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"A MONTHLY MAGAZINE FOR UPSC CIVIL SERVICES EXAMINATION"

India and the Polar Regions



Indian Antarctic Bill, 2022

| Space Sector Reforms

| Ecological Importance of Rainforest

Current Affairs

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INDIAN ANTARCTIC BILL, 2022

Recently, the Lok Sabha passed the Indian Antarctic Bill, 2022.

About:

- In an attempt to necessitate India's obligations as a signatory to the Antarctic Treaty of 1963, the Indian parliament has passed a dedicated Antarctic bill.
- The bill has been drafted and presented by the Ministry of Earth Sciences with the key objectives to demilitarize Antarctica.

Major highlights of the bill:

The Indian Antarctic Bill is the first domestic legislation with regard to Antarctica in India.

- It will bring Indian research stations into the Antarctic region under domestic laws.
- It mandates expeditions and individual visitors to carry a permit from the government.
- It has the provision of a fine of up to Rs 50 lakh and imprisonment of up to seven years for flouting any prescribed rules.
- It proposes to prohibit Indian expeditions to Antarctica without a permit or written authorization of another party to the Antarctic Treaty.
- It will provide for inspection by an officer appointed by the government.
- It also seeks to constitute a fund for the welfare of Antarctic research work and the protection of the environment of the icy continent.
- The bill will extend the application of domestic laws to research stations set up by India in the Antarctic region.

Importance of the bill:

- The Bill now puts into place a comprehensive list of regulations related to Antarctica, for such scientific expeditions, as well as for individuals, companies and tourists.
- It will bring India's two active research stations in the Antarctic under domestic jurisdiction.
- It will promote accountability as so far there was no recourse for crimes committed during an expedition, including crimes against the environment.
- The bill will promote better conviction as the bill will extend the jurisdiction of Indian courts to Antarctica, for crimes on the continent by Indian citizens, or foreign citizens who are a part of Indian expeditions.

Important mandates of the bill:

- A Committee will be set up by the government once the Bill is passed that will introduce an elaborate permit system for any expedition or individual who wishes to visit the continent.
- The Committee will comprise stakeholders from multiple ministries.
- It will also have a member from the National Center for Polar and Ocean Research and National Security Council Secretariat.
- The permits can be canceled by the Committee if deficiencies are found or activities in contravention of the law are detected.

Prohibitions under the Bill:

- The Bill prohibits an extensive list of actions on the continent, including drilling, dredging, excavation, or collection of mineral resources.
- There is a provision for an exception if action is done for scientific research with a granted permit.
- It also restricts individuals from damaging the environment, including native plants, birds, and seals.
- It disallows flying or landing helicopters or operating vessels that can disturb the native animals.
- It prohibits any activity that could harm the habitat of birds and animals, and kill, injure or capture any bird or animal.
- Introducing any non-native animals, birds, plants, or microscopic organisms is also prohibited under the Bill.
- Violating any of the regulations prescribed by the Bill will attract high penalties.
- The lowest penalty comprises imprisonment between one-two year and a penalty of Rs 10-50 lakh.
- Extraction of any species native to Antarctica, or introduction of an exotic species to the continent can draw imprisonment of seven years and a fine of Rs 50 lakh.

INDIA'S MISSION IN ANTARCTICA

- India has been sending expeditions to Antarctica for the past 40 years. However, these expeditions have been circumscribed by international law.
- At present, India has two active research stations in the Antarctic: Maitri and Bharti.

INDIAN ANTARCTIC PROGRAMME

The National Centre for Polar and Ocean Research (NCPOR), Goa—an autonomous institute under the Ministry of Earth Sciences—manages the entire Indian Antarctic program.

About:

- It was initiated in 1981 with the first Indian expedition to Antarctica. In 1981 the Indian flag unfurled for the first time in Antarctica.
- The origin of the Indian missions to the Antarctic are traced to the joint Indian Space Research Organisation – Hydrometeorological Centre of Russia agreements, which led to Indians, such as Dr. Paramjit Singh Sehra, joining the 17th Soviet Antarctic expedition of 1971-1973.
- In NOV 2021, India launched the 41st Scientific Expedition to Antarctica.
- In 2021, India marks four successful decades of scientific endeavour in Antarctica.

Research stations:

- **Dakshin Gangotri (1983):** The first permanent settlement was built in 1983 and named Dakshin Gangotri. It was decommissioned in 1990.
- **Maitri (1988):** The second permanent settlement, Maitri, was put up in 1988 on the Schirmacher Oasis. India built this station close to a freshwater lake around Maitri known as **Lake Priyadarshini**.
- **Bharati (2012):** Bharati is one of two active Indian research stations, alongside Maitri located close to Larsemann Hills. It is operational since 2012.

Antarctic Treaty System (ATS):

- India officially acceded to the Antarctic Treaty System on 1 August 1983.
- The Antarctic Treaty and related agreements is collectively known as the Antarctic Treaty System (ATS).
- The Antarctic Treaty Secretariat, which implements the treaty system, is headquartered in Buenos Aires, Argentina.

Features of Antarctic Treaty System (ATS):

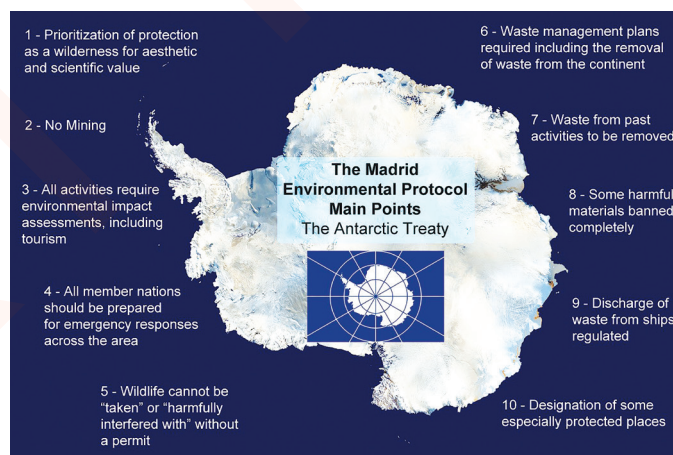
- For the purposes of the treaty system, Antarctica is defined as all the land and ice shelves south of 60°S latitude.
- It regulates international relations with respect to Antarctica, Earth's only continent without a native human population.
- It sets aside the continent as a scientific preserve, establishing freedom of scientific investigation, bans military activity.

Timeline:

- The main treaty was opened for signature on December 1, 1959, and officially entered into force on June 23, 1961.
- It was the first arms control agreement established during the Cold War.

Members:

- The original signatories were the 12 countries: Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the Soviet Union, the United Kingdom, and the United States.
- As of 2019, the treaty has 54 parties.



Madrid Protocol on Environmental Protection to the Antarctic Treaty:

- Union Minister of Earth Sciences addressed the International Conference commemorating the signing of the Madrid Protocol on Environmental Protection to the Antarctic Treaty.
- India signed the Antarctic Treaty on 19th August 1983 and soon thereafter received consultative status on 12th September 1983.
- The Madrid Protocol was signed by India which came into force on 14th January, 1998.
 - The Protocol on Environmental Protection to the Antarctic Treaty was signed in Madrid on October 4, 1991 and entered into force in 1998.
 - It designates Antarctica as a "natural reserve, devoted to peace and science".

- India is one of the 29 Consultative Parties to the Antarctic Treaty.
- India is also a member of Council of Managers of National Antarctic Programme (COMNAP) and Scientific Committee of Antarctica Research (SCAR). All these representations show the significant position that India holds among the nations involved in Antarctic research.
- India has two active research stations; Maitri (commissioned in 1989) at Schirmacher Hills, and Bharati (commissioned in 2012) at Larsemann Hills in Antarctica. India has successfully launched 40 annual scientific expeditions to Antarctica till date.
- With Himadri station in Ny-Alesund, Svalbard, Arctic, India now belongs to the elite group of nations that have multiple research stations within the Polar Regions.



INDIA'S ARCTIC POLICY

In March 2022, Government of India released the India's Arctic Policy titled "India's Arctic Policy: Building a Partnership for Sustainable Development".

Arctic Council:

- **Formation:** 1996 (Ottawa Declaration).
- **Headquarters:** Tromsø, Norway.
- **Members:** Eight nations — Canada, Denmark, Finland, Norway, Iceland, Russia, Sweden and the United States — make up the Arctic Council.
- India has the status of 'Observer' member — 12 other countries have such a status — in the Arctic Council.

India's Association with Arctic till now:

- India's association with Arctic is over 100 years old, having been one of the original High Contracting Parties to the Svalbard (formerly Spitsbergen) Treaty in February 1920.
- Even today, the Treaty provides the right of visa-free access and conduct of economic and commercial activities to the citizens of India in Svalbard.
- Indian research station 'Himadri' at Ny-Ålesund was dedicated to the nation in 2008, making India the only developing country apart from China to have an Arctic research base.

Gaps in India's Approach till now:

- **Lack of an Articulated Policy:** Till recently India was one among the four of the 13 Observer nations of the Arctic Council that did not have a nationally articulated Arctic Policy.
- **Scientific Orientation:** India needs to go beyond the purely scientific approach in the Arctic and be better equipped to understand the dynamics of the Arctic geopolitics and governance.
- **Inadequate Funding:** Presently, India's polar research, for Antarctic, Arctic, Southern Ocean and Himalayas, is budgeted under the umbrella Polar Science and Cryosphere (PACER) programme of the Ministry of Earth Sciences (MoES).
- **Polar Research Vessel (PRV):** The lack of a dedicated PRV is considered to be a serious impediment in the growth of India's polar activities.
- **Whole-of-Government Focus:** Presently, the National Centre for Polar and Ocean Research (NCPOR), under the MoES, is the nodal agency for India's polar research programme, which includes Arctic studies. The MEA provides the external interface to the Arctic Council through the United Nations Economic & Social (UNES) Division. However, there is no nodal body to coordinate all the activities of the Government of India relating to the Arctic region.

- **Awareness:** India needs to expand domestic capability and capacity by building a wide-ranging institutional base on Arctic maritime, legal, environmental, social, policy and governance issues. This can only happen through introduction of Arctic-related curriculum in our education system at all levels.
- **Capacity:** India's engagement with the Arctic needs to be built on sound augmentation of its domestic capacity.

Pillars

The six pillars of the Policy are as follows:

- Science and Research
- Economic and Human Development Cooperation
- Climate and Environmental Protection
- Transportation and Connectivity
- Governance and International Cooperation
- National Capacity Building

Features

- **Scientific Orientation:** India's Arctic Policy has gone beyond the purely scientific approach by focussing on climate change and environment, economic and human resources and geopolitical and strategic aspects.
- **Funding:** The Policy declares that its implementation will be based on allocation of requisite resources. It is hoped that budgetary support to India's scientific Arctic endeavours will be substantially augmented.
- **Polar Research Vessel:** The Arctic Policy calls for acquiring a dedicated ice-class Polar Research Vessel.
- **Whole-of-Government Focus:** The objectives outlined in India's Arctic Policy are to be implemented through an Action Plan and a governance and review mechanism consisting of an inter-ministerial Empowered Arctic Policy Group (EAPG).
- **Awareness:** The Policy also seeks to expand the awareness of Arctic-related scientific research in the country.
- **Capacity:** The policy seeks to widen the pool of experts in sectors such as mineral, oil and gas exploration, blue-bio economy and tourism relevant to the Arctic.

Importance of Arctic Region / Issues

- **Climate change:** There is a rapidly transforming Arctic, which is warming three times faster than the rest of the world. This is leading to major transformation of global shipping routes and increased availability of mineral and hydrocarbon resources.

- **Connectivity:** Arctic's ice meltdown and its geographical location will ensure shortest sea distance between America, Europe and North East Asia. This will likely transform the global maritime commerce, presently conducted through the traditional East-West route through the Malacca Strait and Suez Canal.
- **Rising Sea Level:** This land ice loss in the Arctic is a major contributor to global sea-level rise and it can have a significant impact on India.
- **Himalayas:** The Arctic and the Himalayas, though geographically distant, are interconnected and share similar concerns. The Arctic meltdown is helping the scientific community to better understand the glacial melt in the Himalayas, which is referred to as the 'third pole'.
- **Monsoons:** They have been impacting global weather, climate and ecosystems including the monsoons in India, a major of annual precipitation and irrigation.
- **Mineral Resources:** Arctic region has rich deposits of coal, gypsum and diamonds and also substantial reserves of zinc, lead, placer gold and quartz. Greenland alone possesses about a quarter of world's rare earth reserves.
- **Hydrocarbons:** The Arctic also contains a wealth of hydrocarbon resources. India is the third-largest energy-consuming country in the world. Arctic can therefore potentially address India's energy security needs.
- **Geopolitics:** The melting Arctic ice is also raising the geopolitical temperatures. In 2018, China's White Paper on Arctic policy called itself a 'Near-Arctic State'. The opening of the shipping routes and possibilities of increased resource extraction is leading to the big three—US, China and Russia—and NATO, jockeying for position and influence in the region.
- **Boundary Disputes:** There are unresolved boundaries between the Arctic States. For instance, US has continental shelf overlap with Canada and Russia, while Russia and Canada themselves have differing continental shelf claims.



CCPA GUIDELINES

CCPA recently issued new guidelines regarding the levy of service charges in hotels & restaurants.

About:

- Central Consumer Protection Authority (CCPA) has issued five new guidelines in order to protect the interests of the consumers.
- The five new guidelines are:**
 - No hotel or restaurant shall add a service charge automatically or by default in the bill.
 - Service charge shall not be collected from consumers by any other name.
 - No hotel or restaurant shall force a consumer to pay the service charge and shall clearly inform the consumer that service charge is voluntary, optional and at the consumer's discretion.
 - No restriction on entry or provision of services based on a collection of service charges shall be imposed on consumers.
 - Service charge shall not be collected by adding it along with the food bill and levying GST on the total amount.
- Grievance Redressal:** The new guidelines have provisions for complaints by consumers if any consumer finds that a hotel or restaurant is levying service charges in violation of the above-mentioned guidelines.
 - A consumer can simply ask for the removal of service charges from the bill.
 - A consumer may lodge a complaint on the National Consumer Helpline (NCH), which works as an alternate dispute redressal mechanism at the pre-litigation level.
 - A complaint may also be filed against unfair trade practice with the Consumer Commission electronically through edaakhil.nic.in for its speedy and effective redressal.
- The new guidelines are in addition to the 2017 guidelines.
 - The 2017 guidelines prohibit the levy of service charges on consumers by hotels and restaurants.
 - It also terms the charging for anything other than "the prices displayed on the menu card along with the applicable taxes" without "express consent" of the customer as "unfair trade practices".

Alternate Dispute Resolution Mechanism (ADR):

- The Consumer protection act 2019 offers mediation route under Alternate Dispute Resolution Mechanism to save time, money & reduce pendency.
- As per section 2(47) of the Act, offering defective goods & services, not issuing bills, refusing to take back the goods & services & disclosing the personal information of the consumer will come under Unfair trade practices.

SERVICE CHARGES

- The service charges are a type of fee collected to pay for services associated with the purchase of the primary product or service.
- It is generally collected by hospitality sectors and food and beverage industries as a fee for serving customers.

Need for the New Guidelines:

- National Consumer Helpline (NCH) received various complaints regarding unnecessary levying of service charges by hotels & restaurants. CCPA has taken cognisance of these grievances.
- The price of food served in the hotels & restaurants includes the price of services. CCPA has considered it as an unfair trade practice.
- The service charges charged by the restaurants were arbitrary & there was no restriction on the pricing.

Significance of the decision:

- A check on unfair trade practices:** As per the new guideline charging a customer other than the price of food items displayed on the menu along with applicable taxes, is an 'unfair trade practice'.
- Fair & transparent pricing:** Hotels & restaurants are no longer permitted to charge service charges. Now the food bills will have only charges for food items & taxes. It will promote fair & transparent pricing.
- The new guidelines will help in filling the significant consumer protection gaps.

Central Consumer Protection Authority (CCPA):

- Nature:** CCPA is a regulatory body established in 2020 as per the provisions of section 10(1) of the Consumer Protection Act, 2019.
- Administrative Body:** Ministry of Consumer Affairs.
- Headquarters-** Delhi

Composition:

- One Chief Commissioner as head and two other Commissioners.
 - One commissioner will be for goods and another one for services.
- It will have an Investigative Wing headed by a Director General.

Objectives:

- **Rights of consumers:** To protect, promote & enforce the rights of consumers.
- **Investigations:** To conduct investigations in matters of violations of consumer rights (on complaint or suo motto basis).
- **Penalties:** To impose penalties in case of false advertisements.
- **Recall:** To recall unsafe goods & refund of prices of goods & services recalled.

Mandate:

- To protect, promote and most importantly enforce the rights of the consumers and prevent violation of their rights under the Act.
- It seeks to ensure that no person engages in unfair trade practice and issues guidelines to enforce the rights of the consumers laid down in the Act.

CONSUMER PROTECTION ACT, 2019

- The Act came into force in 2020 replacing the older Consumer Protection Act, 1986.
- The key features of the Act include Definition of Consumers, Rights of the Consumers, Establishment of CCPA, Consumer Disputes Redressal Commission, Product liability, and Penalties.

FUNCTIONS OF CCPA

■ Issue directions to the **concerned trader, manufacturer, endorser, advertiser**, publisher to either discontinue a false of misleading advertisement, or modify it.

■ Issue safety notices to consumers against unsafe goods and services

■ **Investigate violations of consumer rights** and pursue prosecution.

■ Impose penalties if cases are proven

■ **Pass order to recall goods or withdraw services that are hazardous, reimburse** the price paid, and discontinue unfair trade practices, as defined in the Act

RIGHTS UNDER THE NEW ACT

Consumers are now legally entitled to the following broad categories of right as defined in the Act

■ Right to be protected against marketing of **goods and services which are hazardous** to life and property

■ Right to be informed of the **quality, potency, purity, standard and price** of goods or

■ Right to be assured to access variety of good or services at competitive price

■ Right to seek redressal against unfair or restrictive trade practices

■ Right to seek justice in a time-bound manner

CONSUMER PROTECTION ACT 1986**PROVISIONS****CONSUMER PROTECTION ACT 2019**

No separate regulator

Regulator

Central Consumer protection Authority (CCPA) to be formed

Complaint could be filed in a consumer court where the seller's (defendant) office is located

Consumer court

Complaint can be filed in a consumer court where the complainant resides or works

No provision. Consumer could approach a civil court but not consumer court

Product liability

Consumer can seek compensation for harm caused by a product or service

District: up to Rs 20 lakh to State: Rs 20 lakh to Rs 1 cr National: Above Rs 1 cr

Pecuniary jurisdiction

District: up to Rs 1 cr
State: Rs 1 cr to Rs 10 cr
National: Above Rs 10 cr

No provision

E-commerce

All rules of direct selling extended to e-commerce

No legal provision

Mediation cells

Court can refer settlement through mediation

GUIDELINES ON ARREST AND BAIL ORDERS

The Supreme Court in a recent judgement stated that "there is a pressing need" for reform in the bail law.

About:

- In *Satender Kumar Antil vs CBI* case, a division bench of the Supreme Court (SC) issued new arrest guidelines to ensure strict adherence to Sections 41 and 41A of the Code of Criminal Procedure (CrPC), 1973.
- These guidelines are in addition to those established by the Supreme Court in the case of *Armesh Kumar vs. State of Bihar* in 2014.
- The apex court also emphasised the importance of separate legislation on bail law on the lines of the law in the United Kingdom.
- The SC has reiterated its previous judgement in *State of Rajasthan, Jaipur v. Balchand alias Baliay* (1977) that bail is the rule and jail is the exception in contrast to the present status of jails in the country, where over two-thirds lodged are undertrials.

WHAT THE TOP COURT SAID

The Supreme Court has called upon the government to consider framing a new law to facilitate the grant of bail



On rate of conviction: "The rate of conviction in criminal cases in India is a abysmally low. It appears to us that this factor weighs on the mind of the court while deciding the bail applications in a negative sense"



On the need for bails act: "We... call on government to consider an Act meant for granting of bail. Our belief is for the reason that the code as it exists today is a continuation of the pre-independence one"



On preservation of right to liberty "Liberty, as embedded in the Code, has to be preserved, protected, and enforced by the criminal courts. Any conscious failure by them would constitute and affront to liberty"

SECTION 41 AND 41A OF THE CODE OF CRIMINAL PROCEDURE (CRPC), 1973

- Section 41 of the Code provides for the circumstances in which arrest can be made by the police without a warrant and mandates for reasons to be recorded in writing for every arrest and non-arrest.
- Section 41A of the Code provides for the requirement of a notice to be sent by the investigating agencies before making an arrest in certain conditions prescribed by the Code.

Bail:

- Bail is the temporary release of an accused person awaiting trial, sometimes in exchange for a monetary deposit to guarantee their appearance in court (bond).

- CrPC does not define the term bail, instead classifies offences under the IPC as 'bailable' or 'non-bailable.'
- The Criminal Procedure Code empowers magistrates to grant bail for bailable offences as a matter of right as per their discretion.
- Non-bailable offences are cognizable, allowing the police officer to arrest without a warrant and the magistrate to determine whether the accused is fit to be released on bail.

