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# Current Affairs

## JUNE -2022



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# 1.Polity & Governance

## 1.1. Civil Registration System (CRS)

**Why In News?**

- The Union government plans to **revamp the Civil Registration System (CRS)** to enable real-time recording of birth and deaths, the **annual report of the Home Ministry mentioned.**

**About the report**

- **The CRS is run by the Registrar General of India** and is linked with the National Population Register (NPR), which already has the data of 119 crore residents.
- **The report also highlighted a need to update the NPR**, which was first collated in 2010 and was then updated in 2015 with the Aadhar card, mobile numbers and ration card numbers.

**Amendments to Act**

- **Registration of Births and Deaths Act, 1969**: The Registrar General of India which currently functions under the Home Ministry has proposed amendments to the Registration of Births and Deaths Act, 1969, that would enable it to maintain the database.
- **The database may be used to update the Population Register**, Electoral Register, Aadhar, Ration Card, Passport and Driving License databases.
- **The registration of birth and death is mandatory under the RBD Act** and the Chief Registrar is mandated to publish a statistical report on the registered births and deaths during the year.
- **The RGI is empowered under Section 3(3) of the 1969 Act** to take steps to coordinate and unify the activities of Chief Registrars of Births and Deaths of all States.

**Challenges**

- **The CRS system faces challenges in terms of**: timeliness, efficiency and uniformity, leading to delayed under-coverage of birth and death.
- **System being compromised**: Several states had reported instances of the online registration system being compromised because the login IDs of the registrars and their passwords were available in the public domain.

**Way forward/ Suggestions**

- **IT-enabled backbone**: To address the challenges faced by the system in providing prompt service delivery to the public, the government of India has decided to introduce transformational changes in CRS through an IT-enabled backbone leading to registration of birth and death on a real-time basis with minimum human intervention.
- **Automating the process**: The changes would be in terms of automating the process of delivery points so that the service delivery is time-bound, uniform and free from discretion.
- **Implementation:** It remains to be seen how the automation procedure would be implemented in tier-2, tier-3 cities and rural areas, where the technology penetration is way lower than the urban and metropolitan cities.

## 1.2. Election of Local Bodies

**Why In News?**

- The Supreme Court noted that years of delay in conducting elections to over 23,000 local bodies in Madhya Pradesh shows the **breakdown of the rule of law.**

**Supreme Court (SC)'s stand**

- **Inviolable:** The SC held that the State Election Commissions across the country cannot skip

their constitutional obligation to conduct polls for Local Bodies every five years. This constitutional mandate is inviolable.

- The court found that besides a staggering 23,000 rural local bodies, polls had not been held in 321 urban local bodies in Madhya Pradesh since 2019-2020.
- Ongoing **activity of delimitation or formation of the ward** cannot be a legitimate ground to be set forth by any authority, much less the State Election Commission, or any other excuse like:
    - **Not discharging its constitutional obligation** in notifying the election programme at the opportune time and
    - **Not ensuring** that the elected body is installed before the **expiry of the five-year term** of the outgoing elected body.
    - Even in case of dissolution before the expiry of five years period, where an Administrator is required to be appointed by the State, that **regime cannot be continued beyond six months** by virtue of relevant provisions in the respective State legislations
- **Direction:**
    - The court directed the Madhya Pradesh State Election Commission to **announce the election programmes** to the local bodies.
    - The court also held that its orders for Maharashtra and Madhya Pradesh **apply to all states and Union Territories** where a similar situation prevails.

### Significance of Local Governments

- **True democracy:** The term "Democracy" refers to the system of government in the administration of which every adult citizen of the country enjoys some direct or indirect share. It Sustains democracy at the grass-root level.
- **Local participation:** If democracy has to function properly, as many citizens as possible should be encouraged to participate in it at the local level.
- **Firm progress:** In the long run, the progress achieved under such a democratic method is more firm and more solid than under a system which confines democracy to parliament and the state legislature.
- It is a **basic unit for political socialisation** that's why today it is much more significant in comparison to the other two levels of government.

### Conclusion

- Pt. Jawaharlal Nehru while inaugurating the first local self-government ministers conference in 1948, he said that "**Local self-government is and must be the basis of any true system of democracy.** We have got rather into the habit of thinking democracy at the top may not be a success unless you build on its foundation from below".

## 1.3. Determination of Minority in India

### Why In News?

- Recently, public interest litigation (PIL) is under the consideration of the Supreme Court of India challenging the power of the Centre to notify minority communities at a national level.

### About

- **Arguments**:
    - The validity of **Section 2(f) of the National Commission for Minority Education Institution Act 2004**, is challenged in the petition for giving unbridled power to the Centre.
    - It is arbitrary and contrary to **Articles 14, 15, 21, 29 and 30** of the Constitution.
    - **Section 2(c) of the National Commission for Minorities (NCM) Act, 1992** also gives the Centre similar powers.
- **Centre's Response:**
    - The Centre filed two affidavits in the case and said it had the **power to notify** minority communities.

- In the first, the Centre categorically defended the concept of minorities at the national level.
  - The Centre had pointed out that it had **concurrent powers with States** to take measures for the welfare of minorities.
  - States could have minorities notified as such within their jurisdiction, and it even cited the examples of **Maharashtra recognising Jews as a minority community** and **Karnataka recognising speakers of several languages** as linguistic minorities.
- In the second, the Centre has not taken a position, one way or the other, about continuing the national list of minorities while it reiterated its **power to notify communities as minorities** under Central Acts.
- The Centre's second affidavit leaves its own stand on the **entire issue ambiguous**, and perhaps it was intended that way.

**Minority**

**About:**

- In 2005, the Union Government notified **five communities** — Muslims, Christians, Sikhs, Buddhists and Parsis — as minorities at the national level.
- In 2014, the then government notified followers of **Jainism as a minority community**, making them the sixth on the national list.
  - As per the Census 2011, the percentage of minorities in the country is about **19.3%** of the total population of the country.
  - The population of **Muslims are 14.2%**; **Christians 2.3%**; **Sikhs 1.7%, Buddhists 0.7%, Jain 0.4%** and **Parsis 0.006%**.

**Constitutional provisions:**

- **Article 29** deals with the "protection of interest of minorities", says that "any section of the citizens residing in the territory of India or any part thereof having a distinct language, script or culture of its own shall have the right to conserve the same".
  - **Article 30,** which deals with the "right of minorities to establish and administer educational institutions", says that all minorities, whether based on religion or language, shall have the right to establish and administer educational institutions of their choice.
    - Minority for the purpose of Article 30 cannot have a different meaning depending upon who is legislating.
    - **Language** being the basis for establishment of different states for the purposes of Article 30, linguistic Minority will have to be determined in relation to the state in which the educational institution is sought to be established.
    - The position with regard to the **religious minorities is similar**, since both religious and linguistic minorities have been put on the power in article 30.
- **Article 350 A** says there shall be a Special Officer for linguistic minorities to be appointed by the President. "It shall be the duty of the Special Officer to investigate all matters relating to the safeguards provided for linguistic minorities under this constitution and report to the President upon those matters."

**Backwardness Parameters:**

- **Religion-specific socio-economic indicators at the district level**:
  - Literacy rate;
  - Female literacy rate ;
  - Work participation rate; and
  - Female work participation rate; and
- **Basic amenities indicators at the district level:**
  - Percentage of households with pucca walls'
  - Percentage of households with safe drinking water; and
  - Percentage of households with electricity

**Supreme Court Cases**

- **TMA Pai Case**
  - The apex Court stated that for the purposes of **Article 30**, the rights of minorities to establish and administer educational institutions, religious and linguistic minorities have to be considered state-wise.
  - Under **Section 2(c) of the National Commission for Minorities Act, 1992**, the Centre had in 1993 notified five communities -- Muslims, Sikhs, Buddhists, Parsis and Christians -- as minorities.
- **DAV College versus State of Punjab 1971:**
  - A majority ruling by six judges refers to 2 other cases pertaining to DAV College in Punjab, in which the SC had to consider **whether Hindus were religious minorities** in **Punjab**.
  - The court held that the Arya Samaj, who were Hindus, were a religious minority in the state of Punjab, even though they may not have been so in relation to the entire country.
  - It added in another case DAV College Bathinda versus state of Punjab 1971 this court rejected the contention that since Hindus were a majority in India, they could not be a religious minority in the state of Punjab, as **it took the state as the unit to determine whether the Hindus were a minority community**.
  - There can, therefore, be little doubt that this court has consistently held that the unit to determine a religious or linguistic Minority **can only be the state**.
- **Bal Patil 2005**
  - In this judgement the court said after the verdict in 11 judges bench in TMA Pai foundation case supra the legal position stands clarified that henceforth the unit for **determining status of both languishing and religious minorities would be state**, if there for the state has to be regarded as a unit for determining linguistic Minority vis-a-vis article 30, then with religious minorities being on the same footing, it is the state in relation to which the majority or monetary status will have to be determined,

**Steps taken by GoI for Minorities**

- **Separate Ministry:**
  - The Ministry of Minority Affairs was set up so as to improve the socio-economic conditions of the minorities through affirmative action and inclusive development so that every citizen has an equal opportunity to participate actively in building a vibrant nation.
- **Schemes:**
  - Various schemes, launched, are meant only for the economically weaker sections or underprivileged children and candidates of the minority communities and are not for everyone belonging to the minority community.
- **Article 246:**
  - Parliament under Article 246 of the Constitution, read with Entry 20 in Concurrent List in Schedule Seven, has enacted the **National Commission for Minorities Act, 1992**.
- **Prime Minister's 15 Point Programme for the Welfare of Minorities**
  - An important objective of the Programme is to ensure that an appropriate percentage of the **priority sector lending** is targeted for the minority communities and that the benefits of various government sponsored schemes reach the under-privileged, which includes the disadvantaged sections of the minority communities.
  - The Programme is being **implemented by the Central Ministries/Departments concerned through State Governments/Union**

**Territories** and envisages location of certain proportion of development projects in minority concentration districts.

**Conclusion**

- Since Parliament had passed the 1992 law, the natural corollary is that the **central government has legislative competence to notify** a community as a minority.
- However, any stand without detailed deliberations with stakeholders **may result in an unintended complication** for the country.
- Though the power is vested with the Central government, it needs to **consult the States and other stakeholders**.

## 1.4. Norms for quota in promotions

**Why In News?**

- Recently ,The **Department of Personnel and Training (DoPT)** has asked all **departments of the central government** to collect the data on **inadequacy of representation of Scheduled Castes and Scheduled Tribes** before implementing the policy of reservation in **promotion in government offices.**

**Major Points**

- The government's memorandum referred to the January 2022 verdict and said **three conditions were laid down by the apex court**
  - the collection of quantifiable data regarding the inadequacy of representation of SCs and STs
  - the application of this data to each cadre separately,
  - the cadre being the unit of operation of the promotion roster.
- All ministries are required to ensure that the **above conditions** are complied with before i**mplementing the policy of reservation in promotions** and carrying any promotions based thereon,
- The document also asked the **ministries to appoint a liaison officer** to ensure **reservation rosters were strictly maintained**.
- The order also says that any promotion orders issued will be subject to further orders by the Supreme Court in a pending batch of cases on the subject.
- The **DPC (Departmental Promotion Committee),** has to "carefully assess" the **suitability of officers considered for promotio**n and the appointing authority will only issue appointment or promotion orders after conditions are met.
- The ministries were told to urgently bring these to the notice of all subordinate offices, public sector undertakings and statutory bodies.
- **DoPT** laid down the procedure to be followed prior to **effecting reservations in the matter of promotions.**

**Aims of the move**

- The move is likely to benefit **Central Secretariat Service (CSS)** officials who have **not been promoted for the past six years.**
  - The **CSS comprises middle to senior management rank** officials in **various Union government ministries**
- The **move appears to be aimed at ameliorating** the two communities that are angry at the years-long delay in clearing promotions for officers belonging to these groups. SCs and STs have 15% and 7.5% reservation in government jobs, respectively, and together form more than a quarter of the country's population. In recent years, they have emerged as a key political lever with the potential to make or break elections, with many political parties vying for their support.

**Supreme Court's Stand**

- In January 2022, the top court turned down the Union government's plea to dilute the **requirement of quantifiable data,** emphasising that adequacy of **representation cannot be gauged** either on

the basis of data on representation of SCs/STs with reference to entire service or in proportion of their population.

- Before providing for reservation in promotions to a cadre, the state is obligated to **collect quantifiable data regarding inadequacy of representation** of SCs and STs.
- Collection of information regarding inadequacy of representation of SCs and STs cannot be with reference to the entire service or class/group but it should be relatable to the grade/category of posts to which promotion is sought,"
- In February 2022, while hearing some petitions against certain high court orders, the top court made it clear that it was looking for contemporaneous data, and not old data collected by the government.
- In March 2022, the top court said it would examine whether the data being cited by the Centre can be considered "contemporaneous cadre-wise data" that it wanted, or not.
- During the hearing on that day, the court also rejected a plea by a group of reserved category employees who sought consideration of their objections to the January 28 judgement by which the court required Centre and states to collect quantifiable data for implementation reservation in promotion for SC/ST.

## Attorney General Views

- It said that following a January 28 Supreme Court judgement, the Attorney General has opined that three conditions are to be met while implementing the policy of reservation in promotions.
    - (i) Collection of quantifiable data regarding inadequacy of representation of Scheduled Castes and Scheduled Tribes
    - (ii) Application of this data to each cadre separately; and
    - (iii) If a roster exists, the unit for operation of the rooster would be the cadre or which the quantifiable data would have to be collected and applied in regard to the filling up of the vacancies in the roster."

### Arguments Against Quota in Promotions

- **Not a Fundamental Right:** The Supreme Court reiterated in a judgement that reservation in promotion in public posts cannot be claimed as a fundamental right.
- **Impact on Efficiency:** Promotions to SCs and STs during appointments to services and promotions may make it difficult to maintain the efficiency of administration.
- **Redundancy of Reservation:** The SCs and STs are getting the benefits of reservation in the appointments to various servicers. Therefore, it is undesirable and inefficient to provide quota in promotions for key posts.
- **Not a Compulsion for Government:** The Constitution empowers the State to make reservation in matters of appointment and promotion in favour of the Scheduled Castes and Scheduled Tribes only "if in the opinion of the State they are not adequately represented in the services of the State".

### Need for Quota in Promotions

- **Representation in Higher Echelons:** The main reason for giving promotions in promotions is that there are very few SC/ST candidates in the higher echelons of government.
- **Proper Access to Opportunity:** Centuries of discrimination and prejudice suffered by the SCs and STs in a feudal, caste-oriented societal structure poses real barriers of access to opportunity.
- **Constitutional Mandate:** Constitution mandates realisation of substantive equality in the engagement of the fundamental rights with the directive principles
- **Special Measures Needed:** Unless special measures are adopted for the SCs and STs in promotions also, the mandate of the Constitution for the consideration of their claim to appointment will remain illusory.
- **False Notion of Efficiency:** The Constitution does not define what the framers meant by the phrase efficiency of administration. It is a stereotypical assumption that the promotees drawn from the SCs and STs are not efficient or that efficiency is reduced by appointing them.

**Constitutional Provisions for Promotion in Reservation**

- **Article 16 (4):**
  - Provides that the State can make any provision for the reservation of appointments or posts in favour of any backward class of citizens who, in the opinion of the state, are not adequately represented in the services under the State.
- **Article 16 (4A):**
  - Provides that the State can make any provision for reservation in matters of promotion in favour of the Scheduled Castes and the Scheduled Tribes if they are not adequately represented in the services under the State.
  - It was inserted by the 77th Constitutional Amendment Act, 1995.
- **Article 16(4B):**
  - Added by the 81st Constitutional Amendment Act, 2000 which enabled the unfilled SC/ST quota of a particular year to be carried forward to the next year.
- **Article 335:**
  - It recognises that special measures need to be adopted for considering the claims of SCs and STs to services and posts, in order to bring them at par.
- **82nd Constitutional Amendment Act, 2000:**
  - Inserted a condition at the end of Article 335 that enables the state to make any provision in favour of the members of the SC/STs for relaxation in qualifying marks in any examination.

**Way Ahead**

- The government can come up with **certain guidelines to accommodate demands of SC/ST quota** in promotions.
- The State is not bound to make reservation for SC/ST in matter of promotions: However, if they wish to exercise their discretion and make such provision, the State has to collect quantifiable data showing backwardness of the class and inadequacy of representation of that class in public employment in addition to compliance of Article 335.
- Equality and constitutional reasonableness are basic features of the constitution: and cannot be given short shrift for achieving social justice.

## 1.5. Competition Commission of India (CCI)

**Why in News?**

- Recently, Finance Minister participated in the 13th Annual Day commemoration of the Competition Commission of India (CCI).
- Finance Minister also inaugurated the regional office at Kolkata and launched an upgraded website of CCI.

**What is Competition Commission of India (CCI)?**

**About:**

- Competition Commission of India (CCI) is a statutory body of the Government of India responsible for enforcing the Competition Act, 2002, it was duly constituted in March 2009.
- The Monopolies and Restrictive Trade Practices Act, 1969 (MRTP Act) was repealed and replaced by the Competition Act, 2002, on the recommendations of the Raghavan committee.

**Composition:**

- The Commission consists of one Chairperson and six Members who shall be appointed by the Central Government.
- The commission is a quasi-judicial body which gives opinions to statutory authorities and also deals with other cases. The Chairperson and other Members shall be whole-time Members.

**Eligibility criteria of members of CCI:**

- The Chairperson and every other Member shall be a person of ability, integrity and standing and who, has been, or is qualified to be a judge of a High Court, or, has special knowledge of, and professional experience of not less than fifteen years in international trade, economics, business, commerce, law,

finance, accountancy, management, industry, public affairs, administration or in any other matter which, in the opinion of the Central Government, may be useful to the Commission.

**What is the Competition Act, 2002?**

- The Competition Act was passed in 2002 and has been amended by the Competition (Amendment) Act, 2007. It follows the philosophy of modern competition laws.
- The Act prohibits anti-competitive agreements, abuse of dominant position by enterprises and regulates combinations, which causes an appreciable adverse effect on competition within India.
- In accordance with the provisions of the Amendment Act, the Competition Commission of India and the Competition Appellate Tribunal have been established.
- The government replaced the Competition Appellate Tribunal (COMPAT) with the National Company Law Appellate Tribunal (NCLAT) in 2017.

**What are the Functions and Role of CCI?**

- To eliminate practices having adverse effects on competition, protect the interests of consumers and ensure freedom of trade in the markets of India.
- To give opinion on competition issues on a reference received from a statutory authority
- To undertake competition advocacy, create public awareness and impart training on competition issues.
- Consumer Welfare: To make the markets work for the benefit and welfare of consumers.
- Ensure fair and healthy competition in economic activities in the country for faster and inclusive growth and development of the economy.
- Implement competition policies with an aim to effectuate the most efficient utilization of economic resources.
- Effectively carry out competition advocacy and spread the information on benefits of competition among all stakeholders to establish and nurture competition culture in the Indian economy.

**What are the Achievements of CCI till now?**

- The Commission has adjudicated more than 1,200 antitrust cases i.e., case disposal rate is 89 % in antitrust cases.
- It has also reviewed more than 900 mergers and acquisitions till date, cleared most of them, within a record average time of 30 days.
- The Commission has also come up with several innovations like the 'Green Channel' provision for automated approval on combinations/transactions and cleared more than 50 of such transactions.

**What are the Challenges?**

- Challenges Posed by Digitization: As we didn't have a robust digital economy at the time of enactment of the Act (2002), CCI should understand the technological nuances of the new digital era.
- Need For New Market Definition: India's Commission needs to update its definition of market now. Since there are no boundaries in the digital space, defining relevant markets has been a tough task for regulators around the globe.
- Threat From Cartelization: There is a possibility of threat from cartelization. Since there is a global shortage of commodities due to the pandemic, and now, following the war in Eastern Europe, the supply chain has been adversely affected.
- There is a need to look into these and ensure that there are no monopolistic/duopolistic tendencies leading to price rises and supply side manipulations.

**Way Forward**

- With the advent of Web 3.0, AI, IoT, Blockchain and other technological developments, and emergence of issues like data protection and privacy, platform neutrality, deep discounting, killer acquisitions, etc, the need for a robust competition law, attuned to meet the needs of present-day techno-legal world, is important

for India, which enables a true level playing field for the digital market players.
- CCI should understand the technological nuances of the new digital era and whether these markets are being fairly, effectively, and transparently used for the benefit of consumers.
- FAQs can become a permanent tool of advocacy which should be used to disseminate information on a ready-to-use basis.
- This would strengthen CCI's position as a proactive and progressive regulator, and such guidance will help market players take preventive measures.

## 1.6. The Delhi dual governance conundrum

**Why in News?**

- Recently, the Supreme Court reserved its order on the Centre's plea that the matter related to its dispute over control of administrative services in the National Capital Territory should be referred to a five-judge Constitution bench as it involves interpretation of a substantial question of law.

**Dual governance in Delhi:**

- The status of Delhi is a Union Territory under Schedule 1 of the Constitution.
- However, it is christened as the 'National Capital Territory' under Article 239 AA.
- Article 239AA grants Delhi special character as a union territory with a legislative assembly that has a lieutenant governor (L-G) as its administrative head. This was also when Delhi was named the National Capital Region (NCT) of Delhi.
- This has put the dynamics of the relationship between the elected Council of Ministers in Delhi and the Central Government under severe strain.

**Dilemmas of dual governance**

- The Administrator of Delhi, renamed the Lieutenant Governor (L-G) under the Government of NCT of Delhi (Amendment) Act, 2021, crossed swords with the elected government on multiple issues:
- Including control over agencies, namely the Anti-Corruption Bureau, the Civil Services and the Electricity Board.
- The issues pertaining to the power to appoint the Public Prosecutor in Delhi and to appoint a Commission of Enquiry under the Commissions of Enquiry Act, etc. were vexed legal questions necessitating interpretation of the Constitution.

**Court observations so far:**

- In the Government of NCT of Delhi v Union of India 2017, the Delhi High Court observed that
- the Chief Minister and not the Lieutenant Governor (LG) is the executive head of the National Capital Territory (NCT) government.
- The LG is bound by the aid and advice of the Council of Ministers on all matters where the Delhi Assembly has the power to make laws.
- In 2018, a five-judge Constitution Bench of the Supreme court opened a new jurisprudential chapter in the Administration of NCT:
    - Delhi is not a state, and that the status of NCT of Delhi is sui generis.
    - It invoked the rule of purposive construction to say that the objectives behind the Constitution (Sixty-ninth Amendment) Act shall guide the interpretation of Article 239AA.
    - The L-G ought to act on the "aid and advice" of the Council of Ministers, except when he refers a matter to the President for a final decision.
    - The proviso to Article 239AA(4) allows the L-G to reserve "any matter" for consideration of the President where the L-G has a difference of opinion with the council of ministers. The bench clarified that this power can only be exercised in exceptional circumstances.
    - At the same time, the Court ruled that the National Capital Territory of Delhi cannot be granted the status of a State under the constitutional scheme.

## 1.7. Consumer Protection Authority

**Why in News?**

- The Central Consumer Protection Authority has released an Advisory to e-commerce websites against the illegal sale and facilitation of wireless jammers.

**More Details**

- The Central Consumer Protection Authority (CCPA) has issued guidelines to e-commerce companies regarding selling or facilitating the sale of wireless jammers to buyers through their e-commerce websites/apps.
- It is illegal to sell or use any wireless device without authorization/license under the Indian Telegraph Act, 1885 and Indian Wireless Telegraphy Act (IWTA) 1933, unless exempted by rules.
- Jammers come under the purview of the Indian Wireless Telegraphy Act (IWTA) 1933 and the Act mentioned that a license is compulsory for the possession and use of jammers.

**As per the new Guidelines;**

- Jammers will be allowed only under exceptional circumstances, only when authorized by the Secretary (Security), Cabinet Secretariat.
- The Department of Telecommunication has issued an Advisory with reference to the illegal sale of wireless jammers on online platforms.
- The Department of Promotion of Industry and Internal Trade has notified all e-commerce entities to comply with the rules and regulations.
- Under the Consumer Protection Act, 2019, Central Consumer Protection Authority (CCPA) is empowered to protect, promote and enforce the rights of consumers, and prevent violation of consumers' rights.

**Consumer Protection Act, 2019**

- The Act defined a consumer as a person who buys any goods or avails of service for final use.
- It does not include a person who buys a good for resale or a good or service for commercial purposes.
- It covers transactions through all modes including offline, and online.

**The Act clearly defined 6 Rights of consumers:**

- Right to be protected against the marketing of goods and services which are hazardous to life and property.
- Right to be informed about the quality, quantity, potency, purity, standard and price of goods or services.
- Right to Choice among a variety of goods or services at competitive prices.
- Right to be heard.
- Right to seek Redressal against unfair or restrictive trade practices.
- Right to Consumer Awareness.

- Central Consumer Protection Authority (CCPA) to promote, protect and enforce the rights of consumers.
  - It functions under the guidelines of The Minister of Consumer Affairs, Food and Public Distribution
  - It regulates matters linked to the violation of consumer rights, unfair trade practices, and misleading advertisements.
  - The CCPA has an investigation wing; they may conduct an inquiry or investigation into the case of violations of rules.

**Central Consumer Protection Authority (CCPA) functions;**

- Inquiring into violations of consumer rights, investigating and taking appropriate action.
- It could pass orders to recall goods or withdraw services that are hazardous, and refund the price paid.
- It Issues directions to the concerned trader/ manufacturer/ endorser/ advertiser/ publisher to either discontinue a false or misleading advertisement.
- It imposes penalties on a manufacturer or an endorser of up to Rs 10 lakh and imprisonment for up to two years for a false or misleading advertisement. In case of a subsequent

offence, the fine may extend to Rs 50 lakh and imprisonment of up to five years.
- It Issues safety notices to consumers against unsafe goods and services.

**Consumer Disputes Redressal Commissions (CDRCs) at the District, State, and national levels.**

- Appeals from the State CDRC will be heard by the National CDRC.
- The final appeal to the Supreme Court.
- The District CDRC will entertain complaints where the value of goods and services does not exceed Rs 1 crore.
- The State CDRC will entertain complaints when the value is more than Rs 1 crore but does not exceed Rs 10 crore.
- Complaints with a value of goods and services over Rs 10 crore will be entertained by the National CDRC.

## 1.8. APEDA

**Why in News?**

- Recently, Agricultural & Processed Food Products Export Development Authority (APEDA) launched a variety of millet products for all age groups at affordable prices ranging from Rs 5 to Rs 15 at the AAHAR food fair.

**Ahaar Fair**

- Ahaar Food Price is Asia's biggest B2B international food and hospitality fair.
- AAHAR is a part of the series of export promotion initiatives taken by APEDA, which works under the Ministry of Commerce and Industry, to showcase agricultural and processed food products to the global players in the food and beverages industry as the fair is visited by a large number of importers from different parts of the world.
- The 36th edition of AAHAR was jointly organized by APEDA and the India Trade Promotion Organization (ITPO) at Pragati Maidan.
- To promote agricultural products APEDA put on display 33 GI agricultural products at AAHAR.
- Theme - 'To promote GI products for export'. The APEDA also released two booklets which include a catalogue on Agri and Food GI products (APEDA scheduled) and a brochure on Indian GI mangoes. Notably, more than 150 food and agri Products have been registered as GI by the GI Registry till March 2022, out of which 123 GI products fall under APEDA's category.

**Products launched**

- The launched products are cream biscuits, salt biscuits, milk biscuits, ragi peanut butter, jowar peanut butter, jowar upma, pongal, khichadi and millet malts (jowar, ragi, bajra).

**"Millet in Minutes" products**

- APEDA also launched a variety of "Millet in Minutes" products under the category of Ready-to-Eat (RTE) such as Upma, Pongal, Khichadi, Noodles, Biryani, etc, This is a breakthrough in the food sector as it's the first RTE millet product in the market to cater fast-paced world at their convenience in a healthy way.

**Gluten free and Preservative free products**

- All the millet products launched by APEDA are gluten-free, 100% natural and patented.
- All the RTE products are vacuum processed without any additives, fillers and preservatives.
- Nutrition value is retained as original with a shelf-life of 12 months in ambient temperature.

**About Millets**

- Millets are cereal crops with high nutritive value and categorized as small-seeded grasses.
- The key varieties of millets include Sorghum, Pearl Millet, Ragi, Small Millet, Foxtail Millet, Barnyard Millet, Kodo Millet and others.

- Major producers include Rajasthan, Andhra Pradesh, Telangana, Karnataka, Tamil Nadu, Maharashtra, Gujarat and Haryana.

## 1.9. No one can be forced to get vaccinated: SC

**Why in News?**

- The Supreme Court held that while the central government's current COVID-19 vaccine policy is not unreasonable, no individual can be forced to get jabbed.

**Background:**

- A petition in the Supreme Court had argued that states mandating vaccination for accessing benefits or services is a violation of citizens' rights, and therefore, unconstitutional.
- The centre had argued in court that the petition was "against national interest" and would create vaccine hesitancy. It had also said vaccination is voluntary but states had enforced mandates "based on potential hazards".
- Tamil Nadu, Maharashtra and Madhya Pradesh defended their vaccine mandates, calling them essential for the safety of every person, especially those using public spaces and transport.

**Supreme Court Observations:**

**On Vaccination Policy:**

- The centre's COVID-19 vaccination policy is "voluntary", the Supreme Court said in a judgment.
- Voluntary Vaccination Policy: A voluntary vaccination policy should explain that the state has opted not to make vaccination a mandatory condition and it can be opted as per the choice of the individual.

**On Right to Refuse Treatment:**

- A person has the right under Article 21 to refuse treatment.
- Personal autonomy of an individual involves the right "to determine how they should live their own life, which consequently encompasses the right to refuse to undergo any medical treatment in the sphere of individual health".

**On Bodily Integrity and Personal Autonomy:**

- The Supreme Court observed that bodily integrity is protected under the Right to Life (Article 21) of the Constitution and no individual can be forced to be vaccinated.
- The personal autonomy of an individual encompasses the right to refuse to undergo any medical treatment in the sphere of individual health.

**On the Issue of Vaccination for Children:**

- The bench said that the decision taken by the Union of India to vaccinate the paediatric population in this country is in tune with global scientific consensus and expert bodies like the WHO and UNICEF.
- Paediatric Population: The paediatric population is defined as "that group of population between birth and 18 years of age".

**On 'Reasonable limitations'**

- The Supreme Court also declared that when the individual's refusal may lead to public harm, the State has an obligation to impose "reasonable and proportionate" limitations on individual rights.

**Judicial Scrutiny of Government Intervention:**

- The Bench said the government's interventions into the personal autonomy of an individual and right to access means of livelihood should meet the "three-fold" requirements as expounded in K.S. Puttuswamy case.

**The three-fold requirements include:**

- The limitations should be backed by a clear statutory law.
- The need for limitations should be proportionate to a legitimate state aim.
- There should be a rational nexus between the state's objectives for imposing the restrictions and the means adopted to achieve them.

## 1.10. Safeguarding Aadhaar Data

**Why In News?**

- Recently, Unique Identification Authority of India (UIDAI) first issued a warning to the public not to share a photocopy of their Aadhaar with any organisation, and then withdrew the warning over worries that it was open to "misinterpretation".

**What was the Initial Warning from UIDAI?**

- The UIDAI warned the "general public not to share photocopy of one's Aadhaar with any organisation, because it can be misused".
- Rather, it recommended using "a masked Aadhaar, which displays only the last four digits of the Aadhaar number".
- It also asked the public to avoid using public computers to download their e-Aadhaar.
- In that case, they were reminded to "permanently delete" any downloaded copies of the same.
- Only those organisations that have obtained a User License from the UIDAI can use Aadhaar to establish the identity of a person.
- Moreover, hotels and movie theatres are not allowed to collect or maintain copies of the Aadhaar cards, due to the Aadhaar Act.

**Issue Arisen recently**

- The Comptroller and Auditor General (CAG) of India, has pulled up the Unique Identification Authority of India (UIDAI) over a range of issues related to the issuance of Aadhaar cards.
- In 2018, the Supreme Court had struck down Section 57 of the Aadhaar Act.
- Section 57 of the Aadhaar Act essentially allowed private entities to collect citizens' Aadhaar details. While reading down the provision, the top court had called it "unconstitutional".
- Later, the Aadhaar and Other Laws (Amendment) Ordinance, 2019 was issued which allowed banks and telecom operators to collect Aadhaar details as a proof of identity.

**Way Forward**

**Abide by the Supreme Court Ruling:**

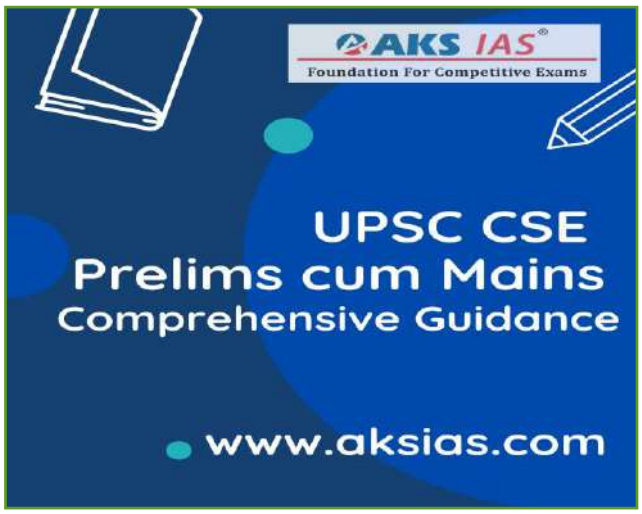
- The government must abide by and enforce Supreme Court directions, including (1) restriction of mandatory Aadhaar to permissible purposes, (2) provision of an alternative whenever Aadhaar authentication fails, (3) unconditional exemption for children.

