unprecedented detail and speed** and provide this data freely to the public. ➢ It is a **global non-profit coalition.** ➢ It will harness **satellite imagery and other forms of remote sensing, artificial intelligence,** and collective data science
Action on Water, Adaptation and Resilience (AWARe)	**COP27 Presidency, in partnership with World Meteorological Organization (WMO)** ➢ It is a collaboration between various stakeholders, including African Union.	➢ It will **address water security as part of climate change adaptation** and will focus on three priorities: ⊙ Decrease water losses worldwide and improve water supply. ⊙ Promote mutually agreed, cooperative water adaptation action. ⊙ Promote cooperation and interlinkages between water and climate action.

Insurance Adaptation Acceleration Campaign	Launched as a part of the **Race to Resilience campaign,** which is the UN-backed global campaign to catalyse a step-change in global ambition for climate resilience	➢ Aim: To **mobilise 3,000 insurance companies** (equal to 50% of the market) by COP28 in 2023. ➢ The objective is to scale the industry's ability to- ⊙ **advance meaningful climate risk reduction,** and ⊙ **jointly pursue the innovative public-private partnerships** that reflect a shared mission of protecting vulnerable populations from the physical ravages of climate change.
Sharm El-Sheikh Adaptation Agenda	**COP27 Presidency in partnership with the High-Level Champions and the Marrakech Partnership.** ➢ Underpinned by the 2,000+ organisations spanning 131 countries in the Race to Resilience campaign.	➢ It outlines **30 Adaptation outcomes to enhance resilience for people living in the most climate vulnerable communities by 2030.** ➢ The outcomes include urgent global 2030 targets related to Food Security and Agriculture, Water and Nature, Ocean and Coastal, Infrastructure Systems etc.
Planning for Climate Commission	**Green Hydrogen Organisation, International Hydropower Association, the Global Wind Energy Council and the Global Solar Council.**	➢ Aim: It is a new global initiative focused on **speeding up planning and approvals for the massive deployment of renewables and green hydrogen** needed to address climate change and energy security.
Global Renewables Alliance	**International Geothermal Association, Global Wind Energy Council, Long Duration Energy Storage Council, Green Hydrogen Organisation, International Hydropower Association, and the Global Solar Council**	➢ Aim: To **position renewable energy as a pillar of sustainable development and economic growth.** ➢ It brings together, for the first time, all the technologies required for the energy transition in order to ensure an accelerated energy transition.

APPENDIX: OTHER INITIATIVES

Initiative	Launched by	Objective and other information
Executive Action for 2023-2027: Early Warnings for all Action Plan	**World Meteorological Organisation (WMO)**	➢ The plan identifies key areas for advancing universal disaster risk knowledge, and outlines the priority actions required to achieve this, building on the **Sendai Framework for Disaster Risk Reduction.** ➢ The action plan calls for **a targeted investment of US$ 3.1 billion between 2023 and 2027** to advance four Multi-Hazard Early Warning System (MHEWS) pillars. ⊙ The funding will cover **disaster risk knowledge, observations and forecasting, preparedness and response, and communication of early warnings,** and focus on developing countries where major gaps in early warning systems remain.
Climate Responses for Sustaining Peace (CRSP)	**Cairo International Center for Conflict Resolution, Peacekeeping and Peacebuilding (CCCPA)** in its capacity as the Secretariat of the Aswan Forum for Sustainable Peace and Development.	➢ Aim: Ensuring that **integrated climate responses contribute to sustainable peace and development** in line with national ownership and context specificity