Recent guidelines with respect to Bail:

- **Application for bail:** It states that there should be no insistence on a bail application while considering the application under Sections 88, 170, 204, and 209 of the Code.
 - The Supreme Court ruled that in such cases, magistrates must routinely consider granting bail rather than requiring a separate bail application.
- **Need for specific legislation:** The SC stated that the Government of India may consider introducing a separate enactment in the form of a Bail Act (as in the United Kingdom) for granting of bails.
- **Time duration:**
 - The Court has made it clear that bail applications must be resolved within two weeks, unless the provisions require otherwise.
 - Applications for anticipatory bail are expected to be disposed of within six weeks, with the exception of any intervening application.
- **Compliance with previous judgement:** The Court stated that "there must be strict compliance with the mandate laid down in this court's judgement in *Siddharth*" (*Siddharth vs State of U.P.*, 2021).
- **Directions to High Court:**
 - The Supreme Court has ordered the High Courts to identify undertrial prisoners who are unable to comply with bail conditions. Following that, appropriate action must be taken in accordance with Section 440 of the Code, facilitating their release.
 - **Section 440:** The amount of bond must not be excessive, and high courts and sessions courts may reduce the amount prescribed by the magistrate or a police officer.
 - A similar exercise will be required to comply with the mandate of Section 436A of the Code.
 - **Section 436A:** It states that a person imprisoned during investigation or trial shall be released on bail upon completion of half of the jail term prescribed for that offence.

- ♦ The High Court, in consultation with the State Governments, must conduct an assessment of the need for special courts.
- **Direction to States:**
 - ♦ The SC also directed all State Governments and Union Territories to facilitate standing orders to comply with the orders and avoid indiscriminate arrests.
 - ♦ The vacancies for Presiding Officers of the Special Courts must be filled as soon as possible.

Constitutional Provisions against indiscriminate arrest:

- **Article 20:** It protects an accused person, whether a citizen, a foreigner, or a legal person such as a company or a corporation, from arbitrary and excessive punishment.
- **It contains following provisions in this regard:**
 - ♦ **No ex-post-facto law:** No person shall be a) convicted of any offence other than a violation of a law in force at the time of the commission of the act nor be subjected to a penalty greater than that prescribed by the law in force at the time of the commission of the act.
 - ♦ **No double jeopardy:** No one shall be prosecuted and punished for the same offence more than once.
 - ♦ **No self-incrimination:** No one accused of a crime shall be forced to testify against himself.
- **Article 21:** It states that no person shall be deprived of his life or personal liberty except in accordance with procedure established by law. This right is available to both citizens and non-citizens.
 - ♦ The right to life is not limited to animal existence or survival; it also includes the right to live with human dignity and all aspects of life that contribute to a man's life being meaningful, complete, and worth living.
 - ♦ Individual detention violates the right to life and liberty guaranteed by Article 21 of the Indian Constitution.
- **Article 22:** It protects people who have been arrested or detained. It deals with ordinary law and includes the following provisions:
 - ♦ Right to be informed of the grounds for arrest.
 - ♦ The right to consult with and be represented by a legal practitioner.

- ♦ The right to appear before a magistrate within 24 hours, excluding travel time.
- ♦ Unless the magistrate authorises further detention, the right to be released after 24 hours.

ARREST

- It is defined as, "when one is taken and restrained from his liberty".
- The police have wide powers to arrest under the Code of Criminal Procedure, 1973.
- Recently, there have been several controversies regarding the arrest and subsequent bail of accused persons.
 - ♦ In the Joginder Kumar (1994) verdict, the SC had stated that "arrest and detention in police lock-up of a person can cause incalculable harm to the reputation and self-esteem of a person".
 - ♦ In the case of Armesh Kumar, the apex court had observed that "arrest brings humiliation, curtails freedom and casts scars forever."
- **Judgement in Siddharth case, 2021:**
 - ♦ Concerning the Siddharth case, the apex court stated that "merely because an arrest is lawful does not mandate that an arrest be made."
 - ♦ The SC also stated that if the investigating officer believes that the accused will not flee or disobey the summons, the officer is not required to arrest him during the investigation until and unless he has been charged with a heinous crime.
- **The Indian Penal Code (IPC)** is India's official criminal code, drafted in 1860 based on the recommendations of the country's first law commission, established in 1834 under the Charter Act of 1833 and chaired by Lord Thomas Babington Macaulay.
- **The Code of Criminal Procedure (CrPC), 1973** is India's primary piece of procedural legislation governing the administration of substantive criminal law.



FAMILY COURTS (AMENDMENT) BILL, 2022

Recently, the Lok Sabha passed the Family Courts (Amendment) Bill, 2022.

About:

- The Family Courts (Amendment) Bill, 2022 seeks to amend the Family Courts Act, 1984.
- The amendment bill seeks to extend the application of the Act to the state of Himachal Pradesh, with effect from February 15, 2019, and to the state of Nagaland, with effect from September 12, 2008.
 - ♦ The establishment of Family Courts in both states will be retrospectively valid from these dates.
 - ♦ The bill also seeks validation of the decisions taken by the two states and the family courts.
- All actions taken under the Act in both the states, including the appointment of judges and orders and judgments passed by the Family Courts, will also be deemed valid from the mentioned dates retrospectively.
- The enactment of the Bill was necessitated as it came to light in connection with a case (Omkar Sharma Versus State of Himachal Pradesh) that the Union Government notifications were not existing with respect to the family courts in the states of Nagaland and Himachal Pradesh.

Family Court Act, 1984:

- **Background**
 - ♦ The 59th Law Commission Report in 1974 suggested the establishment of family courts by States and the selection of Judicial Officers should be based on experience.
 - ♦ In 1975, the Committee on Status of Women suggested that family disputes should be dealt differently than ordinary civil proceedings.
 - ♦ The Government made an amendment in the Code of Civil Procedure in 1976 to adopt a special procedure for disputes concerning the family but this amendment did not help much.
 - ♦ After pressure from different women's associations and several NGOs working in the field of family welfare, the Government enacted the Family Court Act, 1984.
- The Family Courts Act, 1984 provides for the establishment of Family Courts by the State Governments in consultation with the High Courts to promote conciliation and secure speedy settlement of disputes relating to marriage and family affairs.
 - ♦ As per the Act, it is mandatory for the State Government to set up a Family Court for every city or town whose population exceeds one million.

- ♦ In other areas of the States, the Family Courts may be set up if the State Governments deem it necessary.

FAMILY COURTS

- **Nature:** Family court is a special court that deals with legal issues that arise from family relationships.
 - ♦ Several sorts of courts dealing with specific family issues, such as children's courts and orphans' courts, are merged into the family court.
 - ♦ According to Section 3 of the Family Court Act 1984, the establishment of the Family court is to promote conciliation, mediation and quick resolution of issues involving marriage and family matters.
- **Jurisdiction:** The Family Court in general deals with the cases related to Dissolution of Marriage, Parental Rights and Custody of Children, Orders of Protection Against Domestic Violence, Changes in the name, Guardianship, Adoptions and the termination of parental rights, and Juvenile Cases.
- **Objectives:** The objectives of setting up a family court are:
 - ♦ To create a Specialized Court which will exclusively deal with family matters so that such a court may have the necessary expertise to deal with these cases expeditiously.
 - ♦ To institute a mechanism for conciliation of the disputes relating to the family.
 - ♦ To provide an inexpensive remedy.
 - ♦ To have the flexibility and an informal atmosphere in the conduct of proceedings.
- The 14th Finance Commission had recommended setting up 235 Family Courts during 2015-2020 in districts where the same were unavailable. At present, there are 715 family courts in India.

FAMILY COURT FUNCTIONS

- The Family Court's main functions is to deal with family disputes between married couples wishing to seek a dissolution of marriage (divorce) and;
- Orders relating to the children of the marriage or property settlement.
- The Family Court has **both original and appellate jurisdiction**. Meaning it hears cases for the first instance (first time) and cases on appeal.

NATIONAL POLICY FOR PERSONS WITH DISABILITY

The Ministry of Social Justice and Empowerment recently released the draft policy for Persons with Disability (PwD).

About:

- It replaces National Policy for Persons with Disabilities, 2006.
- According to the draft, the Health Ministry's current national programme on disability prevention focuses on "traditional causes", but there are other causes of disability, such as malnourishment, medical negligence, socio-cultural factors, and impairment caused by disasters.
- This policy aims to create an inclusive society in which people with disabilities have equal opportunities for growth and development so that they can live productive, safe, and dignified lives.
- **Prevention and early intervention strategy:** According to the draft, one-third of most childhood disabilities are preventable if detected early and in a timely manner. There is a need to expand research-based surveys on the occurrence of disability in various communities in order to devise appropriate sociomedical interventions to prevent such occurrences.
- **Training and sensitisation:** Primary health workers, village level workers, Anganwadi workers, Asha workers, and primary school teachers to be educated on the causes of disability and how to prevent it.
- **Creation of Cross Disability Early Intervention Centre (CDEIC):** The policy aims at creating CDEICs in each district to provide the following services:
 - ♦ Screening and identification with facilities for risk cases identification and referral to appropriate rehabilitative services.
 - ♦ Physiotherapy, speech therapy, occupational therapy, behavioural therapy, and other therapeutic services
 - ♦ Parental and peer counselling.
 - ♦ School readiness facilities for communication and language development, physical development, personal, social, and emotional development.
- **Education:** National Education Policy, 2020 aims at equitable and inclusive education for all. From the perspective of students with disabilities, the policy has the following provisions:
 - ♦ Emphasises on measures such as peer tutoring, open schooling, appropriate infrastructure, and suitable technology interventions to ensure access to education, particularly for certain children with disabilities.
 - ♦ Recommends adding pre-school sections covering at least one year of early childhood care and education to Kendriya Vidyalaya and other primary schools particularly in the areas inhabited by disadvantaged groups in society.
- Every District will have nodal officer to oversee admission of students with disabilities in inclusive school setup without discrimination.
- The draft policy states that when granting permission or recognition to educational institutions, the states and union territories should include a provision requiring compliance with the RPD Act.
- Accessible e-content of all course curriculum and reference book material will be developed. Demo videos with sign language interpretation and audio description will be made available to make the learning process accessible.
- **Health:** With a view to promote health among persons with disabilities, the policy mandates the following:
 - ♦ The AB-PMJAY should be aligned with the objective of the RPwD Act. The Programme should aim at universal coverage of PwDs including provision of therapeutic services for PwDs.
 - ♦ Disability modules should be included in MBBS and other medical courses.
 - ♦ PwDs should be involved at the time of planning and developing healthcare programmes for effective outcome.
- **Skill Development and Empowerment:** Employment is key to economic empowerment and self-reliance. The following steps will be taken by the Government for promoting employment of PwDs in Government and private sector:
 - ♦ A dedicated national level employment portal for PwDs will be developed with all advanced accessible features to meet the highest standard of accessibility.
 - ♦ Every government and private establishment will report their vacancies and other details to M/o Labour and Employment for updating in the portal as and when advertisement is issued by them.
 - ♦ An E-platform for skilling of PwDs will also be explored. Such an e-platform will be interactive in nature and will also provide counselling services in matters related to skill training.
 - ♦ Every Central Government establishment will have to submit updated information by 15th January every year about category wise employment of PwDs. Similar action should be taken by all States/UTs through their General Administration Departments.
 - ♦ Efforts will be made to develop capacity in training of trainers in association with National Skill Development Corporation and Sector Skill Council for Persons with Disabilities.

- ♦ National Handicapped Finance Development Corporation implements schemes for financial assistance for skill and entrepreneur development programs for persons with disabilities in the age group of 18-59 years. It also provides loans at concessional rate of interest to persons with disabilities for promoting self-employment. It should help facilitate start-up requirements for skilled persons with disabilities. There should be close coordination between SIDBI, NHFDC and NSDC.
- **Accessibility:** The Ministry of Road Transport and Highways will issue the necessary guidelines for making necessary modifications to personal vehicles used by people with disabilities.
- **Social security:** Social Security is primarily a system of state-provided protection for individuals in need. This type of protection is important in contingency situations such as retirement, death, retrenchment, and disability, which are beyond the control of individual members of society. The policy statement outlines the following for ensuring coverage of all persons with disabilities under social security programmes:
 - ♦ Encouraging State Governments/UTs to develop appropriate social security policy for persons with disabilities.
 - ♦ Covering all persons with disabilities under food security programme.
 - ♦ Developing a comprehensive insurance programme for persons with disabilities for their health and life.
 - ♦ Insurance regulatory authority to sensitise the insurance providers for ensuring that PwDs are not discriminated against while seeking insurance coverage.

Need for the new policy:

- India signed the United Nations Convention on Rights of Persons with Disabilities (UNCRPD) in 2007 which puts an onus on the Government for the welfare of PwDs.
- The passage of new disability legislation, the Rights of Persons with Disabilities (RPwD) Act, 2016, which increased the number of disabilities from 7 to 21 which necessitated new rules.
- India to comply with Incheon Strategy for the Asian and Pacific Decade of Persons with Disabilities, 2013-2022, developed under the auspices of United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), which identifies ten goals for Asia-Pacific countries to ensure PwD inclusion and empowerment.
- In order to be in conformity with the Sustainable Development Goals 2030 of Inclusive growth (SDG 8).
- The emphasis on disabilities has shifted from the individual to society i.e. from a medical to a social or human rights model of disability.

Present status of PwD in India:

- According to the 2011 Census, the number of persons with disabilities is 2.68 crores, implying that 2.21 percent of the Indian population has some form of disability, compared to the global average of 15%.
- As per Census 2011, the total PwD population's literacy rate is around 55 percent (male 62%, female 45%).
- With regards to higher education, only about 5% of PwDs have a graduate degree or higher.
- Census data from 2011 shows roughly 36% of all PwDs are employed (male-47%, female-23%).
- The Department of Empowerment of Persons with Disabilities is also working on the Unique Disability ID (UDID) project, which aims to create a national database for people with disabilities based on certification from competent authorities.

Challenges faced by PwD population:

- **Institutional Bottlenecks:** There is a lack of awareness, care and accessibility to good medical facilities. Furthermore, rehabilitation services are unreachable, unavailable and underutilised.
- **Stigmatisation and exclusion:** A significant proportion of people see a person with disabilities as an object of 'sympathy' and 'pity' thereby leading to their treatment as another class of citizens.
- **Lack of political participation:** Exclusion of disabled people from political space occurs at all levels of the country's political process, and in various ways. For example, inability to vote, barriers to participation in party politics, and a lack of representation at the local, state, and national levels have all exacerbated marginalisation of the disabled.
- **Poor policy implementation and lack of data availability:** Inclusion of disabled people is hampered by poor policy and scheme implementation. Though various acts and schemes like Accessible India Campaign, Schemes of the National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities have been enacted to empower the disabled, their implementation faces numerous challenges.

Way Forward:

- Article 41 of the Indian Constitution states that the State shall make effective provisions for securing the right to work, education, and public assistance in cases of unemployment, old age, sickness, and disablement, and in other cases of undeserved want. Furthermore, the Constitution makes disability assistance a state subject. PwD welfare is also mentioned in the 11th and 12th Schedules of the Constitution, which deal with Panchayats and Municipalities, respectively.



SCHEMES FOR EMPOWERMENT OF PWD

- Deendayal Disabled Rehabilitation Scheme (DDRS), envisages financial assistance to NGOs for education and rehabilitation of Persons with Disabilities.
- Scheme of Assistance to Disabled Persons for Purchase/Fitting of Aids/Appliances (ADIP Scheme), provides grant-in-aid to various implementing agencies for purchase/fitting of aids & assistive devices for the physical rehabilitation of PwDs.
- Scheme for Implementation of Persons with Disabilities Act (SIPDA), provides grant-in-aid for creating barrier free access to their buildings; making websites accessible; early intervention; awareness generation, skill development etc.
- Umbrella scholarship schemes for students with disabilities, Fellowships (M.Phil and Ph.D), Overseas scholarships (for studying at reputed institutions abroad) and free coaching for preparing for competitive examination for admission into professional courses at reputed institutions and for employment.

Various Model of Disability:

- **Medical model:** Individuals with certain physical, intellectual, psychological, and mental impairments are considered disabled in the medical model. According to this, the individual is disabled because it is associated with limitations

in activity and the burden of adjusting to the environment is through cures, treatment, and rehabilitation.

- **Social model:** The social model of disability identifies systemic barriers that make it difficult or impossible for individuals with impairments to achieve their valued functioning. The social model of disability says that disability is caused by the way society is organised, rather than by a person's impairment or difference.

Principles of United Nations Convention on the Rights of Persons with Disabilities (UNCRPD):

- Respect for inherent dignity, individual autonomy including the freedom to make one's own choices, and independence of persons
- Non-discrimination
- Full and effective participation and inclusion in society
- Respect for difference and acceptance of persons with disabilities as part of human diversity and humanity
- Equality of opportunity
- Accessibility
- Equality between men and women
- Respect for the evolving capacities of children with disabilities and respect for the right of children with disabilities to preserve their identities.



NATIONAL ANTI-DOPING BILL, 2022

Both houses of the Parliament recently gave its nod to National Anti-Doping Bill, 2022.

Key Features of Bill:

- The Bill makes it illegal for athletes, athlete support personnel and others to dope in sports.
- **Grounds for anti-doping rules violation:**
 - ♦ the presence of a prohibited substance or its metabolites or markers in an athlete's sample
 - ♦ use or attempted use of any prohibited substance or a prohibited method, unless such use is exempted by the Agency under section 5
 - ♦ refusing or failing to submit sample collection after notification as authorised in applicable anti-doping rules, or otherwise evading sample collection
 - ♦ whereabouts failure.
- **Violations:** Violations of anti-doping rules may result in disqualification of results, forfeiture of medals, points, and prizes, ineligibility to compete or participate in an event for a specified period of time and financial sanctions.
- **Statutory Framework:** Anti-doping rules are currently enforced by the National Anti-Doping Agency (NADA), which was founded as a society. The Bill establishes NADA as a statutory body led by a Director General(DG) appointed by the central government.
- **Functions of NADA:** It includes planning, implementing and monitoring anti-doping activities, and investigating anti-doping rule violations.
- **National Board for Anti-Doping in Sports:** It will be established to advise the government on anti-doping regulations and compliance with international anti-doping commitments. The Board will oversee NADA's activities and issue directives to it.
- **Disciplinary Panel:** The Board will form a National Anti-Doping Disciplinary Panel to determine the ramifications of anti-doping rule violations.
- **Appeal:** To hear appeals against Disciplinary Panel decisions, the Board will form a National Anti-Doping Appeal Panel.

Significance of the Bill:

- The bill seeks to achieve time-bound justice for athletes while also improving cooperation among anti-doping agencies.
- It aims to provide a statutory framework for strengthening anti-doping activities in sports and to give effect to the UNESCO International Convention against Doping in Sport (ratified by India in 2007).

- The bill would aid in the establishment of a strong, independent anti-doping adjudication mechanism.
- The bill would also give NADA and the National Dope Testing Laboratory (NDTL) legal protection.

Key issues and analysis:

- **Qualification of Director General (DG) of NADA:** The qualifications of DG are not specified in the Bill and ought to be notified through Rules.
- **Opacity in grounds for removal of Director General:** The central government may remove the DG from office for misbehaviour, incapacity, or "any other reason."
 - ♦ Leaving these provisions to the discretion of the central government may jeopardise the Director General's independence. This also contradicts the World Anti-Doping Agency's mandate that such bodies must operate independently.
 - ♦ The Board has the authority to remove members of the Disciplinary Panel and Appeal Panel for reasons that will be specified by regulations and are not specified in the Bill.
 - ♦ Furthermore, there is no requirement to provide them an opportunity to be heard. This may have an impact on the independent operation of these panels.

DOPING AGENCIES

National Anti-Doping Agency (NADA):

- It was set up as a registered society under the Societies Registration Act of 1860 in 2005 with a mandate for dope free sports in India.
- Its key objectives is to implement World Anti-Doping Agency (WADA) anti-doping rules, to regulate dope control programmes, to promote education and research, and to raise awareness about doping and its negative consequences.

World Anti-Doping Agency (WADA)

- The International Olympic Committee established WADA in 1999.
- The primary function of WADA is to develop, harmonise, and coordinate anti-doping regulations across all sports and countries.
- WADA is recognised by the UNESCO International Convention against Doping in Sport (2005).

SUB-CATEGORISATION OF OBCs

Recently, the Union Cabinet gave the 13th extension to the Justice Rohini Commission until January 31, 2023, to submit its report.

About:

• Justice Rohini Commission:

- The commission was set up on October 2, 2017, under Article 340 of the Constitution.
- It was tasked with sub-categorisation of the Other Backward Classes (OBCs) and equitable distribution of benefits reserved for them.
- Its initial deadline to submit its report was 12 weeks — by January 2, 2018.