**Ensure Benefits to Needy not Withdrawn:**

- Benefits should never be withdrawn or suspended without (1) advance disclosure of the names that are likely to be deleted along with reason for proposed deletion, (2) issuing a show cause notice to those concerned and giving them an opportunity (with ample time) to respond or appeal, (3) ex-post disclosure of all cases of deletion, with date and reason.

**Stronger Safeguards Needed:**

- The National Payments Corporation of India (NPCI) must urgently put in place stronger safeguards against the vulnerabilities of Aadhaar-enabled Payment Systems and better grievance redressal facilities.



# 2. Economy

## 2.1. State of unemployment in India

**Why In News?**

- Recent data from the **Centre for Monitoring Indian Economy (CMIE)** shows that India's labour force participation rate (LFPR) has fallen to just 40% from an already low 47% in 2016.

**Key Findings**

- The world over, LFPR is around **60%**. In India, it has been sliding over the last 10 years and has **shrunk** from 47% in 2016 to **just 40%** as of December 2021.
- More than half of India's population in the working-age group (15 years and older) is **deciding to sit out of the job market**, but also that this proportion of people is increasing.

**Reasons for low LFPR in India:**

- **Poor level of female LFPR:** The main reason for India's LFPR being low is the abysmally low level of female LFPR.
    - As of December 2021, while the male LFPR was 67.4%, the female LFPR was as low as 9.4%.
    - In other words, less than one in 10 working-age women in India are even demanding work.
    - One sources data from the **World Bank,** India's female labour force participation rate is **around 25%** when the global average is 47%.
    - **Lack of Motivation:** People are not motivated enough to find new jobs which can boost their morale.

**Reasons for few women demanding work:**

- **Working conditions**:
    - Such as law and order, efficient public transportation, violence against women, societal norms etc — being far from conducive for women to seek work.
- **Job opportunities:**
    - Adequate job opportunities for women are **very minimal** when compared to men's.
- **Methodological Error:**
    - The other has to do with correctly measuring women's contribution to the economy.
    - Academics have pointed out **methodological issues** in formally capturing women's contribution to the economy since a lot of women in India are exclusively involved within their own homes (caring for their family) of their own volition.

**Labour Force ParticipationRate (LFPR)**

- The LFPR essentially is the percentage of the **working-age (15 years or older)** population that is asking for a job.
- It represents the **demand for jobs** in an economy.
- It includes those who are employed and those who are unemployed.
- The **Unemployment Rate (UER)** is the number of unemployed (category 2) as a proportion of the labour force.

**Significance of LFPR**

- **Advanced than Unemployment Rate (UER):** LFPR gives a better picture of the Unemployment prevailing in the country. Merely looking at the UER will under-report the stress of unemployment in India.
- **Shows lack of "good" work:** LFPR shows how people in the working-age get disheartened from not finding work.

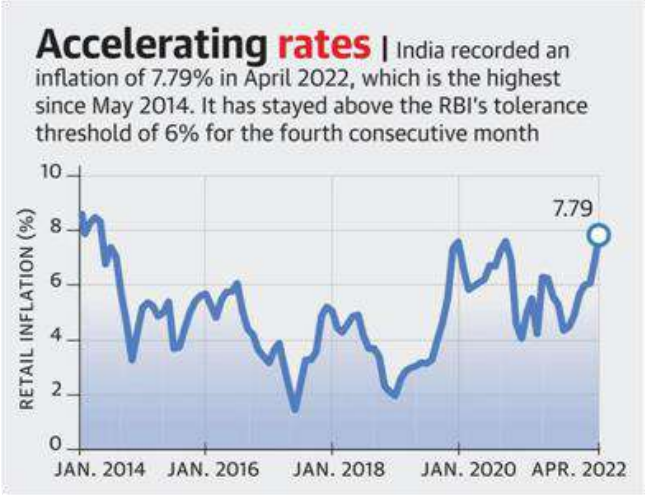
**Employment Rate (ER)**

- **Definition:** The ER refers to the total number of employed people as a percentage of the working-age population.

- **Significance:** By using the working-age population as the base and looking at the number of people with jobs (instead of those without them), the **ER captures the fall in LFPR** to better represent the stress in the labour market.

### Growing Working Age Population and Shrinking Jobs:

- If one looks at the ER data, it becomes clear that while India's **working-age population has been increasing each year, the percentage of people with jobs has been coming down sharply**.
- Looking at the absolute numbers makes the stress even more clear. In December 2021, India had 107.9 crore people in the working age group and of these, only 40.4 crore had a job (**an ER of 37.4%**).
- Compare this with December 2016 when India had 95.9 crore in the working-age group and 41.2 crore with jobs (ER 43%).
- In five years, while the **total working-age population has gone up** by 12 crore, the number of people with **jobs has gone down** by 80 lakh.




### Reasons for Deterioration in the Employment

- **Opting out of work:** The sharp fall in the LFPR suggests that despite India's young population, many have simply opted out of the labour force, perhaps feeling let down by the **absence of remunerative, productive jobs**.
- **Women face more issues:** The situation is even more dire for women who had a considerably lower participation rate to begin with. India's female labour force participation is not only lower than the global average, but also lower than countries like Bangladesh.
- **Less Jobs:** Post-pandemic, people unable to find jobs remain high among those looking for jobs. Also, the unemployment rate is higher among the younger and more educated.
- **More Informal Sector Jobs:** While there are signs of increasing formalisation as indicated by the EPFO data, a substantial share of the labour force continues to remain employed in the informal sector, lacking a safety net.

### Way Ahead

- When LFPR is falling as steadily and as sharply as it has done in India's case, it is better to track another variable: **the Employment Rate (ER)**.
- The **labour intensive manufacturing sector** can not only absorb the millions entering the labour force each year, but also those moving out of agriculture.
- **Gender stereotypes** of work have to be **removed to bring women at par** with working men professionals.

## 2.2. Rise in Inflation

Why In News?

- Recently, Inflation faced by Indian consumers shot up to a nearly eight-year high of 7.8% from 6.95%.

### About the recent trend in Inflation

- **The National Statistical Office said** rural inflation accelerated to 8.4% and urban parts of the country experienced 7.1% inflation.
- **The Consumer Food Price Index jumped to 8.4% from 7.7%.**
  - **Food prices** rising at a faster clip of 8.5% in rural India.
  - **Cereals inflation** is high because of higher wheat prices.
- **Fuel and lighting** have high inflation of 10.8% and there has to be some reduction in taxes

and duties from the government to cool off-price pressures.
- **Transport and Communication** inflation raced to nearly 11% from just 8%
- **Food and beverages** inflation sped up from 7.47% to 8.1% led primarily by a sharp rise in vegetable inflation from 11.6% to 15.4%, even as the price rise in oil and fats eased marginally to 17.3% from 18.8%.
- **Meat and fish** inflation also cooled a bit from 9.63% to about 7%.
- **Among the States:** West Bengal and Madhya Pradesh recorded a much higher inflation rate than the national average, at 9.1%, closely followed by Telangana and Haryana which reported inflation of around 9%.
    - By contrast, Kerala (5.08%) and Tamil Nadu (5.37%) clocked the lowest inflation rates.

## Main causes of inflation

- **Monetary Policy**: It determines the supply of currency in the market. Excess supply of money leads to inflation. Hence decreasing the value of the currency.
- **Fiscal Policy**: It monitors the borrowing and spending of the economy. Higher borrowings (debt) result in increased taxes and additional currency printing to repay the debt.
- **Demand-pull Inflation**: Increases in prices due to the gap between the demand (higher) and supply (lower).
- **Cost-push Inflation**: Higher prices of goods and services due to increased cost of production.
- **Exchange Rates**: Exposure to foreign markets is based on the dollar value. Fluctuations in the exchange rate have an impact on the rate of inflation.
- **Demand-supply gap**: High demand and low production or supply of multiple commodities create a demand-supply gap, which leads to a hike in prices.

## How do we prevent inflation?

- **Change the monetary policy**: The primary strategy is to change the monetary policy by adjusting the interest rates. Higher interest rates decrease the demand in the economy. This results in lower economic growth and therefore, lowers inflation.
- **Controlling the money supply** can also help in preventing inflation.
- **Higher Income Tax rates can reduce spending**, hence resulting in lesser demand and inflationary pressures.
- **Introducing policies** to increase the efficiency and competitiveness of the economy helps in reducing the long term costs.
- **Invest in long-term investments**: When it comes to long-term investments, spending money now for investments can allow you to benefit from inflation in the future.

## Effects of a rise in the inflation rate

- **Inflation could lead to economic growth** as it can be a sign of rising demand.
- **Inflation could further lead to an increase in costs due to workers' demand to increase wages to meet inflation**. This might increase unemployment as companies will have to lay off workers to keep up with the costs.
- **Domestic products might become less competitive** if inflation within the country is higher. It can weaken the currency of the country.

## Way forward:

- **Strength**: India faces these challenges from a position of strength built on broadened vaccine coverage, financial sector resilience, robust export and remittances and fiscal reprioritization to spur capital spending on infrastructure.
- **Spurring private investment**: remains a key thrust area for sustaining growth on a durable basis.
- **The third wave seems to be behind**: with the removal of all curbs, alongside a broadening of vaccination, economic activity is returning to speed.
- **Most sectors are reaching or have exceeded pre-pandemic levels**: Bank credit has gathered pace and the job market is gathering steam.

- **Growing GST collections**: Is an indicator of growth in the segment of the economy that collects the tax.

## 2.3. Fertiliser Challenge

**Why In News**

- Recently, the **war in Ukraine has disrupted fertiliser supply** ahead of sowing for the **Kharif season.**

**Current scenario on Fertilisers**

- **Kharif season**: The Kharif season is very **crucial for India's food security** as it accounts for almost half the year's production of foodgrains, one-third of pulses and about two-thirds of oilseeds.
    - Therefore, a sizable quantity of fertiliser is required.
- **The country's opening stocks** are estimated at around 2.5 million tonnes of di-ammonium phosphate (DAP), 0.5 mt of muriate of potash (MOP), and one mt of complex fertilisers containing varying proportions of **nitrogen, phosphorous, potash and sulphur (NPKS).**
- **Trend:** India annually consumes 9-10 mt each of DAP and NPKS complexes, besides 4.5-5 mt of MOP.
    - Roughly 45 per cent of sales happen during April-September and 55 per cent in the balance October-March period.
    - Demand for urea peaks during the June–August period.
- **Potash:** India depends on imports for potash, which is used for manufacturing fertilisers.
    - In the wake of sanctions on Belarus and Russia, international prices of potash have increased.
    - India has now secured supply of potash from Canada.
    - An additional quantity was secured from alternative sources Israel and Jordan.

**Major Issues/ Challenges**

- **India is facing a tight supply position in fertilisers**, especially of phosphatic and potassic nutrients.
    - **Retail food inflation** has hit a 7.68 per cent mark.
- The challenges include securing supply from **new sources, costlier raw material, and logistics.**
    - **The pandemic has impacted fertiliser production**, import and transportation across the world.
- **Major fertiliser exporters such as China have gradually reduced their exports** in view of a dip in production.
    - This has impacted countries such as India, which sources **40–45% of its phosphatic imports from China.**
- **There has been a surge in demand in regions like Europe, America, Brazil and Southeast Asia.**
    - While the demand has increased, the supply side has faced constraints.
- **There has been a steady increase in prices of raw material** as well as logistics and freight costs.
    - The disruption in the logistics chain during COVID has caused the average **freight rates for ships to jump up to four times.**
    - Besides, prices of fertilisers such as DAP and urea, and raw materials such as **ammonia and phosphatic acid, have risen up to 250–300%.**
- **The total fertiliser subsidy bill** is expected to reach Rs 2.5 lakh crore this financial year, up from Rs 1.62 crore in the revised estimates for the previous fiscal.

**Way Forward/ Government's stand**

- **Theoretically, the opening stock and the expected domestic production would be sufficient to meet the requirement**.
    - However, the war in Ukraine has disrupted the supply of raw materials that Indian companies import, which is expected to impact domestic production.

- In efforts at price control, the **government has increased the Nutrients Based Subsidy (NBS) rates for Kharif 2022.**
    - The NBS rates have been raised for nitrogen (N) by 389%.
    - For potash (K) by 150%
    - For sulphur by 192%
- **India has received shipments of 3.60 LMT of fertilisers from Russia** since the beginning of the war.
    - India has entered into a **C2C (corporation to corporation) supply arrangement with Russian companies.**
- India has made efforts to secure fertiliser supply from **alternative sources such as Saudi Arabia and Iran.**
    - India has also clinched a long-term supply deal with **Oman to get urea.**
- For domestic production of urea, the government is focusing on the **Matix (West Bengal), Ramagundam (Telangana) and Gorakhpur (UP) plants**, and is reviving two other units, at **Sindri and Barauni**.
- **The government is exploring the option of domestically mining raw materials** such as rock phosphate.
- **The Centre has asked the states to ensure micro-planning of fertiliser movement** as per requirement.
    - It has asked them to ensure timely unloading of rakes for better utilisation of the rolling stock, to promote the use of alternative fertilisers such as nano urea, and to take **strict action against diversion, hoarding and black marketing of fertilisers.**

## 2.4. RBI's Gold acquisition and Declining FPI

### Why In News?

- Recently, **India's gold holdings have gone up** to 760.42 tonnes, with the Reserve Bank of India (RBI) adding another 16.58 tonnes to the country's foreign exchange.

### About the recent trend

- **Declining FPI**: Apart from gold acquisition, foreign portfolio investors (FPIs) were exiting India and forex reserves declined by $44.73 billion from $642.45 billion to $597.72 billion.
- **Gold holdings:** While 453.52 metric tonnes of gold are held overseas in safe custody with the Bank of England and the Bank of International Settlements, 295.82 metric tonnes of gold are held domestically.
    - Domestic storage has also grown to 39 per cent of respondents.
    - In value terms (USD), the share of gold in the total foreign exchange reserves increased from about 5.88 per cent to about 7.01 per cent.
- **Ninth-largest holder of gold reserves**: India's gold holdings have now gone up by 65.11 tonnes from 695.31 tonnes in 2021 and by 142.18 tonnes in the last two years, making India the ninth-largest holder of gold reserves.
- **Gold is the third largest reserve asset globally**, following US dollar- and euro-denominated assets.
    - It is also **increasingly used as collateral in financial transactions**, much like other high-quality, liquid assets like government debt, as per **World Gold Council (WGC)**.

### Significance of gold in forex basket

- **While gold no longer plays a direct role in the international monetary system,** central banks and governments still hold **extensive gold reserves to preserve national wealth** and protect against **economic instability.**
- Central banks are **buying gold at an ever-increasing pace.**
- A sizable gold holding is expected to **add stability to the forex reserves** at a time when capital outflows are putting **pressure on India's reserves**.
- According to the 2021 Central Bank Gold Reserves (CBGR) survey, **21 percent of central banks intend to increase their gold reserves over the next 12 months.**
- Central banks are also **increasingly valuing gold's performance during periods of crisis** as this attribute now tops their rationale for holding gold.

- Gold has long formed an important **part of India's currency reserves.**

### What are Forex Reserves?

- **These are assets held on reserve by a central bank in foreign currencies**, which can include bonds, treasury bills and other government securities.
- **India's forex reserves include** Foreign Currency Assets (FCA), Gold reserves, Special Drawing Rights (SDR), Reserve Tranche Position with the International Monetary Fund (IMF).
- **Approximately 64 per cent of the foreign currency reserves are held in securities** like Treasury bills of foreign countries, mainly the US and around 28 per cent is deposited in foreign central banks and 7.4 per cent is deposited in commercial banks abroad.
- **The forex reserves are managed by the Reserve Bank of India** for the Indian government and the main component is foreign currency assets and they act as the first line of defence for India in case of economic crisis.
- **The reserve facilitates external trade and payment** and promotes orderly development and maintenance of foreign exchange market in India.

### Conclusion

- Decline over the past decade: Even with a substantial stock of gold reserves, gold's share in total reserves had declined over the past decade due to the vast growth in dollar-denominated assets.

## 2.5. Oxfam Report: First Crisis, Then Catastrophe

### In News

- According to a new report by Oxfam, over a quarter of a billion people will be pushed into poverty in 2022.

### About the Report

- **Title:** First Crisis, Then Catastrophe
- The Oxfam estimates are based on **World Bank projections** and earlier research by the World Bank and **Centre for Global Development**.
- The report was released ahead of the spring meetings of the World Bank and the International Monetary Fund.

### Key Findings

- **Financial crisis:** The worldwide financial crisis will be mainly driven by the price inflation due to:
  - Russia's invasion of Ukraine and
  - economic crisis caused by the COVID-19 pandemic.
- **Increasing Gap between rich and poor:** The convergence of these two events is also widening the gap between the rich and the poor at an unprecedented rate.
  - Nearly half of the global population (3.3 billion) are living below the poverty line, while a new person becomes a billionaire every 26 hours since the beginning of the pandemic.
- **Pandemic and Rich People:**
  - The fortunes of 10 of the richest people in the world have doubled during the pandemic.
  - At the same time, some 2,744 small billionaires have recorded an unprecedented rise in fortunes compared to the last 14 years
- **People in extreme poverty:** The combined impact of COVID-19, inequality and food price hikes could result in 263 million more people living in extreme poverty this year, resulting in a total of 860 million people living below the $1.90 (Rs 144.7) a day extreme poverty line.
  - This would be an extraordinarily damaging rise that reverses decades of progress in the fight against poverty.
- **Loss of savings for poor:** The pandemic resulted in people losing their jobs and savings, while they are faced with a greater food price inflation than the 2011 crisis.
- **Effect on agriculture companies:** Oil companies are making record profits with

soaring energy prices and margins while investors expect agriculture companies to rapidly become more profitable as food prices spiral.

- **Food costs and poverty:** The increasing poverty is not spread evenly across geographies.
    - Food costs account for 40 per cent of consumer spending in **sub-Saharan African nations**, while the same figure is half for those living in **advanced economies**.
    - **Developing nations**, which were already faced with a worrying fiscal condition, are now witnessing debt levels unseen so far.
- **Hunger and other issues:** As many people struggle now to cope with sharp cost-of-living increases, having to choose between eating or heating or medical bills, the likelihood of mass starvation faces millions of people already locked in severe levels of hunger and poverty across East Africa, the Sahel, Yemen and Syria.
- **Affecting Real term wages:** For most workers around the world, real-term wages continue to stagnate or even fall.
    - The effects of COVID-19 have widened existing gender inequalities too — after suffering greater pandemic-related job losses, women are struggling to get back to work.
    - In 2021, there were 13 million fewer women in employment compared to 2019, while men's employment has already recovered to 2019 levels.

**Suggestions**

- The World Bank and IMF should cancel debt payments for 2022 and 2023 for low and lower-middle-income countries.
- Cuts in value-added taxes on staple food and cash transfers to support income should be implemented to protect the poorest from inflation.
- A 2 percent tax on personal wealth above $5 million, 3 per cent for wealth above $50 million and 5 per cent for wealth above $1 billion should be imposed. This could amount to $2.52 trillion — enough to save 2.3 billion people from poverty.
- Special Drawing Rights under the IMF should be reallocated to ensure it is debt- and conditionality-free.
- Emergency support provided to lower-income countries should be increased.
- Introduce one-off and permanent wealth taxes to fund a fair and sustainable recovery from COVID-19.
- Act to protect people from rising food prices, and create a Global Fund for Social Protection to help the poorest countries provide essential income security for their populations, and maintain these services in times of severe crisis.

## 2.6. Creating an Entrepreneurial Culture

**Why in News?**

- The entrepreneurial culture is vital to give MSMEs and jobs a boost.

**Context:**

- The Integrated Rural Development Programme, which was initiated in the late 1970s and implemented across the country, was the most discussed enterprise development programme for those at the bottom of the pyramid. An asset was created by a bank loan and supported by a capital subsidy from the government.
- Programmes of this genre are being implemented by governments ever since. As a public policy, government intervention is appropriate as it must engage with the workforce since formal jobs in both public and private sectors are few.
- Such programmes could be more successful when our society celebrates entrepreneurs and inspires its citizens to consider choosing the path of entrepreneurship. Our aspiration of being on the world stage can become a reality only when entrepreneurship is cherished, valued and enterprises — small and big — power our economy.

**How to bring Entrepreneurial Culture?**

- Skilling and entrepreneurship development is the best option and micro industries could absorb the workforce from agriculture if strategised well. Here are a few ideas to imbue our society with an entrepreneurial culture.
- First, entrepreneurship is a mindset, and its orientation must begin in schools and colleges. Education typically is essentialism, whereas entrepreneurship is existentialism. Essay writing competitions on the subject every year across the country will create the necessary buzz. Calling for nominations in various categories and felicitating successful entrepreneurs can get our society thinking about entrepreneurship. High school students must be encouraged to test their business ideas.
- Second, India is a sub-continent and product requirements vary across regions. About 70 per cent of the products consumed in rural areas are produced locally. Characterising and improvising such products are necessary to instill the idea of excellence and remove the thought of jugaad. This transformation in local markets can propel exports to domestic and foreign markets. 'One District One Product' initiative is in this direction.
- Third, skilling must be contextualised to local needs, as opposed to general skilling like a BA or BSc course. Entrepreneurship must be institutionalised through NSDC like mechanisms.
- Fourth, boys and girls in rural schools know their ecosystem well and they should be taught elements of design and light engineering which can lead them to create enterprises. To illustrate, India's is mainly small-holder agriculture, but we don't have enough ergonomically designed tools and implements for the small farmer. 'Atal Tinkering Labs' can complement this idea.
- Fifth, the creation of the Ministry of Skill Development and Entrepreneurship in 2014, was a momentous decision. The ministry has gained considerable understanding of this area through several initiatives like skill gap assessment and skilling programmes. Our ITIs and tool rooms gave us valuable learnings on skilling. It's time now to start 'vocational schools' as these can promote entrepreneurial culture. To get these started, banks and industry (through the CSR channel) can be invited to participate.
- Sixth, an enterprise requires a complete gamut of services — legal, finance, accounts, business-related manpower, machinery, etc. Making available these resources through a common pool will give a big boost to entrepreneurship.

**Government initiative to boost Start-ups:**

- **SAMRIDH Scheme:** Minister of Electronics Information and Technology (MeitY) launched the SAMRIDH scheme, which stands for Start-up Accelerators of MeitY for pRoduct Innovation, Development, and growth, on August 25, 2021, after a little over a week of his announcement that the government will support the start-ups in the initial stages. The SAMRIDH initiative is designed to provide funding support to start-ups along with helping them bring skill sets together which will help them grow successful.
- **Start-up India Seed Fund:** In January 2021, Prime Minister Narendra Modi announced the launch of the 'Start-up India Seed Fund' — worth INR 1,000 crores — to help start-ups and support ideas from aspiring entrepreneurs.
- **Start-up India Initiative:** The Prime Minister of India launched the Start-up India Initiative in the year 2016 . The idea is to increase wealth and employability by giving wings to entrepreneurial spirits. The government gives tax benefits to start-ups under this scheme and around 50,000 start-ups have been recognized via this scheme in a period of a little more than five years, in 2021.
- **ASPIRE:** The government has made continuous efforts to improve the social and economic aspects of life in rural areas of India and one of the most popular schemes that the Indian government has sanctioned in this regard is ASPIRE. A Scheme for Promotion of Innovation, Rural Industries and Entrepreneurship (ASPIRE) is a Government of India initiative and promoted by the Ministry of Micro, Small and Medium Enterprises (MSME)

## 2.7. Wheat Confusion : On India's Export Restriction

**Why in News?**

- The Indian government has banned wheat exports to address lower-than-expected production and soaring inflation mainly arising out of the Russia-Ukraine war.

**Why did India ban the export of wheat?**

- Rising levels of wholesale and retail inflation
- Russia Ukraine war: Considering that Russia and Ukraine together account for about 29 percent of the global wheat exports, their inability to export wheat has led to the doubling of wheat prices in the global market.
- **Dip in procurement:** This year the government's wheat purchase has seen a dip owing to several reasons from lower yield to higher market prices being offered by private traders.
    - A large quantity of wheat was being bought by traders at a higher rate than the minimum support price (MSP).
    - Farmers and traders are holding on to some quantity of wheat, expecting higher prices for their produce in the near future.
- **Reduced Estimate:** After several parts of wheat-producing States in the north experienced unusually warm weather in March-April, the Government lowered marginally, early this month, the estimated wheat production, from 111.32 million tonnes to 105 million tonnes.
- **Turbulent market conditions:** As for international food prices, the Food and Agriculture Organization of the United Nations said that even before the war, prices had reached an all-time high due to market conditions and the high prices of energy, fertilizers, and other agricultural services.

**Why there is confusion?**

- **Earlier the Centre clarified that there was no move to curb wheat export.** This was the opportune moment for exporters to sell in the international market as wheat from Argentina and Australia would begin arriving next month.
- The higher prices in the domestic market compared to the minimum support price offered by the Government were projected as **favourable for farmers.**
- Also, just days before the Government's decision, **an official announcement was made that trade delegations would be sent to countries such as Morocco, Tunisia, and Indonesia to explore possibilities for wheat export.**
- **Turkey** had given its **approval for the import of Indian wheat,** and an announcement had been made that the current year's target for wheat export had been fixed at 10 million tonnes, three million tonnes higher than last year.
- **A delegation from Egypt visited India** in April to facilitate more wheat exports to the North African nation.

**What are the implications of the wheat exports ban?**

- India's decision has faced **criticism from the G-7's Agriculture Ministers.**
- It surely hits adversely not only the **credibility of India as a reliable supplier of anything in global markets.**
- It conveys that **we don't have any credible export policy** as it can turn its back at the drop of a hat.
- It also reflects a **deep-rooted consumer bias in India's trade policies.** It is this consumer bias that indirectly becomes an anti-farmer. Farmers are getting just **10 percent higher price than the Minimum Support Price (MSP)** of wheat, this implies that the Government not letting them take benefit of improved market conditions.
    - When 800 million-plus people have been given almost free food (rice and wheat) **under NFSA and PMGKAY until September end.** This shows the government is trying to **protect the urban middle class at the cost of**

**farmers.** It is this urban-consumer bias that has kept our peasantry poor.

- It only shows the **hollowness of Agri-trade policies and dreams of doubling Agri-exports.**
- The export ban also reflects poorly on India's image in playing its shared global responsibility amid the Russia-Ukraine war.

**How important is India to world markets?**

- India is the world's **second-largest wheat producer behind China,** but rarely exports much grain due to high government-subsidized domestic prices and massive domestic food needs.
- However, **improved seed selection and farm management over the past decade** had put the country on course for a new record crop this year, opening the door to an export boom just as global crop markets needed extra supplies.
- Indian wheat exporters had eyed sales of up to **12 million tonnes in the 2022/23 season,** which would have placed India as the **eighth largest exporter**, not far behind Canada with a projected 15.5 million tonnes.
- Top destinations for Indian exports included **Bangladesh, Indonesia, Nepal, and Turkey, and top global buyer Egypt recently agreed** to make the first-ever purchase of Indian wheat as Cairo tried to replace lost shipments from the Black Sea.

**What happens now to India's wheat?**

- The sudden ban on exports means a **majority of the new crop will now stay within India.**
- Trading firms that have already secured **letters of credit to export grain will be allowed to proceed with those sales.**
- The remaining segments of the crop that had been expected to be exported will now need to be **sold or stored domestically.**
- Local wheat markets have already started to react to the ban, with prices **falling up to 2% over the weekend in various spot markets.**

**What could have been done even when wheat production and procurement are down?**

- **First**, the Government could have announced a **bonus of Rs 200-250/quintal on top of MSP to augment its wheat procurement.** This will encourage farmers to sell wheat to the government rather than hoarding or selling it to the private players.
- **Secondly,** one wonders why the Government announced free food until September-end under PMGKAY. If it wanted to provide extra help on top of PDS supplies, it **could have offered cash** so that they could buy any food, from eggs to milk to pulses, where inflation is much lower and they are more nutritious. Substitution of rice for wheat in PMGKAY is a step in the right direction.
- **Third,** if the Government feels that the situation on the wheat front is so dire, it could have calibrated exports by putting some **minimum export price (MEP).**

**Way forward:**

- **A blanket ban is like breaking the knees of farmers and traders,** from which they will find it difficult to recover - leave alone helping India's emergence as a reliable global supplier.
- **Lessons must be gleaned from the experience 15 years ago** when India took about two years to lift its ban on the export of non-basmati rice, by which time **Thailand and Vietnam had moved in to take full advantage.**
- India should lift the ban as early as **possible to boost its Grain Diplomacy in times of crisis** and give the world a simple **message that nobody should starve while we are here.**

## 2.8. Depreciation of Indian Rupee

**Why in News?**

- The Indian rupee fell to an all-time low of 77.44 against the U.S. Dollar.

**What is Depreciation?**

**About:**

- Currency depreciation is a fall in the value of a currency in a floating exchange rate system.

- Rupee depreciation means that the rupee has become less valuable with respect to the dollar.
- It means that the rupee is now weaker than what it used to be earlier.
- For example: USD 1 used to equal to Rs. 70, now USD 1 is equal to Rs. 77, implying that the rupee has depreciated relative to the dollar i.e. it takes more rupees to purchase a dollar.

**Impact of Depreciation of Indian Rupee:**

- Depreciation in rupee is a double-edged sword for the Reserve Bank of India.

**Positive:**

- Weaker rupee should theoretically give a boost to India's exports, but in an environment of uncertainty and weak global demand, a fall in the external value of rupee may not translate into higher exports.

**Negative:**

- It poses risk of imported inflation, and may make it difficult for the central bank to maintain interest rates at a record low for longer.
- India meets more than two-thirds of its domestic oil requirements through imports.
- India is also one of the top importers of edible oils. A weaker currency will further escalate imported edible oil prices and lead to a higher food inflation.

**What are the Reasons for Current Depreciation of Indian Rupee?**

- **Sell-off of the Equity:**
  - A **sell-off in the global equity markets** which was triggered by the hike in **interest rates by the U.S. Federal Reserve** (central bank), the war in Europe and growth concerns in China due to the **Covid-19** surge, led to the rupee depreciation.
- **Outflow of Dollar:**
  - The outflow of dollars is a result of **high crude prices** and the correction in **equity markets is also causing adverse flow of dollars.**
- **Tightening of Monetary Policy:**
  - Steps taken by **RBI to tighten the monetary policy** to counter rising **inflation** has also led to depreciation.

**How the Depreciation of Rupee Impact the Overall Economy?**

- The **current account deficit** is bound to widen, depleting **foreign exchange reserves** and **weakening the rupee.**
- With higher landed prices of crude oil and other crucial imports, the economy is **definitely inching towards cost-push inflation.**
  - Cost-push inflation (also known as wage-push inflation) occurs **when overall prices increase (inflation) due to increases** in the cost of wages and raw materials.
- **Companies may not be allowed to fully pass on the burden of high costs** to consumers, which, in turn, affects government dividend earnings, raising questions about budgeted **fiscal deficits.**

## 2.9. National Sagarmala Apex Committee

**Why in News?**

- A meeting of the National Sagarmala Apex Committee was conducted to examine the status of the initiatives under the Sagarmala Project.

**What is National Sagarmala Apex Committee?**

- It is the primary organisation charged with providing policy direction and advice for port-led development as part of the Sagarmala initiative, which intends to harness India's economic development by using its 7,500-kilometer coastline and 14,500-kilometer network of potentially navigable waterways.

- The Union Cabinet established it, and the Minister of Ports, Shipping, and Waterways serves as its chairman.
- The committee has the authority to examine the development of port-connected highways and rail connectivity projects, as well as the development of floating jetties and inland waterways.
- The committee meeting's main goal is to ensure the comprehensive upliftment of coastal communities through innovative programmes like the "Sagartat Samriddhi Yojana," which will help the Sagarmala Project achieve its goals.

**What is Sagarmala program?**

- Sagarmala is a national programme that aims to boost India's economic growth by using the country's 7,500 km of coastline and 14,500 km of potentially navigable rivers.
- The Prime Minister announced it in 2014, and the Union Cabinet approved it on March 25, 2015.
- With appropriate infrastructure investment, it aspires to lower logistics costs for both domestic and EXIM freight.

**The projects under the scheme have been categorized into five pillars:**

- Port modernization & new port development,
- Port connectivity enhancement,
- Port-led industrialization,
- Coastal community development and
- Coastal shipping and Inland water transport

**What is the importance of port led development?**

- Indian ports are a major contributor to the country's fast-growing economy.
- In reality, Indian seaports handle over 95% of all goods commerce.
- However, as compared to foreign ports, Indian ports continue to underperform in some areas.
- So, in order to address all of the concerns and further expand the project, the Ministry of Shipping decided to launch a new programme called the Sagarmala Project.

## 2.10. Cryptocurrencies and Dollarisation of Economy

**Why In News**

- Recently, top officials of the RBI said that Cryptocurrencies can lead to **"Dollarisation"** of a part of the economy.

**About the recent developments in Cryptocurrency sector**

- **Tax on trading:** The Union Budget presented this year introduced a tax on trading in cryptocurrencies and related assets like non-fungible tokens (NFTs) at a flat 30 per cent and one per cent of the tax will be deducted at the source (TDS) when any such transaction takes place.
- **Data and Statistics**: There are an estimated 15 million to 20 million crypto investors in India, with total crypto holdings of around USD 5.34 billion.
    - No official data is available on the size of the Indian crypto market.
- **RBI and SEBI**: As statutory bodies, both RBI and SEBI report to Parliament and the panel has the parliamentary responsibility to call upon the officials of these regulators over the financial and economic issues of the country.