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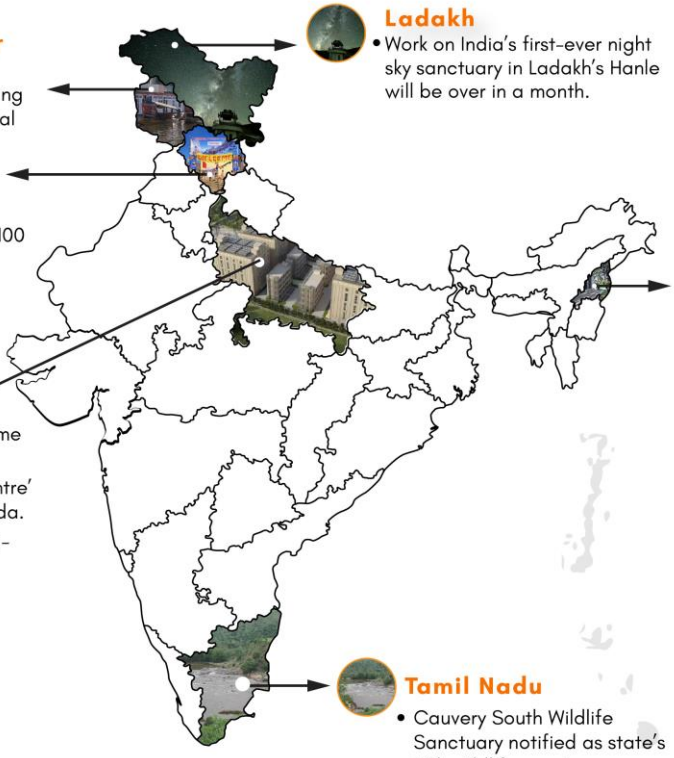
Places in News: India



Jammu and Kashmir
- India Post Payments Bank conducted India's first floating financial literacy camp at Dal Lake.

Himachal Pradesh
- Tashigang polling station (world's highest) witnessed 100 percent voting.

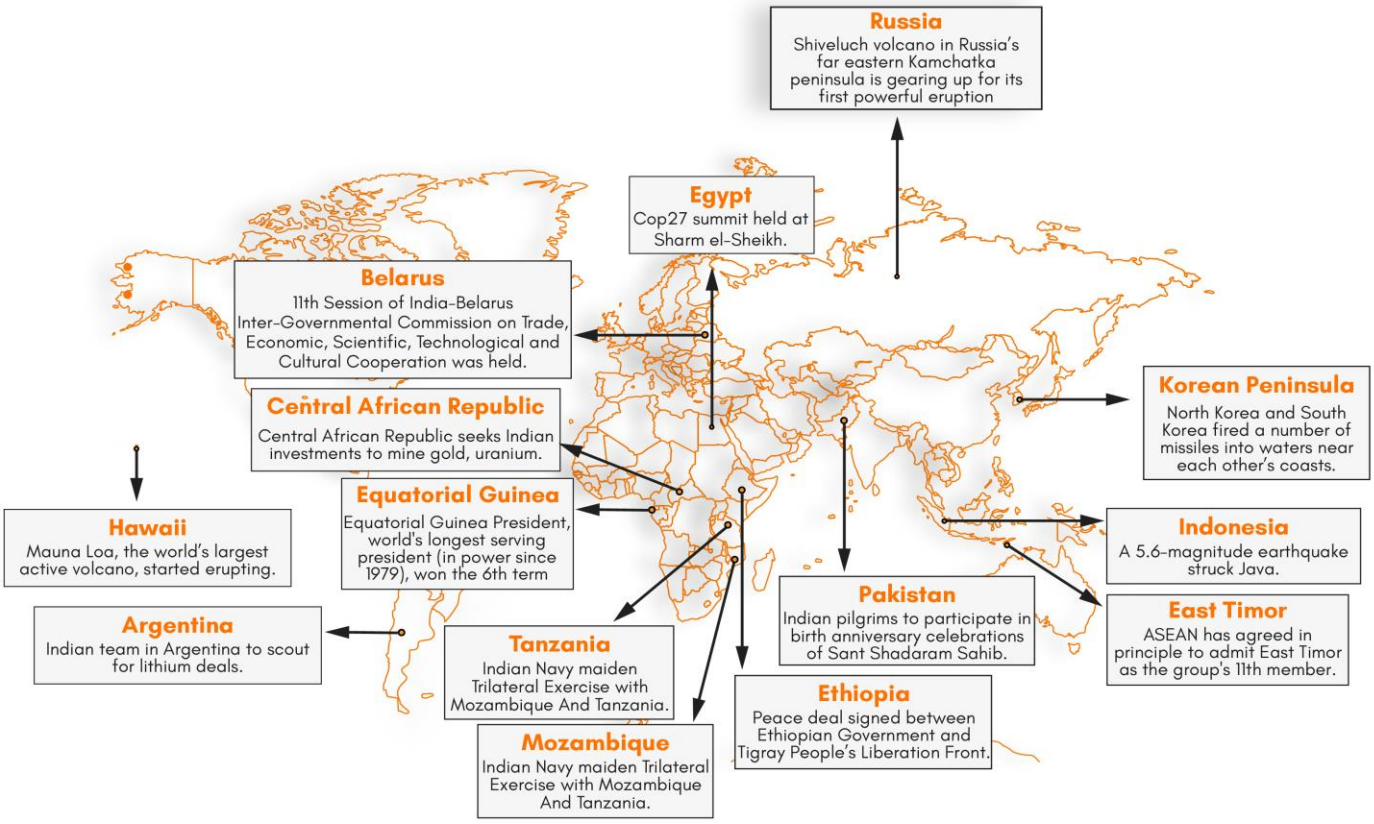
Uttar Pradesh
- Ranipur Tiger Reserve became 53rd tiger reserve of India.
- Country's biggest 'Data Centre' inaugurated at Greater Noida.
- Kashi Tamil Sangamam organized in Varanasi.