• Mandate behind the Rohini Commission:

- To examine the extent of inequitable distribution of benefits of reservation among the castes or communities included in the broad category of OBCs with reference to such classes included in the Central List.
- To work out the mechanism, criteria, norms and parameters in a scientific approach for sub-categorisation within such OBCs.
- To take up the exercise of identifying the respective castes or communities or sub-castes or synonyms in the Central List of OBCs and classifying them into their respective sub-categories. A fourth term of reference was added on January 22, 2020.
- To study the various entries in the Central List of OBCs and recommend correction of any repetitions, ambiguities, inconsistencies and errors of spelling or transcription.

• Reason for extension:

- The Report is ready with the recommendations but the feedback from states is required before submitting it.
- The Commission will visit the states and see the situation on the ground. The pandemic delayed the process, and in the last six months, no visit has been made.

- This process is important, as states must have a say. Besides delays due to the pandemic, consultation with states is a big exercise and will take time.

FINDINGS OF THE COMMISSION SO FAR

- In 2018, the Commission analysed the data of 1.3 lakh Union jobs given under OBC quota over the preceding five years and OBC admissions to Union higher education institutions, including universities, IITs, NITs, IIMs and AIIMS, over the preceding three years.
- The findings were: 97% of all jobs and educational seats have gone to just 25% of all sub-castes classified as OBCs; 24.95% of these jobs and seats have gone to just 10 OBC communities; 983 OBC communities.
- 37% of the total — have zero representation in jobs and educational institutions; 994 OBC sub-castes have a total representation of only 2.68% in recruitment and admissions.

• A Brief History:

- The Union Government has been tasked with sub-categorization within the larger group of OBCs for the purpose of reservation.
- OBCs are granted 27% reservation in jobs and education under the Union Government.
- The Commission wrote to the then Minister of Social Justice and Empowerment in 2018, requesting for an appropriate Budget provision for a proposed all-India survey for an estimate of the caste-wise population of OBCs.
- In 2019 the Commission wrote that it is ready with the draft report on sub-categorisation.

CENTRAL GOVT EMPLOYEES BY SOCIAL CATEGORY

	TOTAL	SC	ST	OBC	EWS	OTHERS
Group-A	50,068	6,400 (12.86%)	2,826 (5.64%)	8,455 (16.88%)	11 (0.02%)	32,226 (64.58%)
Group-B	1,25,732	20,954 (16.66%)	8,244 (6.55%)	19,829 (15.77%)	5 (0.04%)	76,700 (61.0%)
Group-C (Excluding safai karmacharis)	3,22,503	58,744 (18.22%)	22,296 (6.91%)	72,710 (22.54%)	84 (0.03%)	1,68,639 (52.29%)
Group-D (safai karmacharis)	13,722	4,507 (32.72%)	1,056 (7.66%)	2,774 (20.14%)	0	5,435 (39.46%)
Total	5,12,072	90,675 (17.70%)	34,422 (6.72%)	1,03,768 (20.26%)	100 (0.02%)	2,80,100 (55.28%)

- In 2021, a Constitution Bench of the Supreme Court reopened the debate on sub-categorisation of Scheduled Castes and Scheduled Tribes for reservations.
- The Home Ministry had announced that in Census 2021, data of OBCs will also be collected, but since then the government has been silent on this, whereas groups of OBCs have been demanding enumeration of OBCs in the Census.
- Following the new term of reference added in 2022, the Commission began studying the list of communities in the Union list.

Reservation provisions in India for OBC

- The Kalelkar Commission, set up in 1953, was the first to identify backward classes other than the Scheduled Castes (SCs) and Scheduled Tribes (STs) at the national level.
- The Mandal Commission Report, 1980 estimated the OBC population at 52% and classified 1,257 communities as backward.
 - It recommended increasing the existing quotas, which were only for SC/ST, from 22.5% to 49.5% to include the OBCs.
- The central government reserved 27% of seats in union civil posts and services for OBCs [Article 16(4)].
 - The Constitution refers to the term 'backward classes' in Articles 15(4), 16(4) and 340(1). Articles 15(4) and 16(4) empower the State to make special provisions for any socially and educationally backward class of citizens.
- In 2008, the Supreme Court directed the central government to exclude the creamy layer (advanced sections) among the OBCs.
- The 102nd Constitution Amendment Act, 2018 provided constitutional status to the National Commission for Backward Classes (NCBC), which was previously a statutory body under the Ministry of Social Justice and Empowerment.

Need for Sub-Categorisation:

- **No uniform benefits:** The relatively rich and dominant sections among the backward castes have tended to take up a disproportionately larger share of the reservation pie.
- **Upper strata have Lion's share:** Presently, half of these 1,900-odd castes have availed less than three per cent of reservation in jobs and education, and the rest availed zero benefits during the last five years.
 - For Example- On the one hand, there are powerful land-owning farming communities like Jats, Yadavs, Kurmis who are availing benefits and on the other hand there are large number of numerically small peasant and allied communities such as fish workers and herdsmen who have little or no land holdings.
- **Five-year data on OBC** quota implementation in central jobs

and higher educational institutions showed that a very small section has cornered the lion's share.

- **Recommendations in this favor:** The National Commission for Backward Classes had recommended sub-categorisation in 2011 and the Standing committee too had recommended this.
- Sub-categorisation is a very simple way of addressing this inequality within the OBCs.

Challenges:

- **Political issue:** It is likely to hurt the dominant OBC groups. The regional parties championing the interests of dominant OBC castes are likely to oppose such sub-categorisation.
 - An earlier attempt to provide sub-quotas for OBCs in Andhra Pradesh was stalled by courts on the ground that a religion-based quota is not permitted.
- Vote-bank politics has a lot to do with the prioritising of caste-based categorisation over income-based differentiation to identify reservation beneficiaries.

COMMITTEES AND JUDGEMENTS

Kaka Kalelkar Report:

- For introducing reservation at the central level, the central government appointed the first OBC commission known as Kalelkar Commission in 1953, named after its chairman Kaka Kalelkar. It submitted the report in 1955.
- It aimed to identify the socially and educationally backward classes in India.

Mandal Commission Report:

- In 1979 the Morarji Desai-led Janata Party government constituted the Second Backward Class Commission, known as the Mandal Commission. It came to be known as such after the name of its Chairman, B.P. Mandal.
- The Mandal Commission adopted 11 criteria of backwardness and grouped them in three headings such as social, economic and educational in order to identify the backward castes.
- The commission identified around 3743 castes and communities as backward classes. They formed 52 per cent people belong to backward castes.
- The Mandal Commission submitted its report in 1980.

Indra Sawhney vs Union of India 1992 Case:

- The implementation of the Mandal Commission Report led to violent protest in India, especially in North India.
- Several petitions challenged the announcement to implement the Mandal Commission Report. The Supreme Court took all petitions together in 1992 in Indra Sawhney vs Union of India.
- It upheld the decision to implement the Mandal Commission Report.

YOUTH IN INDIA REPORT, 2022

Recently the Ministry of Statistics and Programme Implementation (MoSPI) released a report titled 'Youth in India 2022'.

About:

- **Definition of Youth:** There is no universally agreed international definition of the youth age group. However, there are few largely acceptable definitions.
 - ♦ **United Nations:** UN defines 'youth' as those persons between the ages of 15 and 24 years without prejudice to any other definitions made by the Member States.
 - ♦ **India:** As per the National Youth Policy 2014, persons between the age group of 15 and 29 years are considered youth.

Key Definition:

- **Youth Bulge:** Youth bulge refers to a demographic pattern where a large share of the population is children and young adults.
- **Demographic Dividend:** It is defined by the United Nations Population Fund as economic growth resulting from a shift in a population's age structure, mainly when the working-age population is larger than the number of dependents.
 - ♦ India's 1.3 billion people make it the second most populous country in the world, but with an average age of 29 years, it has one of the youngest populations globally.
 - ♦ With this vast resource of young citizens entering the workforce, it could create a 'demographic dividend'.
 - ♦ India's demographic dividend in terms of the youth population is a key factor that is expected to propel economic growth.

Major findings of the report:

- **India's young population:** It reached 1211 million in 2011 and is projected to reach 1363 million in 2021, making India one of the youngest countries in the world, with 27.3 percent of its population aged 15–29 years, i.e., youth.
- **Declining trends:** The youth population is expected to increase initially but will start to decline in the latter half of the 2011–2036 period.
 - ♦ Youth in the age group of 15–29 years comprise 27.3% of the population for the year 2021 which is expected to decrease to 22.7% by 2036 but still huge in absolute numbers of 345 million.
 - ♦ Because of the declining fertility and increasing life expectancy, the population pyramid of the country will undergo a shift.
 - ♦ While the proportion of the population aged under 15 years is projected to decline, the elderly in the population is expected to increase.

- It can be predicted that a greater proportion of youth at present will result in a greater proportion of elderly in the population in future.
- This will create a demand for better health care facilities and the development of welfare schemes/programmes for elderly people.
- **State-wise trends:** As per the projection of 2021 population, the States with lower proportion of youth population as compared to All India are Andhra Pradesh, Gujarat, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Odisha, Punjab, Tamil Nadu, Telangana and West Bengal.
 - ♦ States of Bihar and Uttar Pradesh experienced a rise in the proportion of youth population to total population till 2021 and then is expected to start declining.
 - ♦ These two states along with Maharashtra, Madhya Pradesh and Rajasthan are projected to have more than half (52%) of the country's youth.
- **Gender Proportion:** It can be seen that in almost all the states, proportion of female population is below the proportion of the male population in youth but in the elderly, the proportion of the female population surpasses the proportion of the male population.
 - ♦ One of the main reasons responsible for the pattern is the better life expectancy of females in the country.
- **World Scenario:** Worldwide, while the population of young people is growing overall, the age structure of the population and the relative size of the youth population vary widely.
 - ♦ As countries develop economically, shifting towards more industrialization, urbanization, and skills dependent economic production, they experience a demographic transition wherein fertility and the share of the population made up of child-age dependents decline.
 - ♦ As seen now in developed economies the highest shares of the total population are made up of the older population and those of retirement age.

Policies and Programme for the Development of Youth:

- **Nodal Agency:** The Department of Youth Affairs under the Ministry of Youth Affairs and Sports, Government of India is the nodal agency for framing the policies/programmes and rules/regulations for the welfare of youths.
 - ♦ Most of the issues concerning the Youth are the functions of other Ministries/Departments, like Education, Employment & Training, Health and Family Welfare etc. The role of the Department of Youth Affairs is to act as a facilitator and catalytic agent.

- **Youth Policy Initiatives:** Various youth development programmes undertaken by the Union Government after Independence, like National Cadet Corps (NCC), National Service Scheme (NSS), Nehru Yuva Kendra Sangathan (NYKS) and the schemes for financial assistance to NGOs engaged in youth development.
- **Department of Youth Affairs and Sports:** With the adoption of the International Year of Youth in 1985, a separate Department was created in Government of India. This Department took initiative to formulate a National Youth Policy.
- **National Youth Policy, 2003:** The National Youth Policy, 2003 replaced the erstwhile National Youth Policy 1988. The objectives of the National Youth Policy, 2003 were:
 - ♦ To instill in the youth awareness, adherence to the secular principles and values enshrined in the Constitution;
 - ♦ To develop qualities of Citizenship and dedication to Community Service amongst all sections of the youth;
 - ♦ To promote awareness, amongst the youth, in the fields of Indian history and heritage, arts and culture;
 - ♦ To provide the youth with proper education and training opportunities and to facilitate access to information in respect of employment opportunities;
 - ♦ To facilitate access, for all sections of the youth, to health information and services and to promote a social environment which strongly inhibits the use of drugs and other forms of substance abuse and

- ♦ To promote a major participatory role for the youth in the protection and preservation of nature.

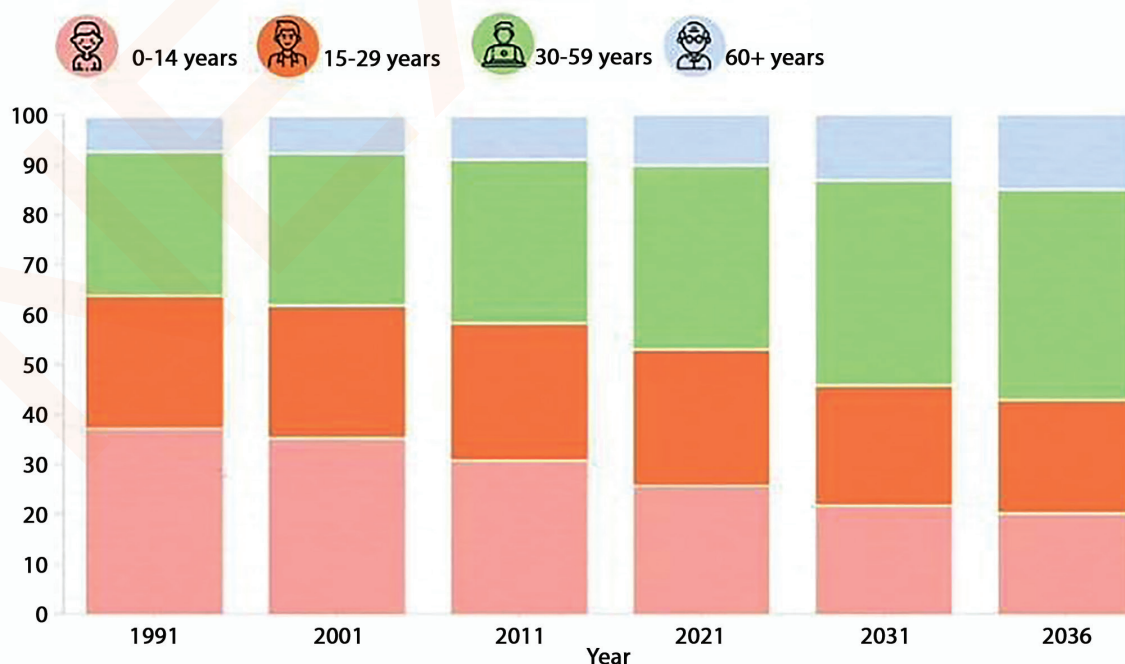
- **National Youth Policy, 2014:** The NYP-2014 proposes a holistic 'vision' for the youth of India, which is "To empower the youth of the country to achieve their full potential, and through them enable India to find its rightful place in the community of nations".

Way Ahead:

- Youth is the most energetic and productive section of a society. A country's ability and potential for growth are determined by the size and strength of its youth population.
- It is believed that developing countries with large youth population could see tremendous growth, provided they invest in young people's education, and health and protect and guarantee their rights. It can undoubtedly be said that today's young generations are tomorrow's innovators, creators, builders and leaders.
- Youth can be a positive force for development when provided with the knowledge and opportunities they need to thrive.
- In particular, young people should acquire the education and skills needed to contribute to a productive economy; and they need access to a job market that can absorb them into the labour force.
- But they need the required support in terms of good health, education, training and opportunities to transform the future.

INDIA'S POPULATION MAY START AGEING BY THE NEXT DECADE

Share of Population by Age Group



GROUP OF SEVEN (G7)

Recently, the Prime Minister (PM) of India was invited to attend the Group of Seven (G7) Summit in Germany.

About:

- India was invited to the 2022 G7 Summit by the German Chancellor along with Argentina, Indonesia, Senegal, and South Africa to the 2022 Summit as partner countries.
- Several international organizations such as the United Nations, the World Health Organization (WHO), the World Trade Organization (WTO), the International Monetary Fund (IMF), and the World Bank also participated in the G7 Summit.

Group of Seven (G7):

- The G7 is an intergovernmental organization and an informal forum of the leading industrialized nations or advanced democracies.
 - The G7 is not a formal institution with a charter and a secretariat unlike the United Nations (UN) or the North Atlantic Treaty Organization (NATO).
- The members of G7 are Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.
- European Union representatives always participate in the annual meeting of the heads of state and government of the G7 as permanent guest.
- The Presidency of the G7 rotates amongst member states annually, and they are responsible for setting the agenda of each year's summit and related logistics.
- The presidency of the G7 in 2022 is held by Germany for the 7th time till now.
- In 2023, the presidency will be held by Japan.

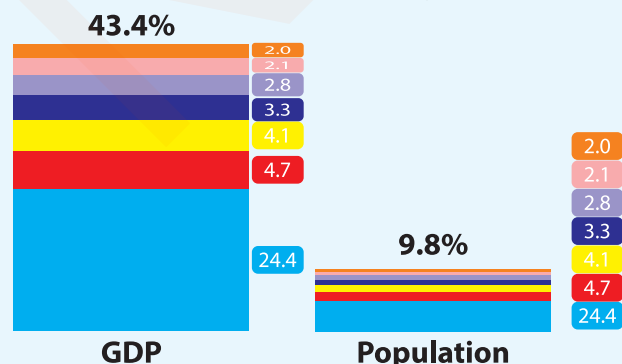
Evolution of the G7:

- In 1975, the United States, France, Italy, Japan, the UK, and West Germany formed the Group of Six.
- The group had an aim to provide a venue for the non-communist powers to address pressing economic concerns like:
 - inflation and a recession induced by the Organization of the Petroleum Exporting Countries (OPEC) oil embargo and
 - the collapse of the Bretton Woods system of fixed exchange rates.
- In 1976, Canada joined the group and the first G7 meeting was held in Puerto Rico. The group's agenda was dominated by Cold War politics.
- In 1977, the first talks were held between the then European Community and the G7 in London. Thereafter, since the 1981 Ottawa Summit, the European Community (now European Union) has been part of all working sessions of the grouping.
- In the 1980s, the G7 expanded its interest and included foreign and security policy issues among discussion agendas.
- In 1991, then Soviet General Secretary Mikhail Gorbachev was invited for talks on the sidelines of the London Summit.
- In 1998, Russia became a member of the grouping and the Group of Eight (G8) was constituted.
- In 2014, after Russia's annexation of Crimea and violation of Ukraine's sovereignty and territorial integrity, it was removed from the group as hence it became G7 i.e. Group of Seven once again.

HOW REPRESENTATIVE OF G7 OF THE WORLD TRYING TO LEAD?

Aggregate GDP and population of G7 countries as a share of the world total in 2022*

United States Japan Germany United Kingdom
France Canada Italy



Challenges for G7:

- Russia:** Moscow's annexation of the Crimean peninsula of Ukraine in 2014 was seen as a threat to NATO's dominance in Eastern Europe. The Ukraine conflict intensified further when Russia launched a full-scale invasion of Ukraine in 2022.
- Climate action (U.S.A):** Former U.S. President Donald Trump challenged G7 unity on issues like trade and climate change. The U.S. refused to commit to the Paris Agreement on climate and hinted at withdrawal from it.
- Brexit:** The G7 faced regional challenges like UK's withdrawal from the EU and maintaining internal cohesion amidst rising nationalism.

- **Ideological challenge:** G7 members have condemned China's repression of Uyghurs in the Xinjiang region and its crackdown in Hong Kong.
- **Economic challenge:** China's ambitious Belt and Road Initiative (BRI) has raised concerns about its influence over developing countries in the Indo-Pacific region, due to grievances over China's debt trap diplomacy and alleged unfair trading practices.
 - China's growing trade and defense ties with Russia are also causing concerns.
- **Covid-19 induced challenges:** The pandemic induced sharp global economic contraction and forced G7 countries to respond with massive stimulus measures. But with visible economic recovery, they are experiencing rising inflation.

Relevance of the G7:

- **Consensus on global issues and agendas:** At their annual summit meetings, the heads of the state and the government of the G7 member countries coordinate their positions on global issues relating to the world economy, foreign and security policy, development, and climate policy.
- **Wavering influence:** Internal divisions and external dynamics have reduced G7's global influence. It lacks relevance without membership to other emerging global powers. For example, BRICS countries.
- **G7 vs. G20:** All the members of the G7 group also have membership to the G20 making it more representative of emerging economies and geopolitical realities.
- **COVID-19 governance:** The G7 countries invested billions of dollars for vaccines and other tools to combat the COVID-19 pandemic. Thus, they contributed to 'shared responsibility, global solidarity' and dealt with socio-economic impacts of the pandemic effectively.

Partnership for Global Infrastructure and Investment (PGII):

- Recently, the G7 leaders overhauled the '2021 Build Back Better World Initiative' and launched it as a U.S.-led \$600 billion PGII at their summit in Germany where India was among five special invitees.
- The initiative aims to be as a "values-driven, high-impact, and transparent infrastructure partnership to meet the enormous infrastructure needs of low- and middle-income countries and support the U.S. and its allies' economic and national security interests."
- The PGII is billed to have four key priorities on infrastructure: climate and energy security, digital connectivity, health and health security, and gender equality and equity. These are priority areas for India as well.
- The G-7 outreach invitees to the summit i.e. India and Indonesia, South Africa, Senegal, and Argentina were neither privy to PGII consultations nor did they sign the infrastructure plan documents.