**What do you mean by dollarisation of the economy?**

- **Dollarisation is a form of currency substitution**, where dollars are used in addition to or instead of the local currency of a country.
    - Ideally, the extensive use of cryptos should cause '**cryptorisation'.**
- **Crypto currencies are dollar-denominated** and also issued by foreign private entities which could lead to dollarisation.
- They are also known to have said that cryptocurrencies have the **potential to become a medium of exchange and replace**

**the rupee in financial transactions both domestic and cross-border** thereby replacing a part of the Indian monetary system.

- Apart from being used as payment for goods and services, **cryptos can also be exchanged for fiat currencies and the US Dollar is the most preferred for this exchange**.
- Most Indians who buy cryptos, **convert rupees to dollars, in order to buy them.**

**Associated issues with dollarisation of economy**

- **It will seriously undermine the RBI's capacity to determine monetary policy** and regulate the monetary system of the country.
- **These currencies can replace a part of the monetary system; it will** also undermine the RBI's capacity to **regulate the flow of money in the system.**
- **Besides being used for terror financing**, money laundering and drug trafficking, cryptos pose a bigger threat to the stability of the financial system of the country.
- **It will also have a negative impact on the banking system** as these being attractive assets people may invest their hard-earned savings in these currencies which may result in banks having lesser resources to lend.

**Dollarisation and its Implications on the economy**

- **Though only tax havens like Liberia and Panama can be defined as 'dollarized'** in a true sense, there are many economies dollarised to a large extent.
- **Two-thirds of dollars** are held **outside the United States** which issues it.
- **Countries which have been victims of hyperinflation like Bolivia** have become dollarised too, with over 80% of the currency in use being dollars.
- **In spite of its current inflation troubles, India is far away from dollarisation to this extent.**
    - However, there are research papers that suggest that **Indian EXIM transactions are dominated by dollars.**
    - **86% of both Indian imports and exports** are invoiced in dollars.
    - **Only 5% of India's imports and 15% of exports are from and to the US** showing that few countries use their own currencies for international transactions due to the popularity of the dollar abroad.

**Way Forward**

- **Extra vigilant:** The central bank is always worried about the movement of the Indian rupee and now more than ever it is extra vigilant with high inflation, devaluation and of course fears of possible stagflation looming large.

## 2.11. Special Drawing Rights (SDR)

**Why In News?**

- Recently, the IMF lifted the yuan's weighting in the Special Drawing Rights currency basket.

**About the recent changes**

| | LATEST WEIGHTING | PREVIOUS WEIGHTING |
|---|---|---|
| US dollar | 43.38% | 41.73% |
| Euro | 29.31% | 30.93% |
| Yuan | 12.28% | 10.92% |
| Yen | 7.59% | 8.33% |
| Pound | 7.44% | 8.09% |

- **Recent change in Weightage**: The IMF raised the yuan's weight to 12.28% from 10.92% in its first regular review of the SDR evaluation since the Chinese currency was included in the basket in 2016.
    - The weighting of the US dollar rose to 43.38% from 41.73%, while those of the euro, Japanese yen and British pound declined.
- **Implications:** It will prompt the Chinese central bank to pledge to push for a further opening of its financial markets.
    - The change came amid a sharp depreciation of the yuan.
    - The Chinese currency is expected to play a rising role in global payments, settlements and foreign exchange reserves over the long term.

**What are Special Drawing Right (SDR)?**

- This is a kind of **reserve of foreign exchange assets** comprising leading currencies globally and was created by the **International Monetary Fund** in the year 1969.
- SDR is often regarded as a **'basket of national currencies'** comprising major currencies of the world - the US dollar, Euro, British Pound, Yen (Japan) & the Chinese renminbi (included in 2016).
- The composition of this basket of currencies is reviewed every five years wherein the weightage of currencies sometimes gets altered.
- SDR can be **freely exchanged between the member countries** instead of relying on the currency of any one particular country.

**Quotas**

- Quota (the amount contributed to the IMF) of a country is denominated in SDRs.
- Members' voting power is related directly to their quotas.
- IMF makes the general SDR allocation to its members in proportion to their existing quotas in the IMF.
- India's foreign exchange reserves also incorporate SDR other than gold reserves, foreign currency assets and Reserve Tranche in the IMF.

**Reserve Tranche**

- It is a portion of the **required quota of currency each member country** must provide to the **International Monetary Fund (IMF)** that can be utilized for its own purposes.

# 3. International Relations

## 3.1. Indo-Pacific Economic Framework

**Why in News?**

- Recently, India's Prime Minister participated in an event in Tokyo to launch the Indo-Pacific Economic Framework (IPEF).
- This economic initiative came a day before the second in-person summit of the Quad leaders (India, the US, Australia and Japan) in Tokyo.

**What is the Significance of IPEF?**

**About:**

- It is a US-led initiative that aims to strengthen economic partnership among participating countries to enhance resilience, sustainability, inclusiveness, economic growth, fairness, and competitiveness in the Indo-Pacific region.
- The IPEF was launched with a dozen initial partners who together represent 40% of the world GDP.

**Opportunity for Indo-Pacific Region:**

- It is a declaration of a collective desire to make the Indo-Pacific region an engine of global economic growth.

**An Economic Vision:**

- The Indo-Pacific covers half the population of the world and more than 60% of the global GDP and the nations who will join this framework in the future, are signing up to work toward an economic vision that will deliver for all people.
- **Focus Areas:** Unlike traditional trade blocs, IPEF won't negotiate tariffs or market access, and the framework will focus on integrating partner countries in four areas which include:
- **Trade:** It intends to build high-standard, inclusive, free, and fair-trade commitments and develop new and creative approaches in trade and technology policy that advance a broad set of objectives that fuels economic

activity and investment, promotes sustainable and inclusive economic growth, and benefits workers and consumers.

- **Supply Chains:** IPEF is committed to improving transparency, diversity, security, and sustainability in supply chains to make them more resilient and well-integrated.
- To coordinate crisis response measures; expand cooperation to better prepare for and mitigate the effects of disruptions to better ensure business continuity; improve logistical efficiency and support; and ensure access to key raw and processed materials, semiconductors, critical minerals, and clean energy technology.
- Clean Energy, Decarbonization, and Infrastructure: In line with the Paris Agreement goals and efforts to support the livelihood of peoples and workers, it plans to accelerate the development and deployment of clean energy technologies to decarbonize our economies and build resilience to climate impacts.
- This also involves deepening cooperation on technologies, on mobilizing finance, including concessional finance, and on seeking ways to improve competitiveness and enhance connectivity by supporting the development of sustainable and durable infrastructure and by providing technical assistance.
- Tax and Anti-Corruption: It is committed to promoting fair competition by enacting and enforcing effective and robust tax, anti-money laundering, and anti-bribery regimes in line with existing multilateral obligations, standards, and agreements to curb tax evasion and corruption in the Indo-Pacific region.
- This involves sharing expertise and seeking ways to support the capacity building necessary to advance accountable and transparent systems.

**What is India's Vision for Indo-Pacific Region?**

- India's trade in this region is growing rapidly, with overseas investments being directed towards the East, e.g., the Comprehensive Economic Partnership Agreements with Japan, South Korea, and Singapore, and the Free Trade Agreements with ASEAN (Association of Southeast Asian Nations) and Thailand.
- India has been active in championing a Free and Open Indo-Pacific. The US, Australia, and the members of the ASEAN have all expressed a common view that India plays a greater role in the region.
- India, along with its Quad partners, is upping its game in the Indo-Pacific.
- India's view is to work with other like-minded countries in the Indo-Pacific region to cooperatively manage a rules-based multipolar regional order and prevent any single power from dominating the region or its waterways.

## 3.2. India-USA Investment Incentive Agreement

**Why in News?**

- India and USA signed the Investment Incentive Agreement (IIA) in Tokyo, Japan which is expected to enhance investment support from America's development finance institution in a wide range of sectors.

**About IIA**

- The IIA was signed by foreign secretary Vinay Kwatra and Scott Nathan, the chief executive officer of the US International Development Finance Corporation (DFC).
- The agreement is considered a legal requirement for DFC to continue providing investment support in India.
- The agreement supersedes another similar pact signed between the governments of India and the US in 1997.

**Cooperation under DFC:**

- The proposals worth four billion dollars are under consideration by Corporation for providing investment support in India.
- The Corporation has provided investment support in sectors like COVID-19 vaccine manufacturing, healthcare financing, renewable energy, financial inclusion and infrastructure among others.

- DFC or its predecessor agencies have been active in India since 1974 and have provided investment support worth $5.8 billion, of which $2.9 billion is still outstanding.

**What is the Status of DFC in India?**

- DFC or their predecessor agencies have been active in India since 1974 and have so far provided investment support worth USD 5.8 billion of which USD 2.9 billion is still outstanding.
- Proposals worth USD 4 billion are under consideration by DFC for providing investment support in India.
- DFC has provided investment support in sectors that matter for development such as Covid-19 vaccine manufacturing, healthcare financing, renewable energy, Small and Medium Enterprises (SME) financing, financial inclusion, infrastructure etc.

**What is the current Status of India-US Relations?**

**About:**

- India-US bilateral relations have developed into a "global strategic partnership", based on shared democratic values and increasing convergence of interests on bilateral, regional and global issues.
- In 2015, both the countries issued a Delhi Declaration of Friendship and adopted a Joint Strategic Vision for Asia-Pacific and the Indian Ocean Region.

**Civil-Nuclear Deal:**

- The bilateral civil nuclear cooperation agreement was signed in October 2008.

**Energy and Climate Change:**

- As a priority initiative under the PACE (Partnership to Advance Clean Energy), the US Department of Energy (DOE) and the Government of India have established the Joint Clean Energy Research and Development Center (JCERDC) designed to promote clean energy innovations by teams of scientists from India and the United States.
- India-US Clean Energy Agenda 2030 Partnership was launched at the Leaders climate summit 2021.

**Defence Cooperation:**

- Defence relationship has emerged as a major pillar of India-US strategic partnership with the signing of 'New Framework for India-US Defense Relations' in 2005 which was further updated for 10 years in 2015.
- India and US inked important defence pacts in the last few years and also formalised the four nation alliance of QUAD (India, US, Japan and Australia).
- The alliance is seen as an important counter to China in the Indo-Pacific.
- The Malabar exercise in November 2020 portrayed a high point in Indo-US strategic ties, it was the first time in 13 years that all four countries of QUAD came together sending a strong message to China.
- India now has access to American bases from Djibouti in Africa to Guam in the Pacific. It can also access advanced communication technology used in US defence.

**India and US have four foundational defence agreements:**

- Basic Exchange and Cooperation Agreement for Geospatial Intelligence (BECA).
- General Security of Military Information Agreement (GSOMIA).
- Logistics Exchange Memorandum of Agreement (LEMOA).
- Communication Compatibility and Security Agreement (COMCASA).

- India-US Counter-Terrorism Cooperation Initiative was signed in 2010 to expand collaboration on counter-terrorism, information sharing and capacity building.
- A tri-services exercise– Tiger Triumph- was conducted in November 2019.
- Bilateral and regional exercises include: Yudh Abhyas (Army), Vajra Prahar (Special Forces), RIMPAC, Red Flag.

**Trade:**

- The US is India's second largest trading partner and a major destination for India's exports of goods and services.
- The US replaced Mauritius as the second largest source of foreign direct investment into India during 2020-21.
- The previous US government ended India's special trade status (GSP withdrawal) and also imposed several bans, India also retaliated with bans on 28 US products.

**Science & Technology:**

- Indian Space Research Organization (ISRO) and National Aeronautics and Space Administration (NASA) are working together to realize a joint microwave remote sensing satellite for Earth observation, named NASA-ISRO Synthetic Aperture Radar (NISAR).

**Way Forward**

- India is emerging as a leading player in an international system that is undergoing an unprecedented transformation. It shall use its present situation to explore opportunities to further its vital interests.
- India and the US are strategic partners today in the true sense of the term - a partnership among mature major powers that is not seeking a complete convergence but managing differences by ensuring a continuous dialogue and channeling these differences into crafting new opportunities.

## 3.3. Quad: Opportunities, Challenges

**Why in News?**

- Recently Quad summit was held in Tokyo, the leaders discussed challenges and opportunities across the Indo-Pacific and focussed on ways to deliver on the vision of a free, open, and inclusive region.

**Background:**

- Quad origins can be traced back to the evolution of Exercise Malabar and the 2004 Tsunami when India conducted relief and rescue operations for itself and neighbouring countries and was later joined by the US, Japan, and Australia.
- Since its establishment in 2007, the representatives for the four-member nations have met periodically.
- Japanese Prime Minister Shinzo Abe was the first to pitch the idea for the formation of Quad in 2007.

**Principles of Quad:**

- The motive behind the Quad is to keep the strategic sea routes in the Indo-Pacific free of any military or political influence.
- It is basically seen as a strategic grouping to reduce Chinese domination.
- The core objective of the Quad is to secure a rules-based global order, freedom of navigation, and a liberal trading system.
- The coalition also aims to offer alternative debt financing for nations in the Indo-Pacific region.
- The Quad leaders exchange views on contemporary global issues such as critical and emerging technologies, connectivity and infrastructure, cyber security, maritime security, humanitarian assistance, disaster relief, climate change, pandemic, and education.

**Key Takeaways From recent Summit:**

- USD 50 billion of infrastructure assistance and investment in the Indo-Pacific over five years.
- Launch of Quad Climate Adaptation and Mitigation Package (Q-CHAMP)' for tangible climate action.
- Quad Fellowship will bring 100 students from the 4 countries to the US each year to pursue graduate degrees in STEM fields.
- Launch of Indo-Pacific Partnership Awareness(IPMDA) for combating illegal fishing.
- QUAD partnership on Humanitarian Assistance and Disaster Relief (HADR) in the Indo-Pacific.

**Significance for India:**

- If Chinese hostilities rise on the borders, India can take the **support of the other Quad nations to counter.**
- Quad gives a powerful platform to **advance its interests in East Asia,** coordinate strategies with powerful friends and add more strength **to its Act East initiative.**
- It is deepening India's ties with US, Australia and Japan and providing New Delhi significant leverage in shaping **US policies in Afghanistan-Pakistan to the benefit of India.**
- Through QUAD India seeks to reassert rule based world order to counter **China's growing power and assertion.**
- India can even take the help of its **naval front and conduct strategic explorations in the Indo-Pacific region.**

**Opportunities before Quad:**

1. **Harnessing commercially-available data using existing technologies**.
   - Through a combination of an Automatic Identification System and radio-frequency technologies, Quad partners can provide an unprecedented "common thread" of activities.
   - Because of its commercial origin, this data will be unclassified, allowing the Quad to provide it to a wide range of partners who wish to benefit.
2. **The Quad Vaccine Partnership and Global Health Security**
   - The Quad is committed to maintaining its global leadership in responding to the COVID-19 pandemic and bolstering global health security.
   - To date, Quad partners have collectively provided 257 million safe and effective doses to the Indo-Pacific.
3. **Critical and Emerging Technologies**
   - Four countries are committed to responsible innovation in critical and emerging technologies.
   - Through a new Memorandum of Cooperation on 5G Supplier Diversification and Open RAN, the Quad will cooperate on technical exchanges and testbed activity to advance interoperability and telecommunications cybersecurity.
4. **Space**
   - As leaders in space, Quad countries are strengthening cooperation and pooling collective expertise to exchange satellite data, enable capacity-building, and consult on norms and guidelines.
5. **Infrastructure**
   - To help meet the Indo-Pacific's enormous infrastructure needs, Quad leaders launched the Quad Infrastructure Coordination Group, which will deepen collaboration and pursue complementary actions, including in digital connectivity, transportation infrastructure, clean energy and climate resilience.

**Challenges before Quad:**

1. **Distraction of Europe**
   - Russia's invasion of Ukraine has shaken up the old world order, reshaping geopolitics across the world. As the leader of the Western alliance against Russia, the US is now deeply engaged with the war.
   - The reinvigoration of Europe and NATO in the wake of Putin's aggression in Ukraine has made new demands on US attention and resources, prompting questions about American appetite to take on two rivals — Russia and China — at the same time.
   - The war in Ukraine also poses an internal challenge in the Quad. Three members — US, Japan and Australia — have taken an unequivocal stand against Russia's aggression,
   - India's position has been one of studied neutrality that calls for respect of territorial sovereignty and integrity and the UN charter, but does not criticize Russia.

2. **The Threat of China**
   - Each Quad member views the Chinese threat differently
     - For the US, it is about trade and Taiwan.
     - For Australia too, trade was the biggest issue until the recent establishment of a

Chinese military base in the Solomon Islands brought a new dimension.
    - Japan and India are closest to China, and both face belligerent Chinese claims to territory.
3. **Non-Security Initiatives**
    - Cutting-edge technology, pharmaceuticals and infrastructure have been described as "key battlegrounds" in the contest with China.

**Conclusion:**

- The Quad has evolved as a unique partnership and is poised to play a meaningful role in **promoting stability, security and development in the Indo-Pacific region.**
- **The Quad countries recognise** each other's approaches and have **endeavoured** to revive the **group by building on the areas of convergence.**
- The recently held quad summit has outlined a vision that encompasses a broad canvas.
- It indicated a clear intent to address **common challenges and tap opportunities,** both existing and potential, cooperatively and collaboratively.

## 3.4. BRICS Foreign Ministers' Meet

**Why In News?**

- China hosted the **virtual BRICS Foreign Ministers meet** recently with the Indian External Affairs Minister taking part along with his counterparts from the five-member bloc.

**About**

- The meeting was held in the **run-up to the annual Summit which will be held later this year by China** who holds the presidency of grouping this year.
- The meeting had a **BRICS+ dialogue, with counterparts from emerging markets and developing countries** who are not part of the grouping.
- This was the **first BRICS leaders' gathering since Russia's invasion of Ukraine.**

**Major Deliberations**

- **Russia-Ukraine conflict:** The grouping assessed the situation in Ukraine and **supported talks between Russia and Ukraine to reach peace.** They expressed concern at the energy and food security implications of the conflict.
- **Respecting territorial integrity:** BRICS must live up to its commitments on **sovereign equality, territorial integrity and international law.**
- **Recovery from pandemic:** It discussed the **socio-economic recovery from the Covid pandemic** and ways to create resilience and reliable supply chains.
- **Global macroeconomy:** The Ukraine conflict has led to **sharp increases in the costs of energy, food and commodities.** The group pondered over solutions to mitigate the crisis primarily for the well being of the developing world.
- **UNSC Reforms:** The group supported UN Security Council reform asserting that the **Security Council should reflect the present global realities** and giving developing countries a greater say in global governance.
- **Climate Action:** It pressed for **credible commitment of resources by developed nations for climate action and climate justice** thus nudging the developed world to exercise their due for a sustainable earth.
- **Terrorism:** It reiterated to zero tolerance for terrorism, especially cross border terrorism which **impacts the regional and global security.**
- **BRICS+:** BRICS foreign ministers' dialogue was also held with emerging markets and developing countries participating in the meet to **broaden their outreach with other developing countries.**

**BRICS+**

- **About:**
    - It was **first mooted by Chinese Foreign Minister Wang Yi in 2017** with the objective of widening the ambit of

BRICS that can bring unity among developing countries and **enhance South-South cooperation.**

- **Objective:**
  - The initiative is aimed at **expanding the outreach of the BRICS countries with the Global South** and building wider partnership with emerging markets and developing countries (EMDCs).
- **Why is it not a permanent arrangement?**
  - There is a **lack of consensus among the grouping** on institutionalising BRICS Plus arrangement.
  - The other **four members are wary of China's hegemony** in BRICS and its increasing influence in the Global South.
  - Through the arrangement, **China aims at forging regional and bilateral alliances across the continents,** which could also be instrumental in pushing its Belt and Road Initiative (BRI).

**Way Forward**

- **Stabilsing world:** BRICS should play an important role in stabilising the current events on the globe, primarily resolving the Russia-Ukraine conflict.
- **Ensuring stable macroeconomy:** It can contribute significantly to the global economic growth and stability by leveraging NDB, CRA, AIIB. By effectively using the platform it can resolve the deadlock in the Ukraine region and can unclog the supply chain thus bringing prices and supplies to normalcy.
- **Post-pandemic:** The world is not the same as it was before the pandemic. The forum should harness its position to bring changes in the governance of the developing world so that they can effectively recover from the pandemic after effects.
- **Reforming UNSC:** It is committed to a multipolar world and hence should steadfast its efforts to bring forth the reforms in the UNSC so as to reflect the geopolitic paradigm of today's world.

**BRICS 2022**

- **India handed over the BRICS Chairmanship to China in January 2022.** India has the chair for the year 2021.
- **Theme:** The theme for BRICS 2022 is **'Foster High-Quality BRICS Partnership Usher in a New Era for Global Development'.**
- **Events:** A total of 25 events have been planned for this year's summit. India will host five events this year as part of **BRICS Science Technology Innovation Steering Committee.**

## 3.5. China-Taiwan Issue

**Why in News?**

- Recently, a statement by the United States President suggested that any attempt by **China to invade Taiwan** would attract **American military intervention**.

**How did the current round of tensions come about?**

- The current round of tensions between **China and Taiwan** began on October 1 2021 when China observed its **National Day** to mark the **birth of the People's Republic of China (PRC).**
  - Coinciding with the **72nd anniversary celebrations,** China flew over 100 **fighter jets into Taiwan's air defence identification zone**, jangling nerves in Taiwan and **setting off alarm around the world** that it was preparing to take over the island by force.
- **Russia's invasion of Ukraine** in February 2022, and Beijing's steadfast support of Russia in the face of **global criticism has heightened these fears.**

- **US-China angle**
  - In 2020, amid worsening US-China relations over Covid and trade, the State Department sent its highest ranking delegation till then to Taipei.
    - During the visit, the Chinese conducted a military exercise in the Taiwan Strait, which separates **Taiwan from mainland China**.

**Where does Taiwan stand in relation to China and the world?**

- Taiwan, earlier known as **Formosa**, a tiny island off the east coast of China.
- It is where **Chinese republicans of the Kuomintang government** retreated after the 1**949 victory of the communists** — and it has since continued as **the Republic of China(ROC).**
- **Location**
    - The island is located in the **East China Sea**, to the northeast of Hong Kong, north of the **Philippines** and south of **South Korea**, and southwest of **Japan**.
        - Thus ,What happens in and around Taiwan is of deep concern to all of East Asia.

- **Recognition : Taiwan sees itself as a de jure sovereign state but it is** largely **unrecognised by other countries**
    - Just 15 countries around the world recognise Taiwan. Most are very small, many are remote island nations.
- **National Day**
    - Taiwan observes October 10 — "double 10" — as its national day; it was on this day in **1911 that sections of the Manchu army rose in rebellion**, leading ultimately to the overthrow of the **Qing dynasty and the end of 4,000 years of the monarchy.**

**When did the tensions with China begin to acquire a serious dimension?**

- The RoC was declared on December 29, 1911 and it became the non-communist frontier against **China during the Cold War**.
- Since its founding in 1949, the PRC has believed that Taiwan must be reunified with the mainland, while the RoC has held out as an **"independent" country.**
- In **1954-55, and in 1958**, the PRC bombed the Jinmen, Mazu, and Dachen islands under Taiwan's control, drawing in the US.
- **In 1955**, Premier Zhou En-lai declared at the Bandung Conference that he wanted negotiations with the US.
    - But as civil war broke out in **Lebanon in 1958,** China resumed the bombing, provoking the US to supply Taiwanese outposts on the islands.
- The **PRC and ROC** then arrived at an arrangement to bomb each other's garrisons on alternate days – this continued until 1971.
- The most **serious encounter was in 1995-96**, when China began testing missiles in the seas around Taiwan, triggering the biggest US mobilisation in the region since the Vietnam War.
    - The tests led to the re-election in 1996 of President Lee Teng-hui, seen by the Chinese as a pro-independence leader.

**How has Taiwan's recent political and economic history unfolded?**

- In **1975, Chiang Kai-shek died,** martial law was lifted, and Taiwan got its first democratic reforms.
- Starting from the 1990s, and despite the missile crisis, relations between the PRC and RoC improved, and trade ties were established.
- As the British prepared to exit Hong Kong in 1999, the "One China, Two Systems" solution was offered to **Taiwan as well, but it was rejected by the Taiwanese.**
- **In 2000, Taiwan** got its first non-KMT government, when the Taiwanese nationalist Democratic Progressive Party (DPP) won the presidency.
- **In 2004, China** started drafting an anti-secession law aimed at Taiwan; trade and connectivity, however, continued to improve.
- The 2016 election of President Tsai marked the onset of a sharp **pro-independence phase in Taiwan**, and the current tensions with China coincided with her re-election in 2020.
    - Taiwan now has massive economic interests, including investments in China, and pro-independence sections worry that this might come in the way of their goals.

**Impacts on US and its response**

- Since Taiwan is entirely dependent on the US for its defence against possible Chinese aggression, every spike in military tensions between China and Taiwan injects more hostility in the already strained **relationship between Washington and Beijing.**
- **One China Policy**:
    - The US has a policy of "**strategic ambiguity" towards Taiwan**.
    - This means that it maintains ties with Taipei, and sells weapons to it, but officially subscribes to the PRC's **"One China Policy**" in which Taiwan does not exist as a separate entity.
- **AUKUS:**
    - The AUKUS pact among the US, UK, and Australia, under which Australia will be supplied with nuclear submarines, imparted a new dimension to the security dynamics of the Indo-Pacific.
    - Taiwan welcomed the pact, while China denounced it as seriously undermining regional peace.

**Implications of the rising tensions for India**

- With India facing its own problems with China on the LAC, there have been suggestions that it should review its **One China Policy** .
    - it has in any case long stopped reiterating this officially — and use not just the Tibet card, but also **develop more robust relations** with Taiwan to send a **message to Beijing**.
- **India and Taiwan currently maintain** "trade and cultural exchange" offices in each other's capitals.

## 3.6. SCO's RATS Meeting

**Why in News?**

- A three-day meeting is held under the framework of the **Shanghai Cooperation Organization's (SCO) Regional Anti-Terrorist Structure (RATS).**

**Major Agenda of the Meeting**

- Discussions on the **situation in Afghanistan**, especially in dealing with the threat from terrorist groups active in the Taliban-ruled country.
- India has expressed desire to **strengthen its security cooperation** with the SCO.

**SCO Regional Anti-Terrorist Structure (RATS)**

- **About:** It is a permanent body of SCO. It aims to counter extremism, terrorism, and separatism in the region. Its headquarters is in Tashkent, Uzbekistan.
    - India assumed chairmanship of the **RATS SCO** on October 28, 21

**Shanghai Cooperation Organization (SCO)**

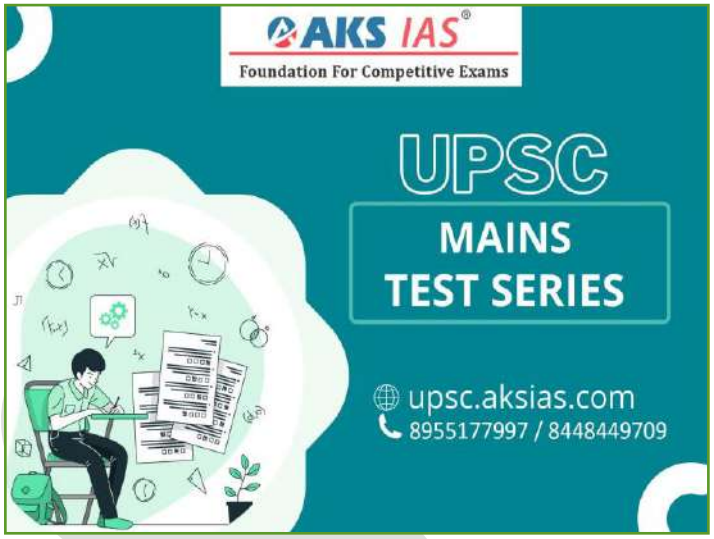
- **About:**
    - It is a permanent intergovernmental international organisation of Eurasian Nations with a secretariat in Beijing.
- **Aim:**
    - It is a political, economic and military organisation that aims at maintaining peace, security and stability in the region.
- **Origin: Journey from Shanghai Five to SCO**
    - Shanghai Five emerged in 1996 from a series of border demarcation and demilitarization talks between 4 former USSR republics and China.
    - Kazakhstan, China, Kyrgyzstan, Russia and Tajikistan were members of the Shanghai Five.
    - With the accession of Uzbekistan to the group in 2001, the Shanghai Five was renamed the SCO.
    - The SCO Charter was signed in 2002 and entered into force in 2003.
- **Inclusion of India & Pakistan:**
    - India and Pakistan both were initially observer states.
    - Both were given full membership in 2017.
- **Members:**

- Kazakhstan, China, Kyrgyzstan, Russia, Tajikistan, Uzbekistan, India, and Pakistan.
- Recently, Iran's bid to become a full member of the SCO has been approved.

- **Language:**
  - The SCO's official languages are Russian and Chinese.
- **Structure:** SCO Secretariat in Beijing & Executive committee in Tashkent.

**Importance of SCO for India**

- Help in achieving regional integration, promote connectivity & stability
- Improving security by intelligence sharing, law enforcement and developing best practices.
- It provides India with an opportunity to pursue the "Connect Central Asian Policy".
- Platform to put forward India's concerns




# 4. Science & Technology

## 4.1. Avian Influenza

**Why In News?**

- Recently, China reported the first human case of H3N8 bird flu.

**H3N8**

- H3N8 viruses originated in **horses** and then transmitted to **dogs**.
- H3N8 **equine influenza (horse flu)** viruses have been known to exist in horses for more than 40 years.
- Scientists say that the virus **jumped from horses to dogs** for survival and has adapted to cause illness in dogs and spread among dogs, especially those housed in kennels and shelters.
- The **H3N8 bird flu** virus was first detected in North American waterfowl in 2002, however, **no cases of human transmission** were reported until now.

**Avian Influenza or Bird Flu**

- **Type of Virus:**
  - Avian influenza or bird flu refers to the disease caused by infection with **avian (bird) influenza (flu) Type A viruses**.
  - **Influenza A virus** causes influenza in **birds and some mammals**, and is the only species of the genus Alpha-influenza-virus of the virus family Orthomyxoviridae.
  - Strains of all subtypes of influenza A virus have been isolated from wild birds, although disease is uncommon.
- **Spread:**
  - These viruses naturally spread among wild aquatic birds worldwide and can infect domestic poultry and other bird and animal species.
- **Human Transmission:**
  - Bird flu viruses **do not** normally infect humans. However, **sporadic human infections** with bird flu viruses have occurred.
- **Virus shedding:**
  - Infected birds can shed avian influenza A viruses in their **saliva, nasal secretions, and faeces.**

  - Susceptible birds become infected when they have contact with the virus as it is shed by infected birds.
  - They also can become infected through **contact with surfaces** that are contaminated with virus from infected birds.
- **Common Symptoms:**
  - Cough, fever, sore throat, muscle aches, headache, and shortness of breath.
  - They may also develop **life-threatening complications** like pneumonia, pinkeye (conjunctivitis), respiratory failure, kidney dysfunction, and heart problems.
- **Treatment:**
  - **Antiviral treatment** functions best if one receives it as soon as the symptoms emerge.
  - However, it noted that antiviral drugs may not work as well against some A(H5N1) and A(H7N9) bird flu viruses.

**Different types of avian influenza**

- Avian Influenza (AI) type A viruses are divided into subtypes based on **two proteins on the surface** of the virus:
  - **Hemagglutinin (HA)**, of which there are 16 subtypes (H1-H16)
  - **Neuraminidase (NA)**, of which there are 9 subtypes (N1-N9)
- Many combinations of HA and NA proteins are possible (i.e., H5N1, H5N2, H7N2, H7N8, etc).
- AI viruses are also classified into two groups based on their **ability to produce disease** in chickens:
  - highly pathogenic avian influenza (HPAI) or
  - low pathogenic avian influenza (LPAI).
- HPAI viruses cause **high mortality** in poultry and occasionally high death rates in certain species of wild birds.
- LPAI viruses can cause a variety of outcomes in poultry ranging from no apparent clinical signs to moderate death rates. LPAI viruses usually cause little to no signs in wild birds.
- H5 and H7 LPAI viruses have the potential to mutate or evolve into HPAI viruses and are closely monitored by animal health officials.
- **Most avian influenza:**
  - The **H5N1 and H7N9** strains of bird flu are the **primary reason** for the most number of avian influenza cases in humans.
  - The former was first detected in 1997 whereas the latter emerged in 2013 and has been responsible for most cases of human illness from avian influenza.

**Status in India**

- Earlier, the first recorded human death due to the bird flu in India happened.
- Earlier, bird flu was confirmed in several states with thousands of birds, including migratory species, being found dead.

**Measures against bird Flu**

- Revised Action Plan for **Prevention, Control & Containment** of Avian Influenza (2021)
- Opting Culling method
- **Cleansing and disinfecting** and reduction of people's movement.
- **Vaccination to humans:** Avian Influenza vaccine is available outside India e.g. the USA has developed the vaccine for Human infection.

## 4.2. Small Satellite Launch Vehicle (SSLV)

**In Context**

- The Indian Space Research Organisation (ISRO) is hoping to have all three development flights planned for its '**baby rocket' — the Small Satellite Launch Vehicle (SSLV) — in 2022 itself.**
  - The first development flight is expected to take place in the month of June.

**About the Small Satellite Launch Vehicle (SSLV)**

- **Background:**

- Dr Somanath is **credited with designing and developing** the SSLV during his tenure as director of the Vikram Sarabhai Space Centre in Thiruvananthapuram since 2018.