Ladakh
- Work on India's first-ever night sky sanctuary in Ladakh's Hanle will be over in a month.

Nagaland
- President visited Kohima World War II Cemetery.

Tamil Nadu
- Cauvery South Wildlife Sanctuary notified as state's 17th wildlife sanctuary.

Places in News: World



Personalities in News

Personality	About	Ethical Values Exhibited by the personality
Nadaprabhu Kempegowda	• **PM unveiled a 108-feet tall bronze statue** of Nadaprabhu Kempegowda in Bengaluru. • He was a **16th century chieftain of the Vijayanagara empire and** is credited as the **founder of Bengaluru.** • **A descendant of Morasu Gowda,** he is considered one of the most educated and successful ruler of his time. • He is also known to have **developed around 1,000 lakes in the city** to cater to drinking and agricultural needs. • He built **Bangalore Fort and town** in 1537. • He is also **credited for prohibiting custom of amputation of last two fingers of left hand of unmarried women** during " Bandi Devaru".	• **Farsightedness and Social enlightenment** ▸ He set a great example in nearly every aspect of urban governance, like building the city, ensuring basic infrastructure like water and roads, facilitating trade and economic activity, aesthetics, focusing on sustainability and so on. ▸ He credited for abolishing the social custom known as Bandi Devaru.
Lachit Borphukan	• **400th birth anniversary celebration** of Lachit Barphukan will begin in New Delhi. • He was a **general during 17th Century period of the Ahom dynasty** (Assam). • He is **best known for the Battle of Saraighat** on the banks of Brahmaputra, where he defeated the Mughals, in 1671. • Lachit was **appointed as 'Borphukan' by King Chakradhwaj Singha.** Borphukan is a position embedded with both executive and judicial powers.	• **Valour and leadership** ▸ As a military administrator, he successfully led the army of Ahoms against extremely powerful Mughals.
Florence Nightingale	• **Florence Nightingale (1820 -1910)** • **President of India presented National Florence Nightingale Awards** for year 2021 to **nursing professionals.** ▫ Awards were instituted by Ministry of Health and Family Welfare, as a **mark of recognition for meritorious services** rendered by **nurses and** nursing professionals to society. • Florence Nightingale was **also known as 'Lady with the Lamp'.** ▫ **Contributions:** ✓ **Her work** during **Crimean war (1854)** set the standards for **modern nursing.** ✓ Campaigned to **improve sanitary conditions** in both **military and civilian hospitals.** ▫ **Honours:** ✓ First woman to receive the **Order of Merit in 1907.** ✓ **International Nurses Day** is celebrated on May 12 (her birth anniversary).	• **Philanthropy and Compassion** ▸ From a very young age, Florence Nightingale was active in philanthropy, ministering to the ill and poor people in the village neighbouring her family's estate. ▸ She tirelessly devoted her life to preventing disease and ensuring safe and compassionate treatment for the poor and the suffering.