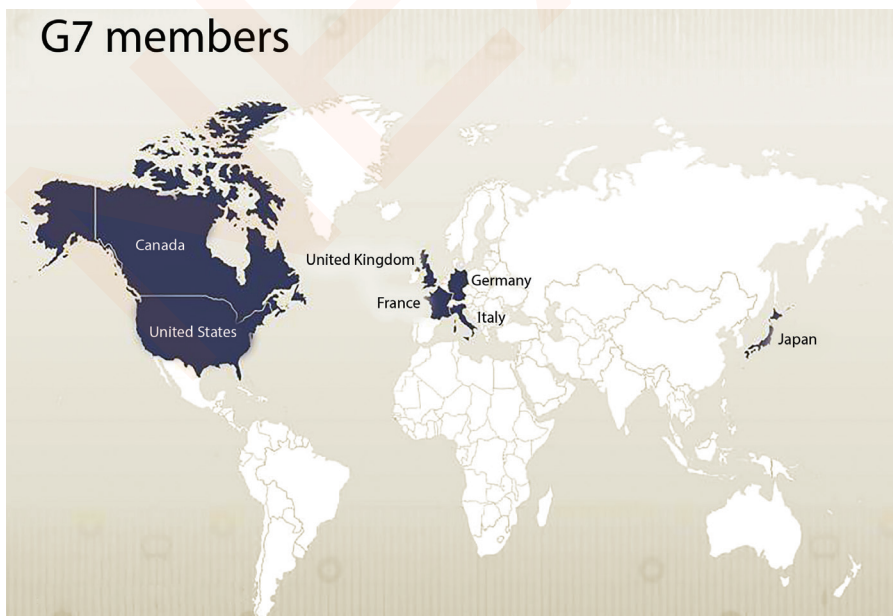
PGII and India: A Balancing Stand:

- India has been actively opposing the BRI due to its sidelining of environmental concerns, sensitivity to sustainable debt burdens and for its "violation of territorial integrity".
- Though PGII is billed as a rival to China's BRI, India would need to be careful about endorsing or joining the PGII plan as it would definitely antagonize China which already accuses the U.S. led initiatives in the Indo-Pacific region like the QUAD group as Asian NATO.

Way Forward:

- The G7 is an embodiment of common values and a similar rules-based approach to the world order.
- However, in the era of multilateral world order, the group of Seven (G7) needs to become more representative by shedding its western-centric image.
- It should expand its membership by including emerging democratic economies like India, Australia, South Korea; thereby forming a D-10 group of democracies.
- The recent crisis like economic slowdown and Russia-Ukraine Conflict have brought the significance back on multilateralism. G7 platform can ensure not only robust economic recovery but also can act as platform for peaceful resolution of global challenges.

G7 members



INDIA-AUSTRALIA CRITICAL MINERALS INVESTMENT PARTNERSHIP

India and Australia have taken the decision to intensify their collaboration on critical mineral supply chains and projects.

About:

- An MoU was recently signed between Indian KABIL (Khanij Bidesh India Ltd) and the Critical Minerals Facilitation Office (CMFO) of Australia that will try to source lithium and cobalt from Australia.
- Australia will commit \$5.8 million to the 3 yr India-Australia to supply critical minerals required for India's electric vehicles, solar power projects and other strategic areas.

Critical Minerals:

- Critical minerals are elements that are the building blocks of essential modern-day technologies, used everywhere from making mobile phones, computers to batteries, electric vehicles and green technologies like solar panels and wind turbines.
- It includes minerals like graphite, lithium, cobalt, magnets and silicon.
- There are 8 critical minerals that matter to Australia and India:
 - ♦ **Traditional:** Titanium and Vanadium
 - ♦ **Sunrise:** Lithium
 - ♦ **Mixed use:** Cobalt, Nickel, Graphite, Light rare earth elements (LREEs), Heavy rare earth elements (HREEs).

Significance/Demand of Critical Minerals:

- The global transition to clean energy and the pickup of the digital economy, the demand for minerals like lithium and graphite used in electric vehicle (EV) batteries, will rise by up to 4,000%.
- The supply risks exist as a result of the constrained supply, increasing demand, and complex processing value chain.
- The complex supply chain can frequently be upset by adversarial governments or due to politically unstable areas.

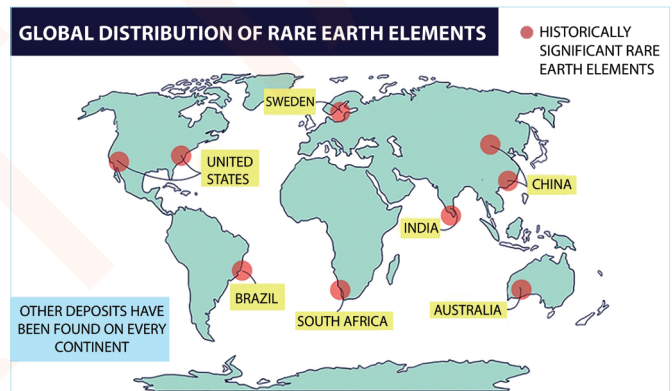
Global Scenario:

- The United States is now concentrating on increasing domestic mining, production, processing, and recycling of vital minerals and materials.
- The UK recently unveiled its new Critical Minerals Intelligence Center to research the supply and demand of these minerals in the future.
- China has the world's largest reserves of rare earths, with its 44 million tonnes in 2021 making up over 36% of global stockpiles, according to data from the US Geological Survey.

- In June 2021, the USA, Canada, and Australia jointly created an interactive map of critical mineral deposits for assisting governments in identifying opportunities to diversify their supply of essential minerals.

Indian Scenario:

- India set up KABIL (Khanij Bidesh India Limited), to "secure a constant supply of important and strategic minerals to the Indian domestic market."
- In addition to ensuring the country's mineral security, KABIL will support the achievement of the ultimate strategy of import substitution.



INDIA-AUSTRALIA RELATIONS

- Australia is in favor of India being a member of the NSG and a greater UN Security Council.
- India and Australia are both participants in the East Asia Summits and members of the G-20, Commonwealth, IOR-ARC, ASEAN Regional Forum, and Asia Pacific Partnership on Climate and Clean Development.
- In addition, India and Australia signed a civil nuclear agreement in 2014 and Australia sent its first shipment of uranium in India (2017).
- AUSINDEX 2021, PITCH BLACK 2018, and AUSTRAHIND 2018 have all been held as bilateral military exercises.
- In order to improve regional capabilities and promote bilateral and multilateral interaction, India will participate in the Indo-Pacific Endeavor Exercise in 2022.
- Both countries recognised the benefits of a free trade agreement and signed the historic IndAus ECTA in April 2022.

THE AFRICAN UNION

Recently, the African Union has completed its 20 years of establishment.

About:

- The African Union (AU) was officially launched in July 2002 in Durban, South Africa.
- **Nature:** The AU is a continental body consisting of the 55 member states that make up the countries of the African Continent.
- **Vision:** An Integrated, Prosperous and Peaceful Africa, driven by its own citizens and representing a dynamic force in the global arena.
- **Aim:** To realise Africa's potential and to focus towards increased cooperation and integration of African states to drive Africa's growth and economic development.
- **Implementation:** The work of the AU is implemented through several principal decision making organs such as The Assembly of Heads of State and Government, the Executive Council, the Permanent Representatives Committee (PRC), Specialised Technical Committees (STCs), the Peace and Security Council and The African Union Commission.
 - ♦ The AU structure promotes participation of African citizens and civil society through the Pan-African Parliament and the Economic, Social & Cultural Council (ECOSOCC).
- **Agenda 2063:** To ensure the realisation of its objectives and the attainment of the Pan African Vision, Agenda 2063 was developed as a strategic framework for Africa's long term socio-economic and integrative transformation.
 - ♦ Agenda 2063 calls for greater collaboration and support for African led initiatives to ensure the achievement of the aspirations of African people.
- **Achievements of the organisation:** African Continental Free Trade Area which commenced in January, 2021 is expected to boost intra-African trade by about \$35 billion by end of 2022.
 - ♦ The larger market area will likely attract investment for continental infrastructure development. The increased trade will create jobs, enhance Africa's global competitiveness, improve social welfare and position Africa for greater industrialisation.
 - ♦ The resultant economic growth should help contribute to peace and stability for the continent's more than one billion population.
 - ♦ On the diplomatic front, the AU has established a permanent mission in Beijing, China, to strengthen economic, commercial and cultural ties with Africa's largest trading partner. This consolidates Africa's global profile and ability to speak with one voice on world affairs.
- **Concerns:** Reform of the UN Security Council to give Africa at least two permanent seats. Over two-thirds of the council's agenda concerns Africa, yet the continent is excluded from permanent representation.
 - ♦ AU still needs to address two main problems to steer Africa into a prosperous future. These are the use of unconstitutional means by leaders to hold on to power; and disregard for the rule of law.
 - ♦ **Unconstitutional hold on power:** Africa has seen a troubling resurgence of military coups and leaders using unconstitutional means to cling to power.
 - ♦ **Disregard for the rule of law:** Africa is seeing a relapse into the autocratic rule of the Cold War era. An increasing number of democratically elected and legitimate governments are cracking down on civil society organizations.

India Africa Relations:

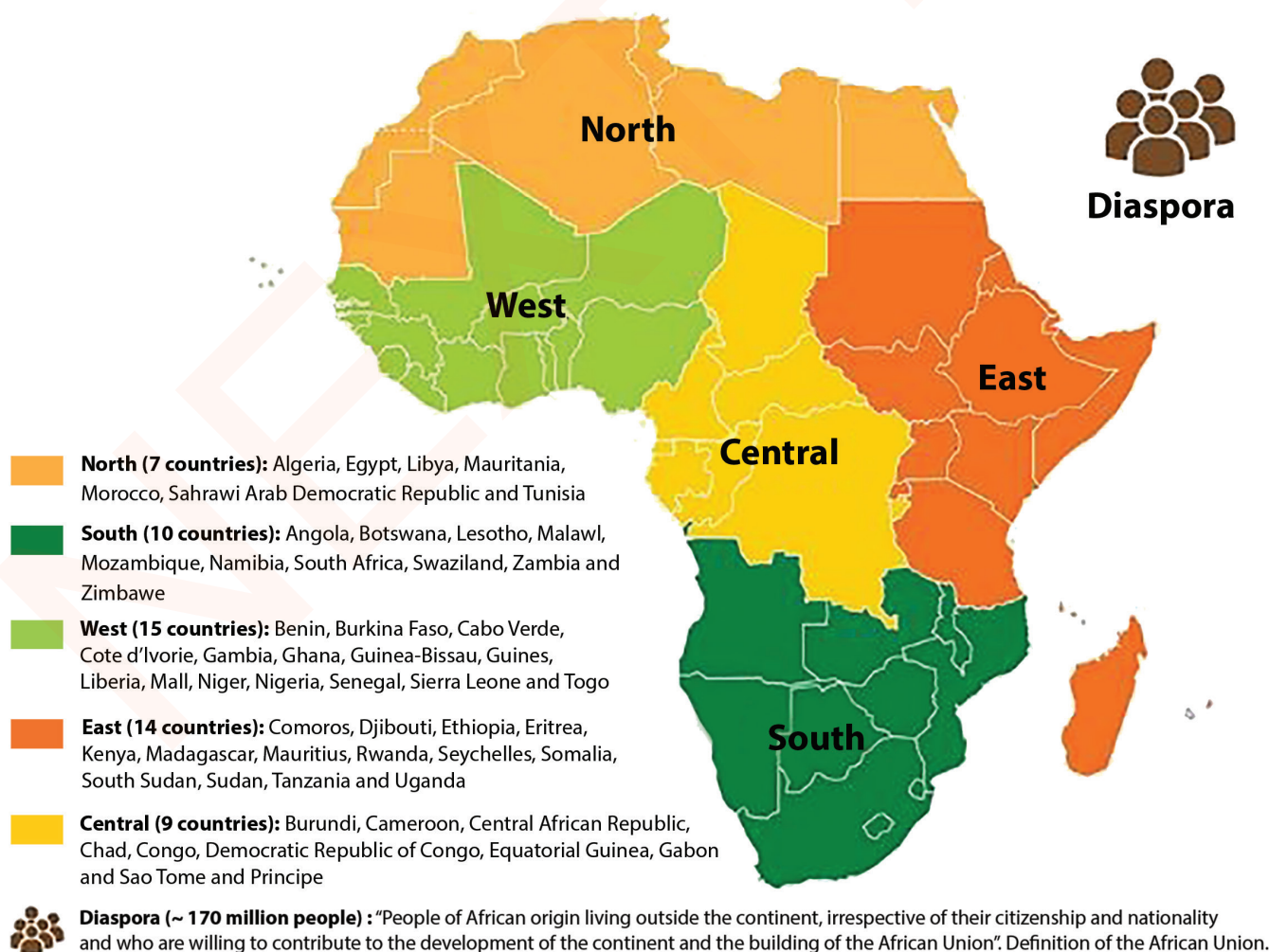
- **Long history of partnership:**
 - ♦ India has a long history of partnership with Africa, with solidarity and political affinity going back to the early 1920s when both regions were fighting against colonial rule and oppression.
 - ♦ After India gained independence, it became a leading voice in support of African decolonization at the United Nations.
- **Indian Technical and Economic Cooperation (ITEC) programme:**
 - ♦ In 1964, India launched the ITEC Programme to provide technical assistance through human resource development to other developing countries, with African countries the greatest beneficiaries of it and the Special Commonwealth African Assistance Programme (SCAAP).
- **Building African capacity:**
 - ♦ In 1949, India announced 70 scholarships for students from other developing countries to pursue studies in the country.
 - ♦ Currently, about 98 Indian institutions run training courses in fields such as
 - Agriculture,
 - Food and fertilizer,
 - Engineering and technology, and
 - Environment and climate change.
 - Oversees defence training programmes,
 - Study tours,
 - Aid for disaster relief,
 - The deputation of Indian experts abroad and
 - Project-based cooperation.

- ♦ Africa is a key beneficiary of the programme with nearly 50 percent of the ITEC slots reserved for countries from the region.
- ♦ India-Africa cooperation has also focused on techno-economic capacity building, skill development and capacity building featured prominently in all the India-Africa Forum Summits.
- **COVID 19:**
 - ♦ India has also aided African countries amid crises, including during the COVID-19 pandemic.
 - ♦ India has provided 270 metric tonnes of food aid to Sudan, South Sudan, Djibouti and Eritrea.
 - ♦ Vaccine diplomacy - Even as developed countries have focussed on securing large vaccine supplies for their own populations, India is being hailed for its vaccine diplomacy — it has exported over 1.6 crore doses of vaccines globally, of which about 62.7 lakh doses (or about 37 percent) are as grant assistance.

Way Ahead:

- African leaders should address the problems which military leaders use as the pretext for coups in African states — mainly corruption, misrule and insecurity.
- The AU should deal decisively with member states that undermine the rule of law within their territories.
- The rule of law is essential for sustained and inclusive economic growth, sustainable development, and the eradication of poverty and hunger.
- Collective economic strength will improve Africa's standing as a global actor.
- The response to coups and instability can't be limited to sanctions.
- The AU must also be firm and consistent in dealing with constitutional violations.

THE SIX REGIONS OF THE AFRICAN UNION



PREVENTION OF MONEY LAUNDERING ACT (PMLA), 2002

Recently, Supreme Court (SC) upheld the constitutional validity of PMLA.

About:

- The legislation was passed in 2002 in response to India's global commitment (including the Vienna Convention) to combat the threat of money laundering arising from the trade of drugs and narcotics and the associated organised crime.
- The PMLA authorises certain officers of the Directorate of Enforcement (ED) to conduct investigations and attach property in cases involving money laundering offenses.
- The provisions of this act are applicable to all financial institutions, banks (Including RBI), mutual funds, insurance companies, and their financial intermediaries.
 - ♦ **Section 3:** It states anyone who directly or indirectly attempts to engage in, knowingly assists, or is actually involved in any process or activity connected with the proceeds of crime and projects it as untainted property is guilty of money-laundering.
 - ♦ **Section 5:** It is associated with provisional attachment of property of the accused.
- The court envisages the designation of one or more sessions courts as Special Courts to try offenses punishable under the PMLA as well as offenses relating to which the accused may be charged at the same trial under the Code of Criminal Procedure 1973.
- Under PMLA, statements made before officers of ED are admissible in court and bail provisions place a reverse burden of proof on the accused, requiring them to show lack of guilt even before the trial commences.

SC Observation:

- The Supreme Court endorsed an expansive definition of money laundering that encompasses all processes and activities involving the proceeds of crime and is not limited to the final act of laundering the money.
- It upheld the ED's extensive powers of summons, arrest, raids and bail provision while shifting the burden of proof of innocence on the accused rather than the prosecution.
- The court observed money laundering

as an offence against the sovereignty and integrity of the country equivalent to terrorism.

- The issue that the amendments to PMLA were introduced by way of the Money Bill would be decided by a larger bench.

Contended Provisions and SC Observation:

- **Summoning (Section 50):** It was argued that the accused were summoned by the ED and forced to sign statements under threat of arrest and the ED assumed the powers of a civil court.
 - ♦ The SC observed that the statements are recorded as part of a "inquiry" into the relevant facts relating to criminal proceeds. It is not the same as an investigation for prosecution.
 - ♦ It rejected the argument that ED authorities are police officers. Therefore, any statement recorded by them would not be bound by Article 20(3) of the Constitution.
 - ♦ Hence, a person cannot seek protection under Article 20(3) of the Constitution (fundamental right against self-incrimination).

ON ED'S POWER UNDER PMLA

An upshot of the judgment by the Supreme Court on the validity of certain provisions under the Prevention of Money Laundering Act

■ The offence of money laundering is as heinous an offence as terrorism

■ Section 3 (definition of money laundering). Section 24 (reverse burden of proof), and section 5 (attachment of property to say)

■ Stringency in granting bail under the Act is legal and not arbitrary

■ It is not mandatory to give an Enforcement Case Information Report (ECIR) in every case as it was not an FIR

■ The statements made to ED are considered admissible

■ Provision of attachment of property of accused as proceeds of crime 'balances' the interests of the accused and the State

■ The question of enactment of PMLA amendments through the Money Bill route is to be decided by a larger Bench



- **Arrest:** The ED could arrest an individual without informing him of the charges.
 - ♦ This power infringed upon the right to “due process” guaranteed by Article 21 of the Constitution.
 - ♦ Furthermore, it was contended that Article 22 required that no one be arrested without first informing them of the reason for the arrest.
 - ♦ The court rejected the contention that the ED has been given broad powers of arrest, search, and seizure.
 - ♦ The apex court stated that the Act contained “in-built safeguards,” such as the requirement to record reasons for arrest in writing.
 - ♦ The court also stated that the Special Court could determine the question of whether the accused should be detained further at its own discretion.
- **Bail (Section 45(1)):** It was argued the accused had no hope of freedom because of the “twin conditions” of bail under the PMLA.
 - ♦ The two conditions are that there should be “reasonable grounds for believing that he is not guilty of such offense” and the accused “is not likely to commit any offense while on bail”.
 - ♦ The conditions were argued for being arbitrary and draconian in as much as they reverse the presumption of innocence at the stage of bail.
 - ♦ The apex court stated that there is a need for “creating a deterrent effect” through stringent legislation hence even a request for anticipatory bail would be subject to the rigors of the PMLA's twin conditions.
 - ♦ However, the court stated that undertrials could seek bail under Section 436A of the Code of Criminal Procedure if they had already served one-half of the sentence prescribed by law.
- **Reverse burden of proof (Section 24):** Contrary to the notion, under PMLA the accused bears the burden of proof.
 - ♦ The apex court observed the issue to be non-arbitrary. After the acceptability of materials supporting suspicion about the person's involvement in the crime under the 2002 Act, the burden of proof is shifted to the person accused to dispel that suspicion.
- **Attachment of property (Section 5):** It was contended that even properties which were not proceeds of crime could be attached by the agency.
 - ♦ The apex court stated that the agency cannot use Section 5 of the PMLA “mechanically.”

- ♦ Authorities under the 2002 Act may not take action against anyone for money laundering based on the assumption that the property recovered by them must be the proceeds of crime and that a scheduled offense has been committed, unless the same is registered with the jurisdictional police or is the subject of an investigation by a complaint before the competent forum.

Enforcement Directorate (ED):

- The Directorate of Enforcement (ED) is a law enforcement agency and economic intelligence agency responsible for enforcing economic laws and fighting economic crime in India.
- It is part of the Department of Revenue, Ministry of Finance.
- The prime objective of the Enforcement Directorate is the enforcement of two key Acts of the Government of India namely, the Foreign Exchange Management Act 1999 (FEMA) and the Prevention of Money Laundering Act 2002 (PMLA) and the Fugitive Economic Offenders Act, 2018 (FEOA).

IMPORTANT ACTS

- **Foreign Exchange Management Act (FEMA)**
 - ♦ FEMA was introduced in India was to facilitate external trade and payments and also assist orderly development and maintenance of the Indian forex market.
 - ♦ FEMA outlines the formalities and procedures for the dealings of all foreign exchange transactions in India. These foreign exchange transactions have been classified into two categories Capital Account Transactions and Current Account Transactions.
 - ♦ The ED has been tasked with conducting investigations into suspected violations of foreign exchange laws and regulations, as well as adjudicating and penalising those found to have broken the law.
- **Fugitive Economic Offenders Act (FEOA):** It is a law that requires the Directorate to attach the properties of fugitive economic offenders who have fled India warranting arrest and confiscate their property for the Central Government. Some of the offences listed in the act are:
 - ♦ Counterfeiting government stamps or currency.
 - ♦ Cheque dishonour.
 - ♦ Money laundering.
 - ♦ Transactions defrauding creditors.