- It is a **3 stage Launch Vehicle** configured with three Solid Propulsion Stages and liquid propulsion based **Velocity Trimming Module (VTM)** as a terminal stage.
  - All three stages of the SSLV will be solid propulsion stages.
- The SSLV can carry satellites weighing a maximum 500 kg to low orbit, while the PSLV can launch satellites weighing above 1000 kg.
- T**he key features of SSLV**:
  - Low cost, with low turn-around time, flexibility in accommodating multiple satellites, Launch on demand feasibility, minimal launch infrastructure requirements, etc.

## 4.3. SgrA Black hole in Milky Way Galaxy

### Why In News?

- Scientists from the Event Horizon Telescope facility revealed the **first image of the black hole at the centre of the Milky Way galaxy.**

### About

- Event Horizon Telescope (EHT), a collaboration of 300 researchers, reveals true colours of Sagittarius A* (SgrA*), the black hole.
- The image **confirms that the object is indeed a black hole and yields valuable clues** about the workings of such giants which reside at the centre of most galaxies.

### Important Findings

- **Reaffirms black hole in Milky way:** The obtained image of SgrA* supports the veracity of the conception that the compact object at the centre of our galaxy is indeed a black hole.
- **Supports Theory of Relativity:** The size of the ring confirms the predictions of Einstein's general theory of relativity thereby strengthening the theory.
- **Second black hole imaging:** SgrA* is only one-thousandth the size of M87*, a black hole in the Messier 87 galaxy but the ring of both the black holes looks strikingly similar.
- **Better heuristics:** The collaboration will improve the capacity to have better imaging of other black holes with higher accuracy and better study of the associated magnetic fields.

### Imaging SgrA* was much more difficult than M87*

- **Smaller size:** SgrA* is only one-thousandth the size of M87*
- **Obscure line of sight:** The line of sight is not very clear because of a lot of matter between the telescope and the blackhole.
- **Low gas swirling period:** Being much smaller than M87*, the gas swirling around SgrA* takes just few minutes to complete an orbit around SgrA* compared to weeks to go around M87*.
  - The blackhole does not have an image of its own, rather it's the gasses swirling around which actually produce images.

### Earlier snaps by EHT

- The Event Horizon Telescope **created history in 2019 by releasing the first ever image of a black hole M87*.**
- The M87* black hole is situated at the centre of a **galaxy Messier 87**, which is a supergiant elliptic galaxy.

## 4.4. HS200 Solid Rocket Booster For Gaganyaan

### Why In News?

- Recently, ISRO successfully tested the **HS200** solid rocket booster for the **Gaganyaan programme**.

### About HS200

- It is a 20-metre-long booster with a diameter of 3.2 metres and is the **world's second largest operational booster** using solid propellants.
- The **control system** used in the HS200 booster employs one of the **world's most powerful electro-mechanical actuators** with multiple redundancies and safety features.
- **Designed and developed by:** Vikram Sarabhai Space Centre (VSSC) in Thiruvananthapuram over two years.
- **Applications**:
    - The **GSLV Mk-III rocket** which will be used for the Gaganyaan mission will have **two HS200 boosters** which will supply the thrust for lift-off.
    - Since Gaganyaan is a **crewed mission**, the GSLV Mk-III will have improvements to increase reliability and safety to meet the requirements of 'human rating.'
- **Significance:**
    - The successful completion of this test marks **a major milestone** for the prestigious human space flight mission of ISRO, the Gaganyaan.

### Gaganyaan Mission

- **Aim:**
    - Gaganyaan is an Indian crewed orbital spacecraft that is intended to send 3 astronauts to space for a minimum of seven days by 2022 (delayed due to COVID-19).
- **Launched by:**
    - ISRO's Geosynchronous Satellite Launch Vehicle **GSLV Mk III** (3 stages heavy-lift vehicle)
- **Components:**
    - Consists of a service module and a crew module, collectively known as an Orbital Module (Crew Module carries astronauts & Service Modules carries propellants.)
- **LEO:**
    - It will circle Earth at a low-earth-orbit at an altitude of 300-400 km from the earth for 5-7 days.
- **Vyom Mitra:**
    - ISRO to send **humanoid** Vyommitra in unmanned Gaganyaan spacecraft ahead of human spaceflight (Monitoring module parameters).

**Significance of the Mission**

- Establish India as the World leader in Manned missions (USA, China and Russia)
- Enhancement of science and technology levels in the country.
- A national project involving several institutes, academia and industry.
- Improvement of industrial growth (IN-SPACe to ↑ Pvt. participation).
- Inspiring youth.
- Development of technology for social benefits.
- Improving international collaboration.

### Challenges in the Mission

- **Financial Cost:** 10,000 crores, critics questions about this over poor & undernourished.
- **Technological Know-how:** Rocket, Crew Escape Mechanism, Radiation exposure, Transitioning of one gravity field to another (cause osteoporosis) & simulating Earth-like conditions.
- **Health Issues:** Like Behavioural issues, depression, fatigue, sleep disorder.

### Other Major Space Projects

- Venus mission: This will be the first mission to Venus by the ISRO.
- L-1 Aditya solar: India's first scientific expedition to study the Sun
- Chandrayaan-3: It is a lander-and rover-specific mission, a follow-up of the Chandrayaan-2 mission.

## 4.5. The Rise of AI Chips

**Why in News?**

- Market leader Nvidia recently announced its H100 GPU (graphics processing unit), which is said to be one of the world's largest and most powerful AI accelerators, packed with 80 billion transistors.

- The adoption of Artificial Intelligence (AI) chips has risen, with chipmakers designing different types of these chips to power AI applications such as natural language processing (NLP).
- The increasing adoption of AI chips in data centres is one of the major factors driving the growth of the market.

**What are AI chips?**

- AI chips are built with specific architecture and have integrated AI acceleration to support deep learning-based applications.
- Deep learning, more commonly known as Active Neural Network (ANN) or Deep Neural Network (DNN), is a subset of machine learning and comes under the broader umbrella of AI.
- It combines a series of computer commands or algorithms that stimulate activity and brain structure.
- DNNs go through a training phase, learning new capabilities from existing data.
- DNNs can then infer, by applying these capabilities learned during deep learning training to make predictions against previously unseen data.
- Deep learning can make the process of collecting, analysing, and interpreting enormous amounts of data faster and easier.

**There are different types of AI chips such as:**

- Application-specific integrated circuits (ASICs),
- Field-programmable gate arrays (FPGAs),
- Central processing units (CPUs) and GPUs,

**AI Applications:**

**Banking**

- A number of banks have already adopted AI-based systems to provide customer support, detect anomalies and credit card frauds. An example of this is HDFC Bank.

**Agriculture**

- Now a day's agriculture is becoming digital, and AI is emerging in this field. Agriculture is applying AI as agriculture robotics, solid and crop monitoring, and predictive analysis. AI in agriculture can be very helpful for farmers.

**Astronomy**

- Artificial Intelligence can be very useful to solve complex universe problems. AI technology can be helpful for understanding the universe such as how it works, its origin, etc.

**Healthcare**

- Healthcare Industries are applying AI to make a better and faster diagnosis than humans.

**Gaming**

- AI can be used for gaming purposes. The AI machines can play strategic games like chess, where the machine needs to think of a large number of possible places.

**Finance**

- AI and finance industries are the best matches for each other. The finance industry is implementing automation, chatbot, adaptive intelligence, algorithm trading, and machine learning into financial processes.

**Data Security**

- The security of data is crucial for every company and cyber-attacks are growing very rapidly in the digital world. AI can be used to make your data safer and more secure.

**AI in Social Media**

- Social Media sites such as Facebook, Twitter, and Snapchat contain billions of user profiles, which need to be stored and managed in a very efficient way.
- AI can organize and manage massive amounts of data.

**Conclusion:**

- To better prepare for the future society in which artificial intelligence (AI) will have a much more

pervasive influence on our lives, a better understanding of the difference between AI and human intelligence is necessary.
- Now the great challenge of AI is to find ways of representing the commonsense knowledge and experience that enable people to carry out everyday activities such as holding a wide-ranging conversation, or finding their way along a busy street.

## 4.6. First indigenous potential mRNA vaccine

**Why in news?**

- Recently, the success of the 'proof of principle' of the first indigenous Messenger RNA (mRNA) vaccination technology was revealed by the Council of Scientific and Industrial Research-Centre for Cellular and Molecular Biology (CSIR-CCMB).
- This is distinct from Gennova Bio's mRNA vaccine, which is based on self-replicating RNA.
- According to the researcher, the technology is ready to be passed to any interested corporation so that human trials may be conducted and the vaccine can be brought to market with regulatory permission.

**What is Proof of Principle?**

- A proof of principle, also known as a proof of concept, is a demonstration in principle that verifies that a concept or theory has practical potential by putting it into practise.

**What is this technology all about?**

- Messenger RNA (mRNA) technology instructs our cells to recognise and protect us from infectious infections. One of the issues with this new technology is that it must be kept cold during transit and storage to preserve stability.

**What are mRNA vaccines?**

- mRNA vaccines induce the body to produce some viral proteins on its own.
- They work by employing mRNA, or messenger RNA, which is the molecule responsible for carrying out DNA instructions.
- Inside a cell, mRNA serves as a template for the production of proteins.

**How does it work?**

- Scientists create a synthetic version of the mRNA that a virus utilises to assemble its infectious proteins to create an mRNA vaccine.
- This mRNA is transferred into the human body, where it is read by cells as instructions to produce the viral protein, resulting in the creation of some of the virus's components.
- Because these proteins are solitary, they do not form a virus.
- When the immune system recognises these viral proteins, it begins to mount a defensive response.

**What are the Significance of mRNA vaccines?**

- Our immune system is divided into two parts: innate (innate defences) and acquired (acquired defences) (which we develop as we come into contact with pathogens).
- The innate immune system is normally stimulated by another substance termed an adjuvant, whereas traditional vaccine molecules only operate with the acquired immune system.
- Intriguingly, mRNA in vaccines may also activate the innate immune system, giving an additional layer of defence without the need of adjuvants.

**What is indigenous mRNA COVID vaccine?**

- The researchers developed an indigenous candidate for a SARS-CoV-2 mRNA vaccine.
- It is based on the Moderna model, however it was built with open source knowledge, indigenous technology, and materials.

**Efficacy**

- After receiving two doses of the mRNA, mice developed a "robust immunological response" against the Covid-19 spike protein.
- Anti-spike antibodies were discovered to be more than 90% effective in inhibiting the human receptor from attaching to the coronavirus.
- Angiotensin converting enzyme 2 (ACE-2) is an integral membrane protein also known as ACEH (ACE homolog).
- The SARS-CoV and SARS-CoV-2 viruses employ ACE-2 as a receptor.
- It serves as a portal for the coronavirus to enter and infect a variety of human cells.

**Significance**

- Other infectious diseases such as tuberculosis, dengue fever, malaria, chickungunya, rare genetic diseases, and others could benefit from the indigenously generated mRNA vaccine platform.
- The vaccines can be used to cover multiple variations of the pan-Covid-19 vaccine.

**How are mRNA Vaccines Different From Traditional Vaccines?**

- Traditional vaccinations are made up of small or inactivated dosages of the entire disease-causing organism, or the proteins it produces, that are injected into the body to elicit an immune response.
- The body is tricked into generating some of the virus proteins using mRNA vaccinations.
- They work by employing mRNA, or messenger RNA, which is the molecule responsible for carrying out DNA instructions. Inside a cell, mRNA serves as a template for the production of proteins.

**What are the Advantages of Using mRNA Based Vaccines?**

- Because mRNA is non-infectious, non-integrating, and destroyed by typical cellular mechanisms, mRNA vaccines are considered safe.
- Because of their innate propensity to be translatable into the protein structure within the cell cytoplasm, they are extremely effective.
- Furthermore, mRNA vaccines are totally synthetic and do not require a host, such as eggs or bacteria, to thrive. As a result, they may be mass-produced swiftly and cheaply to ensure their "availability" and "accessible" for long-term mass immunization.

## 4.7. Human Cell Atlas

**Why In News?**

- Recently, scientists mapped out **more than a million cells across 33 organs in the human body** which can provide unparalleled insights into **health and diseases.**

**About the research**

- Researchers looked at single immune cells from **deceased individuals** to understand the function of immune cells in different tissues.
- **Foetal tissues** were also studied to generate a map of the developing immune system across **gestation stages** — the period between conception and birth.
- Mapping was also specifically undertaken about cells that host genes linked to diseases like **muscular dystrophy or heart disease.**
- Study observed multiple tissues from human donors. The researchers named it the **Tabula Sapiens cell atlas.**

**Human Cell Atlas**

- The **Human Cell Atlas** is an **open global initiative**, **founded in 2016**, that charts the cell types in the healthy body, across time from development to adulthood, and eventually to old age.
- By using cutting-edge single cell and spatial genomics and computational techniques, HCA researchers are creating a **unique "ID card" for each cell type.**

**Significance of Human Cell Atlas**

- Atlas will facilitate the development of **better drugs** and more **accurate predictions** of **unintended toxicity**.
- It will also aid **regenerative medicine** — the process of replacing, engineering or regenerating human cells, tissues or organs to establish normal function.
- The atlas will help researchers to answer key questions in diverse biological fields.
    - In **cellular taxonomy**, it might enable the discovery and identification of cell types and molecular markers or signatures (a collection of genes, say, that characterise a specific cell type).
    - In **histology**, it should enable researchers to relate tissue structure to the position of cells and molecules.
    - **Developmental biologists** will be able to use it to track cell fate and lineage.
    - **Physiologists** could characterise dynamic states, such as the cell cycle, and transient responses such as a T cell's reaction to a pathogen.

**Indian Initiatives**

- **Project Manav:**
    - **Department of Biotechnology's (DBT) MANAV : Human Atlas Initiative** aims at creating a database network of all tissues in the human body from the available scientific literature.
    - The programme will involve gaining better biological insights through **physiological and molecular mapping**, develop **disease models** through predictive computing and have a holistic analysis and finally **drug discovery**.
    - Such a database on individual tissues, once ready, can come handy in **tracing the causes of a disease**, understanding specific pathways and ultimately decode the body's disease stage linked to tissues and cells.
- **IndiGen Project:**
    - This programme, an initiative of the **Council of Scientific and Industrial Research's (CSIR)**, is about undertaking whole genome sequencing of thousands of individuals representing diverse ethnic groups from India.
    - The project aims to help researchers **develop therapies** for various diseases, including cancer.

## 4.8. Tissue Culture Plants

### Why In News?

- Recently, Agricultural and Processed Food Products Export Development Authority (**APEDA**), conducted a webinar on "**Export Promotion of Tissue Culture Plants such as Foliage, Live Plants, Cut Flowers, and Planting Materia**l".

### About Webinar

- The webinar is held with Department of Biotechnology (DBT) accredited **tissue culture laboratories** spread across India.
- **Objective:** To find ways to boost **exports of tissue culture plants**.

### Tissue Culture Plants

- **Meaning:**
    - Plant tissue culture is defined as culturing plant seeds, organs, explants, tissues, cells, or protoplasts on a chemically defined synthetic nutrient media under sterile and controlled conditions of light, temperature, and humidity.
- **Applications of Plant Tissue Culture:**
    - **micropropagation** using meristem and shoot culture to produce large numbers of identical individuals
    - **screening programmes** of cells, rather than plants for advantageous characters
    - large-scale growth of plant cells in liquid culture as a **source of secondary products**
    - **crossing distantly related species** by protoplast fusion and regeneration of the novel hybrid
    - production of **dihaploid** plants from haploid cultures to achieve

homozygous lines more rapidly in **breeding programmes**
- as a tissue for transformation, followed by either short-term testing of genetic constructs or regeneration of **transgenic plants**
- **removal of viruses** by propagation from meristematic tissues

## Importance of APEDA

- It could provide **financial assistance** to export oriented plant tissue culture laboratories to improve **efficiency, Quality of plants**.
- Helping the laboratories to meet the **phyto-sanitary norms of the importing countries**.
- **Enhancing laboratories competence** in the international market.
- **Financial Assistance Scheme (FAS):**
  - It is being run by APEDA to **help laboratories upgrade themselves** so as to produce export quality tissue culture planting material.
  - It also facilitates exports of tissue culture planting material to diversified countries through **market development, market analysis and promotion and exhibition of tissue culture plants** at international exhibitions and by participating in buyer-seller meets at different international forums.

## Potential in India

- India is **bestowed with** knowledge, biotech experts with vast tissue culture experience as well as with a low-cost labour force to help produce **export-oriented quality planting material**.
- All these factors make India **a potential global supplier** of an extended and diversified range of quality flora to the international market and, in turn, **earn foreign exchange**.
- **Importing countries:**
  - The top ten countries **importing tissue culture plants from India** are the Netherlands, USA, Italy, Australia, Canada, Japan, Kenya, Senegal, Ethiopia and Nepal.
  - In 2020-2021, India's exports of tissue culture plants stood at US$17.17 million, with the **Netherlands accounting for around 50% of the shipments**.

## Challenges

- **Low efficiency** levels of the skilled workforce in the laboratories,
- **Contamination issues** in the laboratories,
- Increasing **power costs**,
- Cost of **transportation** of micro-propagated planting material,
- **Lack of harmonisation** in the **Harmonised System (HS) code** of Indian planting material with other nations and
- **Objections** raised by the forest and quarantine departments which were posing challenges in the export of live planting material.

## Way Ahead

- APEDA should organise an **international exhibition** in India to showcase the various kinds of flora such as tissue cultured plants, forest plants, potted plants, ornamental and landscaping planting material available in India.
- The organisation should take the lead in **sending a trade delegation abroad** to **identify new markets** for tissue culture plants from India and finalise deals with importers.



# 5. Social Issues & Justice

## 5.1. Gender Disparity in Boardrooms

**Why in News?**

- A 40 percent quota for women on boards in France has a discernible effect as the percentage of female CEOs has increased almost tenfold.

**Context:**

- The **500 largest companies in the world,** with a total revenue of US$33.3 trillion, represented nearly **40 percent of the global GDP in 2019.** Whoever sits on the boards of these companies can bring in enormous change. Unfortunately, women hold just **6.7 percent of the board chairs and merely 5 percent of the CEO roles globally.**
- **Lack of female leadership** in the private sector has ramifications far beyond the boardroom as decisions are taken **without adequate female perspective.**

**Gender gap in the Boardroom:**

- The **percentage of female CEOs in the Middle East and South America is as low as 1.6 percent.** Last year, for the first time, S&P 500 companies elected a woman on their board.
- However, **60 percent of the venture-backed private companies** with funding of more than US$100 million in the US, **did not have a single woman on their board and only 7 percent** of their board seats were taken by women.

**Hurdles for Women:**

- During their journey to reach **leadership positions and board seats,** women face various hurdles that put them at a disadvantage compared with men.
- Women have **more demands on their time to attend to family needs** that may lead to **delays in career advancement.**
- Women going on **maternity leave or temporarily leaving work** to look after their children further slow their career progression.
- Another hurdle is that many large companies have policies where **only the top-most executives can join external boards.** As the percentage of **women on the C-suite** is low, such policies affect the **chances of women joining external boards.**

**Benefits of Gender Parity to Companies:**

- Companies with at **least one woman on their board outperform** other companies, according to a Credit Suisse report.
- Women outscored men in most **leadership skills** that include **team working, innovation, and problem solving.** These skills are critical for board-level decision making.
- Millennials prefer sustainable investment. Appointing more women on company boards has implications outside the boardroom. It **will encourage several younger women to aspire and have the confidence to lead organisations** in the future.
- Globally, countries are losing US$160 trillion due to **inequality in the lifetime earnings between men and women,** according to the World Bank, which is nearly twice the global GDP.

**Recommendations to close the gap:**

- **Gender equality across levels:** Though women constitute nearly half of the workforce, they only make up **25 percent of the senior executive positions** in listed companies in the US. **Corporate governance** policies need to be brought in place for gender parity across company levels.
- **Increasing networking:** The common and preferred way to fill board positions is

by **identifying potential candidates through known sources and informal networking**. As boardrooms are dominated by men, this makes it difficult for women.

- **Commitment** is needed from existing board members to network with people outside their circles. **Having advisory boards with majority women** reporting to the board can help give exposure to talented young women.
- **Gender quotas and disclosure requirements:** In France, a 40 percent quota for women on boards came into effect in 2017 and 43.2 percent of the board seats in France are currently held by women. However, only **9.7 percent CEOs and 9.8 percent board chairs in French companies are women,** indicating that more board seats were given only **due to regulations.**
- However, the 40 percent quota for women on boards in France has a discernible effect as the percentage of female CEOs has increased almost tenfold—rising from less than 1 percent in 2014. **Making companies disclose their diversity policies** has worked in Australia, which saw a 5 percent increase in women representation on boards.
- **Investor pressure:** Companies with women on their boards have **a 66 percent higher return on invested capital.** With millennial investors also being more ESG friendly, it is in the economic interest of large investment companies to push for **greater gender parity on boards that they have invested in.**

### Way Forward:

- Some positive steps taken by **eminent global organisations include pushing for boards to have at least two female directors** and even refusing to work with companies with an all men board.
- With the **private sector accounting for more than 60 percent of the GDP of countries** in the world, boardrooms of private-sector companies should have a gender balance. **Gender parity in boardrooms can help bring in a top-down change in attitudes towards women leadership globally.**

## 5.2. Financial Inclusion is Bolstering Women's Empowerment

**Why in News?**

- Recently, NFHS–5 data shows that financial inclusion is bolstering women's empowerment.

**Background:**

- In 2005-06 only **15.1 percent of Indian women had a bank or savings account** that they themselves used. In 2016-17 the **number of women using their bank accounts themselves went up to 53 percent and now as per the National Family Health Survey (NFHS-5) – 2019-21 about 78.6 percent of women in India** have a bank or savings account which they operate themselves and not through male members in the family.
- The **financial inclusion of women** could be connected to the other empowerment parameters in the survey where women are **prioritising their own needs and taking part in household decision-making.**
- According to the World Bank, **financial inclusion means that individuals and businesses** have access to useful and affordable financial products and services that meet their needs—**transactions, payments, savings, credit, and insurance—** delivered in a responsible and sustainable way.

**How financial inclusion is bolstering women's empowerment?**

- The NFHS–5 shows that **financial inclusion might have bolstered the participation of women in household decision-making.** Currently, about 88.8 percent of women usually participate in **household decisions about health care for themselves,** making major household purchases, and visit their family or relatives. In **2015-16 the percentage of women involved in this decision-making was 84 percent from the 76.5 percent in 2005-06.**
- In 2015-16, **about 38.4 percent of women-owned houses** and/or land (alone or jointly with others). The NFHS–5 data shows that **today 43.3 percent of women have a house and/or land.**

- In 2015-16, only **57.6 percent of women used hygienic methods of protection** during their menstrual period. As per the **NFHS- 5 about 77.3 percent of women now use hygienic methods.** Interestingly, only 48.2 percent of rural women used hygienic methods in 2015-16 the percentage today is 72.3 percent. This is **a major indicator of how rural women are taking their own decisions.** Earlier women depended on men for money even as they worked hard in the fields, today they handle their own money, say women in this village.
- The **number of women having mobile phones** that they themselves use has also gone up from 45.9 percent in 2015-16 to 54 percent in 2019-21.
- In 2005-06, **about 37 percent of women experienced spousal violence, while in 2019-21, the number reduced to about 29.3 percent.**

**Challenges to Financial Inclusion:**

- **Financial Illiteracy** is one of the challenges in **the area of financial inclusion.** Lack of basic education prevents the people to have **access to financial services.**
- **Low-income level** is another challenging area in the process of financial inclusion because they think banks provide services only to the rich class.
- **Due to difficulty in understanding formal languages,** various documents, and many formalities in banking procedures people are not comfortable using financial services.
- Many people who live in **remote localities find it difficult to reach the areas** where banks are generally situated.
- Many people, who **lack basic knowledge and education, do not know the importance of financial products** like insurance, finance, bank accounts, cheque facilities which is also a challenge in the implementation of financial inclusion.
- However, certain **critical gaps remain an impediment to financial inclusion,** such as:
    - **Inadequate infrastructure (in parts of the rural hinterland, far-flung areas in the Himalayan and North-Eastern Region).**
    - **Poor tele and internet connectivity in the rural hinterland.**
    - **Socio-cultural barriers.**
    - **Lack of market players in the payment product space.**

**Conclusion:**

- RBI's **National Strategy for Financial Inclusion** (NSFI) states that with greater **control over their financial lives,** women can help themselves and their families to **come out of poverty, reduce their risk of falling into poverty, eliminate their exploitation from the informal sector, and increase their ability to fully engage** in measurable and productive economic activities.

## 5.3. Transgender Community and Challenges

**Why In News?**

- Petitions by transgender persons draw attention to the **discrimination they face in employment avenues.**

**About**

- Despite the government passing the **Transgender Persons (Protection of Rights) Act, 2019** for the empowerment and overall, the well-being of the transgender community, they still continue to face challenges in their daily walks of life.
- Though the **Supreme Court recognised transgenders as 'third gender'** but the existing structures in state apparatuses still work on the gender binary.

**Challenges faced by Transgender Community**

- **Discrimination and ostracisation:**
    - They face discrimination in employment, educational institutes, and within families which severely affects their overall wellbeing.
- **Identity crisis:**

    - They are often forced to identify with a gender with which they are not associated at the workplace despite the government passing the Transgender Persons (Protection of Rights) Act, 2019 which allows the community the right to self-perceived gender identity.
- **Social Stigma:**
    - They often face difficulty in property inheritance or child adoption. Because of being socially ostracised they are compelled to take up menial jobs despite good qualifications or forced into sex work.
- **Unemployment:**
    - The community has limited avenues of employment and faces severe discrimination at work because of the associated social stigma.
- **Lack of public amenities:**
    - They face issues with the accessibility of public toilets and public spaces. They often face problems in prisons, hospitals and schools.

**Initiatives for Transgender Persons**

- **Transgender Persons (Protection of Rights) Act, 2019:**
    - The law passed by the Parliament **aims to end discrimination against transgender persons in accessing education, employment and healthcare** and recognise the right to self-perceived gender identity.
- **National Portal for Transgender Persons**:
    - It is a portal by the **Ministry of Social Justice and Empowerment** which assists persons of the transgender community in applying for a Certificate and Identity card digitally from anywhere in the country.
    - The most important benefit is that it **helps the transgender person to get the Certificate of Identity** without any physical interface and without having to visit any office.
    - Through the Portal, they can monitor the status of their application which ensures transparency in the process.
- **Garima Greh:**
    - The scheme aims to provide shelter to Transgender persons, with **basic amenities like shelter, food, medical care and recreational facilities.**
    - Besides, it will provide support for the **capacity-building/skill development of persons in the Community**, which will enable them to lead a life of dignity and respect.
- **National Council for Transgender Persons:** In pursuance of the Transgender Persons (Protection of Rights) Act, 2019, the National Council for Transgender Persons has been constituted to perform the following functions for the welfare of the transgender community:
    - to **advise the Central Government on the formulation of policies, programmes, legislation and projects** with respect to transgender persons;
    - to **monitor and evaluate the impact of policies and programmes** designed for achieving equality and full participation of transgender persons;
    - to **review and coordinate the activities of all the departments of Government and other Governmental and non-Governmental Organisations** which are dealing with matters relating to transgender persons;
    - to **redress the grievances** of transgender persons; and
    - to **perform such other functions** as may be prescribed by the Central Government.
- **Reservation for the transgender community:** The Union government is planning to bring reservations for the community **under the OBC category in employment.**
- **Transgender Persons (Protection of Rights) Rules, 2020:** It has been framed by the government to **give effect to the provisions** of the Transgender Persons (Protection of Rights) Act, 2019.

**Run-up to the Transgender Persons (Protection of Rights) Act,2019**

- **2013:** An **expert committee** was constituted to study the problems of transgenders and give recommendations for improvement in their wellbeing.
- **2014:** Supreme Court in **the National Legal Services Authority v. Union of India** case declared transgender people as a 'third gender'. It further added that the fundamental rights will be equally applicable to transgender people and gave them the right to self-identify their gender.
- **2014:** A **bill by a private member** was introduced namely, the Rights of Transgendered Persons in the Rajya Sabha. However, this Bill got lapsed.
- **2016:** The Government introduced **the Transgender Persons (Protection of Rights) Bill, 2019** which went for scrutiny to a Standing Committee.
- **2019:** The above-mentioned bill was passed by both the house and the **Transgender Persons (Protection of Rights) Act,2019** came into place.
- **2020: National Council for Transgender Persons** was constituted in pursuance of the above act.

**Way Forward**

- The establishment of National Council for Transgender Persons has been a welcome step to mainstream the community in the society and increase sense of respect for transgender community.
- **Effective functioning:** Though the state along with civil society must ensure the effective functioning of the council with respect to identifying the challenges faced by the community and redressing it.
- **Social engineering:** There is a need to sensitise the society that the community is a part of us and are co-equals.
- **Sensitising the law enforcement:** There is also a need to sensitise the legal and law enforcement systems towards the challenges of the community.
- **Rectifying The Transgender Persons (Protection of Rights) Act, 2019:** There are certain shortcoming in the act which should be rectified by the government. They are:
    - The Act does not say anything about granting reservations to transgender persons.
    - There is a provision for penalising organised begging which is coercive in nature as many of the community members don't have avenues for livelihood.
    - There is no provision penalising rape or sexual assault of transgender person.

# 6. Health

## 6.1. Bridging the Health Policy to Execution Chasm

**Why in News?**

- The Union government has released a guidance document on the setting up of a 'Public Health and Management Cadre' (PHMC) as well as revised editions of the Indian Public Health Standards (IPHS) for ensuring quality health care in government facilities.
- The 'public health and management cadre' is based on the recommendations made in India's National Health Policy 2017.

**Background:**

- In 2017, India's National Health Policy 2017 proposed the formation of a public health cadre and enacting a National Public Health Act. Yet, progress on these fronts was too slow.
- The reason was the limited understanding of the roles and the functions of public health

specialists and the relevance of such cadres, especially at the district and sub-district levels.

- Epidemiologists were equated with public health specialists, failing to recognise that the latter is a much broader and inclusive group of specialists. However, the last decade and a half were eventful.
- The initial threat of avian flu in 2005-06, the Swine flu pandemic of 2009-10; the increasing risks and emergence of new viruses and diseases (Zika, Ebola, Crimean-Congo Haemorrhagic fever, Nipah viruses, etc.) in animals and humans, resulted in increased attention on public health.
- The COVID-19 pandemic exposed the reality of an acute shortage of public health infrastructure and professionals trained in public health having field experience in the country.
- It became clear that 'epidemic' and 'pandemic' required specialised skills in a broad range of subjects such as epidemiology, biostatics, health management and disease modelling, to list a few.

**What are the issues with Indian Health Care System?**

**Limited Career Progression Opportunities:**

- At present, most Indian States (with exceptions such as Tamil Nadu and Odisha) have a teaching cadre (of medical college faculty members) and a specialist cadre of doctors involved in clinical services.
- This structure does not provide similar career progression opportunities for professionals trained in public health.

**Lack of Public health Infrastructure:**

- Limited interest in public health as a career choice by healthcare professionals has resulted in a perennial shortage of trained public health workforce which was witnessed during the pandemic.
- The health focus has traditionally been on medical care or attention to treating the sick.
- A country or health system that has a shortage of a public health workforce and infrastructure is likely to drift towards a medicalised care system.

**Bureaucracy led Decision-Making:**

- In the absence of trained public health professionals at the policy and decision-making levels, India's pandemic response ended up becoming bureaucrat steered and clinician-led.

**Poor Quality of Health Services:**

- Limited attention is paid to ensuring the quality of health services.
- Increasing access to health services and improving the quality of care are perceived as a sequential process where the first focus is on increasing access and then thought on ensuring the quality is given which rarely happens.

**Relevance of Public Health Services:**

- The proposed public health cadre and the health management cadre have the potential to address some of the above challenges.
- With the release of guidance documents, the States have been advised to formulate an action plan, identify the cadre strengths, and fill up the vacant posts in the next six months to a year.

**Challenges:**

The revised IPHS is an important development but not an end itself. In the 15 years since the first release of the IPHS, only a small proportion — around 15% to 20% — of government healthcare facilities meet these standards.

The IPHS implementation in the last 15 years is one such example. Thus, it is difficult to predict the outcome of the PHMC guidance document.

**Way Forward:**

**Centre of Excellence:**

- A centre of excellence in every State should be designated to guide the process.

- States which are likely to show reluctance need to be nudged through appropriate incentives.

**Mapping and Training of Workforce:**

- The mapping and analysis of human resources for public health and then scaling up recruitment are to be done.
- However, it needs to be ensured that in an overzealous attempt to achieve numbers, the quality of training of the required workforce is not compromised.
- The availability of a trained workforce is the most critical.
- Even the most well-designed policies with sufficient financial allocation may falter because of the lack of a trained workforce.
- As States develop plans for setting up the PHMC, all potential challenges in securing a trained workforce should be identified and actions initiated.
- Setting up these two new cadres should be used as an opportunity to improve and standardise the quality of training in public health institutions.

**Equitable Distribution of Health Staff:**

- The success of the PHMC would be dependent upon the availability and the equitable distribution of health staff for all other categories at government health facilities.
- Therefore, as new cadres are being set, efforts need to be made to fill vacancies of health staff in all other positions as well.

**Financial allocation:**

- The Fifteenth Finance Commission grant for the five-year period of 2021- 26 and the Pradhan Mantri Ayushman Bharat Health Infrastructure Mission (PM-ABHIM) allocations are available for strengthening public health services.
- They can be used as catalytic funding which should be used in the interim as States embark upon implementing the PHMC and a revised IPHS.