Dadabhai Naoroji	• 2022 marks **130th anniversary of election, in 1892,** in which Dadabhai Naoroji became **first person of Indian origin** to be elected to British House of Commons. • **Dadabhai Naoroji** ▫ Proponent of the **'drain theory',** building up a **detailed economic critique** of British imperialism in India. ▫ Active member of the **Bombay Association (1852),** the **first association in the western India** to consider political issues. ▫ Founded **East Indian Association** (1867) and One of the founders of the **Indian National Congress** (1885). ▫ Founder-editor of the journal **Rast Goftar.** ▫ **Major works:** Poverty of India, Poverty and Un-British Rule in India etc.	• **Critical thought and Social equality** ▸ He is known in the history of Indian economic thought for his pioneering work in assessing India's national income and widely known for his unfavourable opinion of the economic consequences of British rule in India ▸ He did not believe in caste restrictions and was a pioneer of women's education and an upholder of equal laws for men and women.
Uda Devi	• On November 16, events to commemorate the martyrdom of Uda Devi were held at various places in Uttar Pradesh. • Uda Devi was a **Dalit freedom fighter in the Indian Rebellion of 1857,** who fought against the British East India Company. • She was born in a small village in Awadh, Uttar Pradesh. • She was **part of the royal guard of Begum Hazrat Mahal of Awadh.** • She was Known for her courageous battle in Lucknow termed as Battle in Sikandar Bagh.	• **Fearless and resilience** ▸ She partook in the resistance as a frontline warrior, leading an impressive and accomplished women's battalion under her command. ▸ She fought valiantly and, most ferociously in the aftermath of her husband and army soldier Makka Pasi's death in the war.
Birsa Munda (Bhagwan Birsa Munda or Dharti Aaba)	• His **birth anniversary is observed as Janjatiya Gaurav Divas.** • He was born in **Munda tribe** Of Chotanagpur Plateau **(Jharkhand).** • **Contributions** ▫ Fought against **exploitation of local tribes by British and Zamindars,** called as **Dikus.** ▫ Started **Birsait sect to end religious conversions** and mobilised tribal community against British, called **'Munda Rebellion'.** ▫ Started a **movement called 'Ulgulan', or 'The Great Tumult'** against exploitation of tribals by local authorities. ✓ This helped in **Chhotanagpur Tenancy Act of 1908,** recognising tribal **Khuntkatti rights** and **banned beth begari.**	• **Fortitude and Vision** ▸ He was a visionary who played a crucial role in the liberation of his community. ▸ He was an Indian tribal freedom fighter who showed extraordinary courage by leading the revolts of his tribesman against the Britishers and powerful landlords.

Personality	About	Ethical Values Exhibited by the personality

Jivatram Bhagwandas Kripalani	• Prime Minister paid tributes to Acharya Kripalani on his Jayanti.
	• **About Acharya Kriplani**
	  ▫ He was a **close associate of Gandhiji** and actively **participated in Non-Cooperation Movement, Salt Satyagraha, and the Quit India Movement.**
	  ▫ **Significant contributions**
	  ✓ He was **elected Congress President in 1947.**
	  ✓ Among **founders of the Kisan Mazdoor Praja Party.**
	  ✓ He was the **author of several books, including Gandhi: His Life and Thought** (1970).
		• **Patriotic and Environmental Justice**
		  ▸ As a fearless fighter, he actively participated in freedom movement
		  ▸ He was active, along with Bhave, in preservation and conservation activities throughout the 1970s.