INDIA INTERNATIONAL BULLION EXCHANGE (IIBX)

Recently, the Prime Minister launched the India International Bullion Exchange (IIBX), India's first bullion exchange.

About:

- IIBX has been launched at the GIFT City, Gujarat.
- **History:** The bullion exchange was announced in the 2020 Union Budget.
 - ♦ The MoU between Central Depository Services (India) Limited, India INX International Exchange (IFSC) Limited, Multi Commodity Exchange of India Ltd, National Securities Depository Limited and National Stock Exchange of India Ltd then helped create the holding company India International Bullion Holding IFSC Ltd (IIBH).
 - ♦ This holding company later operationalised IIBX, Bullion Clearing Corporation and Bullion Depository in IFSC.
- **Physical Storage:** It has not only enrolled jewellers to trade on the exchange, but has also set up necessary infrastructure to store physical gold and silver.
 - ♦ A cumulative storage capacity for approximately 125 tonnes of gold and 1,000 tonnes of silver is planned at GIFT City.
- **Participant:** Qualified jewellers will be permitted to import gold through the IIBX.
 - ♦ To become qualified jewellers, entities require a minimum net worth of Rs 25 crore and 90 per cent of the average annual turnover in the last three financial years through deals in goods categorised as precious metals.
 - ♦ Apart from qualified jewellers, non-resident Indians and institutions will also be able to participate on the exchange after registering with the IFSCA.
- **Trading:** Jewellers will be able to transact on IIBX as trading members or as clients of a trading member.
 - ♦ For becoming a trading member, a qualified jeweller may **establish a branch or a subsidiary in IFSC** (international financial services centre) and apply to the IFSCA.
 - ♦ A qualified jeweller based in India and **not having physical presence** in the IFSC may **apply for a limited-purpose trading membership** where the entity **can only trade** on its own account and **no client on boarding shall be permitted**.
- **Monthly report:** The IIBX will **submit a report to IFSCA on a monthly basis** providing details of transactions in bullion by qualified jewellers, including details of products traded, quantity, value, quantity of gold imported etc.
- **Registration:** Currently, there are **56 jewellers** registered on the IIBX.
 - ♦ **This includes** the likes of Malabar Gold Pvt Ltd, Titan Company Ltd, Bangalore Refinery Pvt Ltd, RBZ Jewellers Pvt Ltd, Zaveri and Company Pvt Ltd, Sanghi Jewellers Pvt Ltd, among others.

- **Unit in IFSC:** Any unit in an **SEZ (Special Economic Zone)** which is permitted to store bullion for the purpose of issuance of bullion spot delivery contract and bullion depository receipts (BDR) for trading on IIBX will be deemed as a unit in IFSC.

Significance/Importance:

- **Since the liberalisation:** For the first time in India, since the liberalisation of gold imports through nominated banks and agencies in the 1990s, the eligible qualified jewellers in India, as notified by IFSCA have been allowed to directly import gold through IIBX.
- **Direct participation:** This reform permits direct participation of qualified jewellers on IIBX for the purpose of importing gold.
- **Vault facility:** Indian and global vault service providers have set up or are in the process of setting up vaulting facilities at the GIFT-IFSC.
 - ♦ A storage facility is needed at the exchange for those who **import in advance** keeping upcoming demand or festival season in mind.
- **Trading hub:** The vaulting facilities at all the key bullion centres in India will act as the spokes to feed the bullion for the jewellery manufacturers and exporters across the country, while the IIBX at GIFT-IFSC will serve as a trading hub.
- **Gateway for bullion imports:** The IIBX will be a gateway for bullion imports into India, where all bullion imports for domestic consumption shall be channelized through the exchange.
- **Price:** A bullion exchange will also offer the advantages of price discovery, transparency in disclosures, guaranteed centralised clearing and assurance of quality.
- **Standardisation and transparent mechanism:** A bullion exchange, apart from providing standardisation and transparent mechanism, will also be an important step towards financialization of bullion-based products.
- **Compliance:** The IFSCA has ensured sourcing integrity of the bullion delivered through IIBX by mandating compliance to Organisation for Economic Cooperation and Development (OECD) Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.
 - ♦ This will lead to **quality assurance and sourcing integrity**.
- **International markets:** IFSCA intends to nurture a bullion ecosystem aimed at positioning India in the international markets, initially as a price influencer and ultimately as a price setter.

GIG ECONOMY

NITI Aayog has released a report regarding the Gig Economy in India.

About:

- The report has been titled as 'India's Booming Gig and Platform Economy: Perspectives and Recommendations on the Future of Work'.
- In this report, NITI Aayog has highlighted observations on labor force participation of women and persons with disabilities and also made certain recommendations to companies.
- **Gig Economy:** It is a labour market characterized by the prevalence of short-term contracts or freelance work, as opposed to permanent jobs.
- **Gig Worker:** As per the Ministry of Labour and Employment, a gig worker is a person who engages in income-earning activities outside of a traditional employer-employee relationship, as well as in the informal sector.
- **Platform Worker:** It refers to a worker working for an organization which provides specific services using an online platform directly to individuals or organizations.

Key observations of the NITI Aayog's report:

Labour Force Participation Rate (LFPR):

- LFPR refers to section of working population in the age group of 16-64 in the economy currently employed or seeking employment
- **Female LFP:** The report noted low female LFPR in India. In the last few years, it fluctuated between 16% to 23%.
- **Disabled LFP:** Persons with disabilities constituting 2.11 to 10% of India's population show a 36% LFPR.
- **Structural barriers:** Reasons for the low LFPR of females and the disabled are lack of access to education and skilling.
- **A survey of urban centers in India:** Based on the survey findings, the report noted that after their education and marriage, women are more likely to take up platform jobs.
- **Gig worker's classification:** They can be broadly classified into platform and non-platform workers.
 - ♦ **Platform gig workers:** Work based on online software apps or digital platforms.
 - ♦ **Non-platform gig workers:** Generally casual wage workers, working in a part-time or full-time capacity.

NITI Aayog's recommendations for the Gig Economy:

- Skill development and asset ownership by forging partnerships with Governments, CSOs & Allied Businesses to reskill and upskill women and PwDs and facilitating their access to assets.
- Institutionalize Accessibility, Diversity, and Inclusion at the workplace with initiatives such as Gender-based and Disability Based onboarding targets and incentives.
- **Break Glass Ceiling:** Businesses should promote a higher share of women managers and supervisors in their organizations to ensure that communication with workers does not perpetuate gender stereotypes.
- **RAISE Framework for operationalizing the Code on Social Security (CoSS), 2020:** Social security of workers can also be ensured by extending benefits to workers in collaboration with the government as envisaged in the Code on Social Security, 2020.
- A five-pronged RAISE approach to ensure the realization of full access to social security for all gig and platform workers:
 - Recognise the varied nature of platform work to design equitable schemes.
 - Allow augmentation of social security through innovative financing mechanisms.
 - Incorporate, while designing schemes, the specific interests of platforms, factoring the impact on job creation, platform businesses and workers.
 - Support workers to subscribe to government schemes and welfare programmes through widespread awareness campaigns.

Ensure benefits are readily accessible to workers.

Technology Diffusion and evolving the future of work:

- Technology-driven and innovation-led growth of business in labour platforms need to be balanced with decent working conditions and the well-being of workers.
- **A Platform India initiative** should be introduced to catalyze platformization and accelerate financial inclusion, just like the successful Startup India initiative.
- **Skill development for platform jobs:**
 - ♦ **Outcome-based Skilling:** To strengthen industry linkages and enable on-the-job training. For example, the National Apprenticeship Training Scheme of the Ministry of Education.

Benefits of Gig Economy:

- **Growth potential:** Though the gig and platform economy is a relatively new and emerging sector, it has shown immense potential for growth.
 - ♦ **International Labor Organisation (ILO) data 2021**, the number of web-based platforms has tripled and the number of taxi and delivery platforms has grown nearly tenfold globally.
- **Promote globalization:** Businesses can outsource tasks like design, data entry, analytics, financial services, etc. through web-based platforms.
 - ♦ These Platforms are enabling the fulfillment of the needs of a business in the global North by gig workers in the global South.
- **Sectoral applications:** Digital platforms offer innovative solutions in different sectors such as transport (E.g. Ola), retail, personal and home care (E.g. Urban Company).
- **Employment generation:** They provide promising income opportunities to workers with different skill sets and wider market access to businesses due to low-entry barriers. They also act as a catalyst for occupational mobility.
- **Resilient nature:** The gig economy has demonstrated resilience even during the times of the COVID-19 pandemic, with platform workers playing an indispensable role in urban India.
- **Growing demand:** The employment elasticity to GDP growth for gig workers was above one throughout the period 2011-12 to 2019-20. Also, it has always been above the overall employment elasticity.
 - ♦ This indicates the nature of economic growth creating greater demand for gig workers as compared to non-gig workers.
- Various platforms operating across sectors like ride-hailing, home-based services, food / grocery / medicine delivery, logistics fulfillment, and e-commerce.
 - ♦ They are covering the broad ambit of urban services and making the mobility of workers and clients across markets hassle-free.

Challenges faced by Gig & Platform Workers in India:

- **Issues of Accessibility:** Gig economy is accessible to only those who are willing to engage in it, and have access to

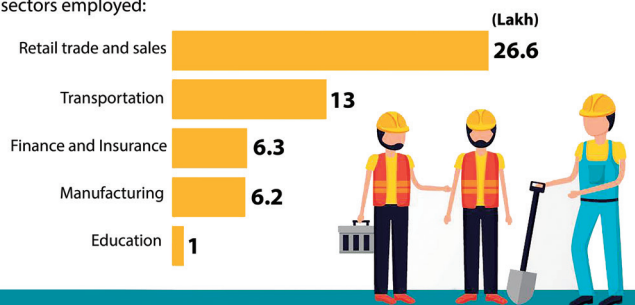
internet services and digital technology. It is more accessible to urban residents and males than rural residents and females.

Job and Income Insecurity:

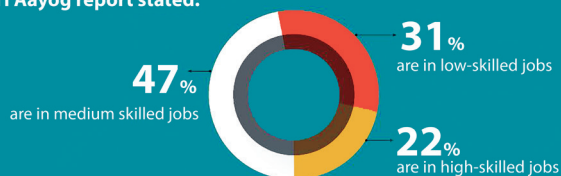
- ♦ Gig and platform workers are typically hired by companies on a contractual basis. They are termed “independent contractors”. They are not considered employees.
- ♦ As a result, workers do not benefit from labor regulations pertaining to wages, hours, working conditions, and the right to collective bargaining.
- ♦ They do not receive the same workplace protections and entitlements as that of on-roll staff like paid sick and casual leaves, travel and housing allowances, and provident fund savings, etc.
- ♦ Low and irregular wages. Example: Swiggy, Zomato, Ola, Uber, Urban Company, etc.
- **Occupational Safety and Health Risks:** Workers engaged in employment with the digital platforms especially women in the app-based taxi and delivery sector face road safety concerns, theft, physical assault, discrimination or harassment (ILO 2021 data).
- **Skills Mismatch:** As per ILO surveys, workers with higher educational achievements are not finding work commensurate with their skills.

GIG WORKFORCE IN INDIA

NITI Aayog, in its report, India's Booming Gig and Platform Economy, said that gig workforce in India is expanding. As of 2019-20, here's what the following sectors employed:



NITI Aayog report stated:



SINGLE USE PLASTIC BAN

Recently the Government has banned the manufacture, sale and use of identified single-use plastic.

About:

- Single Use Plastics have been banned completely from 1 st July 2022.
- The ban will include single use plastic items including grocery bags, food packaging, bottles, straws, containers, cups and cutlery, polystyrene (thermocool) used in decoration, and balloons. etc.
- Under the ban the Government has prohibited the manufacture, import, stocking, distribution, sale, and use of all identified single-use plastic items.

About Single Use Plastic:

- As per United Nations Environmental Programme (UNEP) Single-use plastics, often also referred to as disposable plastics, are commonly used for plastic packaging and include items intended to be used only once before they are thrown away or recycled.
- As per the World Wildlife Fund (WWF), single use plastic is harmful to the environment as it is non-biodegradable, and takes years to disintegrate.

- Single use plastics never break down completely, they degrade and become microplastics and continue to pollute the environment.
- These also include plastic glasses, cups, plates, cutlery, trays, packaging or wrapping films around invitation cards, sweet boxes, plastic or polyvinyl chloride banners less than 100 micron and plastic stirrers.

Environmental Issues due to Single use Plastic:

- Currently, marine litter is 60 to 80 percent plastic, which is directly swallowed by sea creatures. It impacts marine biodiversity in the short as well as in the long run.
 - Every year, countless animals are killed by plastic. Seabirds, fishes, turtles and marine mammals are found to have fishing gear or plastic bags in their stomachs.
- When disposable plastics degrade in the environment, they emit several greenhouse gases such as methane and ethylene, which have a detrimental effect.
- Single use plastics can take thousands of years for plastic bags to decompose, thus contaminating soil and water in the process.

PLASTIC WASTE MANAGEMENT RULES

Plastic Waste Management Rules:

- The Plastic Waste Management Rules (PWMR), 2016, provides the statutory framework for plastic waste management in an environmentally sound manner throughout the country.
- The Ministry has notified the Plastic Waste Management Amendment Rules, 2021, from July 2022.
- The Ministry of Environment, Forest and Climate Change has also notified the Guidelines on the Extended Producer Responsibility for plastic packaging vide Plastic Waste Management Amendment Rules, 2022.
- As per the waste management amendment rules 2022 earbuds with plastic sticks for balloons, plastic flags, candy sticks, ice cream sticks, polystyrene (thermocool) for decoration will be banned from July 1, 2022.

Steps taken to strengthen the implementation of Plastic Waste Management Rules, 2016:

- Almost all States/UTs have constituted the Special Task Force under the chairpersonship of the Chief Secretary /

Administrator for elimination of identified single use plastic items pursuant to the directions of the Ministry in this regard.

- A National Level Taskforce has also been constituted by the Ministry in this regard.
- The State /UT Governments and concerned Central Ministries/Departments have also been requested to develop a comprehensive action plan and implement it in a time bound manner.
- Fourteen States/UTs and twelve Central Ministries have developed their comprehensive action plans.
- Under Swachh Bharat Mission 2.0, additional Central Assistance is also provided to States and Union territories for solid waste management including plastic waste management.
- Swachh Bharat Mission Urban 2.0 has specific focus on elimination of single use plastics.
- Single use plastic ban has been incorporated as an important component in Swachh Survekshan 2022, Star rating of Garbage Free Cities and as an entry condition for participating in Safari Mitra Suraksha Challenge, to reduce plastic waste.

- The noxious chemicals used to produce plastic get transmitted to animal tissue, and finally, enter the human food chain.
- A recent report by the UN Environment Program (UNEP) has expanded on the disastrous effects of single-use plastic pollution on at-risk communities.
- Plastic production is causing deforestation and contaminating potable water.
- Plastic waste is endangering communities that rely on marine resources to survive.
- Women are at larger risk of health complications due to a higher aggregate of exposure to plastic products.

Pros and Cons of Plastic Ban:

Pros

- Plastic bags bans enhance the economy, Bans on plastic bags cause an uptick in business for reusable bag manufacturers and lead to increased employment opportunities.
- **Eliminating plastic bags reduces cost of goods:** Stores have to factor in the cost of disposable bags into their prices.
- **Plastic bags are not biodegradable:** When plastic bags become litter, they pollute oceans, rivers, farmlands, cities, and neighborhoods. Bans eliminate bags, which equals less litter and less pollution.
- **Picking up litter costs tax money:** Banning plastic bags will reduce litter and allow for tax money to be redirected to more important areas.
- **Marine life will improve:** Marine animals often mistake plastic bags as jellyfish or plankton, leading them to consume the litter and become ill or die.
- **Drainage infrastructures run more efficiently:** Plastic litter often clogs drainage systems, causing unnecessary flooding.

- **Plastic bag bans reduce the need for petroleum:** Banning plastic bags will minimize the dependency on the limited non-renewable resource.
- **Decrease the mosquito population:** Discarded plastic bags collect rainwater and create a breeding ground for mosquitoes, some of which could carry the West Nile Virus or Triple E Virus.

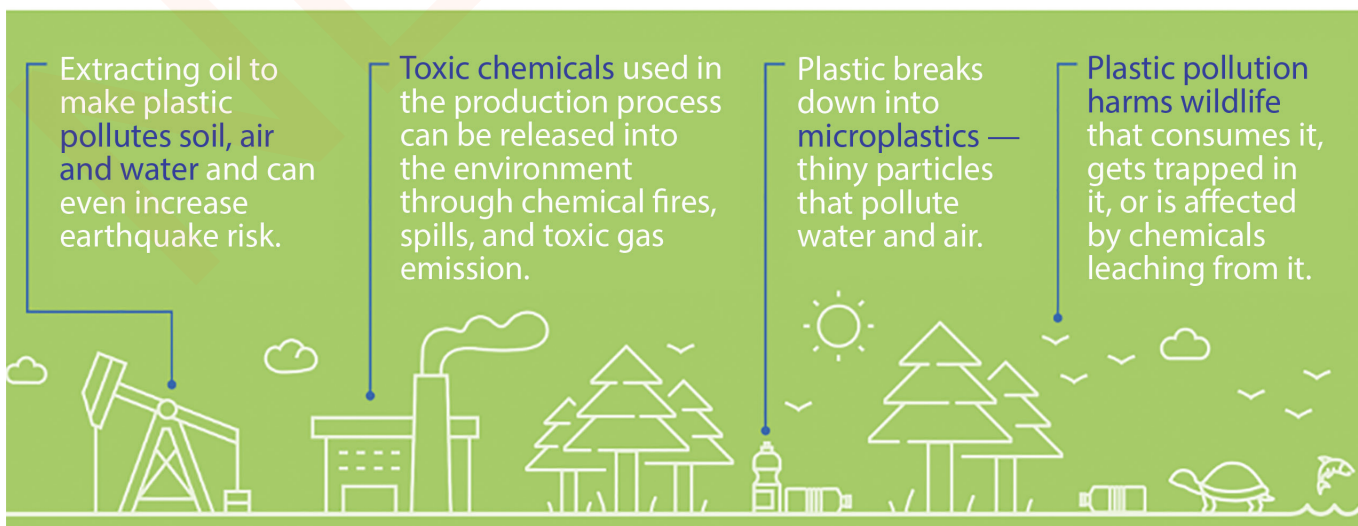
Cons

- **Plastic bags manufacturers scale back:** The ban will hamper the Rs 10,000-crore size industry that employs 2 lakh people directly and 4.5 lakh people indirectly.
- **Upfront cost to shoppers:** Plastic bag bans will require shoppers having to purchase reusable bags.
- **Informal economy** may be negatively affected. The street vendors will have to rely on other substitutes of single use plastics which may be costlier.

ALTERNATIVES TO SINGLE USE PLASTIC

- The ban on single-use plastic will harbor innovation, specifically for plant-based rapid biodegradable products.
- Bio-based plastics or bioplastics are becoming increasingly prevalent. Bioplastics are manufactured in whole or in part from biological resources.
- Use of bamboo, paper, or metal straws to replace plastic straws. Further, we can promote edible straws such as pasta straws or rice straws.
- Encouragement of reusable water bottles and tap water to replace bottled water.
- Replace plastic shopping bags with a reusable cloth bag. Attach balloons with string/holder. Opt for kites, paper ribbons and flags, as well as tissue balls. Natural fibers can be used for sponges and dish rags with scrubbers.

IMPACTS OF PLASTICS ON THE ENVIRONMENT



SUSTAINABLE DEVELOPMENT REPORT, 2022

The Sustainable Development Report 2022 was released recently.

About:

- The Sustainable Development Report is a worldwide study to assess where each country stands with regard to achieving the Sustainable Development Goals (SDGs).
- It is published by a group of independent experts at the Sustainable Development Solutions Network (SDSN).
 - ♦ The UN SDSN was launched in 2012.
 - ♦ It mobilizes global scientific and technological expertise to promote practical solutions for sustainable development, including the implementation of the SDGs and the Paris Climate Agreement.
- Since 2015, the report has been tracking and ranking the performance of 163 UN member states on SDGs.
- **Rankings:**
 - ♦ Countries are ranked by their overall score.
 - ♦ The overall score measures the total progress towards achieving all 17 SDGs.
 - ♦ The score can be interpreted as a percentage of SDG achievement.
 - ♦ A score of 100 indicates that all SDGs have been achieved.

Key Highlights of the Report:

Global Scenario:

- Multiple and simultaneous health, climate, biodiversity, geopolitical and military crises are major setbacks for sustainable development globally.
- The SDG Index world average has slightly decreased in 2021 for the second year in a row.
- Besides their massive humanitarian costs, military conflicts – including the war in Ukraine – have major international spillovers on food security and energy prices, which are amplified by the climate and biodiversity crises.
- The 2022 SDG Index is topped by Finland, followed by three Nordic countries –Denmark, Sweden and Norway.
- East and South Asia is the region that progressed most on the SDGs since their adoption in 2015.
- Bangladesh and Cambodia are the two countries that progressed most on the SDGs since 2015.