**Accelerated interventions:**

- If the pace of achieving IPHS is any criteria, there is a need for more accelerated interventions.
- Quality Standards need to be considered seriously for policy formulation, programmatic interventions and for corrective measures.
- Revision of the IPHS should be used for an independent assessment of how the IPHS has improved the quality of health services.
- It would take a few years before the PHMC becomes fully functional in the States. However, the implementation process needs to be started in the next few months to avoid the risk of it becoming a low priority.

**Conclusion:**

- Three years before the COVID-19 pandemic had started, the Indian government had committed, through NHP 2017, to achieve the goal of universal health coverage which envisages access to a broad range of preventive, promotive, curative, diagnostic, rehabilitative healthcare services which meet specific quality standards, at a cost which people can afford.
- The public health and management cadres and the revised IPHS can help India progress towards the NHP goal.
- To ensure that State governments need to act urgently and immediately.

## 6.2. Focusing On Public Health Engineering

**Why in News?**

- Globally, around 80% of wastewater flows back into the ecosystem without being treated or reused, according to the United Nations.
- This can pose a significant environmental and health threat. In the absence of cost-effective, sustainable, disruptive water management solutions, about 70% of sewage is discharged untreated into India's water bodies.

**What is Public Health Engineering?**

- Water processing, purification, transmission, and distribution are all handled by the Public Health Engineering industry. Thus "Sanitary Engineering" is now referred to as "Public Health Engineering."
- Engineers and technical specialists in the fields of water, sanitation, electricity, and other related fields are critical in meeting the challenges and rising demands. They are known as public health engineers.
- A clean and balanced Earth is a good place where everyone owns and bears responsibility for ensuring a good quality of life. It can be made possible in several ways.

**Why there is a need for Public Health Engineering in India?**

**Lack of skills:**

- Most often, civil engineers do not have adequate skills to address public health problems and public health professionals do not have adequate engineering skills.

**Large Demand:**

- India aims to supply 55 liters of water per person per day by 2024 under its Jal Jeevan Mission to install functional household tap connections.
- Given the population growth, diminishing resources and risky exploitation of natural resources, various State governments, and not-for-profit organizations are looking to hire environmental engineers through whom public health problems can be addressed.

**Wide Range of Opportunities:**

- These fields offer a wide range of opportunities for the development of advanced wastewater treatment systems.
- For understanding complex quality and monitoring processes, designing and managing septic tank systems,
- Supplying good quality water in adequate quantities, maintaining hygiene and access to water,
- And ensuring that water supply is sustainable, including the study of relevant industry standards and codes of practices.

**Achieve Sustainable Development Goals:**

- For India to achieve its sustainable development goals of clean water and sanitation and to address the growing demands for water consumption and preservation it is essential to find and implement innovative ways of treating wastewater.

**Robust Understanding of Processes:**

- By promoting a robust understanding of processes, trends, and the latest technology in water and wastewater quality monitoring, treatment, and management, public health engineering can help decision/policymakers explore the available options.

**Controlling Diseases:**

- Diseases cannot be contained unless we provide good quality and adequate quantity of water. Hence public health engineering becomes very important.

**Contextualised Decision-Making:**

- Public health engineering's combination of engineering and public health skills can also enable contextualised decision-making regarding water management in India.

**Identification of Health Risk:**

- A public health engineer can identify a health risk, and work on developing concrete solutions such as new health and safety practices or specialized equipment, in order to correct the safety concern.

**Way Forward**

**Training Young Minds:**

- Training our young minds towards creating sustainable water management systems

would be the first step. Currently, institutions like the Indian Institute of Technology, Madras (IIT-M) are considering initiating public health engineering as a separate discipline.

**Specialized Cadre of Public Health Engineers:**

- The specialized cadre of public health engineers, also known as sanitation engineers or environmental engineers, is best suited to provide the growing urban and rural water supply and manage solid waste and wastewater.

**Developed as An Interdisciplinary field:**

- Public health engineering should be developed as an interdisciplinary field.
- Public health professionals can contribute to engineering through a well-researched understanding of health issues, measured risks, and how course correction can be initiated.

**Availability of Systemic Information and Programmes:**

- The availability of systemic information and programmes focusing on teaching, training, and capacity building for this specialty cadre is needed.

**Role of Engineers:**

- Engineers can significantly contribute to public health by defining what is possible, identifying limitations, and shaping workable solutions with a problem-solving approach.

**Design based on hydro-geological data:**

- Wastewater management systems, especially decentralised and onsite systems, have to be designed based on hydro-geological data and observations of climate patterns.

**Following International Trends:**

- In India, public health engineering is executed by the Public Works Department or by health officials.
- This differs from international trends. To manage a wastewater treatment plant in Europe, for example, a candidate must specialize in wastewater engineering.

## 6.3. Ayushman Bharat's Short-Term Impact Is Beneficial

**Why in News?**

- Poor households in States that have implemented the scheme have seen significant reduction in out of pocket expenses.

**Context:**

- The recent Assembly election results have sparked a fresh round of discussion about the socio-economic impact of the social sector schemes launched by the Central government. One such scheme is the national-level health insurance scheme popularly known as the Ayushman Bharat.
- A recent working paper, shows that apart from other benefits, the implementation of the Ayushman Bharat program is associated with a 21 per cent decline in out of pocket health expenditure and an 8 per cent reduction in the tendency to borrow emergency loans for health purposes, among poor households.
- A large number of beneficiary households using health insurance instead of borrowing when faced with health emergencies and consequently experiencing a reduction in out-of-pocket expenditure relating to health insurance credibly indicate the effective programme implementation.
- Ayushman Bharat program , is a flagship scheme of Government of India to provide cashless secondary and tertiary care treatment from the empanelled public and private hospitals providing coverage to more than 10 crore poor and vulnerable beneficiary families.
- National Health Authority (NHA) is the apex body responsible for the implementation of Ayushman Bharat PM-JAY.

- It has two components:
    - Pradhan Mantri Jan Arogya Yojana (PM-JAY), earlier known as the National Health Protection Scheme (NHPS).
    - Health and Wellness Centres (HWCs).

**Features of Ayushman Bharat program:**

- Providing health coverage for 10 crores households or 50 crores Indians.
- Providing a cover of ₹5 lakh (US$7,000) per family per year for medical treatment in empaneled hospitals, both public and private.
- Offering cashless payment and paperless recordkeeping through the hospital or doctor's office.
- Using criteria from the Socio Economic and Caste Census 2011 to determine eligibility for benefits.
- No restriction on family size, age or gender; all previous medical conditions are covered under the scheme.
- It covers 3 days of pre-hospitalisation and 15 days of post-hospitalisation, including diagnostic care and expenses on medicines.
- The scheme is portable and a beneficiary can avail medical treatment at any PM-JAY empanelled hospital outside their state and anywhere in the country.

**A Study on The Outcome of Ayushman Bharat Program:**

- Household survey data provided by the Center For Monitoring Indian Economy (CMIE) is used in this study. The survey asks households about their income, sources of income, expenditure, break up of expenditure, among other things. The survey also records the health-related out-of-pocket spending.
- In addition, the CMIE conducts three waves of surveys in a year wherein they ask the households about health-related indebtedness. This survey records whether a household has borrowed for health purposes during the survey period of four months.
- Although the programme was launched in 2018, it took some time to do the groundwork such as empanelment of hospitals, the issue of health cards, the spread of information, etc. Therefore, the survey round ending April 2019 (starting December 2018) is the first complete survey after Ayushman Bharat was implemented. The study period ends in March 2020 to avoid the impact of the ongoing pandemic confounding the results.
- Districts in the sample that implemented Ayushman Bharat, households that are eligible for Ayushman Bharat and fall in the bottom 10 per cent of the income distribution experienced a reduction in out-of-pocket expenditure on health by about 1 per cent after the implementation of the programme.
- Interestingly, in a sample of similar households belonging to the adjoining districts that belong to States that did not implement Ayushman Bharat, there is a 20 per cent plus increase in out-of-pocket expenditure on health.
- Given the unlikely possibility of neighbouring districts systematically differing in terms of health shocks, it is reasonable to conclude that the programme caused a 21 per cent reduction in out-of-pocket health expenditure within two years of its implementation.

**Challenges Faced by Ayushman Bharat Program:**

- A major challenge of implementing a national health care scheme would be starting with infrastructure in need of development to be part of a modern national system.
- India still has some basic healthcare challenges including relatively few doctors, more cases of infectious disease, and a national budget with a comparatively low central government investment in health care.
- While government hospitals have joined the program, many private corporate hospitals have not. The private hospitals report that they would be unable to offer their special services at the government low price, even with a government subsidy.
- There have been media reports of misuse of the Ayushman Bharat scheme by unscrupulous private hospitals through submission of fake medical bills. AB-PMJAY involves a robust information technology infrastructure

overseeing transactions and locating suspicious surges across the country.
- There exist some challenges such as lack of uniformity of hospital procedures and protocols for doctors.

**Way Forward:**

- Ayushman Bharat has the potential to bring a tremendous positive change in not only addressing the affordability of medical procedures but also as a concomitant in the development of medical infrastructure.
- Appropriate measures will have to be taken to manage leakages for the scheme to succeed and not exceed cost projections.
- The results of study suggest that the Ayushman Bharat programme is achieving its primary purpose in the short run. It remains to be seen whether the programme leads to a significant improvement in human capital in the long run.

## 6.4. Invigorating The AYUSH Industry

**Why in News?**

- The integration of AYUSH system of treatment into mainstream system will give wider acceptance to traditional systems of the country.

**Context:**

- The global market for herbal medicine was valued at $657.5 billion in 2020. It is expected to grow to $746.9 billion by end 2022. In China, the traditional medicine industry had total revenue of $37.41 billion in 2018, according to an IBIS World Report. In fact, the Healthy China 2030 plan forecasts that the value of traditional Chinese medicine (TCM) market may reach $737.9 billion within China and globally by 2030.
- In India, the National Ayush Mission (NAM) was launched in 2014 by the Department of Ayush, Ministry of Health and Family Welfare, to promote Ayush systems and address the needs of the sector in a comprehensive way. Providing cost-effective services, strengthening educational systems, quality control of drugs and sustainable availability of raw materials are the main objectives of NAM. The industry is projected to reach $23.3 billion by end 2022, according to a Research and Information System for Developing Countries (RIS), 2021, report. The Indian herbal medicine market is worth $18.1 billion.
- The Indian Ayush sector has grown by 17% between 2014 and 2020. Related segments such as plant derivatives grew by 21%, plant extracts by 14.7%, and herbal plants by 14.3% during the same period.

**Objectives of National AYUSH Mission (NAM):**

The objectives of National AYUSH Mission are as follows:

- To provide cost effective AYUSH Services, with a universal access through upgrading AYUSH Hospitals and Dispensaries, co-location of AYUSH facilities at Primary Health Centres (PHCs), Community Health Centres (CHCs) and District Hospitals (DHs).
- To strengthen institutional capacity at the state level through upgrading AYUSH educational institutions, State Government Ayurveda, Siddha, Unani and Homoeopathy (ASU&H) Pharmacies and enforcement mechanism.
- Support cultivation of medicinal plants by adopting Good Agricultural Practices (GAPs) so as to provide sustained supply of quality raw-materials and support certification mechanism for quality standards, Good Agricultural/Collection/Storage Practices.
- Support setting up of clusters through convergence of cultivation, warehousing, value addition, marketing and development of infrastructure for entrepreneurs.

**Challenges Faced by AYUSH System of Medicine in India:**

- Ayurvedic practitioners' graduation courses are often substandard and the post-graduate

courses offered at most of their institutes are of extremely poor quality.
- Lack of trained manpower is a major challenge. Practitioners are moving away from these traditional systems for better opportunities and thus traditional knowledge is getting lost.
- The adequate utilisation of infrastructure and reach would be a major hurdle in making the AYUSH care accessible through NAM.
- By and large, very few Ayurvedic treatments have been successfully validated by well-designed randomised controlled trials (RCTs). Due to this, the vast potential of the science has not been tapped.
- Competition with Allopathy: Competition from popular and entrenched system of medicines such as Allopathy would have to be factored in for the effective implementation of NAM.
- Lack of awareness regarding the AYUSH is another key challenge to be overcome by NAM for effective implementation.
- Ensuring affordability is major concern that NAM has to address to ensure benefits of AYUSH are distributed equitably.

**How Traditional System of Medicine Could be Strengthened?**

- Prime Minister laid the foundation of the WHO-Global Centre for Traditional Medicine in Jamnagar on April 19, 2022. This will be the first and only global outpost centre for traditional medicine across the world.
- More study is needed, including with clinical trials, to help bring the benefits of traditional and alternative or complementary medicine into wider use, as appropriate, in health systems.
- The inclusion of traditional medicine in the 11th revision of the International Classification of Diseases by WHO will help to establish reliable data on the use of traditional medicine.
- The National Medicinal Plant Board (NMPB) implements the medicinal plant component of Ayush through state bodies i.e. State Medicinal Plant Boards (SMPBs). The organisational structure of SMPBs needs to be strengthened. They should have experts for conservation, cultivation, R&D, herbal garden and nurseries, IEC and marketing and trade of medicinal plants.
- On the trade front, developing comprehensive databases on Ayush trade, products and raw materials is needed. To date, most ISM (Indian System of Medicine) products, herbal products and medicinal plants products are not identified under specific HS (Harmonised system) codes. Expansion of HS national lines to accommodate various features of traditional medicine and medicinal plant products based on existing requirements is required to provide more comprehensive trade data on Ayurvedic products.

**Way Forward:**

- NITI Aayog has already constituted a committee and four working groups on integrative medicine, with more than 50 experts across the country, to provide deeper insights and recommendations in the areas of education, research, clinical practice and public health and administration. Considerable progress has been made by the committee for the finalisation of the report. Integration of Ayush systems into mainstream systems will certainly give wider acceptance for traditional systems of the country.
- The Ayush industry in India can provide cost-effective healthcare to people across States. It has all the ingredients of success, to co-exist with the modern health systems, as a choice-based system of traditional medicine.
- There is no doubt about the potential of the sector and the above measures will surely help. However, the Ayush sector requires a multi-dimensional thrust, ranging from initiatives at the institutional level, massive awareness and promotion of cultivation of medicinal plants by farmers, to trade-related interventions and quality focus measures.

## 6.5. Eating right

**Why in News?**

- Eat Right India initiative of Food Safety and Standards Authority of India (FSSAI)

**Background**

- As a one-of-its-kind initiative, four police stations in New Delhi have been designated as '**Eat Right Campus**' by the **FSSAI** for providing nutritious and wholesome meals to police personnel.
- The scheme has been implemented since 2017 in various government colleges and hostels.

**Food Safety and Standards Authority of India (FSSAI)**

- FSSAI is an autonomous statutory body set up under the Food Safety and Standards Act, 2006.
- FSSAI works under the aegis of the Ministry of Health & Family Welfare with an objective of maintaining food safety and standards in India.

**Eat Right India initiative**

- Eat Right India is a flagship mission of FSSAI.
- The mission aims to ensure the people of the country are provided with nutritious meals that help address the problem of various lifestyle-related diseases.
- The initiative works on the principles,
    - Ensure that the food being served to officers, jawans, visitors and staff is safe to consume and in compliance with the **Food Safety and Standards (FSS) Act, 2006**.
    - It aims at promoting balanced meals and eliminating trans-fats or "bad fat" found in industrial food products.
    - It ensures a reduction in consumption of salt and sugar that increases the risk of cardiovascular diseases.
- The programme also aims at promoting local and seasonal vegetables and reducing the use of chemicals.
- Delhi government's Department of Food Safety is the implementing body of the initiative in the capital and has launched a programme called '**Sehatmand Delhi**' under which places are designated as 'Eat Right Campus'.

**The process for getting the 'Eat Right' tag**

- To get the 'Eat Right Campus' certificate, the programme directs an initial audit of the campus and identifies gaps in cooking and hygiene.
- Later, a final audit by a third party is conducted upon which a certificate with a validity of two years is handed over.
- Regular inspections will be carried out by the Food Safety Department to keep a check on the food quality.

**Changes introduced at the police stations as apart of the initiative**

- Ban on the use of plastic or aluminum plates
- Cooking oil has been changed and better quality lentils are used for meals
- Cooks are directed to follow a dress code with gloves and caps
- The cooking process is recorded on CCTV cameras.

**Significance of the Scheme**

- The campaign holds significance as it aims at good food habits for the people of the country.
- It adopts a judicious mix of regulatory, capacity building, collaborative and empowerment approaches to ensure that all the parameters are followed.
- The Initiative adopts a holistic approach as it brings together food-related mandates of the agriculture, health, environment and other ministries.
- The key reason behind the initiative was the welfare of all personnel, especially Police personnel who face difficult tasks during their duties and fall sick due to unhygienic food.
- Specific diet charts have been prepared to ensure that all police staff and visitors are provided with nutritious meals who earlier used to eat outside. This has made it budget-friendly.

**Conclusion**

Considering the benefits and significance of the initiative, it has to be implemented and extended to all the police stations and other government

institutions across the country to promote healthy food habits.

# 7.education

## 7.1. National Physical Literacy Mission

**Why in News?**

- Recently, the Supreme Court has asked the Centre and States to respond to a report recommending sports to be expressly made a fundamental right under Article 21 of the Constitution.
- Further, the report submitted by the court's amicus curiae (friend of the court) suggested that the "narrow" phrase 'sport' be replaced by 'physical literacy', which is a term "firmly established as a right in the leading sporting nations of the world".

**What is the Premise of the Supreme Court's Ruling?**

- The report was filed in a Public Interest Litigation (PIL) to amend the Constitution to make sports a fundamental right and amend the Directive Principles of State Policy to include an obligation to "strive for promotion of sports education".
- It had urged that sports should be transferred to the Concurrent List to facilitate cooperative work between the Centre and states (at present, sports is a state subject).

**What did the Report Suggest?**

- **Responsibility Matrix:** Central Government should launch 'National Physical Literacy Mission'.
- The mission should implement a responsibilities' matrix that includes curriculum design, compliance monitoring, and review, grievance redressal and self-correction mechanisms which starts at the school level to groom children for various sports.
- **Dedicated Time for Sports:** All school boards including CBSE, ICSE, State Boards, IB, IGCSE should be directed to ensure that from the academic year commencing 2022-2023, at least 90 minutes of every school day will be dedicated to free play and games.
- **Sports Facilities for Free:** State governments ought to ensure that from the current academic year, all educational institutions in their non-working hours, should allow neighborhood children to use their playgrounds and sports facilities for free.
- **Draft 'Physical Literacy Policy':** A 180 days' time should be given to educational institutions to draft 'Physical Literacy Policy'.
- The policy will include the institution's commitment to a 'no-child-left-behind' approach.
- It should ensure that the institution's physical literacy activities are designed and delivered in a manner that is inclusive of students.
- **Internal Committee:** There is a need to create an internal committee to address specific cases where there is a failure in responsibilities to deliver the right to physical literacy of students.
- **Dashboard:** There is a need to create a dashboard with real time data on mapping of available playgrounds and open spaces and their utilization rates, availability and qualifications of physical education teachers, curricula, timetables, and equipment in educational institutions across the country.



# 8. Agriculture

## 8.1. Promoting Kisan Drones

**Why in News?**

- The Union Minister of Agriculture and Farmers' Welfare inaugurated the conference on "Promoting Kisan Drones: Issues, Challenges and the Way Ahead".

**What is a Kisan drone?**

- The Kisan drone is an unmanned tank filled with insecticides and nutrients.
- The drones are expected to have a high capacity of 5 to 10 kg. The drone will spray the same amount of pesticide on about one acre of land in a few minutes.
- They will also be used to carry vegetables, fruits, fish, etc. to the markets from the farms.

**Government Efforts to Promote Kisan Drones**

- The government is promoting the use of the 'Kisan Drone' for crop assessment, land record digitization, and pesticide and nutrient spraying.
- The government is offering a 50% subsidy, up to Rs. 5 lakh, to SC-ST, small and marginal, women, and farmers in northeastern states who want to buy drones.
- Financial assistance will be provided to other farmers up to 40%, or a maximum of Rs.4 lakh.
- Financial assistance @ 100 % cost of drone together with the contingent expenditure is extended under Sub-Mission on Agricultural Mechanisation (SMAM) to the following institutions:
    - Farm Machinery Training & Testing Institutes,
    - Institutions of Indian Council of Agricultural Research,
    - Krishi Vigyan Kendra (KVK) and
    - State Agricultural Universities (SAUs)
- Farmers Producer Organisations (FPOs) are given grants worth 75% of the cost of drones to be used in demonstrations on farmers' fields.

**Challenges:**

- **Knowledge and Skill:** An average farmer cannot analyze drone functioning as it requires specialized skills and knowledge to translate it to any useful information.
- **Flight Time and Range:** Due to relatively higher payloads, the flight duration of drones used in agriculture is short which results in limited coverage of land.
- **High Cost:** Mostly, agricultural drones are costlier as it includes the cost of imaging sensors, software, hardware and tools.
- **National Laws:** Multiple laws governing drone use in India creates ambiguity besides affecting the production and use of drones.
    - The requirement of obtaining an unmanned aircraft operator's permit (UAOP) for piloting drones, Permission for each flight through Online Digital Sky platform for No Permission No Take off (NPNT) compliance limits use of drones in agriculture.
- **Connectivity:** Farmers intending to use drones have to invest in connectivity or buy a drone with local data storing capability in a format that can be transferred and processed later.
- **Weather Dependent:** Drones are weather dependent. Under windy or rainy conditions, flying drones is not easy, unlike traditional aircrafts.
- **Misuse:** There is a chance of misuse to infringe the privacy of people and illegal transfer of information.

**Recommendations**

- Encourage Start-ups to establish local drone manufacturing/assembling units for agriculture use.
- Develop a comprehensive legal and policy framework in the form of Civil Aviation

Requirements (CAR 3.0) to encourage applications of drones in agriculture.

- Expedit Digital sky platform with its revision for pragmatic and practical implementation for enhanced drone usage.
- Capacity development for flying drones is required as it is a skill-based operation.
- Develop an enabling ecosystem with a single-window concept for entrepreneurs.
- Encourage Research in drone applications to study various operating parameters in agriculture.

## 8.2. Organic Farming

**Why in News?**

- Vice President, Shri M. Venkaiah Naidu underlined the importance of organic farming for sustainable and stable development.

**Background**

- In a world with the emergence of numerous diseases, food safety is a major concern as well as a necessity.
- Extensive usage of chemical fertilizers and pesticides stands as an impediment towards the maintenance of a proper health profileof the population.
- Therefore, the practice of organic farming opens up a sustainable doorway to prevent various health hazards originating from the agro-based products that we consume.
- This would bring down the usage of pesticides and chemical fertilizers in agriculture.
- The road to transform the agricultural practices in India to absolutely an organic one, is accompanied by challenges that require expert intervention and a proper discussion.

**About Organic Farming**

- The FAOdefines organic farming as a unique production management system that promotes and enhances agro-ecosystem health, biodiversity, biological cycles and soil biological activity.
- According to FSSAI, 'organic farming' is a system of farm design and management to create an ecosystem of agriculture production without the use of synthetic external inputs such as chemical fertilisers, pesticides and synthetic hormones or genetically modified organisms.
- Organic farm produce means the produce obtained from organic agriculture, while organic food means food products that have been produced in accordance with specified standards for organic production.

**Organic Farming in India**

- India ranked 1st in terms of the number of organic farmers and 5th in terms of certified organic area.
- India ranks 8th in the world's total organic agricultural land.
- There has been a 51% increase in the production of organic products in 2020-21.
- So far, Sikkim is the only state to be considered fully organic. Besides, the states of Maharashtra, Rajasthan, Himachal Pradesh, Karnataka and the union territory of Jammu & Kashmir are ahead in the promotion and adoption of organic farming.
- North East India has traditionally been organic and the consumption of chemicals is far less than the rest of the country.
- Similarly the tribal and island territories have been traditionally practicing organic farming.
- The major organic exports from India have been flax seeds, sesame, soybean, tea, medicinal plants, rice and pulses.
- There was an increase of nearly 50% in organic exports in 2018-19, touching Rs. 5151 crore.
- Commencement of exports from Assam, Mizoram, Manipur and Nagaland to UK, USA, Eswatini and Italy have proved the potential by increasing volumes and expanding to new destinations as the demand for health foods increases.

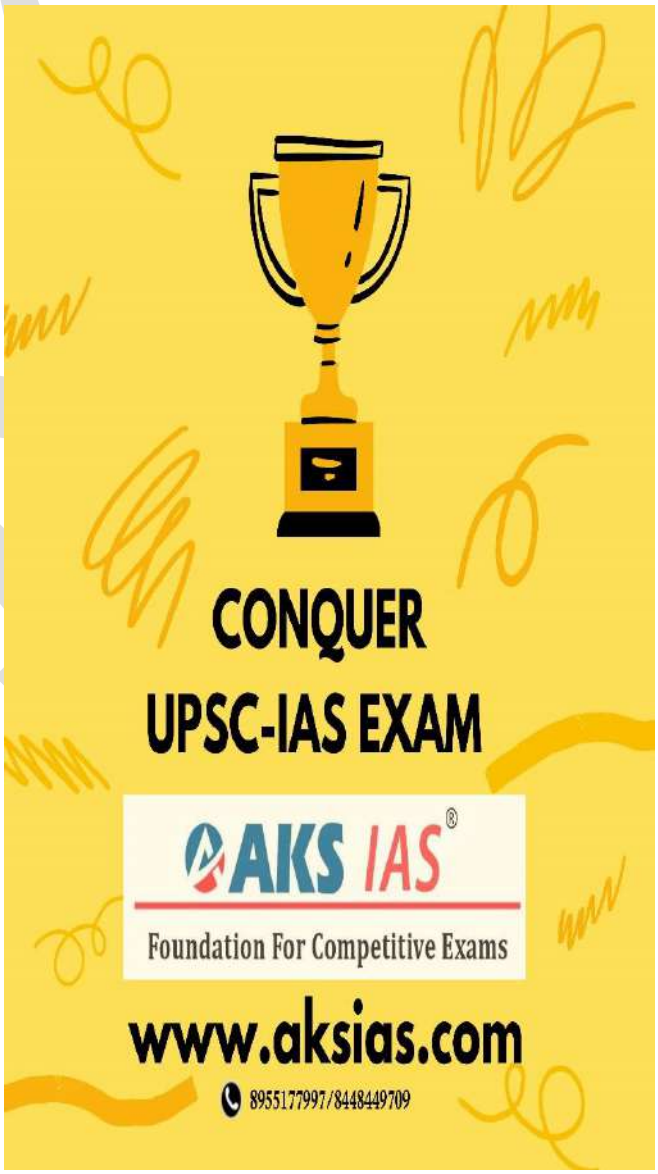
**Challenges in Organic Farming**

- **Shortage of Biomass:** Experts are not sure whether all the nutrients with the required quantities can be made available by the organic materials. Even if this problem can be surmounted, they are of the view that the available organic matter is not simply enough to meet the requirements

- **Disparity of Supply and Demand:** Non-perishable grains can be grown anywhere and transported to any location but this is not the case with fruits and vegetables.
- **Time:** organic farming requires greater interaction between a farmer and his crop for observation, timely intervention and weed control for instance.
- **High MRP:** It is almost obvious that due to the extreme care taken to go along with organic farming, the results would be kept at a high price.
- **Lack of special infrastructure:** Most large organic farms still operate in an industrialized agriculture style, including industrial transportation of the food from field to plate. Unfortunately, this involves the adoption of the same environmentally harmful practices as those of factory farms which are however hidden under the cover of being organic
- Marketing of organic produce is also not properly streamlined. There are a number of farms in India which have either never been chemically managed / cultivated or have converted back to organic farming because of farmers' beliefs or purely for reason of economics.

**Way Forward- the avenues for future development**

- Experts construe that the upgrading of technology and empowering research in agriculture will provide an impetus to the development of organic farming.
- This would assure income generation resulting in the reduced dependence on external products.
- Therefore, the experts recommend integrating the natural way in the farming system as nature stands out as the best model to be scaled and replicated by active collaboration with the international community and proper government interventions.
- This would be an enabler in connecting organic farmers with the global supply chain.
- The experts envisaged a roadmap to exploit the entire domestic market of organic products in a holistic manner.
- With greater awareness and capacity building of the producers in compliance with international standards, Indian organic farmers will soon be reinforcing their rightful place in global Agri-trade.
- India needs the introduction of structural changes through policy interventions and technological deployment in organic farming and make it resilient, sustainable and profitable.
- Agricultural universities need to focus more on organic and natural farming and promote innovation and agri-entrepreneurship among the youth.



# 9. Environment

## 9.1. IFPRI Report

**Why In News?**

- Recently, the International Food Policy Research Institute (IFPRI) released a report on climate change and food systems.

**Major Highlights of the Report**

- **India's food production could drop** 16% and the number of those at risk for hunger could increase 23% by 2030 due to climate change.
- **The number of Indians at risk from hunger in 2030** is expected to be 73.9 million in 2030 and it would increase to 90.6 million eventually.
    - **The aggregate food production index** would, under similar conditions, drop from 1.6 to 1.5.
- **Average calorie consumption**: Climate change will not impact the average calorie consumption of Indians and this is projected to remain roughly the same at 2,600 kcal per capita per day by 2030 even in a climate change scenario.
- **Growth in food production**: Baseline projections indicate that global food production will grow by about 60% over 2010 levels by 2050 in the context of climate change.
- **Production and demand are projected to grow more rapidly in developing countries**, particularly in Africa, than in developed countries, due to projected growth in population and incomes.
- **Higher-value foods**: Diets are also shifting toward higher-value foods, including more fruits and vegetables, processed foods, and animal-source foods, outside of high-income countries.
- **Meat production** is projected to double in South Asia and West and Central Africa by 2030 and triple by 2050.
- **Per capita consumption levels:** Despite this growth, per capita consumption levels in developing countries will remain less than half of those in developed countries.
- **The demand for processed foods also shows up in the growing production of oil crops**: by 2050 production is expected to more than double in Southeast Asia and West and Central Africa.
- **Production of fruit and vegetables** is projected to grow more than double in most regions (Central and West Asia and North Africa; East and Southern Africa; and West and Central Africa) by 2050.
- **Average dietary energy consumption** is projected to increase by about 10% globally to more than 3,000 kcal per capita per day.
- **Regional differences in access to food mean** that nearly 500 million people are projected to remain at risk of going hungry.
    - Globally, about 70 million more people will be at risk from hunger because of climate change, including more than 28 million in **East and Southern Africa.**
- **The average temperature across India is projected to rise by between 2.4°C and 4.4°C by 2100.**
    - Similarly, summer heatwaves are projected to triple by 2100 in India and increase at the rate of **0.71 days per decade in Pakistan.**

## 9.2. Urban Heat Island

**In Context**

- Urban heat islands escalate the warming of weather.

**About**

- Urban heat islands (UHI) occur when **cities replace the natural land cover with dense concentrations of pavement, buildings,** and other surfaces that absorb and retain heat.
- This effect increases energy costs associated with **cooling and air-conditioning, air pollution levels,** and heat-related illness and mortality.

**What are the causes of Urban Heat Island?**

- **Usage of too much concrete and cement in a limited space:** They absorb a lot of heat from the sun thus increasing the mean surface temperatures of pockets in urban areas.
- **Dark surfaces:** Buildings with dark surfaces reduces the albedo and increase heat absorption.
- **Air conditioning and other cooling systems:** Cooling required from air conditioning consumes a great amount of energy from power plants thus causing more pollution. The air conditioners emit hot air which further causes more heat thereby having a cascading effect.
- **Concretised urban Landscapes:** A large number of concrete buildings with cemented pavements around hinder the wind flow hence reducing any natural cooling effects.
- **Massive transportation system:** Transportation systems in the cities produce a great amount of heat because of fossil fuel burning which is beyond the carrying capacities of incoming cool winds.
- **Paucity of Tree covers:** This prevents evaporation and transpiration, shade and removal of carbon dioxide, all the processes that help to cool the surrounding air.

**Impact of UHI**

- **Increases Energy costs:** UHI effect increases energy costs, air pollution levels and heat-related illness. This also leads to global warming, which further contributes to climate change.
- **Bad air quality:** They lead to lower air quality as there is more pollution in UHIs as a result of increased fossil fuel consumption.
- **Poor water quality:** The pollution in the region makes water bodies polluted.
- **Heatwaves:** Cities with UHIs face heat waves that affect human and animal health which affects the general physiology of the organisms.

**Ways to prevent Urban Heat Island effect**

- **Green roofs:** By covering the roofs of the buildings with plants can help in cooling the building.
- **Keeping the colours of building light**: helps in less absorption of heat by increased albedo and less heat retention.
- **Having more tree cover:** They reduces the number of greenhouse gasses in the region and increases the evaporation and transpiration thus keeping the region cool. They also keep the surroundings cooler thereby decreasing the cost of air-conditioning.
- Adhering to **environmentally sustainable solutions like Green Building Code** which makes the building more eco-friendly.

## 9.3. Shallow & Deep Ecologism

**Why In News?**

- With prolonged heat waves, it becomes pertinent to learn about environmental philosophy that **reinvent the relationship** between nature and humans — **shallow and deep ecologism.**

**Background**

- Heat waves are known to have been a reality for hundreds of years.
- But the **long-term effects of climate change** have exacerbated them, making the waves more extreme, frequent and prolonged.

**Ecologism**

- **Origin:**

- The concepts emerged in the 1970s, when **Norwegian philosopher Arne Næss** sought to look beyond the popular pollution and conservation movements of his milieu to address environmental degradation.
- In his study of ecological concerns, Næss is more preoccupied with the **role of the individual in nature**.
- Owing to increased anthropocentrism, **humans have cut themselves off from nature**, viewing nature and themselves as competing entities and establishing a master-slave dynamic.
- With Humans at heart of crisis, Næss outlines the difference between the **two styles of ecologism**.