Dr Verghese Kurien	• Recently, India celebrated **Verghese Kurien's** 101st Birth Anniversary.
	• Born in Kerala, he was an **Indian engineer and entrepreneur** who regarded as **father of India's white revolution.**
	  ▫ White revolution transformed country from an **importer of dairy products to world's largest milk producer** through system of farmer cooperatives.
	• He was **chairman and founder of Amul** and the **chairman of National Dairy Development Board (NDDB).**
	• He was **recipient of many prestigious awards** like Ramon Magsaysay Award, World Food Prize, **Padma Shri, Padma Bhushan, and Padma Vibhushan.**
		• **Practical idealism**
		  ▸ His efforts and visions singlehandedly revived the tradition of cooperatives for millions of families in Gujarat and given them sustainable source of livelihood for generation to come.

Ela Bhatt	• Ela Bhatt, leading women's empowerment activist, passed away.
	Major contribution/achievements
	  ▫ Founded **Self-Employed Women's Association in India (SEWA)**- one of the largest cooperatives working for women.
	  ▫ **Set up cooperative bank** to provide micro loans to women.
	  ▫ **Co-founded Women's World Banking,** a global network of microfinance organisations.
	  ▫ **Part of a group of world leaders called Elders,** founded by Nelson Mandela to promote human rights and peace.
	  ▫ Recipient of several awards including **Padma Bhushan, Ramon Magsaysay Award, Indira Gandhi Peace Prize.**
		• **Social Justice and Vision**
		  ▸ She was actively involved in various initiatives on equality for women and girls, including on the issue of child marriage.
		  ▸ She was a visionary for the informal sector and dedicated her entire life to give the voice, visibility and validity to the work of the informal workers.

WEEKLY FOCUS

Holistic coverage of an issue every week

ISSUE	DESCRIPTION	READ MORE
Evolving Dynamics of India's Foreign Policy	The world today is in constant flux. It is neither bipolar nor multipolar, though perhaps we are tending towards a world of several power centres. The uncertainty and changing geopolitical environment pose considerable challenges to Indian policy but also throw up certain opportunities. This document overviews the shifting dynamics and thrust areas of India's foreign policy, identifies inflection points in the global context and suggests strategies for India to balance its own priorities and achieve its objectives in the changing world order.	
Fintech Sector: Navigating the technological revolution in Financial Sector	We are witnessing a transition of FinTech from being a flash in the pan to becoming mainstream. The winds of change in this industry are being driven by advancements in technologies like automation, data science etc. It also poses challenges for regulators notably in balancing the potential benefits of innovation with the possible risks of new approaches in the finance sector. This document explores the world of Fintech in India and examines its future prospects.	
Towards Empowered Ageing in India	Population ageing is an inevitable and irreversible demographic reality that is associated with welcome improvements in health and medical care. But when populations age rapidly, governments are often unprepared to mitigate the consequences. India too is ageing faster. This document analyses the quality of life for old age persons in India, identifies the upcoming challenges for the government and suggests best way forward to provide a dignified, empowered and a fulfilled life to senior citizens in India.	
Constitutional Ethos	The Constitution of India is the supreme law of the land, but there is much disagreement about the understanding of its underlying principles, ideas and beliefs. It is important to ask what are these underlying principles and what objectives did we hope to achieve by them. This document while attempting to answer these questions, also analyses the inherent challenges in interpreting these principles and the pathways to achieve the democratic ideals and to keep alive the philosophical vision of our Constitution.	

8 IN TOP 10 SELECTIONS IN CSE 2021

from various programs of VisionIAS

CIVIL SERVICES EXAMINATION 2020

1 AIR

SHUBHAM KUMAR

2 AIR

ANKITA AGARWAL

3 AIR

GAMINI SINGLA

4 AIR

AISHWARYA VERMA

5 AIR

UTKARSH DWIVEDI

6 AIR

YAKSH CHAUDHARY

7 AIR

SAMYAK S JAIN

8 AIR

ISHITA RATHI

9 AIR

PREETAM KUMAR

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Mukherjee Nagar Centre

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