Indian Scenario:

- India was ranked 121 out of the 163 countries. It was ranked 117 in 2020 and 120 in 2021.
- India is not placed well to achieve the United Nations-mandated Sustainable Development Goals (SDG) and its preparedness has worsened over the years in comparison with other countries.

- The country continues to face major challenges in achieving 11 of the 17 SDGs, which has pushed down its global ranking on SDG preparedness.
- Ensuring decent work (SDG 8) has become more challenging.
- According to the report, India is on track to achieving SDG 13 on climate action.
- However, The State of India's Environment, 2022 flagged that the country was facing major challenges in this area.
 - ♦ India's performance on climate action — (SDG) 13 — has slipped from 2019-2020.
 - ♦ This decline in India's overall performance is primarily due to eight states — Bihar, Telangana, Rajasthan, Uttar Pradesh, Karnataka, Andhra Pradesh, Punjab and Jharkhand — whose scores have dipped under SDG 13 in the two years.
- **Progress:** The progress in around 10 of these goals is similar to those in 2021. These include SDG 2 on ending hunger, SDG 3 on good health and well being and SDG 6 on clean water and sanitation.

Other Findings of the Report:

- Rich countries generate negative international spillovers notably through unsustainable consumption.
- New partnerships and innovations that emerged during the COVID-19 pandemic, including in scientific cooperation and data, should be scaled-up to support the SDGs.
 - ♦ Science, technological innovations, and data systems can help identify solutions in times of crises and can provide decisive contributions to address the major challenges of our times.

SUSTAINABLE DEVELOPMENT GOALS

- The Sustainable Development Goals (SDGs), also known as the Global Goals, were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity.
- The 17 SDGs are integrated—they recognize that action in one area will affect outcomes in others, and that development must balance social, economic and environmental sustainability.
- Countries have committed to prioritize progress for those who're furthest behind. The SDGs are designed to end poverty, hunger, AIDS, and discrimination against women and girls.

NEW AIR POLLUTION COMBAT PLAN REPORT, 2022

Recently, a policy of revising the Graded Response Action Plan (GRAP) was made public.

The Graded Response Action Plan (GRAP)

- GRAP is a set of measures to be taken to reduce the air pollution based on the present level of pollution.
 - GRAP was notified by the Union Environment Ministry in 2017 to fight air pollution, after the SC directions.
- However, GRAP works only as an emergency measure. It does not include action by various state governments to be taken throughout the year to tackle industrial, vehicular and combustion emissions.

Suggested revisions to the GRAP (2017):

- Air Quality Index (AQI) based action:** The revised policy suggested taking action based on AQI instead of the existing system of response based on particulate matter concentrations.

NATIONAL AIR QUALITY INDEX (AQI)

- It was launched by the environment minister in 2014 to act as 'One Number- One Colour-One Description' for the common man to judge the air quality within his vicinity.
- There are six AQI categories, namely Good, Satisfactory, Moderately polluted, Poor, Very Poor, and Severe.
- The AQI considers eight pollutants (PM₁₀, PM_{2.5}, NO₂, SO₂, CO, O₃, NH₃, and Pb) for which short-term (up to 24-hourly averaging period) National Ambient Air Quality Standards are prescribed.
- Based on the measured ambient concentrations, corresponding standards and likely health impact, a sub-index is calculated for each of these pollutants. The worst sub-index reflects overall AQI.
- Proactive action, not reactive:** When AQI is 'very poor', 'severe' or 'severe+', action will be taken "at least three days in advance of the AQI reaching the projected levels of that stage" based on forecasts.
- Sectoral measures:** Also, when AQI is 'severe' construction activities will be banned and NCR state governments will have the option to impose restrictions on BS-III petrol and BS-IV diesel four-wheelers.
- Vehicle mobility:** Four-wheeler diesel light motor vehicles in Delhi and districts bordering Delhi might be banned under restrictions in the 'severe+' category, with the exception of BS-VI vehicles and those used for essential or emergency services will be exceptions. It will also include emergency services and odd-even policy.

- Changes in specific restrictions:** Apart from the enforcement of Pollution Under Control (PUC) norms and odd-even basis for private vehicles, the GRAP did not impose any specific restrictions on light motor vehicles.

AQI	Associated Health Impacts
Good (0-50)	Minimal Impact
Satisfactory (51-100)	May cause minor breathing discomfort to sensitive people.
Moderately polluted (101-200)	May cause breathing discomfort to people with lung disease such as asthma, and discomfort to people with heart disease children and older adults.
Poor (201-300)	May cause breathing discomfort to people on prolonged exposure and discomfort to people with heart disease.
Very Poor (301-400)	May cause respiratory illness to the people on prolonged exposure. Effect may be more pronounced in people with lung and heart disease.
Severe (401-500)	May cause respiratory impact even on healthy people and serious health impacts on people with lung/heart disease. The health impacts may be experienced even during light physical activity.

- Strengthening the air quality monitoring network:** In NCR, only Delhi has an adequate number of monitors (50 out of 146). Thus, the Central Pollution Control Board (CPCB) and state PCBs need to devise a plan of action to strengthen the monitoring network in other NCR districts by 31st July 2022.
- Remote monitoring mechanism for on-road vehicles:** The Ministry of Road Transport and Highways is tasked to formulate monitoring norms for on-road vehicles with remote sensing devices for emissions surveillance by 31st December 2022.
- Retro-fitment policy:** The revised policy recommended NCR state governments to prepare a policy for retro-fitment of vehicles to electric. It also suggested a system for collection of used batteries and engines for disposal by December 2022.
- It includes "urgent modernisation and upscaling" of buses and phasing out of diesel auto rickshaws in all of the NCR by December 2026.

HARNESSING GREEN HYDROGEN

Recently, NITI Aayog has released a report titled Harnessing Green Hydrogen Opportunities for Deep Decarbonisation in India.

About:

- **Aim:** The report intends to highlight the unique ecosystem advantages India has and how the stage is set for the country to become a global champion in green hydrogen.
 - ♦ The report works towards a hydrogen strategy that is designed to construct a high-tech and low-carbon Indian brand and aspires to serve as one of the key knowledge bases.
 - ♦ In the report, NITI Aayog and RMI have analyzed the opportunities that green hydrogen presents for India.
- **Green hydrogen:** Hydrogen that is produced using renewable energy through electrolysis is known as Green hydrogen.
 - ♦ In this process, hydrogen is separated from oxygen in the water through an electric current.
 - ♦ Renewable sources, such as solar or wind are used in the requirement for electricity for electrolysis. Therefore, no greenhouse gases are emitted in this method of hydrogen production.

Major highlights of the report:

- **Deep decarbonisation:** It refers to the gradual elimination of carbon-emitting fuels, favoring more sustainable alternatives. The term is used for removal or reduction of carbon dioxide output of a country's economy.
 - ♦ This is usually done by decreasing the amount of CO₂ emitted across the active industries within that economy.
 - ♦ Many sectors such as iron ore and steel, fertilizers, refining, methanol, and maritime shipping emit major amounts of CO₂, and carbon-free hydrogen will play a critical role in enabling deep decarbonization.
 - ♦ For other high-emitting sectors, such as heavy-duty trucking and aviation, hydrogen is among the main options being explored with an outlook to be the preferred solution for several applications.
 - ♦ This has resulted in growing global momentum towards hydrogen in general, and green hydrogen in Particular.
 - ♦ The global demand for hydrogen could grow by almost 400 percent by 2050, led by industry and transportation.
 - ♦ At least 43 countries have now set up or are setting up strategies or roadmaps for a hydrogen economy.

Indian Scenario:

- For India, this current impetus surrounding the hydrogen transition fits well within the context of a low-carbon economy, energy security, and the larger economic development ambition of the nation.

HYDROGEN END USE

Fuel

Transport



Maritime



Trains



Road Freight



Aviation

Power



Flexibility
Seasonal Storage
Peaking Plants
Power backup

Feedstock

Chemicals



Fertilizer, Plastics,
Fuel refining

Products



Metallurgy, Steel
Food, Glass

Heat

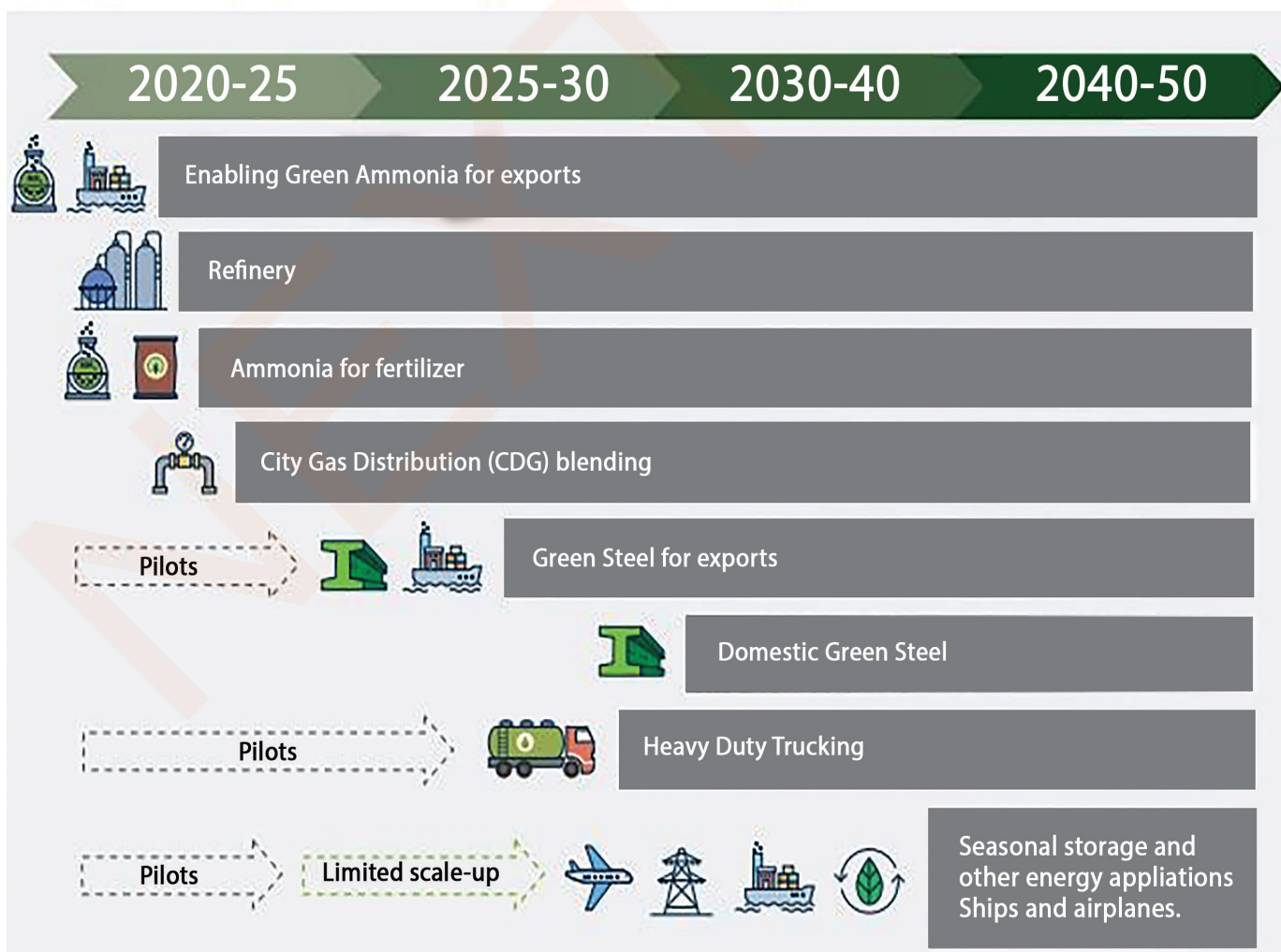
Industry



Steel, Paper, Cement,
Aluminium, Food

- **Leading the production:** India's distinct advantage in low-cost renewable energy generation makes green hydrogen the most competitive form of hydrogen in the long run.
 - ♦ Green hydrogen can achieve cost parity with natural gas-based hydrogen (grey hydrogen) by 2030.
 - ♦ Grey hydrogen is produced by coal or lignite gasification (black or brown), or via a process called steam methane reformation (SMR) of natural gas or methane (grey).
- **Economic benefits:** It will also enable the emergence of a domestically produced energy carrier that can reduce the dependence on imports for key commodities like natural gas and petroleum.
 - ♦ Hydrogen demand in India could grow more than fourfold by 2050, representing almost 10% of global hydrogen demand.
 - ♦ From a price parity basis alone, green hydrogen's share of this demand could grow from 16% in 2030 to almost 94% by 2050.
- Energy import savings from green hydrogen can range from \$246 billion to \$358 billion within the same period.
- **Energy security:** Beyond the financial savings, the energy security that green hydrogen provides will translate to less volatile price inputs for India's industries as well as strengthen India's foreign exchange situation in the long run.
 - ♦ It's crucial to focus on domestic demand creation efforts, cost reduction pathways, and early pilots, as well as to learn by doing competitive manufacturing of electrolyzers.
- **Reduction in carbon emissions:** Adoption of green hydrogen will also result in 3.6 giga tonnes of cumulative CO2 emissions reductions between 2020 and 2050.
- **Measures that India can take:**
 - ♦ **Early market development:** Limitation of storage and the high cost of transportation means that early market development should center on identifying clusters of industrial demand that could be served by localized generation of hydrogen.

POTENTIAL DIRECTION OF A NATIONAL GREEN HYDROGEN ROADMAP



- The government can reduce costs through preferential electricity tariffs. And it can develop the market through incentives and mandates for existing hydrogen consuming sectors like refinery and ammonia/fertilizer, which will require comparatively lower transition support.
- Such favourable policies can greatly increase demand for hydrogen and the accompanying electrolyser capacity required.
- ♦ **Global trade:** A truly domestic energy carrier that is competitive globally can also provide a unique opportunity to participate in the energy and commodities trade.
 - Given the expected growth in global demand and the disparity between producing and consuming nations, the need for hydrogen trade is bound to emerge eventually.
 - If volume growth and price decline expectations can be met, this hydrogen transition can enable industries to shape up in India around exports of green hydrogen and hydrogen embedded low-carbon commodities like green ammonia and green steel.
- The report provides ten actionable steps that can guide a National Action Plan on Green Hydrogen:
 - ♦ A detailed roadmap focused on all aspects of 'Green Hydrogen.
 - ♦ Intervene on the supply-side to reduce the cost of green hydrogen to \$1/kg the government can encourage the cost economics of early producers.
 - ♦ Establish mandates and provide incentives to achieve a green hydrogen production capacity of 160 GW.
 - ♦ Build manufacturing capacity totalling 25GW by 2030 coupled with supportive manufacturing and R&D investments.
 - ♦ Initiate green hydrogen standards and a labelling programme.
 - ♦ Promotion of exports of green hydrogen and green hydrogen-embedded products through a global hydrogen alliance.
 - ♦ Facilitate investment through demand aggregation and dollar-based bidding for green hydrogen.
 - ♦ Encourage state-level action and policy making related to Green Hydrogen.
 - ♦ Encourage capacity building and skill development.
 - ♦ Construct an inter-ministerial governance structure.

INDIA'S GREEN HYDROGEN POLICY

- Most large economies including India have committed to net zero targets. Transition to Green Hydrogen and Green Ammonia is one of the major requirements for reduction of emissions, especially in the hard to abate sectors.
- **The policy on Green Hydrogen provides the following:**
 - ♦ Green Hydrogen / Ammonia manufacturers may purchase renewable power from the power exchange or set up renewable energy capacity themselves or through any other developer, anywhere.
 - ♦ Open access will be granted within 15 days of receipt of application.
 - ♦ The Green Hydrogen / Ammonia manufacturer can bank his unconsumed renewable power, up to 30 days, with a distribution company and take it back when required.
 - ♦ Distribution licensees can also procure and supply Renewable Energy to the manufacturers of Green Hydrogen / Green Ammonia in their States at concessional prices which will only include the cost of procurement, wheeling charges and a small margin as determined by the State Commission.
 - ♦ Waiver of inter-state transmission charges for a period of 25 years will be allowed to the manufacturers of Green Hydrogen and Green Ammonia for the projects commissioned before 30th June 2025.
 - ♦ The manufacturers of Green Hydrogen / Ammonia and the renewable energy plant shall be given connectivity to the grid on priority basis to avoid any procedural delays.
 - ♦ The benefit of Renewable Purchase Obligation (RPO) will be granted incentive to the hydrogen/Ammonia manufacturer and the Distribution licensee for consumption of renewable power.
 - ♦ To ensure ease of doing business a single portal for carrying out all the activities including statutory clearances in a time bound manner will be set up by MNRE.
 - ♦ Connectivity, at the generation end and the Green Hydrogen / Green Ammonia manufacturing end, to the ISTS for Renewable Energy capacity set up for the purpose of manufacturing Green Hydrogen / Green Ammonia shall be granted on priority.
 - ♦ Manufacturers of Green Hydrogen / Green Ammonia shall be allowed to set up bunkers near Ports for storage of Green Ammonia for export / use by shipping. The land for the storage for this purpose shall be provided by the respective Port Authorities at applicable charges.

ECOLOGICAL SIGNIFICANCE OF RAINFORESTS

Deforestation in Brazil's Rainforest has hit a record for the first half of 2022.

About:

- A rainforest refers to an area of tall, mostly evergreen trees receiving high amounts of rainfall and insolation.
- They are Earth's oldest living ecosystems, with some surviving in their present form for at least 70 million years and characterised by highly diverse and complex ecosystems.
- Provide habitat to more than half of the world's plant and animal species on just 6% of Earth's surface.
- They are closed-canopy forests with layered structures.

Classification:

On the basis of different climatic and vegetation types, rainforests are generally classified into two types-

Tropical Rainforests:

- Most biologically diverse terrestrial ecosystems in the world
- **Climatic conditions:** Mean monthly temperatures of more than 18°C around the year.
- **Precipitation:** Frequent rainfall, ranging between 200-1000 centimetres (80-400 inches) per year.
- **Relative Humidity:** High temperatures and ample sunlight keep the air warm and wet, with an average humidity of between 77% and 88%.
 - ♦ There is no distinct season.
- **Soils:** Oxisols and Ultisols, which are soils rich in iron and aluminium oxides (red colour); acidic and low in fertility due to intense leaching of nutrients.
- **Distribution:** Found in Central and South America, Western and Central Africa, western India, Southeast Asia, the island of New Guinea, and Australia.

Temperate Rainforests:

- These are cool and wet forests located in mid latitudes.
- They are found in coastal and mountainous regions receiving between 150-500 centimetres (60-200 inches) of rain per year.
- Climate averaging between 10° and 21°C (50° and 70°F).
- They are also much less sunny as compared to the tropical rainforests, they experience major seasonal changes.
- Generally, there is only the emergent layer and the canopy layer of the vegetation with needle-like leaves.
- Less biologically diverse than tropical ones.
- **High biological productivity:** Store around up to 500-2000 metric tons of organic matter per hectare (202-809 metric tons per acre).

- **Distribution:** The Pacific coast of North America, the southeast coast of Chile, South America, small parts in the U.K., New Zealand, Japan, South Australia, and Norway.

Key characteristics of Rainforests:

Climatic conditions-

- **Temperature**
 - ♦ There is a great uniformity of temperature throughout the year and the mean monthly temperatures are always around 24 to 27°C.
 - ♦ The daily temperature is moderated by the effect of cloudiness & heavy precipitation.
- **Humidity:** The climate remains monotonous, oppressive & enervating due to high humidity (more than 80%).

One of the highest plant diversity:

- Most biologically diverse terrestrial ecosystems in the world.
- They are home to more than half of the world's plants.

Significance of Rainforests:

Ecological:

- Nearly 30 million species of plants and animals live in rainforests.
- It makes half of the Earth's wildlife & two-thirds of its plant species.
- These forests are made up of 1.2 billion hectares (3 billion acres) of vegetation and are sometimes described as the Earth's thermostat.
- According to ecologists, there are millions of unique species of flora & fauna that haven't been discovered yet.
- They are known to support not only the whole of humanity but support the vital mechanisms of the biosphere such as nutrient cycling, maintaining the hydrological cycle, and so on.

The Giant carbon sink:

- These rainforests are called "the lungs of the earth".
- Tropical rainforests play an important role as carbon sinks in the global carbon cycle.
- A study by the Yale School of Forestry and Environmental Studies states that all tropical forests combined contain about 25 percent of the world's carbon, with the Amazon basin storing up to 140 billion tons (127 billion metric tons).
- The Amazon Rainforest produces approximately 20 percent of the world's oxygen.

- These forests help in offsetting the effect of climate change by taking in carbon dioxide through photosynthesis and releasing oxygen.
- Thus they help in alleviating the impact of global warming & climate change.
- They also help in stabilizing the global temperature by absorbing massive amounts of solar radiation.