- **Shallow ecologism or environmentalism:**
  - He terms the **powerful and fashionable fight against pollution** and **resource depletion** as shallow ecologism or environmentalism.
  - Exponents of this philosophy believe in continuing our present lifestyle, but with **specific tweaks aimed at minimising the damage to the environment**.
  - Also referred to as weak ecologism, it may include the use of **vehicles that cause less pollution** or air conditioners that do not release chlorofluorocarbons (CFCs).
  - This branch of ecologism **primarily serves** to maintain the lifestyle of **those dwelling in developed countries**.
- **Deep Ecologism:**
  - Deep ecologism believes that humans should **radically change their relationship with nature**.
  - Its proponents **reject shallow ecologism** for prioritising humans above other forms of life, and subsequently preserving the environmentally destructive way of life in modern societies.
  - To recognise the complex richness of different lifeforms, deep ecologism calls for a **re-evaluation of the 'survival of the fittest' doctrine.**
  - Deep ecologism maintains that by sustaining this lifestyle, **shallow ecologism further widens the inequalities between countries.**
  - **For example-**
    - Despite constituting only five percent of the world's population, the U.S. accounts for 17% of the world's energy consumption and is the second largest consumer of electricity after China.
    - Similarly, while low and middle-income countries have recorded lower cumulative and per capita carbon dioxide emissions over the past two centuries, **it is the wealthier countries which are most responsible for a majority of carbon emissions**.

**Objectives of Deep Ecologism**

- Deep ecologism aspires to **sustain nature** by making large-scale changes to our lifestyle.
- **Limiting** the commercial farming of meat to preserve forest areas and reduce the artificial fattening of animals,
- The **reshaping of transport systems** which involve the use of internal combustion engines.
- Besides advocating these lifestyle changes, deep ecologism **shifts the attention from pollution and conservation narratives to robust policy formulation and implementation.**

**The Political Dimensions of Ecologism**

- Both strands of ecologism draw from different frameworks, including **socialism, anarchism, feminism, conservatism** and sometimes even **fascism**.
  - **Deep ecologism** in particular borrows from **socialism**.

- An **ethically responsible** ecologism is one which operates in the interest of all economic classes.
- Thus**, policy-making** must be aided by the reorientation of technical skills and inventions in new directions that are **ecologically responsible.**
- **Criticism of Narrow Focus:**
    - A narrow focus on pollution and conservation movements is **counterproductive**. When projects are only implemented to solve pollution, it generates evils of a different kind.
    - The environment may also become **more vulnerable** when decisions are strongly influenced by **majority rule**, without taking local interests into consideration.
    - Ecologists **reject work** that is supervised by authorities with **limited ecological perspectives.**

**Way Ahead**

- **Decentralising the decision-making:** Deep ecologism thus prioritises a **'live and let live' attitude** over an 'either you or me' approach. A solution to this can be found in decentralising the decision-making process and **strengthening local autonomy**.
- **Need for Holistic Perspective:** Humans should be **against** adopting a **'vague, global' approach** to the environmental crisis. A holistic perspective to the crisis is one which acknowledges **regional differences and the disparities** between under and over-developed nations.
- **Role of Policy-makers:** The responsibility of solving the climate crisis falls on policy-makers as much as it does on scientists and ecologists.

## 9.4. Rewiring India

**Why in News?**

- As per **Indian Energy Outlook Report** 2021 (by International Energy Agency), India will become **3rd largest energy consumer** by **2030.**
- By 2050, electricity will have a majority share in the global energy system.
    - Renewables will become the backbone of the electricity generation system.
    - This will require countries to make a transition in how power is generated.
- Bloomberg NEF, an **energy research firm,** estimates that India could fall short of its 2022 renewable energy generation capacity targets by 36%.

**Challenges for India in meeting its Climate Change targets**

- **Hydrocarbons have played a major role in ensuring energy access.**
    - Over the past decade, India has added new electricity connections for 50 million people each year.
    - Coal and oil have fuelled industrial growth and energy needs.
- **The demand for energy is prioritised over climate change targets.**
    - A 2020 study by Pew Research Centre found that 25% of the Indian population prioritises job creation, even at the cost of the environment.
- **Lack of coordinated urban planning**
    - As per a NITI Aayog report, there is a lack of a master plan in 65% of the country's 7,933 urban settlements.
- **Lack of established methods and procedures to account for losses due** to traditional energy production activities
    - Some estimates suggest that the **effects of climate change will cost India $35 trillion until 2070** without any intervention.
    - This cost doesn't include the loss of lives lost from increased drought and floods.
- **Loss in utilisable renewable energy due to climate change and pollution**
    - As per IIT Delhi Report, India with 300 days of sunshine **lost 29% of its utilisable solar irradiance** due to air pollution.

**Achievements of India regarding Climate Change**

- **Mumbai recently unveiled Climate Action Plan (MCAP)** to achieve carbon neutrality in 2050.
    - It is an integrative master plan and is grounded in **multi-sectoral convergence and collaborative efforts.**
    - It has secured a commitment from **private power generators** to supply **3400 MW** of power from renewable energy sources.
    - **IIT Mumbai** has tied up with **Indian Meteorological Department** to develop sensors to better measure GHG emissions.
- India set itself an ambitious goal of **500 GW of non-fossil fuel electricity capacity.**
    - The current renewable energy capacity is **160 GW.**
    - This target was announced at **COP 26** and is to be achieved by **2030.**
    - In 2021, India added **10 GW** of solar capacity or **62%** of all new power generation capacity added in 2021.
- **Recent Union and State budgets have initiatives regarding climate change.**
    - But, these need to be integrated into a concerted approach to ensure that these deliver as per the plan.
- **Delhi government has announced that 1 lakh "green" jobs to be created in five years.**
    - This must be woven into a multi-state effort to counter the loss of jobs from the closing of thermal power stations.
    - This is as per recommendations of the eight-year national "just transition" strategy.

**What should India do to catch up and meet its 2030 goals?**

- **Diversify and strengthen renewable energy sources.**
    - Rooftop solar power projects must be given a boost.
    - Households should be incentivised for such projects.
    - Run of river projects, Offshore wind power plants can be explored.
- **Urban planning must include GHG emission targets.**
    - Investment in housing to reduce direct and indirect GHG emissions.
    - Electrifying public transport and increasing its accessibility, affordability, and availability.
    - More walkable roads and space for cycling must be built.
    - Flood resistant drainage systems should be put in place.
    - Securing commitments from private power generators to deliver electricity from renewable-only power sources.
- **Increasing funds for Green-tech**
    - Front-loading investments to cater to the demand for green infra.
    - India will need higher investment in grid infrastructure, grid automation, distributed grids, and battery storage systems.
    - All relevant technologies related to the above sectors exist today but it needs sharper focus for putting them to good use.
- **Accurate monitoring system to measure climate change mitigation and losses due to climate change.**
    - Due to the rising pollution level, **Gigawatt hours** is a more representative way to measure solar power generation capacity instead of the number of days of sunshine.
    - Lives lost due to climate change-related disasters must be factored in.
- **Reducing emissions**
    - There is a need to boost the efficiency of appliances and systems.
    - This can be achieved through initiatives like the National mission on enhanced energy efficiency (NMEEE).

**Conclusion**

- At the Berlin Energy Transition Dialogues in 2017, Angus McCrone, Chief Editor of

Bloomberg NEF, said: "India is an important example of what happens to emissions worldwide." We must lead by example.

## 9.5. 'Holes' in Biodiversity Bill

**Why in News?**

- Rajya Sabha MP and senior Congress leader Jairam Ramesh has criticised the provisions of the Biological Diversity (Amendment) Bill, 2021 that is currently being reviewed by a Joint Parliamentary Committee (JPC). The law was introduced in Parliament in last year by the Union Environment Minister and was referred to the JPC.

**The amendments proposed are:**

- **The amended Bill** was drafted in response to complaints by traditional Indian medicine practitioners, the seed sector, and industry and researchers that the act imposed a heavy **"compliance burden"** and made it hard to conduct collaborative research and investments and simplify patent application processes.
- The text of the Bill says that it proposes to "widen the scope of levying access and benefit-sharing with local communities and for further conservation of biological resources."
- The Bill seeks to exempt registered AYUSH medical practitioners and people accessing codified traditional knowledge, among others, from giving prior intimation to State biodiversity boards for accessing biological resources for certain purposes.
- **The Bill removes research and bio-survey activities** from the purview of benefit-sharing requirements. Benefit-sharing will be based on terms agreed between the user and the **local management committee represented by the National Authority.**
- **The Bill decriminalises all offences under the Act.**

**Objections with Biological Diversity (Amendment) Bill, 2021:**

- Environment Ministry was drawing a **distinction between a registered AYUSH practitioner and a company** and exempting the former from the Act. This was an **"artificial distinction"** as nothing prevented a registered **AYUSH practitioner** from having informal links with a company structure. These paved the way for potential "abuse of the law".
- **Multiple provisions of the Bill,** were aimed at diluting the authority of the **National Biodiversity Authority (NBA),** especially the **clause appointing 16 ex-officio officers of the Centre.**
- Another provision that requires **companies to seek the approval of the NBA only at the time of commercialisation, and not when applying for a patent,** is a concern. The Bill also decriminalised violations, such as bio-piracy and made them civil offences, and this defeated the Act's "deterrent powers".
- **Environmentalist organisations** such as **Legal Initiative for Forests and Environment (LIFE)** have said that the amendments were made to **"solely benefit"** the **AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy) Ministry** and would pave the way for **"biopiracy."** The modifications will exempt AYUSH manufacturing companies from needing approvals from the NBA and thus will go against one of the **core provisions of the Act.**
- The major concern with the amendment Bill is that **corporate or foreign interests could use the loophole of permissions** given to traditional medicine and use it for commercial purposes, without sharing benefits with the **conservers of biodiversity.**

## 9.6. Carbon is the 'Crop' of the Future

**Why in News?**

- There are 'no free lunches' is a perfect way to sum up the deep impact industrialised agriculture has had on our planet.
- The modern-day gift horses of industrialization and the global supply chains have allowed us to expand our horizons and our "palates" — turning the erstwhile "life source and a public common" into a global business opportunity.

- Agriculture is now a surgical economic activity. This leads to the new epoch of 'corporate-environmental food monopolies.'

**What Is Industrial Agriculture?**

- The concept of industrial agriculture implies increased use of farmlands to produce the **highest yields possible** to gain profit and support human food needs.
- The maximization is achieved through **typical intensive farming practices** like increased use of fertilizers, insecticides, abundant irrigation, heavy machinery land treatment, planting high-yield species, and expansion of new areas. This way, **higher inputs in industrial agriculture bring higher outcomes.**
- Most commercial agricultural enterprises apply **intensive crop farming** and regard agriculture primarily as a business, taking as much as they can from every single unit of land.
- On the contrary, **extensive farming** propagates a **more sparing and healthy approach** to land use, with **fewer chemical inputs.** It **maintains productivity** in natural and **eco-friendly ways like organic farming.**

**Impact of Industrial Agriculture:**

- **Modern agriculture externalises its true cost to others** ie.,gets less food out of the ground, with **fewer nutrients, less efficiently, more expensively, and with greater environmental devastation** than small and organic farming.
- Industrial agriculture has not shed its **colonialist imprint** which is evident on the planet in a different way:
    - with differentiated access to nutritious food,
    - reducing the biodiversity of our diet,
    - injudicious ecological practices like monocropping and systematic erosion of soil
    - the mounting cost of technology, and
    - chemicals — exiling the farmers out of their fair share of the progress and deepening the climate change crisis.
- According to the Third Biennial Update Report submitted by the Union government in early 2021 to the UNFCCC, the agriculture sector contributes **14 percent of the total GHG emissions.**
- Amongst these, greenhouse gas emissions from **rice cultivation during 2016 accounted for 71.322 million tonnes "CO2 equivalent",** which might have gone up to 72.329 million tonnes "CO2 equivalent" during 2018-19.

**What can fix the broken food systems of our times?**

- This can be reduced by **switching to regenerative agriculture practices** and carbon farming can institutionalise and accelerate that shift. Regenerative agriculture and climate farming have gained wide acclaim and patronage globally.
- **Carbon farming** promises a bold new agricultural business model that fights climate change, creates jobs, and saves farms that might otherwise be unprofitable.
- In essence, a climate solution, increased income generation opportunity, and ensuring a food security net for the population — right under our feet.

**What is Regenerative agriculture?**

- Regenerative agriculture is a **conservation and rehabilitation approach** to food and farming systems.
- **It focuses on:**
    - **topsoil regeneration,**
    - **increasing biodiversity,**
    - **improving the water cycle,**
    - **enhancing ecosystem services,**
    - **supporting bio-sequestration ,**
    - **increasing resilience to climate change, and**
    - **strengthening the health and vitality of farm soil.**
- Regenerative agriculture is not a specific practice itself. Rather, proponents of regenerative agriculture use a **variety of sustainable agriculture techniques in combination.**
- The key to regenerative agriculture is that it **not only "does no harm" to the land but**

**improves it,** using technologies that **regenerate and revitalize the soil and the environment.**

- Regenerative agriculture leads to **healthy soil, capable of producing high quality, nutrient-dense food** while simultaneously improving, rather than degrading land, and **ultimately leading to productive farms and healthy communities and economies.**
- It is a dynamic and holistic, incorporating permaculture and organic farming practices, including **conservation tillage, cover crops, crop rotation, composting, mobile animal shelters, and pasture cropping,** to increase food production, farmers' income, and especially, topsoil.

**What is Carbon Farming?**

- Carbon Farming is a whole farm approach to **optimising carbon capture** on working landscapes by implementing practices that are known to **improve the rate at which CO2 is removed from the atmosphere and stored in plant material and/or soil organic matter.**

**Benefits of Carbon Farming:**

- Carbon farming can **incentivise our farmers to introduce regenerative practices** in their agricultural processes — helping them shift their focus from **improving yields to functioning ecosystems** and **sequestering carbon that can be sold or traded in carbon markets.**
- Increased **biodiversity**
- Improved **air** quality
- Mitigate the risk of **soil erosion**
- Increased soil **fertility,** reduced soil **salinity** & overall improved soil health
- Buffering against **drought**
- Improved **native vegetation, habitat,** and animal health
- Improved agricultural **productivity & efficiency**
- Improved quality, organic and chemical-free food (farm-to-fork models)
- **boosted/secondary income** from **carbon credits for the marginalised farmers.**
- The total **value of the global carbon markets grew by 20 percent in 2020** — the fourth consecutive year of record growth — and is well on its way to raising a critical mass of investors.
- The value of traded global markets for carbon dioxide (CO2) permits grew by **164 percent to a record €760 billion ($851 billion) in 2021.**

**Soil as Carbon Sink:**

- Soil is one of the most untapped and underutilised defences against climate change and acts as an efficient carbon sink. And India should capitalise on it to achieve its Net Zero target and decarbonising pathway.
- An international initiative called '4 per 1000', launched at the 2015 Paris climate conference, showed that increasing soil carbon worldwide by just 0.4 percent yearly could offset that year's new growth in carbon dioxide emissions from fossil fuel emissions.
- Studies show that soil removes about 25 percent of the world's fossil-fuel emissions each year and has been the missing link from the globally prescribed carbon management practices and narrative.

**Meghalaya leads the way**

- In India, Meghalaya is currently working on a blueprint of a **'Carbon farming' Act** to create a **prototype of a sustainable agriculture model** for the entire North-East region.
- North-East Region has shown tremendous progress in adopting organic and sustainable agriculture practices and **Sikkim** has shown the way already. But there **is tremendous potential.**
- Out of the **5.5 million hectares of cultivated land available in the North-East, organic farming barely covers 3 percent of arable land.**

**Conclusion:**

- **An extensive and pioneering carbon farming Act —** with a **robust transition plan** can effectively demonstrate the idea of creating a **carbon sink** on working land and **farm our way out of climate crisis, improve nutrition, reduce the punishing inequalities within farming communities, alter the land use pattern and provide the much-needed solution to fix our broken food**

**systems.** Carbon thus can effectively prove to be the **'cash crop' of the future for farmers.**

## 9.7. Increasing Dust Storms

**Why In News?**

- Recently, over eight dust storms have hit Iraq, turning the **skies orange** and disrupting lives.
    - **Climate change** is blamed to be the driving force.

**About**

- **Rising Frequency:**
    - West Asia is no stranger to dust storms. They strike every summer and winter.
    - In recent years, however, their intensity and frequency have increased.
- **Driving winds:**
    - The storms are usually driven by **Shamal or northwesterly winds**.
    - The winds lift dust from the **Tigris-Euphrates basin of Syria and Iraq** and transport it to the **Persian Gulf and Arabian Peninsula**.
    - Iraq, which sits at the top of the Persian Gulf, helps in channelling winds.
- **Factors Responsible:**
    - **La Nina:**
        - It is a climate pattern that impacts weather worldwide.
        - They can influence hurricane season, **increase** the chance of **drought** in some regions and **trigger intense dust storms** over west Asia.
        - It has been around for the last two years and is expected to make it to the third year as well.
        - During La Nina, the **soil loses moisture**, too. Dry sand more readily lifts in the air, leading to dust storms.
    - **Climate change:**
        - **Long-term changes** in air temperature, rainfall, wind speed, soil moisture and relative humidity due to climate change may have had some part to play in fuelling the dust storms this year.
        - Environmental changes like the drying of marshes, land degradation and desertification are also responsible.
    - **Annual rainfall drop:**
        - A drastic drop in the annual rainfall rate due to climate change can trigger sand and dust storms.
    - **Drought** is another potent ingredient in these storms.
    - **Human activities:**
        - The industrial construction of dams weakens water streams throughout the region, thus adding to the severity of droughts.
        - Dwindling water underground and **poor water management** are significant contributors, the expert highlighted.
        - **Irrigation:** Water-intensive irrigation systems used along the Iranian-Iraqi border are a factor too.
    - **Draining of wetlands:** Iraq lost up to 90 per cent of its marshes by 2000. The country needs to build better water management practices and adopt suitable irrigation methods to minimise the number of dust storms.

**Sand and Dust storms**

- Usually occur when **strong winds lift large amounts of sand** and dust from bare, dry soils into the atmosphere.
- They are common meteorological hazards in **arid and semi-arid regions**.
- They are usually caused by **thunderstorms** – or strong pressure gradients **associated with cyclones** – which increase wind speed over a wide area.
- These **strong winds lift large amounts of sand and dust** from bare, dry soils into the atmosphere, transporting them hundreds to thousands of kilometres away.

- **Major Sources:**
    - The main sources of this mineral dust are the arid regions of Northern Africa, the

Arabian Peninsula, Central Asia and China.
    - Comparatively, Australia, America and South Africa make minor, but still important, contributions.

**Impacts**

- **Impacts on the environment and society:**
    - **Impact on Heat Budget:** The dust can impact the atmospheric chemistry and radiative budget, which is the balance between incoming solar energy and outgoing heat.
    - **Pollution:** Dust storms are like slow poison as they can transport a range of pollutants: Pesticides, Heavy metals, Particulate matter (PM10 and PM2.5) etc.
    - The dust has many **negative impacts on agriculture**, including reducing crop yields by burying seedlings, causing loss of plant tissue, reducing photosynthetic activity and increasing soil erosion.
    - **Indirect dust deposit** impacts include filling irrigation canals, covering transportation routes and affecting river and stream **water quality**.
    - **Poor visibility conditions** due to airborne dust also have an impact on **air and land transport**.
    - Dust can impact the **output of solar power plants**, especially those that rely on direct solar radiation.
- **Human Health:**
    - Particles larger than 10 µm are not breathable, thus can only damage external organs – mostly causing **skin and eye irritations, conjunctivitis** and enhanced susceptibility to ocular infection.
    - Inhalable particles, those smaller than 10 µm, often get trapped in the nose, mouth and upper respiratory tract thus can be associated with **respiratory disorders** such as asthma, tracheitis, pneumonia, allergic rhinitis and silicosis.
    - Dust also plays a role in the **transmission of valley fever** – a potentially deadly disease – in the Southwest of the United States and in Northern Mexico by acting as a transporter of **Coccidioides fungi** spores.

**Impact on India**

- **Affects Western Parts:**
    - The **Arabian Peninsula** is one of India's major sources of dust storms. Dust from the Arabian Peninsula reaches over the **western parts of India,** in Rajasthan after passing through Iran, Iraq, Afghanistan and Pakistan
    - The other sources are local, from the **Thar desert and the Rann of Kutch**.
- **Melting Ice of Himalayas:**
    - The dust touches the Himalayas and can reach the Indo-Gangetic plain too, depending on temperature, wind speed and other meteorological conditions. It can also blow over Assam and Bangladesh.
    - The dust settles on the Himalayas, creating streaks of red and brown on the snow.
    - As a result, it absorbs more sun, **hastening its melting.**
- **Disturbing Monsoon:**
    - The ongoing westerly desert winds from the Arabian Peninsula also can cause heat waves during the summer season in India which can influence the country's monsoon.

**Global Efforts**

- **The WMO Sand and Dust Storm (SDS) Project**
    - It was initiated in 2004 and its Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS) was launched by the Fifteenth World Meteorological Congress in 2007.
    - SDS-WAS **enhances the ability of countries** to deliver timely, quality sand and dust storm forecasts, observations, information and knowledge to users through an international partnership of research and operational communities.

- **Coalition on Combating Sand and Dust Storm (SDS):**
    - The United Nations Coalition on Combating SDS was launched at COP 14.
    - The **key objective**s of the Coalition include
        - Preparing a global response to SDS, including a strategy and action plan, which could result in development of a

United Nations system-wide approach to addressing SDS
- Identifying entry points to support countries and regions affected by SDS in the implementation of cross-sectoral and transboundary risk reduction and response measures for SDS.
- Preparing a platform for engaging with partners and enhancing dialogue and collaboration among affected countries and the United Nations system agencies at global, regional, and subregional levels.

**Way Ahead**

- Building a coordinated air quality monitoring and early warning system.
- Strengthening the network of forecast centres to enhance regional and international cooperation

# 10. Internal Security

## 10.1. Ending AFSPA

**Why in News?**

- The Indian Prime Minister speaking at the 'peace, unity and development rally' in Diphu in Assam has indicated the government's inclination to end the Armed Forces (Special Powers) Act (AFSPA) in the whole of the north-eastern region.

**Background:**

- Areas notified as 'disturbed areas' under Armed Forces (Special Powers) Act (AFSPA) have been progressively reduced in the last few years, mainly due to the improvement in the security situation and return of peace in the North-eastern region that has seen insurgencies for decades.
- AFSPA was revoked in Tripura in 2015 and in Meghalaya in 2018.
- Very recently, the Union Home Ministry considerably reduced areas notified as disturbed areas in Assam, Nagaland and Manipur.
- In Assam, AFSPA was removed entirely in 23 districts and partially in one.
- In Nagaland, AFSPA was removed from 15 police stations in seven districts while 15 police stations were excluded in Manipur.

**Significance:**

- The removal of AFSPA from the region would bring immense relief to the citizens of the region given the often-harsh regulations the act resulted in.
- The removal of AFPSA will also provide an impetus to the region's economic growth and development.

**Recommendations:**

**Normalize the situation and gradual removal of AFSPA:**

- The administration should work towards further improving the security situation in the area and increasing the development activity. All efforts must be taken to normalize the situation in the region.
- The gradual removal of AFSPA from the entire region should be the ultimate goal for the administration.

**Accountability for excesses and atrocities:**

- AFSPA should go entirely because of the impunity it offers armed forces. Since AFSPA offered wide-ranging impunity to the armed forces, there have been a few instances that led to the commission of excesses and atrocities. In this direction, alongside the gradual reduction in the areas under the Act, there should be serious efforts to procure justice for victims of past excesses too.

**Political solution to the issue:**

- On the political side, there is the need to work towards a possible political solution to some of the disputes in the form of peace accords, ceasefires and the creation of sub-regional administrative arrangements.

## 10.2. Military Reforms

**Why In News?**

- Presently, the government is looking to **streamline the post and the functions** of the **Department of Military Affairs (DMA)**.

**About**

- The Government is yet to announce a successor to the country's top military post (CDS).
- **Reason for Delay:** The Government is **reassessing** the concept of the post as well as the Department of Military Affairs (DMA) and is looking to streamline the setup.
- **Dual heads:** There is also dichotomy in the roles and responsibilities with the several hats worn by the CDS and also overlap in responsibilities between the DMA and Department of Defence (DoD).
- **Review Timelines:** There is also a rethink on the ambitious timelines set for the creation of theatre commands and also the number of commands and their envisaged format.

**Chief of Defence Staff**

- **Post creation:**
  - The Government's decision in 2019 to create the post of a CDS, a long-pending demand to **bring in tri-service synergy and integration**.
  - It is the **biggest top-level military reform** since independence.
  - The post of CDS is in the rank of a **four-star General** with salary and perquisites equivalent to a Service Chief.
  - In addition, the DMA was created as the fifth department in the Ministry of Defence (MoD) with the CDS functioning as its Secretary.
- **Function:** The broad mandate of the CDS includes bringing about **jointness** in operations, logistics, transport, training, support services, communications, repairs and maintenance of the three Services, within three years of the first CDS assuming office.
- **Other duties:**
  - The CDS is also the **Principal Military Adviser to** the Defence Minister and Permanent Chairman Chiefs of Staff Committee (CoSC).
  - He will act as the Principal Military Adviser to the Defence Minister on **all tri-Services matters**.
    - However, the three Chiefs will continue to advise the Defence Minister on matters exclusively concerning their respective Services.
  - The CDS will not exercise any military command, including over the three Service Chiefs.
  - The CDS will also **evaluate plans** for **Out of Area Contingencies**, as well other contingencies such as Humanitarian Assistance and Disaster Relief (HADR).
  - The **specialised tri-service divisions** — special operations, defence cyber and defence space — were also brought under the ambit of the CDS.
  - The CDS is a high military office that **oversees and coordinates the working of the three Services**.
  - It offers seamless tri-service views and single-point advice to the Executive.
- **Under RTI ambit:** The CDS would come in the ambit of 'Right to Information Act, in accordance with the provisions of the RTI Act, 2005.

**Need for Military Reform**

- **Strategic Challenges in South Asia such as:**
  - Conflict in Afghanistan and the Af-Pak border
  - Boundary disputes between India and China
  - Cross border terrorism and boundary dispute with Pakistan

  - The rising tide of Left-Wing Extremism (LWE).
  - Nuclear threat from hostile neighbours.
- **Lack of an Integrated Command:** India does not have a combined tri-service structure trained to handle an integrated war and joint theatre commands for efficacious battlefield management.
- **Civil-military relation:** Lack of an adequate institutional mechanism for dialogue between the civilian and military leadership is an important concern.
  - In the US and Britain, civil and defence officers work together and share opinions at all levels before concrete proposals are drafted for decision by elected representatives.
  - In India on the other hand, final authority lies with the Defence Minister who functions from the MoD along with the defence secretary.
  - The three service chiefs function at a **level lower than the MoD** leading to unclear delegation and accountability.
- **Military capacity:** Low teeth-tail ratio, unfulfilled vacancies, etc. deters the credible military capacity. The tooth-to-tail ratio refers to the amount of supply and support personnel (termed as tail) for each combat soldier (tooth).
- **Budgetary allocations:** Defence Budget stands at around 1.5% of GDP. There has been a persistent demand that defence expenditure be increased to three per cent of GDP.
- **War Equipment:** Indian Army has stated that 68% of its war fighting equipment is obsolete which severely erodes Indian defence forces capabilities to fight a war.
- **Gender gap:** The reforms, so far, have not addressed the monumental difference in the number of men and women in the Indian Army. A report noted that 96.2% of the Indian army is male.
- **Ending Sahayak system:** Soldiers in this system are forced to do **domestic chores** like washing clothes for senior officers, acting as their 'sahayaks'. This erodes the dignity and prestige of jawans.

**Way Ahead**

- **Theatre commands:** To have a CDS with operational powers who will after due legislative changes have theatre commanders report to him while the Service Chiefs will look after the raise, train and sustain functions of respective Services.
- **Holistic Approach:** The reforms must include the **entire national security architecture** with a view to building an overarching organisation that can cohesively address the challenge of hybrid and unconventional wars such as cyber and space based wars.
- The reforms approved by the Defence Ministry is a step in the right direction. However, reforms must be holistic and homogenous.

## 10.3. Project WARDEC

### Why In News?

Recently ,The **Army Training Command** signed a memorandum of understanding (MoU) with Gandhinagar-based Rashtriya Raksha University (RRU) to develop a **'Wargame Research and Development Centre'(WARDEC)** in New Delhi.

### About Project WARDEC

- It will be a **first-of-its-kind simulation-based training centre** in India that will use **artificial intelligence (AI)** to design virtual **reality wargames.**
- It will be used by the **Army to train its soldiers and test** their strategies through **"metaverse-enabled gameplay"**.
  - In the **metaverse,** the players will **get a realistic experience** of the actual situation.
- The wargame models will be **designed to prepare** for wars as well as **counter-terror and counter-insurgency operations**.
- The centre will come up in a military zone in New Delhi.
- The RRU will join hands with Tech Mahindra to develop the centre in the coming three to four months, officials added.
  - The RRU, an institute under the Ministry of Home Affairs (MHA),

specialises in national security and policing.
    - Located in Gandhinagar's Lavad village, it is an "institute of national importance" – a status granted to it by an Act of Parliament.
- Apart from the armed forces, the BSF, CRPF, CISF, ITBP and SSB can also use the **metaverse-enabled simulation exercises for better training.**

**Significance**

- The use of AI can provide a totally immersive training experience as it can simulate a battlefield close to reality and map several eventualities in the probable event of a war.

**How many countries use such wargaming drills?**

- Since the **9/11 attacks**, use of information technology-enabled wargaming is preferred by several countries like the **US, Israel, the UK** to prepare for **possibilities in case of terror attack**s or war.

# 11. Geography & Disaster Management

## 11.1. Heat Waves

**Why in News?**

- There are heat wave-like conditions across the country as reported by the India Meteorological Division (IMD).
- As per the India Meteorological Division (IMD) report, 16 of the 36 of the meteorological subdivisions in India are facing heat wave-like conditions.

**What is a Heat wave?**

- A Heat Wave is a period of abnormally high temperatures, more than the normal maximum temperature that occurs during the summer season in the North-Western parts of India.
- Heat Waves typically occur between March and June, and in some rare cases even extend till July.
- The extreme temperatures and resultant atmospheric conditions adversely affect people living in these regions as they cause physiological stress, sometimes resulting in death.

**Reasons for more Heat waves**

- The early start is because of formation of anticyclones in western Rajasthan during March coupled with absence of rain-bearing western disturbances.
- Thus, it led to blowing up dry winds from the region whose temperature kept on surging because of the arrival of summer, to take the form of heat waves.
- Urban heat island effects can make ambient temperatures feel 3 to 4 degrees more than what they are.
- High intensity of UV rays in medium-high heat wave zones.
- Combination of exceptional heat stress and a predominantly rural population makes India vulnerable to heat waves.

**Impact of Heat waves**

- They put enormous pressure on health and emergency services.
- They increase strain on water, energy and transportation resulting in power shortages or even blackouts.
- They adversely affect agriculture in terms of yields primarily rabi crops thus creating stress among farmers, also causing livelihood stress.
- Extreme heat waves also cause loss of livestock which is an important component of agrarian economy.
- Heat waves induce loss of human productivity thus impacting the income and well being.
- They lead to wildfires and severe drought conditions.

**Strategies to Address Heat waves**

- Establishment of Early Warning System and Inter-Agency Coordination for prediction of heat waves and issuance of alert.
- Public Awareness and community outreach to increase public awareness on how to protect against extreme heat through different mediums.
- Capacity building and training programme for health care professionals at different levels to recognize and respond to heat wave related illnesses.
- Collaboration with non-government organizations (NGOs) and civil society to provide support in distress situations.
- Encourage traditional methods of handling heat waves like wearing cotton clothes etc.
- Reviewing labour laws and other regulations taking climatic conditions into account.
- Improving the infrastructure setup like including shadowed windows, insulated houses etc

## 11.2. India's Vulnerability to Drought

**Why in News?**

- A United Nations report has revealed that many parts of India fall under the list of regions that are vulnerable to drought globally.
- The report also stated that India's Gross Domestic Product (GDP) reduced by 2 to 5 per cent between 1998 and 2017 due to severe droughts in the country.

**The Most Pressing Concerns:**

- According to World Bank estimates, drought conditions can force up to **216 million people to migrate by 2050.**
- Other factors at play along with drought could be **water scarcity, declining crop productivity, rise in sea levels, and overpopulation.**
- Weather, climate, and water hazards have accounted for **50 percent of all disasters** and **45 percent of all reported deaths since 1970,** World Meteorological Organisation data has revealed. Nine in ten of these deaths have occurred in developing countries.
- Between 2020 and 2022, 23 countries have faced drought emergencies. These are Afghanistan, Angola, Brazil, Burkina Faso, Chile, Ethiopia, Iraq, Iran, Kazakhstan, Kenya, Lesotho, Mali, Mauritania, Madagascar, Malawi, Mozambique, Niger, Somalia, South Sudan, Syria, Pakistan, United States, and Zambia.
- According to the report, climate change alone will cause **129 countries** to experience an **increase in drought exposure** in the next few decades.

**Human Impact:**

- More than a billion people around the world were **affected by drought in 2000-19, making it the second-worst disaster after flooding.**
- Africa was the worst hit, **with 134 droughts, of which 70 occurred in East Africa**. The World Health Organisation has noted that approximately **55 million people globally** are directly affected by droughts annually, making it the **most serious hazard to livestock and crops in almost every part of the world.**
- The impact of drought is, however, not uniform across genders. Research shows that **women and girls in emerging and developing countries suffer more in terms** of education levels, nutrition, health, sanitation, and safety as a result of droughts.
- The burden of water collection also **disproportionately falls on women (72 percent) and girls (9 percent).**
- The report notes that they may spend up to **40 percent of their caloric intake fetching water.**
- In 2022, over **2.3 billion people are facing water stress. Almost 160 million children are exposed to severe and prolonged droughts.**

**Environmental Aspects:**

- **According to the report, if global warming reaches 3° C by 2100, drought losses** could be five times higher than today's levels.
- The largest increase in drought losses is **projected in the Mediterranean and the Atlantic regions of Europe.**

- **Australia's megadrought in 2019-2020 contributed to "megafires" resulting in one of the most extensive losses of habitat for threatened species**. About three billion animals were killed or displaced in the Australian wildfires.
- On a related note, **84 percent of all terrestrial ecosystems are threatened by changing and intensifying wildfires.**
- **According to a 2017 report by the Food and Agriculture Organisation,** the percentage of plants affected by drought has more than doubled in the last 40 years.
- Around 12 million hectares of land are lost each year **due to drought and desertification.**

**Steps to Mitigate Drought:**

- **Water harvesting**, protecting water sources against contamination.
- **Developing water sources –** such as micro dams, ponds and wells, use of reserve sources of groundwater and water rationing/allocation.
- **Restoring pastures and balancing land and water resources.**
- **Recovering the water holding capacity of soils** through tree planting (including fruit trees) and the protection of riverbanks and wetlands.
- **Implementing Integrated Water Resources Management (IWRM),** such as mitigating upstream-downstream user conflicts and coordinating between water users, communities and sectors.
- **Diversifying rural livelihoods** through social protection, cash-transfer programs or improving access to markets and rural services: Access to markets could help create alternative non-farm employment that could reduce the impacts of droughts.
- **Crop insurance.**
- **Shifting to drought tolerant crops.**

**Conclusion:**

- An upward trajectory in the duration of droughts and the severity of impacts, not only affects human societies but also the ecological systems upon which the survival of all life depends.
- The citizens and government must join hands to prevent droughts to save thousands of lives. This joint effort can help save the world from such a catastrophe.

## 11.3. Earthquake waves

**Why In News?**

- Scientists recently scanned a **rock structure** that is located **3,000 kilometres beneath Hawaii** and is known to **slow earthquake waves.**
    - Researchers used **earthquake** or **seismic waves** to peer into the earth's interior.
    - The findings of the study are published in "**Nature Communications."**

**More findings:**

- The rock structure is what is called an **'ultra-low velocity zone'**.
- These are thought to be **hundreds of kilometres wide and tens of kilometres thick.**
- It is found that the speed of the quake waves travelling through the base could be **40 percent slower** than the surrounding regions.
- The **Hawaiian structure** is **one of many such zones** present in various pockets of the planet.
- **Possible reasons for slow earthquake waves:**
    - Some portions of the earth's interiors can act as **speed bumps**. For instance, **hotter areas slow down seismic waves**, allowing scientists to find clues on what makes up the interior layers of the planet.
        - The wave speeds **slow down by 20 percent** throughout the entire zone. But towards the base, it is probably twice as slow.
    - This slowdown could be due to its **dense iron content**.
        - The **increase in iron, and to a lesser degree the high temperatures of these zones** (they sit on top of the hot

core), **cause the slow velocities of waves**.
    - **The iron-rich material in the zone-**

- could be a remnant of **ancient rocks from Earth's early history**.
- Alternatively, the **iron might be leaking from the core** by some unknown means.
- The **zone's origins** can be traced to around four billion years ago when the Earth was an infant.
    - Around this time, scientists believe a **Mars-sized rock crashed into the earth**, raising the planet's temperatures and creating a **magma ocean**.
- At some point, the iron materials likely descended deep into the interiors, forming pockets called the **ultra-low-velocity zones**, according to the study.

## 11.4. Indo-Pacific Economic Framework (IPEF)

**Why In News?**

- The U.S President is set to launch IPEF to **boost its economic presence in the Indo-Pacific region** during the upcoming **QUAD** summit.

**What is IPEF?**

- It is an **economic framework for enhancing US involvement in Asia.** It is to counter the influence of China in the region and fill the **vacuum created by not being a partner to TPP and RCEP.**
- **Not a traditional trading block:** The IPEF, unlike FTA, is **more of a tailor-made mechanism that seeks the benefits of trade partnerships while insulating Americans from the downsides of trade liberalisation.**
- Unlike FTAs, it **does not include market access commitments** such as lowering tariff barriers, as the agreement is more of an administrative arrangement.
- **Stress on supply chain:** IPEF manifests US' ambitions to **expand ties with key Indo-Pacific economies** through robust supply chains excluding China.
- It seeks to establish trade rules covering the 7 focus areas.
- **Focus Areas:** It is based on **7 strategic pillars:**
- Trade facilitation, particularly for small and medium enterprises (SMEs)
- standards for a digital economy and technology
- supply-chain resilience
- decarbonisation and clean energy
- infrastructure
- workers' standards
- other areas of shared interest

- **'Menu' based approach:** The 7 pillars will have specific modules and countries would have to **sign up to all of the components within a module, but do not have to participate in all modules.**

- Member countries **can opt to participate in parts of the framework.**

**Issues with the IPEF**

- **Uncertainty:** It is set to be **based on a presidential executive order** and could be discarded by the coming US administrations as it is not a **senate-ratified treaty.**
- **Huge investment demand:** Though it's stated to be beneficial for the countries in the region it would **require huge investments and active participation in the implementation phase.**
- **Tilted more in favour of USA:** It doesn not talk about lowering tariff rates rather it seeks to integrate USA in the supply chain of the region thus making it **immune from the downsides of trade liberalisation.**
- **More unilateral and not consensus based:** Unlike traditional trade blocks where the agreements are results of arduous negotiations by the members, the **IPEF is driven primarily by the USA.**
- **Binding trade rules:** It might fail to bring all countries in the region on board as it comes with **binding trade rules but no guarantees on market access.**

**How have the countries responded so far ?**

- **Mixed response:** The initiative has seen mixed receptions from the countries in the region.
- **In favour:** Japan, Thailand, Australia and New Zealand have welcomed the IPEF and have said that they would join the negotiations.
- **Cautious:** South Korea, Philippines and Singapore have expressed concerns with respect to the provisions of the IPEF.
- **Ambivalent:** India so far has not officially communicated its stance however it is reading into the provision of the agreement.

**India and IPEF**

- India would stand to gain by being part of the supply chain initiative of the arrangement but it would **need flexibility on the other initiatives.** IPEF does not appear to serve India's interests on various fronts.
- **Higher standards:** Concerned stakeholders have casted doubts over the arrangement pertaining to **US high standards and parameters** with respect to manufacturing and services.
- **Digital Governance:** IPEF formulation contains issues that directly conflict with India's stated position. These are:
    - **Prohibition on cross-border data flows and data localization requirements** including for financial services
    - **Prohibition of the levying of customs duties on digital products** distributed electronically
    - **Promotion of the interoperability of privacy rules** and related enforcement regimes, such as the APEC Cross-Border Privacy Rule, while respecting U.S. federal and state privacy laws and regulations.
    - **No market access:** The arrangement is silent on providing access to the indigenous goods and services to the markets of would be member states including U.S.

**Way Forward**

- **Multilateral:** The unilateral character of the arrangement should be tweaked to give way to more plural and multilateral arrangement.
- **Robust institutionalisation:** It should be a senate ratified treaty so that it could see a level of certainty by the member states before they could invest their diplomatic capital.
- **Secretariat based:** There is a need of an organisation or secretariat to drive and oversee the arrangement which houses representatives from all the member states, in the absence of which, the arrangement would lose its relevance.
- **Provisions for market access and reduced tariff:** The developing countries would largely stand to not gain much from the arrangement if it would not have provisions pertaining to market access and lower tariffs.
    - These legitimate concerns should be addressed by the stakeholders.

## 11.5. Armenia-Azerbaijan Conflict

**Why In News?**

- Recently, **Armenia** has been witnessing growing **anti-government protests** against possible concessions over the **Nagorno-Karabakh territory**, disputed with neighbouring **Azerbaijan**.

**About the Conflict**

- Protestors are demanding the **resignation of Prime Minister (PM) Nikol Pashinyan** and are taking the means of strike like, chanting anti-government slogans, blocking metro from moving etc.
- **Location:** Nagorno-Karabakh is a **mountainous and heavily forested region** that under international law is recognised as **part of Azerbaijan.**
- **History:**

- **Ethnic Armenians** who constitute the vast majority of the population there **reject Azeri rule**.
- After Azerbaijan's troops were pushed out of the region following a war in the 1990s, these ethnic Armenians have been in **administrative control of Nagorno-Karabakh**, with support from Armenia.

- **September 2020:** Clashes broke out that rapidly escalated to become the deadliest since the 1990s.
- **Failed attempts to resolve:** In the past three decades, ceasefires brokered by Russia and the United States have failed to hold.
- **Azerbaijan's Conditions for Peace:** Azerbaijan wants Armenia to officially recognise Nagorno-Karabakh as part of Azerbaijan. This factor will eliminate the Armenian historical presence in the region, as Azerbaijan will impose **racial and discriminatory policies** against the indigenous Armenians of the region.
- **Latest developments:**
  - Armenia has been witnessing **domestic unrest** since April this year related to **Pashniyan's handling of the Nagorno-Karabakh conflict**.
  - There have been **plans to oust their government** or at least increase street pressure to prevent the PM from providing further concessions to Azerbaijan and Turkey when it comes to the security and **right of self-determination of Armenians of Nagorno-Karabakh** (called **Artsakh**) and the recognition of **Armenian Genocide**.
- **Criticism against Armenian PM:**
  - In Armenia, Pashinyan's handling of the Nagorno-Karabakh conflict received criticism after **he agreed to hand over Armenian control of several territories to Azerbaijan**.
  - Pashinyan **increased the salaries of the country's security forces**, in an attempt to **win their loyalty**.
  - The ongoing protests in Armenia have been marked by **police brutality and the detaining of protestors, activists** as well as Parliament members.
  - **Pashinyan's stance on Nagorno-Karabakh:** There has been a clear shift in Pashinyan's views on Nagorno-Karabakh post May 2018, when he was elected leader of Armenia. Much of Pashinyan's rhetoric was aimed at winning nationalist support.

**Challenges of Nagorno-Karabakh conflict**

- In this disputed region, there are hundreds of civilian settlements, residents of which would be **directly impacted and potentially displaced** if any large-scale war were to break out between the two countries.
- Any military escalation would **draw regional powers** like Turkey and Russia more **deeply into the conflict.**
- The **energy-rich Azerbaijan** has built several gas and oil pipelines across the **Caucasus (the region between the Black Sea and the Caspian Sea)** to Turkey and Europe.
  - This includes the **Baku-Tblisi-Ceyhan oil pipeline** (with a capacity of transporting 1.2 billion barrels a day), the **Western Route Export oil pipeline**, the **Trans-Anatolian gas pipeline** and the **South Caucasus gas pipeline**.
  - Some of these pipelines pass **close to the conflict zone** (within 16 km of the border) and in an open war between the two countries, the pipelines could be targeted, which would **impact energy supplies.**
- For both nations, these would create **immediate challenges** and war would not be in the interest of both countries.

**Implications**

- The conflict **exposed the weakness of NATO and the European Union** to help its ally at the time of crisis. NATO was seen as a divided house, incapable of taking decisive action against the biggest threat to its allies.
- The biggest **loss of reputation is for Russia,** which chose to play neutral selling arms to both the parties to the conflict, despite

a military pact with Armenia and a base there but had insisted it would not get involved in the conflict with Azerbaijan unless Armenian territory itself came under threat.

- **China** could emerge as one of the **main beneficiaries of the ceasefire** – gaining a new route for the BRI plus leverage over Iran during crucial negotiations. The corridor between **Nakhchivan and Azerbaijan** would offer Beijing a second route to Europe in the South Caucasus bypassing Iran.

**Neighbours's Stand**

- **Turkey: Support to Azerbaijan**
  - Supporting Azerbaijan's claims is its ally Turkey, which is adding its own conditions to the proposal, one of which includes **pushing Yerevan to cease international lobbying for official recognition of the Armenian Genocide**, an issue that has been a long-standing conflict between Yerevan and Ankara.
  - Armenia has said approximately 1.5 million people were killed in **1915 during a genocide** by the Ottoman Empire.
  - While Turkey accepts that many Armenians living in the empire were killed by Ottoman forces during the First World War, it has **consistently rejected the number of victims** and has denied that the killings were systematic or constitute genocide.
- **Russia: Supporting Both**
  - It sees the Caucasus and Central Asian region as its backyard. Russia enjoys **good ties with both** Azerbaijan and Armenia and supplies weapons to both.
  - But **Armenia is more dependent on Russia** than the energy-rich, ambitious Azerbaijan.
  - Russia also has a **military base in Armenia.**
  - But Moscow, at least publicly, is trying to **strike a balance** between the two.

**India' Response**

- **No policy for South Caucasus:**
  - India does not have a publicly articulated policy for the South Caucasus, unlike "Neighbourhood First", "Act East" or " Central Asia Connect".
  - The region has **remained on the periphery** of its foreign policy radar.
- **Asymmetry in relations:**
  - There is visible asymmetry in India's relations with Armenia, Azerbaijan and Georgia.
  - **Armenia is the only country** in the region with which it has a friendship and cooperation Treaty (signed in 1995), which, incidentally, would prohibit India from providing military or any other assistance to Azerbaijan in case Azerbaijan's offensive in Nagorno-Karabakh spills over to the territory of Armenia.
  - India has received three heads of states from Armenia, but **none from Azerbaijan or Georgia**.
- **Adjusted Stances:**
  - India has adjusted its position on the Nagorno-Karabakh conflict as the situation has evolved over the years.
  - In the **initial stages** of the conflict in 1993, India had endorsed the concept of **respect for territorial integrity.**
  - For quite some time **now**, India's emphasis has been on a **peaceful resolution of the conflict** through diplomatic negotiations.
- **Kashmir Angle:**
  - **Armenia** extends its **unequivocal support to India** on the Kashmir issue whereas Azerbaijan not only supports but also promotes Pakistan's narrative on this issue.
  - India has **every reason not to support Azerbaijan's** territorial integrity as Azerbaijan has shown scant regard for India's territorial integrity violated by Pakistan in Jammu and Kashmir.
- **Trade:**
  - **Armenia:** The levels of India's trade or investment with Armenia are, however, very low.

- **Azerbaijan:** ONGC/OVL have made relatively small investments in an oilfield project in Azerbaijan and GAIL is exploring the possibilities of cooperation in LNG.
  - Azerbaijan falls on the **International North South Transport Corridor route**, connecting India with Russia through Central Asia;
  - It can also connect India with Turkey and beyond through the **Baku-Tbilisi-Kars** passenger and freight rail link.

- **Concerns for India:**
  - It is **difficult for India to publicly endorse** Nagorno-Karabakh's right for self-determination in view of the possible repercussions it can have repercussions for India.
  - **Adversaries may misuse it** not only by making erroneous connections with Kashmir but also re-ignite secessionist movements in certain parts of India.
- **India's Approach at Present:**
  - India has adopted a balanced and **neutral stance** and made a **politically correct statement** in which it has expressed its concern.
  - India called for **restraint and immediate cessation of hostilities** and resolution of the conflict peacefully through diplomatic negotiations.
  - India has also expressed its support for the OSCE Minsk Group's continued efforts towards peaceful resolution, implying that **India is not in favour of involvement of any other entity**, including Turkey.

**Way Ahead**

- **Mediation** with the aim of creating negotiations in good faith is a vital need.
- **Confidence-building measures** between Azerbaijan, the Republic of Artsakh and Armenia are needed.

## 11.6. India-China Dispute in Pangong area

**Why In News?**

- Recently, the Ministry of External Affairs (MEA) said that **two bridges are built by China in the Pangong area** which have been under the illegal occupation of China since the 1960s.

**About**

- The bridge being referred to is a **second structure t**hat China is building, right next to the bridge it constructed earlier this year, in an area that **lies along India's claim line**.
- The bridge is near the **halfway mark** of the boomerang-shaped, **135- km-long Pangong Tso.**
  - India has about **45 km** of the lake under its control.
- The bridge is located around **20 km east of Finger 8** on the north bank of the lake, which India says is the **point that marks the Line of Actual Control (LAC).**
- The area has been under **Chinese control** since 1958, although it is just west of India's claim line, which, according to India, is its international boundary.
- It is just **east of a ruin named Khurnak Fort**, where China has major frontier defence bases. The region is called **Rutong County by China**.
- China has a **frontier defence company** at the Khurnak Fort, and a **water squadron** further east at Banmozhang.

- **First Bridge:**
  - The first bridge that was visible in satellite images was about 400 metres long and 8 metres wide;
  - It was believed to be built for movement of security forces between the **north and south banks of Pangong Tso**.
- **Indian Government's stand:**
  - These bridges were **two of the most contentious friction points** during the over two-year-long ongoing standoff in eastern Ladakh.
  - In February 2021, both sides **pulled back troops** from some of these friction points.

- **India has made it clear** on several occasions that the Union Territories of Jammu & Kashmir and Ladakh are **an integral part of India** and other countries are expected to **respect India's sovereignty and territorial integrity.**

**Significance for China**

- **Mobilise its troops faster:** The new bridge built by China will allow it to mobilise its troops faster in this area, hoping to prevent a repeat of what happened in 2020.
- **Infrastructural development:** The widening of roads, building of new roads and bridges, new bases, airstrips, advance landing bases, etc are not restricted to the eastern Ladakh region, but are happening across the three sectors of the India-China boundary.
- **Upper hand:** The Bridge is in Chinese territory, and the Indian Army will have to now factor this in its operational plans.
- **New border law:** China has implemented its new border law that calls for strengthening its border defence, development of villages and infrastructure near the borders and also lays down conditions under which emergency measures can be imposed in the border areas.
- **China renamed 15 places in Arunachal Pradesh on its map**. Although the law is not specially meant for India, it has significant implications as the border dispute with China has flared up.

**Border disputes between India & China**

- **In the Western sector:**
  - Here India shares **2152 km long border** with China, and territorial disputes over Aksai Chin region of Jammu and Kashmir, with both countries claiming the region as their own.
  - The recent dispute is around the region of the n**orthern bank of Pangong Tso lake, Demchok and the Galwan Valley**.
- **In the middle sector:**
  - Here India roughly shares about a **625 km long** boundary with China with a few minor disputes regarding Tibet.
- **In the Eastern Sector:**
  - Here India shares a **1,140 km long** boundary with China and this boundary line is called **McMahon Line**.
  - The major dispute here is around the region of **Tawang Valley** of Arunachal Pradesh, **Chumbi Valley** (Dokalam Tri-Junction) which India shares with Bhutan.

**Steps Taken by India**

- **Developing Infrastructure:**
  - India has been improving its infrastructure in the border areas.
  - The Border Roads Organisation **(BRO)** completed **more than 100 projects in border areas**, the majority of which were close to the border with China.
  - India is speeding up work on the **Nimu-Padam-Darcha axis** which is going to help troops move to Ladakh from other parts of the country.
- **Improved Surveillance:**
  - India is also improving its surveillance along the entire 3488-km boundary, and has been building new airstrips and landing areas.
- **Occupied key heights on the Kailash range:**
  - Towards the end of 2020, India outmanoeuvred China to capture the previously unoccupied heights of the Kailash Range on the south bank of the lake.

**Way Ahead**

- The Indian government has to **keep a constant watch** on all developments that have a bearing on India's security and takes all necessary measures to **safeguard its sovereignty and territorial integrity.**
- To ensure that the **nation's security interests** are fully protected, the government should **step up development of border**

**infrastructure**, including construction of roads, bridges, etc.

- The objective of creating infrastructure along the border areas should not only be to meet India's strategic and security requirements but also **facilitate the economic development** of these areas

# 12. History- Art & Culture

## 12.1. Evidence of Iron Age in Tamil Nadu

**Why In News?**

- Carbon dating of findings of excavation in Tamil Nadu bring forth **evidence of iron being used in India 4,200 years ago.**

**About**

- Excavations at a **small hamlet called Mayiladumparai in Tamil Nadu** have pushed back the date since iron has been used in India.
- Further study can reveal that the **onset of agrarian civilisation and cultural seeds** in the sub-continent was even earlier than what is known today.

**Excavation and Important Findings**

- **Site:**
  - The sites of excavations are in Mayiladumparai near Krishnagiri in Tamil Nadu, about 100 km south of Bengaluru.
  - It is an important site with cultural material dating between the Microlithic (30,000 BCE) and Early Historic (600 BCE) ages.
- **Other important sites in vicinity**:
  - Togarapalli, Gangavaram, Sandur, Vedarthattakkal, Guttur, Gidlur, Sappamutlu and Kappalavadi.
- **Method deployed:**
  - The excavation has been done using accelerator mass spectroscopy.
- **Findings:**
  - The finding has led to the evidence of **iron use in Tamil Nadu to 2172 BCE (4200 years ago) now.**
  - Prior to the excavation the earliest evidence of iron use in the region was from 1500 BCE (3500 years ago).
  - For India as a whole the **evidence of earliest iron use was from 1900-2000 BCE** (4000 years ago).
  - The excavation has **revised the earliest date of iron usage in India.**
- **Marked continuity:**
  - The site has **remnants of both neolithic age and Iron age.**

**Timeline of Iron Usage in India**

- Period in which humans entered the Iron Age **varied from region to another.** Therefore, the subsequent excavations in India have kept on pushing back the earliest date of iron usage.

  - **1300 BCE:** As per 1979 excavation at Ahar, Rajasthan.
  - **1530 BCE:** Excavation at **Bukkasagara, Karnataka.**
  - **1700-1800 BCE:** Excavation at **Raipura in the Mid-Ganga valley.**

- **1900-2000 BCE:** Excavation at **Malhar near Varanasi and Brahmagiri in North Karnataka.**

- In nutshell, a series of excavations from various parts in India have shown evidence of iron-ore technology **before 1800 BCE so far.**
- The current findings of Tamil nadu **will further push the date back.**

### Historical significance of Iron

- The iron usage led to the **production of agricultural tools and weapons,** thereby advancing civilisation in the social, economic and cultural realm.
- Though copper was known to Indus Valley people but being brittle in nature was **incapable of clearing forests for agricultural use.**
- The usage of iron led to **agrarian-based economy** leading to **socio-economic changes and massive production** which further became the genesis of complex cultural milieu like the development of Tamil Brahmi script, different art forms across India.

### Potential link with Indus Valley Civilisation

- The site has **both Neolithic and Iron Age habitation** as found in the excavation of mound in the terraces of the hillock named S???rappa?malai, which manifests the continuity and not standalone feature of the site.
- The rock art with paintings both in **red and white pigments** was observed in the rock shelter called Ni?al-su?ai (nekul-ju?ai) and the grooves used for polishing Neolithic celts were also noticed near the rock shelter.
- Historians are of the view that the **graffities found at Keeladi** have potential linkage with Indus Valley Civilisation because of marked continuity in evolution of the paintings.
- However **detailed research would be required along with supporting evidence** to ascertain the linkage.

## 12.2. List of gifts given by PM Modi to leaders of Nordic countries

**Why in News?**

- The Prime Minister of India attended a series of bilateral talks with his counterparts from various European countries.

**Dokra**

- **Context**: A Dokra boat from Chhattisgarh was gifted to the Crown Prince of Denmark.
- Dhokra is a non–ferrous metal casting process using the lost-wax casting technique.
- Lost-wax casting technique has been used in India for over 4,000 years and is still being used.
- **Process**: An image of the sculpture is made using wax and covered with a cast or a mould. The mould is heated, draining the wax out. Then, molten bronze is poured into the mould and cooled down. After a while, the cast is carefully broken to reveal the metal sculpture.

**Rogan painting**

- **Context:** A Rogan painting from Gujarat was gifted to the Queen of Denmark.
- Rogan art is a form of cloth printing practised in the Kutch district of Gujarat.
- The word ‘Rogan’ in Persian means varnish or oil.
- A paint made from boiled oil and vegetable dyes is used to paint the textiles.
- The painting is done by using either a metal block (printing) or a stylus (painting).
- The process of making a Rogan painting is labour intensive and requires skilful artisans.
- **Process**: Artists place a small amount of paint into their palms and the paint is carefully twisted into motifs and images using a metal rod that never comes in contact with the fabric. Next, the artisan folds his designs into a blank fabric, thereby printing its mirror image.

**Banaras Meenakari**

- **Context:** The Silver Meenakari Bird figure from Varanasi was gifted to the Crown Princess of Denmark.
- The art of silver enamelling has been practised in Varanasi for the last 500 years.
- The art has its roots in Persia.
- The most distinguishing feature of this art form is the use of pink colour in various shades on various products.
- The base is a silver sheet, which is fixed on a metallic base.
- **Process**: 'Meena' is ground to a fine powder and mixed with pomegranate seeds in water. Later, it is fixed on various parts of the product with a flat metallic tool called 'qalam'. Finally, the product is decorated with semi-precious stones and pearls.

**The Tree of Life**

- **Context:** The Prime Minister gifted the Brass Tree of Life from Rajasthan to his counterpart from Finland.
- The Tree of Life symbolizes the development and growth of life.
- The branches of this tree grow and develop upwards and contain various life forms representing inclusiveness.
- The roots of the tree depict the connection with the earth; the leaves & birds depict life and the candle stand depicts light.

**Koftgiri Art**

- **Context:** The PM gifts 'Dhaal' with Koftgiri art from Rajasthan to the PM of Norway.
- Koftgiri of Tarkashi on metal is a traditional art in India as a means of decorating Arms and Armour.
- Koftgiri craft is intended to enrich the surface of the metal of which the article is made.

**Kutch Embroidery**

- **Context:** The Prime Minister of Denmark received a wall hanging with Kutch embroidery as a gift.
- The Kutch Embroidery is a handicraft and textile signature art tradition of the tribal community of Kutch District in Gujarat.
- This embroidery with its rich designs has made a notable contribution to the Indian embroidery traditions.
- This embroidery is practised mainly by women and is usually done on cotton fabric, in the form of a net using silk or cotton threads of myriad hues. Certain patterns are also crafted over silk and satin.
- The signature effect of the colourful embroidery sparkles when small mirrors called 'abhla' are sewn over the geometrically shaped designs.

**Pashmina stole**

- **Context:** The PM presented a Pashmina stole from Jammu and Kashmir to the PM of Sweden.
- Pashmina stoles are a symbol of luxury and elegance.
- Kashmiri Pashmina stoles are known for their rare material, exquisite craftsmanship and reminiscent designs.
- The wool used for making Pashmina stoles comes from a special breed of Kashmiri goat found in the high altitude regions of the Himalayas.
- The pashmina wool is produced by the people known as the Changpa, a nomadic people who inhabit the region.

## 12.3. Buddha Purnima

### Why In News?

- The PM recently recalled the **principles of Lord Buddha** on the occasion of Buddha Purnima.

### About Buddha Purnima

- Buddha Purnima, also known as Buddha Jayanti, is an auspicious day to mark the birth anniversary of Gautam Buddha (founder of Buddhism).
    - Buddha is believed to be the ninth incarnation of Lord Vishnu, as per Vedic literature.
- Buddha Purnima falls on 'Purnima' or full moon night.

- The Mahabodhi temple at Bodhgaya is embellished with decorations and special prayers are held under the Bodhi tree on this occasion.

**About Lord Buddha**

- **Born:** 563 BC in Lumbini (modern-day Nepal) as **Prince Siddhartha Gautama**.
    - **Parents:** Suddhodana (father) was the chief of the Shakya clan and **Maya Devi (real mother)** and **Prajapati Gautami (foster mother)**.
    - Buddha is considered as the ninth avatar of Lord Vishnu.

- He left his worldly possessions and princedom at the age of 30 to lead a life searching for the truth, seeking penance in the hopes of liberating himself from suffering (dukkha).
- He **attained enlightenment** under the **Bodhi Tree in Bodh Gaya** and gave his **first sermon** at **Sarnath** near Varanasi which is known as **Dharma-Chakra-Pravartana** (turning of the wheel of law).
- He taught in the area around Rajgir, where he was living in a forest monastery built by king Bimbisara of Magadha, and he lived the largest part of his life as The Buddha in Shravasti.
- He delivered his **last sermon in Vaishali.**
- Most people believe he died in **Kushinagar**, Uttar Pradesh, at the age of 80.

## 12.4. Martand Sun temple

**Why in News?**

- The Jammu and Kashmir Lieutenant Governor participated in a religious ceremony held in the ruins of the 8th century Martand Sun temple, a protected monument under the Archaeological Survey of India. This temple has been recognised as a "Site of national importance".

**Martand Sun Temple**

- The Martand Sun Temple also known as Pandou Laidan is a Hindu temple dedicated to Surya (the chief solar deity in Hinduism) and built during the 8th century CE. Martand is another Sanskrit synonym for Surya.
- It was built by the third ruler of the Karkota Dynasty, Lalitaditya Muktapida.
- It is now in ruins, as it was destroyed by the orders of Muslim ruler Sikandar Shah Miri.
- The temple is located five miles from Anantnag in the Indian union territory of Jammu and Kashmir.
- From the ruins and related archaeological findings, it can be said it was an excellent specimen of Kashmiri architecture, which had blended the Gandharan, Gupta and Chinese forms of architecture.
- The temple appears in the list of centrally protected monuments as Kartanda (Sun Temple).

## 12.5. ASI's Excavation of Rakhigarhi

**Why in News?**

- The recent excavation of Harappan site of Rakhigarhi by Archaeological Survey of India (ASI) has revealed the structure of some houses, lanes and drainage system.
- The ASI excavations also revealed pieces of copper and gold jewellery, terracotta toys, besides thousands of earthen pots and seals.
- The idea of this excavation is to make the archaeological site of Rakhigarhi accessible to people by exposing the structural remains and conserving them for future viewing, along with providing amenities to the visitors.
- Also, DNA samples were collected from two unearthed human skeletons and sent for scientific examination, the outcome might tell about the ancestry and food habits of people who lived in the Rakhigarhi region thousands of years ago.

# 13. Awards

## 13.1. WHO Global Health Leaders' award

- ASHA (Accredited Social Health Activist) workers received the Global Health Leaders Award-2022 in the backdrop of the 75th World Health Assembly.
- World Health Organization (WHO) said that ASHA workers were honored for their key role in linking the community with health care, especially during the Covid-19 pandemic. They were one of the six recipients of the award.

**The other five recipients are:**

- Eight volunteer polio workers who were shot and killed by gunmen in Afghanistan in February this year.
- Dr. Paul Farmer for his contribution to providing services for marginalized people.
- Dr. Ahmed Hankir for his anti-stigma program that blends storytelling with psychiatry.
- Volleyball player Ludmila Sofia Oliveira Varela for facilitating access to sports as an alternative to risky behavior in youth.
- Yohei Sasakawa for his global fight against leprosy and the associated stigma.

## 13.2. World Food Prize 2022

- A senior research scientist and head of the Climate Impacts Group at NASA's Goddard Institute for Space Studies (GISS) in New York City, Cynthia Rosenzweig has received the 2022 World Food Prize from the World Food Prize Foundation.

**More Details:**

- Rosenzweig was selected for the award for her research to understand the relationship between climate and food systems and forecast how both will change in the future.

**About the World Food Prize:**

- According to the World Food Prize Foundation, the World Food Prize is a prestigious international award conceived as the "Nobel Prize for Food and Agriculture" with a mission to elevate innovations and inspire action to sustainably increase the quality, quantity and availability of food for all.

## 13.3. British Empire (Civil Division) Award 2022

- Guruswamy Krishnamoorthy, CEO of Penlon, a world-class British medical technology firm, is likely to receive The Most Excellent Order of the British Empire (Civil Division) Award 2022 – Honorary Member of the Order of the British Empire (MBE) recognition from the Queen at Buckingham Palace, London, UK.

## 13.4. Gallantry Awards

- Recently, President conferred 13 Shaurya Chakras, including six posthumous, to the personnel of Armed Forces during Defence Investiture Ceremony (Phase-1).
- The President also conferred Param Vishisht Seva Medals, Uttam Yudh Seva Medals and Ati Vishisht Seva Medals for distinguished service of exceptional order.

**Gallantry Awards in India**

- Post-Independence, first three gallantry awards namely Param Vir Chakra, Maha Vir Chakra and Vir Chakra were instituted by the government of India on 26th January, 1950 which were deemed to have effect from 15th August,1947.
- Thereafter, other three gallantry awards — the Ashoka Chakra Class-I, the Ashoka Chakra Class-II and the Ashoka Chakra Class-III — were instituted in 1952, which were deemed to have effect from 15th August, 1947.

- These awards were renamed as Ashoka Chakra, Kirti Chakra and Shaurya Chakra respectively in January 1967.
- Order of precedence of these awards is the Param Vir Chakra, the Ashoka Chakra, the Mahavir Chakra, the Kirti Chakra, the Vir Chakra and the Shaurya Chakra.

## 13.5. Sangita Kalanidhi Awards

**Why In News?**

- Recently, the Madras Music Academy announced **Sangita Kalanidhi award winner**s for the years 2020, 2021 and 2022.