A climate regulator:

- It is believed that almost half of the earth's rainwater is stored in the Amazon rainforests.
- The Amazon river is the largest river in the world by volume & second longest River in the world.
- These forests store rainwater as a huge sponge.
- They draw water from forest floors & release it back into the atmosphere through cloud & rainfall.
- More than 50% of precipitation striking a rainforest is returned to the atmosphere by evapotranspiration
- Hence, they help in regulating the hydrological cycle.
- Tree roots of these forests also increase infiltration, which allows more water to percolate to groundwater stores and develop aquifers.

Potential Treasure for pharma:

- More than 25% of our modern medicines originate from tropical forest plants.
- The potential of rainforest in pharmacy is still largely untapped.
- According to the U.S. National Cancer Institute, 70% of plants useful in the treatment of cancer are found only in rainforests.

Industrial & agricultural Products:

- Many industrial raw materials such as fibers, resins, dyes, and rubber are obtained from these forests.
- Cash crops such as bananas, wild coffee, cocoa, etc. can be obtained from Rainforests.
- Oil palm plantation of Indonesia which covers an area of over 7.8 million hectares, employs over 2 million people, makes 7% of Indonesia's exports & is valued at \$12 billion.
- Conducted by economists and agricultural engineers, the research found that the economic benefit of the Amazon Rainforest, if it is conserved, would be \$8.2 billion a year.

Major threats to rainforest:

- **Deforestation, and fragmentation:**
 - ♦ Land-use change is thought to have the greatest impact on biodiversity in tropical forests.
 - ♦ Forest clearance destroys the habitat and generally causes a decline in forest species abundance and diversity, particularly for species that are restricted in range.

- **Invasive species:**

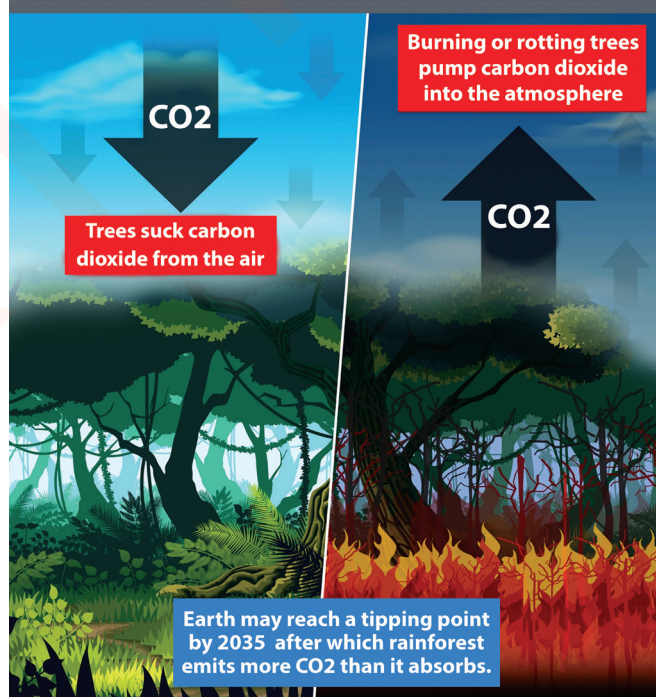
- ♦ Invasive species are non-native species that have been established outside their natural range, while introduced species have been established outside their natural range by human action.
- ♦ Both invasive and introduced species can cause extinctions, alter abiotic environments, become pests, or introduce diseases.

- **Climate change:**

- ♦ Climate change is expected to rival land-use change as the most important impact on tropical forest biodiversity.
- ♦ Droughts and floods may alter the moisture exchange between forests and the atmosphere and can affect the survival of the Amazon forest.

AMAZON TO BECOME SOURCE OF CO₂

The Amazon rainforest helps absorb carbon dioxide from the atmosphere. By 2035, deforestation and wildfires could mean the region tips from absorbing carbon to becoming a source of emissions.



- **Cattle Ranching:**

- ♦ It is one of the leading causes of deforestation in the Amazon Rainforest.
- ♦ The practice of slash & burn is adopted to clear forests to make land clear for cattle ranching and this results in the degradation of the rainforests.

- **Logging:**

- ♦ Logging activities are undertaken to provide wood, paper products, timber, and fuel. It is the second largest cause of rainforest destruction.

- ♦ Almost 90% of the rainforest of West Africa has been destroyed & now logging is spreading to Central Africa.
- **Farming:**
 - ♦ Crops such as palm oil, sugar cane, coffee, tea, bananas, and pineapples are grown in the rainforests.
 - ♦ Small-scale agriculture is a major driver of deforestation in the Amazon Rainforest.
- **Mining:**
 - ♦ The rainforests of the Amazon are rich reservoirs of minerals such as iron ore, aluminium, manganese, copper, tin, and gold.
 - ♦ The mining activities led to the clearance of large tracts of Amazon rainforests and their degradation.
- **Forest Fires:**
 - ♦ Forest fire every year destroys a portion of the rainforests which has both short as well as long consequences on the forest and its ecology.
- **Settlement and Infrastructure:**
 - ♦ Rainforests are being cleared for settlement & infrastructure projects.
 - ♦ Rising population & unplanned development is responsible for it.
 - ♦ Power plants and other industries cut and burn trees to generate electricity. The paper industry turns huge tracts of rain forest trees into pulp. The cattle industry uses slash-and-burn techniques to clear ranch land.

FOREST CONSERVATION ORGANISATIONS/INITIATIVES

- **The International Tropical Timber Organisation (ITTO)**
 - ♦ It is an intergovernmental organisation promoting the sustainable management and conservation of tropical forests. It was established in 1989 and India is a founding member.
- **United Nations Forum on Forests**
 - ♦ It has been established by Economic and Social Council of the United Nations (ECOSOC).
 - ♦ It aims to promote the management, conservation, and sustainable development of all types of forests.
- **Reducing Emissions from Deforestation and forest Degradation (REDD)**
 - ♦ It is a United Nations Programme and a collaborative program of-the Food and Agricultural Organization (FAO), United Nations Development Programme (UNDP) & United Nations Environment Programme (UNEP).
 - ♦ It aims to to reduce forest emissions and enhance forest carbon stocks.
- **Reducing Emissions from Deforestation and forest Degradation (REDD+)**
 - ♦ It is mechanism developed by Parties to the United Nations Framework Convention on Climate Change (UNFCCC) in 2005.
 - ♦ It aims for climate change mitigation by incentivizing forest conservation.



SOIL DEGRADATION

Soil degradation is proving to be a challenge to food production.

About:

- The current status of soil health is alarming and soil degradation on an unprecedented scale is a significant challenge to sustainable food production.
- About one-third of the earth's soils are already degraded and if no corrective action is taken then, 90 per cent of soils will be degraded by 2050.
- **Soil Degradation:** FAO defines soil degradation as the change in the soil health status resulting in a diminished capacity of the ecosystem to provide goods and services for its beneficiaries.

Causes of Soil Degradation:

- **Physical Factors-** Rainfall, surface runoff, floods, wind erosion, tillage, and mass movements result in the loss of fertile top soil thereby declining soil quality.
- **Biological Factors-** decrease in the microbial activity of the soil. Some bacteria and fungi overgrowth in an area can highly impact the microbial activity of the soil through biochemical reactions.
- **Human activities-**
 - ♦ **Deforestation-** Deforestation causes soil degradation on the account of exposing soil minerals by removing trees and crop cover, which support the availability of humus and litter layers on the surface of the soil.
 - ♦ **Misuse or excess use of fertilizers-** The excessive use and the misuse of pesticides and chemical fertilizers kill organisms that assist in binding the soil together.
 - ♦ **Industrial and Mining activities-** Mining destroys crop cover and releases toxic chemicals such as mercury into the soil thereby poisoning it and rendering it unproductive.
 - ♦ **Improper cultivation practices-** Certain agricultural practices (such as monocropping, Slash and Burn, excessive irrigation etc) are environmentally unsustainable and contribute to the worldwide increase in soil quality decline.
 - Soil compaction occurs when there is a combination of wet soil and heavy weight, for example, unwieldy machinery in farming. In this soil particles are pressed together, reducing pore space between them. A compacted soil has a reduced rate of both water infiltration and drainage
 - Excessive irrigation causes increased salinization (accumulation of free salts to such an extent that it leads to degradation of soils and vegetation).

- Monoculture practices lead to the same nutrients continuously being absorbed, which eventually leads to depletion. Monoculture is a form of agriculture that is based on growing only one type of a crop at one time on a specific field.
- Monoculture also makes soil susceptible to pests, pathogens and diseases which adapt to the unchanging environment and cause devastating destruction of crops.
- ♦ **Urbanization-** Urbanization denudates the soil's vegetation cover, compacts soil during construction, and alters the drainage pattern.
- ♦ **Overgrazing-** It destroys surface crop cover and breaks down soil particles which lead to an increased rate of soil erosion.

Effects of Soil Degradation:

- **Increased disasters-** Soil degradation takes away the soil's natural capability of holding water thus contributing to more and more cases of flooding. Eroded soil ends up in waterways and clogs them.
- **Global Warming-** Soil degradation reduces the amount of carbon the soil can store by 50-75%.
 - ♦ Plants and soils together currently absorb an estimated 30 percent of the CO₂ emitted by human activities each year.
- **Pollution-** Eroded soil from the land together with the chemical fertilisers and pesticides are discharged into waterways and streams.
 - ♦ The FAO's, "State of the World's Land and Water Resources for Food and Agriculture", report has also highlighted the role of soil pollution in other pollutions.
- **Loss of arable land-** soil degradation contributes to land degradation, and hence causes a significant loss of arable land (land capable of being ploughed and used to grow crops).
- **Desertification-** Where the soil is damaged beyond repair it leads to the desertification of an area. It mostly occurs in drylands. It affects the land's capacity to supply ecosystem services, such as producing food or hosting biodiversity,
- **Decline in global food production-** Nearly 95 per cent of global food production depends on soil hence for sustainable food production healthy soil becomes an essential condition.
- **Loss of cultural identity-** People who live in low-income countries could be forced to leave their homes in search

of safety and fertile lands, resulting in the loss of cultural identity, economic hardship and political instability.

Solutions:

- **Crop rotation-** Practising crop rotation allows the soil to replenish itself with nutrients that are lacking after the growth of one type of plant.
- **Agroforestry-** Agroforestry involves growing crops around trees and other plants such as hedges. Trees create their own microclimate, which is favourable for crops.
 - ♦ They also act as a form of protection against wind and water damage and encourage biodiversity, which keeps ecosystems strong and healthy.
- **Permaculture-** Permaculture incorporates practices such as creating an integrative space where beneficial relationships between different organisms can flourish, and avoiding unnatural substances and waste.
- **Reducing deforestation-** Avoiding deforestation and increased afforestation can restore forests and vegetation cover as plants act as protective covers and make the soil stronger by stabilising the land surface.
- **Sensitised and education-** Communities and individuals can be sensitised and educated regarding sustainable land-use practices, forest management and reforestation efforts.
- **Land reclamation-** Land reclamation encompasses activities such as restoring the previous organic matter and soil's vital minerals, the addition of plant residues etc.
 - ♦ Salinized soils can be restored by salt level correction reclamation projects and salinity control.
 - ♦ One of the simplest but most forgotten methods of land reclamation is the planting of vegetation such as trees, crops, and flowers over the affected soils.
- **Conservation tillage-** Tillage mechanisms targeted at making very minimal changes to the soil's natural condition can also be helpful in stopping soil degradation.
 - ♦ e.g.- leaving the previous year's crop residue on the surface to shield the soil from erosion and avoiding poor tillage methods such as deep ploughing.
- **Organic Farming and Natural farming-** "A Healthy Planet for Healthy Children" report of the United Nations Institute for Training and Research and the World Future Council has highlighted how Sikkim's organic farming is aiding in reducing land degradation.
 - ♦ Natural farming and organic farming are not only cost-effective but also lead to improvement in soil health and the farmland ecosystem.

India and Soil Degradation:

- At present 97.85 million hectares (mha) of land is considered degraded land.
- India has been part of the "Bonn Challenge". It is a global effort to bring 150 million hectares of the world's deforested and degraded land into restoration by 2020, and 350 million hectares by 2030.
- At the UNFCCC Conference of the Parties (COP) 2015 in Paris, India also joined the voluntary Bonn Challenge
- India has pledged to bring into restoration 13 million hectares of degraded and deforested land by 2020, and an additional 8 million hectares by 2030.
- In tackling the land degradation schemes such as the Pradhan Mantri Fasal Bima Yojana, Soil Health Card Scheme, Soil Health Management Scheme and Pradhan Mantri Krishi Sinchayee Yojana etc will also be helpful.

Measures to check Soil Degradation in India:

- Measures for controlling erosion and restoring the productivity of eroded lands can be divided into four classes:
 - ♦ **Regulation of land use:** This includes all measures for securing such alterations in the existing patterns of land use as are necessary to ensure that the different types of lands are used according to their land use capability i.e. the use for which, in view of their physical characteristics, they are best fitted. Retiring cultivated lands in highly erodable areas from cultivation and bringing them under forests or grazing; restrictions on or closure of grazing in badly eroded forests or grazing lands, and settlement of shifting cultivators to permanent cultivation are some examples of the types of alterations which are needed.
 - ♦ Afforestation and preservation of forests by scientific forest management.
 - ♦ **Improvement of land use practices on farm lands:** This includes such measures as ploughing along the contours and strip-cropping on sloping lands; proper crop rotations; application of adequate manures and fertilizers; care of fallows and other uncultivated lands.
 - ♦ **Engineering measures:** Under this are construction of bunds and terraces, check dams, channels for drainage of surplus water, gully plugging, etc.
- A comprehensive programme of soil conservation for an area would include all four types of measures, although the relative importance of the different measures would vary greatly in different areas depending upon the particular conditions of the area.

LARGE HADRON COLLIDER

The European Organization for Nuclear Research (CERN) has reignited the Large Hadron Collider for the third time.

About:

- The Large Hadron Collider is a giant, complex machine built to study particles that are the smallest known building blocks of all things.
- Structurally, it is a 27-km-long track-loop buried 100 meters underground on the Swiss-French border.
- In its operational state, it fires two beams of protons almost at the speed of light in opposite directions inside a ring of superconducting electromagnets.
- The magnetic field created by the superconducting electromagnets keeps the protons in a tight beam and guides them along the way as they travel through beam pipes and finally collide.
- The LHC's powerful electromagnets carry almost as much current as a bolt of lightning; they must be kept chilled.
 - ♦ The LHC uses a distribution system of liquid helium to keep its critical components ultracold at minus 271.3 degrees Celsius, which is colder than interstellar space.

Latest Upgrade:

- This is the LHC's third run, and it will operate round-the-clock for four years at unprecedented energy levels of 13 tera electron volts.
 - ♦ A TeV is 100 billion, or 10-to-the-power-of-12, electron volts.
 - ♦ An electron volt is the energy given to an electron by accelerating it through 1 volt of electric potential difference.
- Scientists are aiming to deliver 1.6 billion proton-proton collisions per second for the ATLAS and CMS experiments.
 - ♦ **ATLAS:** It is the largest general purpose particle detector experiment at the LHC.
 - ♦ **CMS:** The Compact Muon Solenoid (CMS) experiment is one of the largest international scientific collaborations in history, with the same goals as ATLAS, but which uses a different magnet-system design.

Significance:

- Scientists hope to use the collisions to further the understanding of dark matter.
- Scientists will record and analyze the data, which are expected to throw up evidence of "new physics" — or physics beyond the Standard Model of Particle Physics.

LHC's Performance in Previous Runs:

First Run:

- A decade ago, scientists at CERN had announced to the world the discovery of the Higgs boson or the 'God Particle' during the LHC's first run.

- The discovery concluded the decades-long quest for the 'force-carrying' subatomic particle, and proved the existence of the Higgs mechanism, a theory put forth in the mid-sixties.

Second Run:

- The LHC's second run (Run 2) began in 2015 and lasted till 2018. The second season of data taking produced five times more data than Run 1.
- The third run will see 20 times more collisions as compared to Run 1.

Higgs Boson or God Particle:

- The particle was discovered on July 4, 2012, by researchers at the Large Hadron Collider (LHC).
- The Higgs boson is the fundamental force-carrying particle of the Higgs field, a field that gives mass to other fundamental particles such as electrons and quarks.
 - ♦ This field was first proposed in 1964 by Peter Higgs — for whom the particle is named and his colleagues.
- A boson comes into play when particles interact with each other, with a boson exchanged during this interaction.
 - ♦ For example, when two electrons interact they exchange a photon.
- The Higgs boson gives mass to quarks, charged leptons (like electrons), and the W and Z bosons.
- Scientists do not yet know whether the Higgs boson also gives mass to neutrinos.
 - ♦ Neutrinos are ghostly particles that interact very rarely with other matter in the universe.
- The Higgs Boson is the only elementary particle with no spin.

CERN

- The CERN convention was signed in 1953 by the 12 founding states. Today CERN has 23 Member States.
- CERN is the world's largest nuclear and particle physics laboratory and it is based in Geneva on the French-Swiss border.
- India in 2016 became an associate member of the CERN.
- Indian scientists have also played a significant role in the Compact Muon Solenoid (CMS) experiments, which is one of the two large experiments.

SPACE SUSTAINABILITY

Recently, the U.K. hosted the fourth summit for Space Sustainability in London in collaboration with the Secure World Foundation.

About:

- A new 'Plan for Space Sustainability' was announced at the summit.
 - ♦ This plan aims to "set a global commercial framework for the insurability, the licensing and the regulation of commercial satellites."
 - ♦ It also aims to reduce the cost for those who comply with the best sustainability standards and thus encourages a thriving ecosystem for the industry.
- The plan reviewed the regulatory framework of the U.K.'s orbital activity and emphasized an international engagement on space sustainability.
- The framework tries to develop safety and quality-related metrics that quantify additional funding for active debris removal.

Space Sustainability:

- The earth's orbital environment has more than tripled in the past decade.
- As the cost of missions reduces and the number of players increases, the complexity of missions and slot allotment issues also increase.
- With the emergence of large constellations and complex satellites, there is a risk of collisions and interference with radio frequencies.
- As outer space is considered a shared natural resource, the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) 2019 adopted a set of 21 voluntary, non-binding guidelines to ensure the long-term sustainability of outer space activities.
 - ♦ COPUOS works to promote international cooperation in the peaceful use and exploration of space and assists any United Nations Member States to establish legal and regulatory frameworks to govern space activities and strengthens the capacity of developing countries.
- Long-term sustainability looks towards space research and development of technology to ensure the reuse and recycling of satellites at every stage.

Need for Space Sustainability:

- **Orbital crowding:**
 - ♦ One of the hot issues when it comes to space sustainability is orbital crowding.
 - ♦ It poses a direct threat to the operations and safety of a mission and is likely to cause legal and insurance-related conflicts.

Space debris:

- ♦ After the completion of a mission, an 'end-of-life protocol' requires space objects to be moved to the graveyard orbit or to a low altitude.
- ♦ Neither of the options is sustainable in the long run.

Solar and magnetic storms:

- ♦ Other causes of concern are solar and magnetic storms which potentially damage communication systems.
- ♦ Such space weather threats need to be addressed along with the efforts to identify the terrestrial carbon footprint of outer space missions.

SPACE TOURISM

- It is a segment of space travel, space tourism allows lay people to travel to space for recreational, leisure or business purposes.
- The aim is to make space more accessible to those people who are not astronauts and want to travel to space for non-scientific reasons.
- Various companies are offering bookings for zero-pressure balloon trips for short flights, astronaut boot camps and simulated zero-gravity flights.
- With companies like Virgin Galactic, SpaceX and Blue Origin launching commercial space flights, space tourism has become one of the world's fastest-growing sectors.

U.K. plan for Space Sustainability:

- The U.K. plan proposes active debris removal and in-orbit servicing.
- **The plan mentions four primary elements:**
 - ♦ To review the regulatory framework of the U.K.'s orbital activity;
 - ♦ To work with organisations such as the G-7 and the UN to emphasise international engagement on space sustainability;
 - ♦ To try and develop safety and quality-related metrics that quantify the sustainability of activities; and,
 - ♦ To induce additional funding of \$6.1 million on active debris removal.
- The U.K. also confirmed investments in its National Space Surveillance and Tracking Programme, which works on collision assessment services for U.K.-licensed satellite operators.

Issues/Challenges:

- **Need for collective efforts:**
 - ♦ The broad question of sustainability cannot be driven by one country/entity alone.
 - ♦ While most National Space Programs set sustainability standards, a collective effort by all space players, with the active role of the UN COPUOS or the United Nations Office for Outer Space Affairs (UNOOSA), is needed to set equitable standards for the ease of activities.
- **Resource-consuming and expensive measures:**
 - ♦ Many of the measures for sustainability are resource-consuming and expensive for medium-and-small space programs.
 - ♦ In this case, private initiatives of sustainability standards would make accessibility more challenging, giving undue advantage to programs with stable investments.