**About Sangita Kalanidhi**

- It is considered the **highest accolade** in the field of **Carnatic music.**
- It came into **existence in 1942**.
    - Prior to that, a senior musician/expert was invited to preside over the Music Academy's annual conference.
- In 1942, it was decided that the musician so invited would be conferred the title of S**angita Kalanidhi,** the award comprising a gold medal and a birudu patra (citation).
- Since 2005, the Sangita Kalanidhi has also received the MS Subbulakshmi Award instituted by The Hindu.

# 14. Government Initiatives

## 14.1. PM SVANidhi

**Why In News?**

- Recently, the Cabinet Committee on Economic Affairs approved the continuation of lending under the **PM SVANidhi beyond March 2022 till December 2024**.
    - The extension **would assist in institutionalising** the access to formal credit channels, **provide an assured source of credit** to help them plan their business expansion
    - Increasing the adoption of digital transactions, reducing the impact of potential NPAs on the Lending Institutions and providing holistic socio-economic upliftment for the Street Vendors and their families.

**About PM SVANidhi**

- The scheme is a **Central Sector Scheme** .
- It is fully funded by Ministry of Housing and Urban Affairs with the following objectives:
    - To facilitate working capital loan up to 10,000 at subsidized rate of interest
    - To incentivize regular repayment of loan
    - To reward digital transactions
- It aims to **focus on enhanced collateral free affordable** loan corpus, increased adoption of digital transactions and holistic socio-economic development of the Street Vendors and their families.
- The scheme will help formalize the **street vendors with above objectives** and will open up new opportunities to this sector to move up the economic ladder.
- **Eligibility of States/UTs**
    - The Scheme is available for beneficiaries belonging to only those States/UTs which have notified Rules and Scheme under Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014.
        - Beneficiaries from Meghalaya, which has its own State Street Vendors Act may, however, participate.

## 14.2. Pradhan Mantri Ujjwala Yojana

**Why In News?**

- Recently, a Right to Information (RTI) application was filed to the three oil marketing firms to find out the status of the PM Ujjwala Scheme.

**About**

- In the last financial year, 90 lakh beneficiaries of the government's flagship welfare scheme Pradhan Mantri Ujjwala Yojana **did not refill their cylinders**.
- And over 1 crore beneficiaries refilled their cylinders **only once**.

**Low usage** | The chart lists the States where LPG coverage was at least 98% but the share of households that used clean fuel (LPG/natural gas, biogas) for cooking was less than 80%

| State | Clean fuel usage (%) | State | Clean fuel usage (%) |
|---|---|---|---|
| West Bengal | 40.2 | Manipur | 70.4 |
| Rajasthan | 41.4 | Kerala | 72.1 |
| Assam | 42.1 | Punjab | 76.7 |
| U.P. | 49.5 | Sikkim | 78.4 |
| Himachal | 51.7 | Karnataka | 79.7 |
| Uttarakhand | 59.2 | Maharashtra | 79.7 |
| Haryana | 59.5 | | |

SOURCE: NFHS 5 (2019-20)

- **Distributors record drop in LPG cylinder bookings:** As per a reply filed by the government in Lok Sabha, in March this year, the LPG consumption under the Ujjwala Yojana remains at 3.66 refills per connection annually.
- **COVID effect:** These figures should also take into account the fact that during the COVID-19 pandemic, the government provided up to **three free** of cost LPG refills to PMUY beneficiaries from April 1, 2020, and this was extended up to December 31, 2020.
- **Commercial LPG prices hiked:** PMUY beneficiaries have availed 14.17 crore free refills under the Scheme, across the country, as per the same reply filed by Union Petroleum Ministry in Lok Sabha.

**PM Ujjwala Scheme**

- It is a scheme of the **Ministry of Petroleum & Natural Gas** for providing **LPG connections to women from Below Poverty Line (BPL) households**.
- The scheme was originally launched on May 1, 2016, in Ballia, Uttar Pradesh by the Prime Minister of India with a target of releasing 8 crore connections by March 2020.
- During Ujjwala 1.0, a **target** was set to provide LPG connections to **5 crore women members** of BPL households.
- Subsequently, the scheme was expanded in April 2018 to include women beneficiaries from seven more categories (SC/ST, PMAY, AAY, Most backward classes, tea garden, forest dwellers, Islands).
- Also, the target was **revised** to **8 Crore LPG connections.**
    - So far over 9 crores, of connections under Pradhan Mantri Ujjwala Yojana have been released.
- This target was achieved in August 2019, seven months ahead of the target date.
- The **PMUY 2.0** was launched in the financial year 2021-22 making a provision for the release of additional one crore connections.

## 14.3. Unique Disability ID Scheme

**Why in News?**

- Recently, the Ministry of Social Justice and Empowerment has asked states to speed up implementation of the Unique Disability ID (UDID) scheme for Persons With Disabilities (PwD) in the 75 districts.
- The Rural Development Ministry has selected the UDID programme as a part of its 90-day campaign in districts "selected on the basis of unsung heroes of India's freedom struggle" under Azadi ka Amrit Mahotsav.
- The campaign aimed for 100% coverage of 17 Central schemes in the 75 districts.

**What is UDID?**

- The Unique ID for Persons with Disabilities project is being implemented with a view of creating a National Database for PwDs, and to issue a Unique Disability Identity Card to each person with disabilities.

- The objective is to enable the PwDs to obtain the new UDID card / Disability Certificate to avail schemes and benefits provided by the Government through its various Ministries and their Departments.

**Significance**:

- The project will not only encourage transparency, efficiency and ease of delivering the government benefits to the person with disabilities, but also ensure uniformity.
- The project helps in stream-lining the tracking of physical and financial progress of beneficiaries at all levels of hierarchy of implementation – from village level, block level, District level , State level and National level.

## 14.4. PMFME Scheme

**Why in News?**

- Recently, the Ministry of Food Processing Industries and NAFED (National Agricultural Cooperative Marketing Federation of India Limited) launched Three One District One Product (ODOP) brands under the Pradhan Mantri Formalisation of Micro food processing Enterprises (PMFME) Scheme.
- The Ministry of Food Processing Industries has signed an agreement with NAFED for developing 10 brands of selected 20 ODOPs under the branding and marketing component of the PMFME scheme.

**What is PMFME Scheme?**

- Launched under Atmanirbhar Abhiyan (in 2020), it aims to enhance the competitiveness of existing individual micro-enterprises in the unorganised segment of the food processing industry and to promote formalisation of the sector and provide support to Farmer Producer Organisations, Self Help Groups, and Producers Cooperatives along their entire value chain.
- The scheme adopts the One District One Product (ODOP) approach to reap the benefit of scale in terms of procurement of inputs, availing common services and marketing of products.
- It will be implemented over a period of five years from 2020-21 to 2024-25.

**Features:**

**One District One Product (ODOP) Approach:**

- The States would identify food products for districts keeping in view the existing clusters and availability of raw material.
- The ODOP could be a perishable produce based or cereal based or a food item widely produced in an area. E.g. mango, potato, pickle, millet based products, fisheries, poultry, etc.

## 14.5. Pradhan Mantri Garib Kalyan Anna Yojana

**Why in News?**

- Recently, the Ministry of Consumer Affairs, Food and Public Distribution revised the PMKGAY (Pradhan Mantri Garib Kalyan Anna Yojana) allocation of rice and wheat for all the 36 states/UTs for the remaining five months — from May to September 2022.

**About:**

- PMGKAY is a part of Pradhan Mantri Garib Kalyan Package (PMGKP) to help the poor fight the battle against Covid-19.
- Its nodal Ministry is the Ministry of Finance.
- It was initially announced for a three-month period (April, May and June 2020), covering 80 crore ration cardholders. Later it was extended till November 2020.
- Phase-I and Phase-II of this scheme were operational from April to June 2020 and July to November 2020 respectively.
- Phase-III of the scheme was operational from May to June 2021.
- Phase-IV of the scheme is currently operational for July-November 2021 months.
- The scheme aimed at providing each person who is covered under the NFSA (National Food Security Act 2013) with an additional 5 kg

grains (wheat or rice) for free, in addition to the 5 kg of subsidized food grain already provided through the Public Distribution System (PDS).
- The new version of the PMGKAY lacks one of its important components which was there in 2020 PMGKAY i:e free-of-cost 1 kg pulses per month to each household covered under the NFSA.

## 14.6. PM MITRA Parks

**Why in News?**

- The Ministry of Textiles has organized a National Conference on PM Mega Integrated Textile Regions and Apparel (PM MITRA) Parks Scheme.

**What is PM MITRA Parks Scheme?**

- A park will be developed by a Special Purpose Vehicle which will be owned by the Central and State Government and in a Public Private Partnership (PPP) Mode.
- Each Park will have an incubation centre, common processing house and a common effluent treatment plant and other textile related facilities such as design centres and testing centres.
- The Master Developer will not only develop the Industrial Park but also maintain it during the concession period.

**Significance:**

**Reduce Logistics Cost:**

- It will reduce logistics cost and strengthen the value chain of the textile sector to make it globally competitive.
- High logistics costs are considered a key hurdle to India's goal of boosting textile exports.

**Employment Generation:**

- Each park is expected to directly generate 1 lakh jobs and indirectly generate a further 2 lakh jobs.

**Attract FDI:**

- The parks are crucial to attract Foreign Direct Investment (FDI).
- From April 2000 to September 2020, India's textile sector received Rs 20,468.62 crore of FDI, which is just 0.69% of the total FDI inflows during the period.

# 15. Persons & Appointments

## 15.1. Sudha Ragunathan

- The Ministry of Culture has appointed Sudha Ragunathan as a member of the Central Advisory Board on Culture (CABC).

## 15.2. Devasahayam Pillai

- Recently, Devasahayam Pillai became the first Indian layman to be declared a saint by Pope Francis (Catholic Church) Vatican City.
- He was born on 23 April 1712, as Neelakanta Pillai into a Hindu upper-caste family, at Nattalam in Kanyakumari district, which was part of the erstwhile Travancore kingdom.
- He was an official in the court of Travancore's Maharaja Marthanda Varma. It was during his service in the court that he met Captain De Lannoy, a Dutch naval officer and was introduced to Christianity.
- He had converted to Christianity in the 18th century in the then Kingdom of Travancore.
- He was inspired by the teachings of Jesus Christ, he was baptised in 1745 and assumed the name of 'Lazarus' or 'Devasahayam', meaning 'God is my Help'.

- His conversion did not go well with the heads of his native religion. False charges of treason and espionage were brought against him and he was divested of his post in the royal administration.

## 15.3. Raja Ram Mohan Roy

- The ministry of culture held the inaugural ceremony to commemorate the yearlong celebrations of Raja Ram Mohan Roy's 250th birth anniversary.
- The inaugural ceremony was held at Raja Ram Mohan Roy Library Foundation, Kolkata, and at Science City Auditorium, Kolkata. The ceremony was organized by the Eastern Zonal Cultural Centre (EZCC), an autonomous organization under the Ministry of Culture. Union Minister of Culture, G Kishan Reddy participated in the ceremony virtually and unveiled a statue of Raja Ram Mohan Roy at Raja Ram Mohan Roy Library Foundation, Kolkata. The Governor of West Bengal also participated.

## 15.4. Anthony Albanese

- Anthony Albanese was sworn in as Australia's 31st Prime Minister. He is the first Italian Australian to become prime minister. He took the oath with a promise of swift action on climate change, gender equality, and improved wages.
- Anthony Albanese is from Labor Party. His party defeated the ruling coalition (Liberal-National Coalition) led by Scott Morrison in the 2022 federal elections of Australia. To form a majority government, a party should win more than half of the 151 seats in Australia's House of Representatives.

## 15.5. Vinai Kumar Saxena

- President Ram Nath Kovind appointed Vinai Kumar Saxena as Delhi's new Lieutenant Governor. Before being appointed as the LG of Delhi, he served as the chairperson of the Khadi and Village Industries Commission.

## 15.6. S S Mundra

- BSE Limited announced approval has been given for the appointment of SS Mundra as the company's chairperson. Mundra was the Public Interest Director at BSE.

## 15.7. Hussain Shaik

- An Indian Government Officer, Anwar Hussain Shaik has been made the chair of the World Trade Organisation's Committee on Technical Barriers on Trade.

# 16. Important Days

## 16.1. UJJWALA DIWAS

**Why in News?**

- The Ministry of Petroleum and Natural Gas organised more than 5000 LPG panchayats on the occasion of Ujjwala diwas on 1st May 2022.

**More Details:**

- The Ujjwala Yojana was launched by the Prime Minister on 1st May 2016 at Ballia, Uttar Pradesh.
- The Ministry of Petroleum and Natural Gas (MoPNG) has decided to celebrate 1st May 2022 as Ujjwala Diwas.
- The Pradhan Mantri Ujjwala Yojana (PMUY) aims to provide free LPG connection to every BPL household.

## 16.2. National Technology Day

**Why in News?**

- The Prime Minister expressed his "gratitude" towards the scientists and their "efforts" that led to the "successful Pokhran tests in 1998" on National Technology Day (11th May).

**About**:

- The day, which was first observed on 11th May, 1999, aims to commemorate the scientific and technological achievements of Indian scientists, engineers. The day was named by the former Prime Minister Atal Bihari Vajpayee.
- Every year, the Technology Development Board of India (a statutory body under the Ministry of Science and Technology) celebrates the day by awarding individuals with the National Award for their contribution to science and technology in India.
- The focus this year is 'Integrated Approach in Science & Technology for Sustainable Future'

## 16.3. World Telecommunication and Information Society Day

**Why in News?**

- May 17th is celebrated annually as World Telecommunication and Information Society Day (WTISD).

**Objective of WTISD:**

- To exhibit the importance of telecommunication and to raise awareness regarding the crucial role Internet and other information and communication technologies (ICT) play in our lives.
- It also aims to reduce the digital divide and promote the development of technology in this field.

**Theme of WTISD 2022**

- The theme for WTISD 2022 is "Digital Technologies for Older Persons and Healthy Ageing". The theme emphasizes the importance of information technologies to stay connected and independent.

## 16.4. National Endangered Species Day

- The National Endangered Species Day is observed across the globe annually on every third Friday. This year the day is being observed on 20th May 2022.
- The aim of this day is to generate awareness among the people of the planet about endangered species and the ways they can be protected. This year's observance is the 16th National Endangered Species Day.
- "Recovering key species for ecosystem restoration" is the theme for this year's celebration of this day.

## 16.5. International Day for Biological Diversity

- On the 22nd of May, the International Day for Biological Diversity is observed annually across the globe. This day is observed to generate awareness about the biodiversity issues that are overwhelming the world.

**History of this day**

- In the year 2000, the United Nations General Assembly (UNGA) designated 22nd May as the International Day for Biological Diversity. After the United Nations conducted the "Earth Conference" in Rio de Janeiro, Brazil, in the year 1992, special emphasis was given to conserving and protecting the environment.
- Following that conference, on 29th December, Biodiversity Day was observed till the year 2000. In 2000, the date of the observance was changed to 22nd May.

**Theme:**

- The theme for this year is "Building a shared future for all life." The theme focuses on developing and supporting the notion that

biodiversity is the structure on which humans can build a better life.

## 16.6. National Anti-Terrorism Day

- Every year May 21st is observed as National Anti-Terrorism Day.

**Objective of the day:**

- The objective of the day is to spread the message of peace & harmony and wean away the youth from terrorism by highlighting the sufferings of people and by showing how terrorism threatens India's national interest. To achieve this government organizes several anti-terrorism programs.

**More Details:**

- On May 21st, 1991, former Prime Minister Rajiv Gandhi was assassinated by a suicide bomber belonging to the Liberation Tigers of Tamil Eelam (LTTE) at Sriperumbudur, Tamil Nadu. 16 others have also died in the incident. After the assassination, the V.P. Singh government made an official announcement to observe May 21st as National Anti-Terrorism Day. On this day, an Anti-Terrorism pledge is taken by all government officials. This year also commemorates the 30th death anniversary of Rajiv Gandhi.

## 16.7. World No Tobacco Day

- 31st May is observed as 'World No Tobacco Day' every year to spread awareness around the deadly effects of tobacco consumption.
- The Member States of the World Health Organization created World No Tobacco Day in 1987 to draw global attention to the tobacco epidemic and the preventable death and disease it causes.
- In 1988, Resolution WHA 42.19 was passed, calling for the celebration of World No Tobacco Day, every year on 31 May.
- The theme of World No Tobacco Day 2022 is "Protect The Environment"

# 17. Miscellaneous

## 17.1. Central Advisory Board on Archaeology

**Why in News?**

- Recently, the Government has re-constituted the Central Advisory Board on Archaeology (CABA).

**What is CABA?**

- It has been constituted to strengthen contacts between the Archaeological Survey of India (ASI) and those in the field of archaeological research.
- The board will include "five persons nominated in their personal capacities by the Government of India" and former Director-Generals of ASI.
- The board will meet once a year and its functions would include advising the Centre on "matters relating to archaeology" referred to by its members.
- It will promote closer contacts of the Archaeological Survey of India with Indian Universities conducting Archaeological Research.
- It will promote the studies related to application of archaeological principles, training future Archaeologists, and closer association of learned societies in India and of the State Governments with the activities of the ASI.

**What is the Archaeological Survey of India?**

- Archaeological Survey of India (ASI), under the Ministry of Culture, is the premier organization for the archaeological research and protection of the cultural heritage of the nation.
- It administers more than 3650 ancient monuments, archaeological sites and remains of national importance.
- Its activities include carrying out surveys of antiquarian remains, exploration and excavation of archaeological sites, conservation and maintenance of protected monuments etc.
- It was founded in 1861 by Alexander Cunningham- the first Director-General of ASI. Alexander Cunningham is also known as the "Father of Indian Archaeology".

## 17.2. Indo – German Green Hydrogen Task Force

**Why in News?**

- India and Germany have signed a Joint Declaration of Intent on the Indo- German Hydrogen Task Force virtually.

**Indo – German Green Hydrogen Task Force**

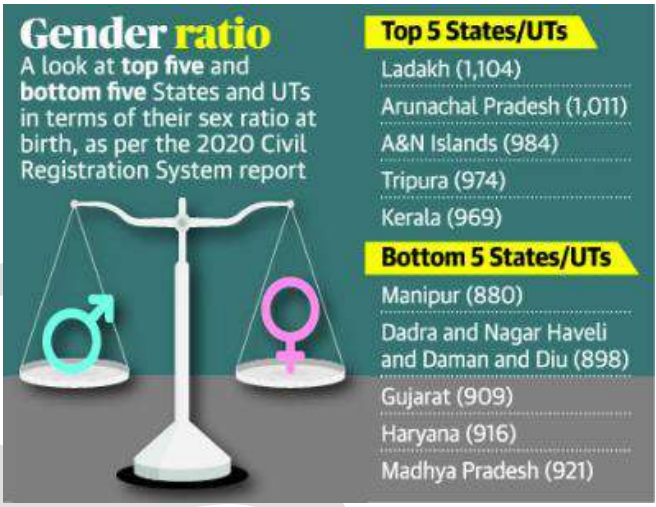
- Indo – German Green Hydrogen Task Force will be established by India and Germany.
- **Aims:**
  - To strengthen mutual cooperation in the production, utilisation, storage and distribution of Green Hydrogen.
  - To build enabling frameworks for projects, regulations and standards, trade and joint research and development (R&D) projects.

**Significance for India:**

- It will support the National Green Hydrogen Mission, which aims to make India a global leader in the production and export of green hydrogen.
- India has the ability to produce low-cost Green Hydrogen to help decarbonize a variety of industries while also exporting it to meet global demand.

## 17.3. Shigella Sonnie bacteria

**Why in News?**




- The Kerala government seeks to contain the spread of the Shigella bacteria.

**Shigella sonnie Bacteria**

- Shigella bacteria is known to cause an infection called shigellosis.
- People with Shigella infection experience diarrhoea (sometimes bloody), fever, and stomach cramps.
- No vaccines are available against Shigella infections.
- The best method of prevention against shigellosis is through frequent handwashing with soap and water.
- Shigella bacteria is said to be developing antibiotic-resistant capabilities.
- Due to the increasing rate of multidrug resistance in Asian and African regions, shigellosis has been classified as a medium priority for research and development of new and effective antibiotic treatments by the WHO Priority Pathogens List of antibiotic-resistant bacteria.

## 17.4. ISRO plans mission to Venus by Dec. 2024

- After missions to the moon and Mars, ISRO plans to send a spacecraft to orbit Venus.
- The objective of the mission would be to study what lies below the surface of the hottest planet in the solar system and also unravel the mysteries under the sulphuric acid clouds enveloping it.
- The ISRO Chairman said that the Venus mission has been conceived and has urged scientists to focus on high impact outcomes.

## 17.5. Highest sex ratio at birth in Ladakh

- Ladakh has recorded the highest sex ratio at birth in the country in 2020 according to a report based on the 2020 Civil Registration System report.

## 17.6. North Korea fires ballistic missile

- North Korea has fired a ballistic missile a week (May 2022) after its leader vowed to boost the country's nuclear arsenal.
- North Korea has conducted 14 weapons tests since January 2022, including firing an intercontinental ballistic missile at the full range for the first time since 2017.
- The move is criticised as a "blatant violation of UN Security Council resolutions" by South Korean officials.

## 17.7. National Conference of Women Legislators

**Why in News?**

- The two-day National Conference of Women Legislators has been inaugurated on 26th May 2022 by President Ram Nath Kovind in Thiruvananthapuram, Kerala.
- Arif Mohammed Khan, the governor of Kerala presided over the inaugural session at the Kerala Legislative Assembly Complex.
- This event will be drawing a large number of female legislators and parliamentarians from across the country. This is the first-ever such event that is being hosted by the Kerala state Assembly. It is in line with the central government's Azadi Ka Amrit Mahotsav honouring the 75th independence anniversary of the country.

**What events will be held at this conference?**

At this conference, various sessions will be held that are based on themes vital to the country's women legislators. The conference will also be focusing on various modern issues like:

- gender equality
- women's rights
- female representation in the decision-making bodies of the nation

**The conference will be having sessions on:**

- Constitution and Women's Rights: In this session, the speakers will include Lok Sabha MP Kanimozhi, Gujarat Assembly Speaker Nimaben Acharya, and former Rajya Sabha member Brinda Karat, and former Lok Sabha Speaker Meira Kumar.
- Role of Women in India's Freedom Struggle: The panelists for this session will include MPs Jebi Methar and Supriya Sule and former MP Subhashini Ali.
- Women's Rights and Legal Gaps- The panelists for this session are MP Jaya Bachchan, West Bengal minister Shashi Panja, Justice Anu Sivaraman of Kerala High Court, and Delhi Assembly deputy speaker Rakhi Birla.

## 17.8. PARAM PORUL Supercomputer

**Why in News?**

- PARAM PORUL, a state-of-the-art Supercomputer was inaugurated at NIT Tiruchirappalli in a joint initiative by the Department of Science and Technology (DST) and the Ministry of Electronics and Information Technology (MeitY).

**What is the PARAM PORUL system?**

- This system is based on Direct Contact Liquid Cooling technology so that it can obtain high-power usage effectiveness. This helps in

reducing the operational cost. The system has been equipped with a mix of:

- GPU nodes
- CPU nodes
- High throughput storage
- High Memory nodes
- High-performance Infiniband interconnect
- All these have been equipped in this system to cater to the computing needs of various engineering and scientific applications.

## 17.9. 75th Edition of the World Health Assembly

**Why in News?**

- The 75th World Health Assembly is being held in Geneva, Switzerland. This is the first in-person Health Assembly since the COVID-19 pandemic began.

**Theme of this year's health assembly**

- "Health for peace, peace for health" is the theme for this year's assembly. The COVID-19 pandemic along with other health emergencies has showcased the WHO's role in coordinating all forms of response to put a check on such events. A key theme of the Health assembly is to strengthen the preparedness mechanism for responding to health emergencies.

**Important decisions taken:**

- On the first day of the 75th World Health Assembly, the member states agreed to adopt policies that will be improving the financing model of the World Health Organization.
- The Sustainable Financing Working Group is made up of the member states of WHO and was set up in January 2021 and chaired by Björn Kümmel, from Germany recommended the improvement of the financial model.

## 17.10. National Portal for Biotech Researchers and Start-ups

**Why in News?**

- Dr. Jitendra Singh, Union Minister of State (IC) Ministry of Science and Technology, MoS of Prime Minister's Office, Minister of State (IC) Ministry of Earth Science, and Ministry of Personnel, Public Grievances & Pensions, has launched a "Single National Portal for Biotech researchers and start-ups."
- This portal named Biological Research Regulatory Approval Portal (BioRRAP) will be catering to the needs of all those seeking regulatory approval for biological development and research in India.
- This is a portal by the Department of Biotechnology (DBT), Ministry of Science & Technology.

**How will this portal help?**

- The portal will help to strengthen the interdepartmental synergies and will also bring transparency, accountability, and efficacy to the functioning of various agencies that are regulating the various aspects of biological research and also issuing permissions.
- This portal is in line with the government's "ease of start-ups" and "ease of doing science and scientific research."
- This portal will also help the stakeholders to see the approvals that have been granted against a particular application via a unique BioRRAP ID.
- Through this portal, researchers will be able to check the stages of approval of their respective applications for the purpose of getting regulatory clearance.
- This portal will be generating BioRRAP ID for all the submitted research applications on this portal. Using this ID, stakeholders can initiate further submission processes to the respective regulatory bodies.
- This portal is only for research-related activities and cannot be used for the purpose of product development.

## 17.11. India's first 5-G Test Bed

**Why in News?**

- Prime Minister Narendra Modi recently inaugurated India's first 5G testbed, which is set up at Rs 220 crore.

**Objective of establishing a 5G testbed**

- The objective is to enable the telecom industry to test and validate their products within India and reduce their dependence on facilities abroad. Thus, this 5G testbed is an important step in India's self-reliance in the area of modern technologies. The 5G testbed facility will be available at 5 different locations in the country.
- Recently, Union IT minister Ashwini Vaishnaw made India's first 5G call at IIT Madras, which is one of the biggest moments for India's first 5G testbed. This test call was operated on the mid-tier spectrums of the High 5G Frequency Bands.

## 17.12. Nanjarayan Tank' – Tamil Nadu's New Bird Sanctuary

**Why in News?**

- The Nanjarayan Tank is recently declared the 17th bird sanctuary of Tamil Nadu.

**More Details:**

- Nanjarayan Tank is located on the outskirts of Tirupur city around 60 kilometers from Coimbatore, Tamil Nadu. It was built by King Nanjarayan as a source for irrigation. It is also known as Sarkar Periyapalayam Reservoir.
- The undisturbed mudflats (sediment deposits) in the middle of the lake ensure a thriving ecosystem and also attract many birds. Pelicans, painted storks, coots, etc can be found here.
- It is also a haven for migratory birds. In 2010, four bar-headed geese, one of the world's highest-flying birds from Europe were spotted in the tank. A flock of 14 ruddy shelducks that breed in parts of Europe and Central Asia was spotted in 2020.

## 17.13. 'International Migration Review Forum'

**Why in News?**

- The First International Migration Review Forum (IMRF) is being held under the UN General Assembly (UNGA) in New York, USA.

**Objective of IMRF:**

- In the "Global Compact for Safe, Orderly and Regular Migration (GCM)", it was decided that the IMRF will act as a platform to discuss the progress on implementation of all aspects of the GCM and its intersection with the UN SDGs.
- IMRF provides an opportunity for the international community to identify the challenges faced by migrants. It will also recognize the contributions made by migrants to society.
- IMRF will be held every four years, with the 2022 edition being the first one. Each edition of the IMRF will result in the adoption of the Progress Declaration. IMRF will be chaired by the President of the UN General Assembly (UNGA).

## 17.14. New Development bank

**Why in News?**

- **New Development Bank** announced to set up its regional office in **GIFT City (Gujarat)**, India.

**New Development Bank**

- **About:**
  - It is a multilateral development bank operated by the **BRICS states** (Brazil, Russia, India, China and South Africa).
  - **HQ:** Shanghai, China
- **Establishment:**
  - Agreed by **BRICS** leaders at the **5th BRICS summit held in Durban**, South Africa in 2013.
  - It was established in 2014, at the **6th BRICS Summit at Fortaleza, Brazil**.

- **New members:**
  - The Bank's membership is open to members of the UN.
  - **Bangladesh & UAE** joined as new members in 2021. Other members like **Egypt & Uruguay** are the prospective members.
    - Prospective members listed herein have been admitted by **NDB's Board of Governors** and will officially become a member country once they deposit their instrument of accession.
- **Aim & Objectives:**
  - Foster greater financial and development cooperation.
  - Mobilise resources for infrastructure and sustainable development projects in BRICS & other emerging economies.
- **Voting method:**
  - The **initial subscribed capital (USD 100 billion)** was equally distributed amongst the **founding members**.
  - The number of shares to be initially subscribed by other members shall be **determined by the Board of Governors** by the special majority on the occasion of the acceptance of their accession.
  - **None of the countries** has the veto power.
- In 2018, the NDB received observer status in the **United Nations General Assembly.**

## 17.15. Wild Poliovirus

### Why In News?

- Mozambique has confirmed the first wild **poliovirus Type 1** case in 30 years.
  - In August 2020, **Africa was declared free of indigenous wild polio** after eliminating all forms of wild polio from the region.

### Wild Poliovirus

- **About:**
  - Polio is a highly infectious disease, caused by the virus which multiplies in the intestine, from where it can invade the nervous system and can cause paralysis.
  - Once that happens, the patient is crippled for life because there is no treatment for the affliction. Colloquially they are referred to as wild polio virus.
- **Variants**
  - There are three types of wild poliovirus:
    - **Type 1:** still exists but efforts are going on to eradicate it.
    - **Type 2:** eradicated.
    - **Type 3:** eradicated.
- **Transmission**
  - The virus is transmitted by person-to-person, mainly through the faecal-oral route or less frequently, by a common vehicle (contaminated water or food).
  - Because the virus lives in the faeces of an infected person, people infected with the disease can spread it to others when they do not wash their hands well after defecating.
- **Endemism:**
  - Currently, wild poliovirus is endemic in two countries: Pakistan and Afghanistan.
  - The detection of Type 1 outside the two countries where the disease is endemic demonstrates the continuous risk of international spread of the disease until every corner of the world is free of Type 1.

## 17.16. BioRRAP Portal

### Why In News?

- Recently, the Union Minister launched a Single National Portal for Biotech researchers and Start-Ups.

### About the portal

- **Developed by:**

- The **Department of Biotechnology** has developed Biological Research Regulatory Approval Portal (BioRRAP).

- **Aim:**
  - The Portal BioRRAP will **cater to all those seeking regulatory approval required for biological research and development activity in the country**.
  - This will provide more **credibility and recognition to such biological research**.
- **Global Bio-manufacturing Hub:**
  - India is poised for becoming a Global Bio-manufacturing Hub and will figure among the **top 5 countries of the world by 2025**.
- **Data and Statistics:**
  - **Over 2,700 biotech start-ups and more than 2,500 biotech companies** working at present in the country.
  - **India is among the top 12 destinations for biotechnology globally** and the 3rd largest biotechnology destination in the Asia Pacific region.
  - **Bio Economy's contribution to the national GDP has also grown steadily** in the past years to 2.7% in 2020 from 1.7% in 2017 and will touch new heights after 25 years of Bio-economy journey in the Centenary year of 2047.
- **BioRRAP ID:**
  - BioRRAP ID is a **unique ID** generated when a research proposal is submitted on this portal.
  - **The status of research proposal** applications submitted to various regulatory agencies would be visible to the applicant using the BioRRAP ID.
  - A biological research proposal requires a **BioRRAP ID for submission on portals of regulatory agencies.**
  - **A list of regulatory agencies** issuing requisite approvals relevant to the submitted biological research proposal is attached to the BioRRAP ID.

## 17.17. AIM-PRIME Playbook

**Why in News?**

- Recently, the AIM-PRIME (Program for Researchers in Innovation, Market Readiness, and Entrepreneurship) Playbook was launched by NITI Aayog.
- The playbook was aimed at promoting early-stage science-based, deep technology ideas to market through training and guidance over a period of 12 months using a blended learning curriculum.

**Objective**:

- Promoting science-based, deep technology ideas to market through training and guidance over a period of 12 months.
- Deep technology is based on tangible engineering innovation or scientific advances and discoveries. Deep Tech is often set apart by its profound enabling power, the differentiation it can create, and its potential to catalyse change.

## 17.18. Foreign Investment Facilitation Portal

**Why In News?**

- Recently, Foreign Investment Facilitation Portal (FIFP) completed 5 years since Union Cabinet decision to abolish Foreign Investment Promotion Board (FIPB).
- The proposal for abolition of FIPB was approved by the Union Cabinet in its meeting on 24th May, 2017.

**About Foreign Investment Facilitation Portal (FIFP)**

- It is the new online single point interface of the Government of India for investors to facilitate Foreign Direct Investment.
- It is administered by the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce & Industry.
- It will continue to facilitate the single window clearance of applications which are through the approval route.

## 17.19. Unified Citizen Data Hub (UCDH)

**Why In News?**

- Recently, the **Maharashtra government** has decided to create a master database of all Maharashtra residents, coupled with a state-level unique ID.

**About Unified Citizen Data Hub (UCDH)**

- **Meaning**
  - Data from all state government departments will be **brought on a single platform to give a "360-degree view of citizens" and the government schemes** and services that they have availed.
  - Here, **every individual is linked with their households**.
- **Implementation**
  - The project is being implemented by the **state Information Technology (IT) department.**
- **Significance**
  - **The idea is to create a golden record of every citizen** with a layer of intelligence that can help the government in making data-driven decisions.
  - **The initiative is aimed at helping state government departments plan their schemes better**, reduce the time spent in preparing fresh beneficiary lists for every scheme, and bring down instances of fraud or duplication of beneficiaries.
  - **It will do away with the fresh surveys needed every time.**

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