India's stand on Space Sustainability:

- **Indian National Space Promotion and Authorisation Centre (In-SPACe):**
 - ♦ The headquarters of the In-SPACe was recently inaugurated.
 - ♦ We may expect an increased role of the private sector in India's space activities.
- **Agnikul and Skyroot:**
 - ♦ India hosts promising start-ups like Agnikul and Skyroot,

which are developing launch vehicles for small payloads and Dhruva Space, which works on high-tech solar panels for satellites and satellite deployers.

- ♦ Through this, India is well on its way to create a subsystem that addresses global sustainability questions.

- **Project NETRA:**

- ♦ The Indian Space Research Organisation (ISRO) has initiated 'Project NETRA' to monitor space debris.
- ♦ The domestic surveillance system would provide first-hand information on the status of debris, which would aid further planning on protecting space assets.

- **India-U.S. dialogue:**

- ♦ In April 2022, India and the U.S. signed a new pact for monitoring space objects at the 2+2 dialogue.
- ♦ The controlled anti-satellite weapons (ASAT) tests and the risk of collisions must be collectively addressed.

- **SPADEX:**

- ♦ To provide in-orbit servicing, ISRO is developing a docking experiment called 'SPADEX'.
- ♦ It looks at docking a satellite on an existing satellite, offering support in re-fuelling and other in-orbit services while enhancing the capability of a satellite.
- ♦ This would not only ensure the longevity of a mission but would also provide a futuristic option to combine missions/experiments.

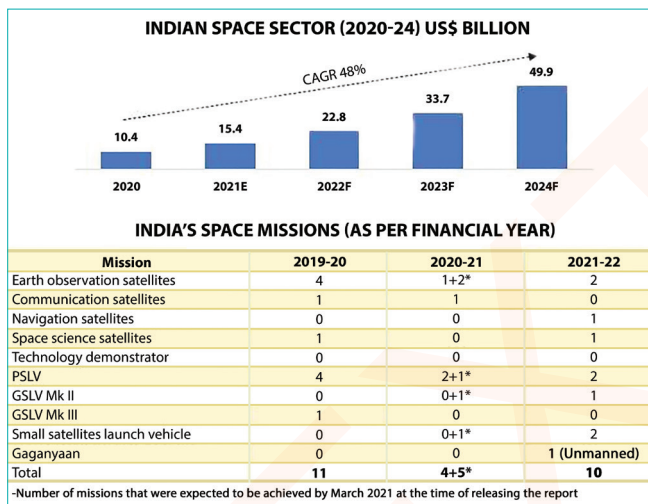


UNLOCKING THE SPACE SECTOR

The Government of India is planning a new space policy to increase private sector participation in the industry.

About:

- Though India is one of the few countries with significant presence and progress in the space industry, India has not tapped its full potential in this sector yet.
- India is aspiring to have its own SpaceX-like venture in the next two years (SpaceX is Elon Musk's private space transportation company).
- The Government has held consultations with respective stakeholders and would refer the final version of the new space policy to the Empowered Technology Group for further examination.



Need for Reforms in the Space Sector:

- The global space economy is currently valued at about USD 360 billion. Despite being one of the few spacefaring nations in the world, India accounts for only about 2% of the space economy.
- Over the last 2 decades, the private sector has been playing a pivotal role in the other space faring countries within the global space economy.
 - ♦ For example, Private companies like SpaceX, Blue Origin, Virgin Galactic and Ariane Space etc. have revolutionized the space sector by reducing costs and turnaround time, with innovation and adaptive technology.
- However, the players within the private space industry have been limited to being vendors or suppliers to the government space programme in India.
- Thus, there is a need for scope of enhanced participation of non-government entities (NGEs) in the Indian space programme and need to play key roles to boost India's market share in the global space economy.

Guiding principles of the reforms:

- **Enable and promote private enterprises to carry out independent space activities:** Provision of a level playing field and favorable regulatory environment for players within the Indian private sector, to allow them to become independent actors in the space sector instead of being solely vendors or suppliers to the government program. This can be achieved by enabling ease of business through single-window mechanisms, with predictable timelines.
- **Open up ISRO Infrastructure and Technologies:** The reform also aims to make national space infrastructure developed over the years, available for use by the private industry through a business- friendly mechanism.
 - ♦ ISRO developed facilities related to testing, tracking and telemetry, launch-pads, and laboratories would also enable the private space industry to climb the value chain. A predictable mechanism for smooth Transfer of Technologies developed by government entities to the private industry.
- **Public sector to enable Transfer of Technology to Industries:** Clear guidance has been provided that public sectors in the space domain will focus on enabling transfer of matured technologies to industries to avoid re-invention of wheel. The reforms have also given NSIL an important role in transfer of technologies/ platforms from the public to private sector.
 - ♦ Previously developed and already proven technologies/ platforms would be transferred to the Non-governmental Agencies through Transfer of Technology mechanisms.
- **Increasing private enterprises participation in the Indian space sector:** According to a global report published in June 2021, India has 368 private space firms, making it fifth in the world after the US, the UK, Canada and Germany. With 368 private space firms, India is leading China (288), France (269), and Spain (206).
 - ♦ According to ISRO's Chairman, the number of private company proposals in the space sector has increased by 30% in 2021 from 22 proposals in 2020. Thus, 27 proposals have reached the GOI from private companies for various space-related activities such as development of launch vehicles, building & operating satellites and establishing ground segments & research partnerships.
 - ♦ For example, a consortium led by Adani Group and another consortium led by L&T and Bharat Heavy Electricals Limited (BHEL) have bid to build five launch vehicles. For the first time, companies outside ISRO will build end-to-end launch vehicles.

- **Demand-driven approach for development of space assets:** Optimizing the utilization of space assets such as satellites and launch capacity by determining accountability amongst various stakeholders. Creation of new assets to be made contingent on confirmation of demand from user agencies/entities. Therefore, ISRO has moved from a supply-driven model to a demand-driven model for maximum utilization of space assets.
- **Revision of the Foreign Direct Investment (FDI) policy to open investment opportunities for foreign companies:** According to the Chairman of ISRO, the GOI is expected to announce a revised foreign direct investment policy for the Indian space sector. It would open huge investment opportunities for foreign companies.
 - ♦ The government with IN-SPACe can establish a link between ISRO and private sector companies to utilize Indian space resources and increase space-based activities.
 - ♦ Currently, all FDI investments must be cleared by the government, but to facilitate investment industry players demand that investments be cleared through the automatic route.

Importance of the Space Sector Development:

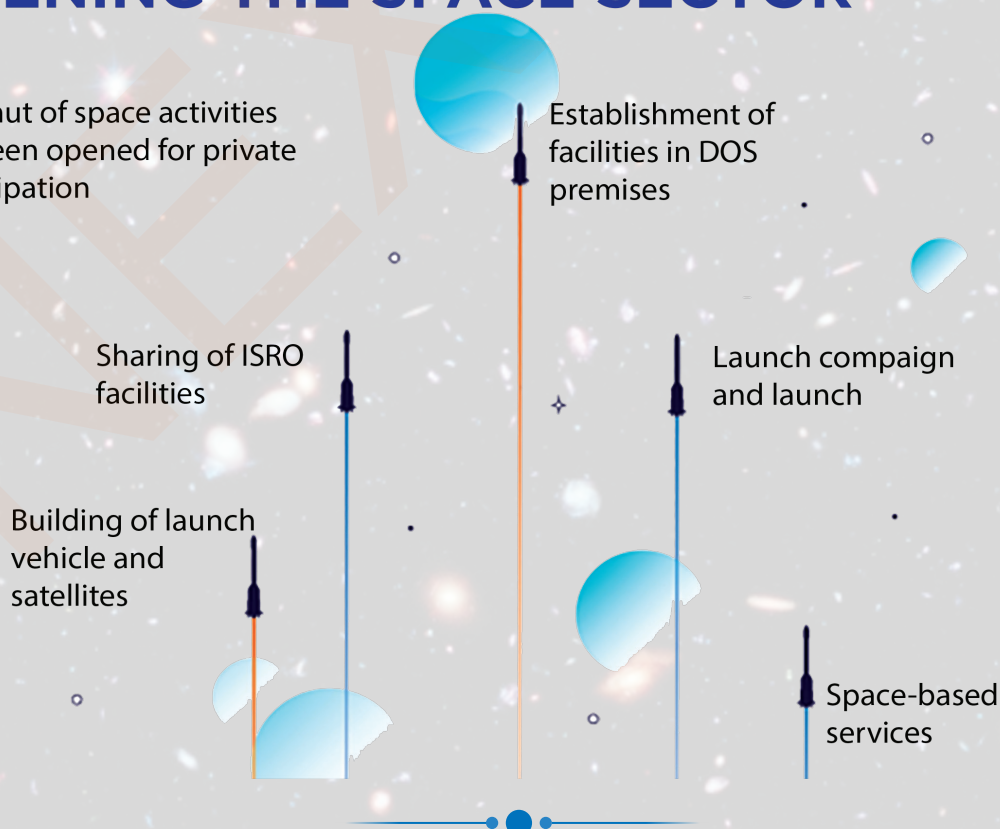
- **Improved Connectivity:** Satellite communication has the potential to penetrate more remote areas as compared

to the conventional networks, without need for a heavy complementing infrastructure. For example, GSAT-30, GSAT-31 telecommunication satellites.

- **Combat climate change:** Remote sensing has been used for improving understanding of the climate system and its changes.
- **Accurate weather forecasting:** Satellite imagery provides more accurate information on weather forecasts and records long term trends in the climate and habitability of a region.
- **Disaster Management:** Remote sensing satellites serve as a tool of real time monitoring and early warning solutions against natural disasters such as earthquakes, tsunamis, floods, wildfires, mining etc. For example, the Cartosat satellite series.
- **Defense sector:** Realtime tracking serves multiple purposes in defense for army, navy and airforce. Space Situational Awareness (SSA) is an important application of space technologies from a security perspective.
- **Indian Regional Navigation Satellite System (IRNSS):** Operational as NavIC (Navigation with Indian Constellation), it is designed to provide an accurate position information service to users in India as well as the region extending up to 1500 km from its boundary.

OPENING THE SPACE SECTOR

A gamut of space activities has been opened for private participation



GOODS AND SERVICES TAX (GST)

Recently, the Union Finance Minister chaired the 47th meeting of the Goods and Services Tax (GST) Council.

About:

- **Tax hikes:** Taxes on many common branded food items, curd and butter milk to low-cost hotels, cheques and maps, LED lights, solar water heaters and writing inks.

TAX TWEAKS Revised tax rates announced by the GST Council after a marathon two-day meet that concluded on Wednesday



Goods and services	From	To
Knives, spoons, forks and ladles	12%	18%
LED lamps and lights	12%	18%
Water pumps, deep tube-well turbine pumps, submersible pumps	12%	18%
Solar water heater and system	5%	12%
Dairy machinery	12%	18%
Work contract for roads, railways, metro, monuments, canals, dams, educational institutions and hospitals	12%	18%
Ostomy appliances	12%	5%
Orthopedic appliance for splints and fractures, and intraocular lens	12%	5%

- ♦ Tax rate on Tetra Pak has been raised from 12% to 18%.
- ♦ Cut and polished diamonds will now attract GST at 1.5% instead of the prevailing 0.25%.
- ♦ Hospital room rents over 5,000 a day, excluding patients in intensive care units, shall now be taxed at 5%.
- ♦ Low cost hotel rooms (tariff of up to Rs 1,000 per night) would now attract 12 per cent GST. Earlier, these rooms were exempted, which means travellers now have to spend 12 per cent more on cheaper hotel rooms.
- **Tax lowered:** Ropeways and truck rentals where fuel costs are included, and scrapped for products imported by private vendors for use by defence forces.
 - ♦ The GST rate on splints for treating fractures, intraocular lens for those with failing eyesight and ostomy appliances will be reduced from 12% to 5%.
- **GST exemptions:** The Council has also clarified that Assisted Reproductive Technology and In Vitro Fertilization (IVF)

services are covered under the health care services for the purpose of GST exemption, but stem cell preservation services will no longer be tax-free.

- **High inflation:** GST rate changes have been made considering the high inflation that we are facing right now.
- **Changes in IT systems:** Modifications in GST's IT systems to bolster compliance and crack down on tax evasion has been done.

Major Challenges:

- **Extra burden:** Higher taxes put additional burden on households already facing rising food and energy prices.
- **Agricultural Products:** Taxes on agricultural products such as packaged grains, wheat, corn, and rice are sold unbranded, but labeled packages can increase by 5%, which is costly.
- Cooking oils and dairy products can be more expensive as a result of the GST tax hike.
- **Citizens' Opposition:** The majority of Indians want the government to impose a Goods and Services Tax (GST) of 28% or more on online games, casinos and horse racing. However, they oppose the increase in GST for household goods.

GOODS AND SERVICE TAX (GST)

- **Launched:** It was launched in India in 2017 as a comprehensive indirect tax for the entire country.
- **Nature:** Goods and Services Tax is an indirect tax used in India on the supply of goods and services.
 - ♦ It is a value-added tax levied on most goods and services sold for domestic consumption.
 - ♦ It is a comprehensive, multistage, destination-based tax- comprehensive because it has subsumed almost all the indirect taxes except a few state taxes.
- **Types:** There are three types of GST:
 - ♦ **CGST** to be levied by the Centre,
 - ♦ **SGST** to be levied by the States and
 - ♦ **IGST** a tax levied on all Inter-State supplies of goods and/or services.
- **GST Council:** The Council according to Article 279 is meant to make recommendations to the Union and the states on important issues related to GST, like the goods and services that may be subjected or exempted from GST, model GST Laws. It also decides on various rate slabs of GST.

BUSINESS REFORMS ACTION PLAN (BRAP) 2020

The fifth edition of the Business Reforms Action Plan (BRAP) 2020 has been recently released by the Department for Promotion of Industry and Internal Trade (DPIIT).

About:

- **Aim:** The purpose of BRAP exercise is to infuse a culture of learning from each other's best practices and improve upon the business climate in each State/UT with a unified objective for India to emerge as the most favoured investment destination across the globe.
- **Multilingual feedback:** The BRAP's performance assessment of states across 301 reform action points is based on multilingual feedback provided to the Department for Promotion of Industry and Internal Trade (DPIIT) and not on an evidence-based system.
- **Previous reports:** The DPIIT has assessed the ease of doing business across states since 2014; previous reports have been published in 2015, 2016, 2017-18, and 2019.
 - ♦ In the 2019 report Andhra Pradesh had topped the rankings, followed by Uttar Pradesh, Telangana, Madhya Pradesh, and Jharkhand.
- **New additions in 2020 report:** Sector-wise reforms were tracked via 72 action points in nine sectors.
 - ♦ Trade licenses, healthcare, legal metrology, cinema halls, hospitality, fire no-objection certificate (NOC), telecom, movie shooting, and tourism were introduced for the first time to expand the scope of the reform agenda.

Major highlights of the survey:

- **Reform points:** The BRAP 2020 report includes reform points covering 15 business regulatory areas such as access to information, single window system, labor, environment, land administration and transfer of land and property, utility permits, among other criteria.
- **Top achievers:** Andhra Pradesh, Gujarat, Haryana, Karnataka, Punjab, Tamil Nadu, and Telangana.
- **Achievers category:** Himachal Pradesh, Madhya Pradesh, Maharashtra, Odisha, Uttarakhand, and Uttar Pradesh.
- **Aspirers category:** Assam, Chhattisgarh, Goa, Jharkhand, Kerala, Rajasthan, and West Bengal.
- **Emerging Business Ecosystems category:** Andaman & Nicobar, Bihar, Chandigarh, Daman & Diu, Dadra & Nagar Haveli, Delhi, Jammu & Kashmir, Manipur, Meghalaya, Nagaland, Puducherry, and Tripura.
- **State single window clearance systems:** 30 states and UTs have developed their state single window clearance systems, while six are developing them.

- **National single window:** 14 states have boarded the national single window.
- **Central inspection system:** 20 states and UTS have developed a central inspection system.

Issues/Challenges:

- **Filling the Land Register:** Filling the Land Register requires a lot of work and can be quite expensive.
- **Investor Protection and Contract Execution:** India is considered one of the difficult countries in the world for contract execution, which takes an average of 1,420 days.
- **Tax Payment:** The corporate tax rate is 30%, but companies may face taxes in the form of centralized sales tax, dividend tax, property tax, fuel tax, vehicle tax, sales tax and consumption tax.
- **Bankruptcy Resolution:** The issue of bankruptcy in India may take 4.3 years to get resolved, much longer than the South Asian and OECD averages.
- **Starting a business:** The cost of starting a business in India is astronomical and the relevant procedures can be daunting without local knowledge.
- **Handling of building permits:** Building permits also include 34 procedures and are a costly issue that takes 196 days.
- **Power Procurement:** The cost of power procurement is relatively low compared to other parts of South Asia, but the number of related procedures can be very difficult.

Significance/Importance:

- **Improving the business environment:** The survey is to recognise and identify the exemplary reform measures undertaken by the states and Union Territories to improve the business environment.
- **Mechanism:** Such ease of doing business reports provide a trackable mechanism to judge state performance on key metrics and how reliably their reforms translate into actual policies in effect.
- **Foreign investors adopt a focused approach** by comparing specific regions in India to assess whether the industrial ecosystem, logistics and infrastructure, and system of bureaucracy matches the company's business needs and keeps operational costs competitive.

Way Forward/Suggestions:

- **India's entrepreneurship ecosystem is underway:** As a result, further moderation, ease of compliance, access to GoI funding, awareness and reward programs are required to ensure a good startup ecosystem that helps India reach its long-term goals.
- **Compliance Simplification and Rationalization:** This exercise focuses on simplifying and streamlining compliance, non-

criminalizing minor civil crimes, and eliminating redundant laws as companies enter the market and work with market giants. You need to have enough space to compete.

- **Digital Infrastructure:** India needs to improve its digital infrastructure to further strengthen its business ecosystem.
- **Integrated Program:** GoI needs to develop an integrated program that recognizes and rewards outstanding companies that contribute to economic dynamism by driving innovation.

DRAGON FRUIT CULTIVATION

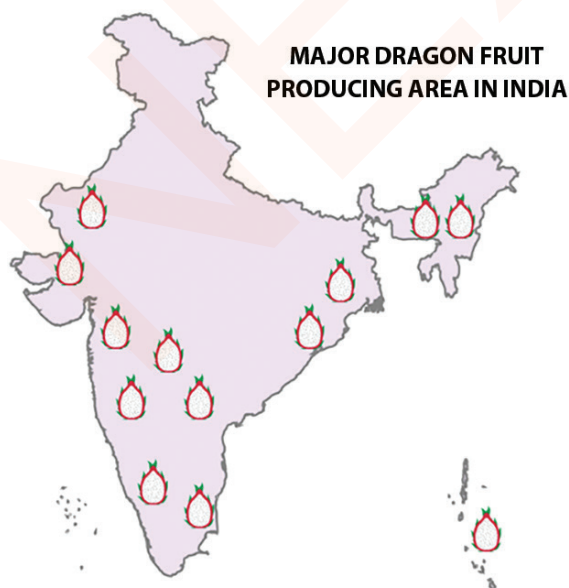
The Union Government recently moved to promote the production of dragon fruit along the lines of the Integrated Horticulture Mission.

About:

- Also known as pitaya or strawberry pear, is a tropical fruit. In India, Gujarat state has renamed it as 'Kamalan'.
- The plant the fruit comes from is actually a type of cactus of the genus *Hylocereus*, with fleshy stems that are wide and highly branched while roots appear to be on the stems.
- Dragon fruit is a fruit that can be easily cultivated in large parts of degraded land and drought-prone areas of the country.

Current Scenario in India:

- In India, dragon fruit was introduced during the late 1990s. Thereafter, the area under its cultivation gradually increased from 4 to 400 ha in different states during 2005–2017.
- Presently, the production of dragon fruit in India is far less than the same imported from Thailand, Malaysia, Vietnam, Sri Lanka, etc.



- According to recent estimates (ICAR), India's dragon fruit production increased drastically to more than 12,000 MT over an area of 3,000–4,000 ha in 2020.

Global Status:

- Being a native of Southern Mexico, Guatemala, and Costa Rica, dragon fruit was introduced in 1990 for its commercial cultivation in south Asian tropical countries.
- According to a recent report published by Mordor Intelligence (2020), the global market of dragon fruit is projected to register a CAGR of 3.7% over the next five years.



- World major supplier countries of dragon fruit can be broadly divided into the following three main hubs.
 - ♦ **Asia:** Vietnam, China, Thailand, Taiwan, Indonesia, Malaysia, Philippines, Cambodia, India, Sri Lanka.
 - ♦ **Middle East and Europe:** Israel, Switzerland, and EU.
 - ♦ **America:** Mexico, Colombia, Ecuador, Guatemala, and Costa Rica.
- China is the biggest consumer and importer while Vietnam is the biggest exporter of fresh dragon fruit.

Benefits of Dragon Fruit Cultivation:

- **Drought Resistance:** Dragon fruit is a potential crop that can be easily cultivated in large parts of degraded land and drought-prone areas of the country.
 - ♦ The possibility of round-the-year cultivation of dragon fruit including production from degraded and dry land areas need to be explored without affecting other cultivable land areas allotted for other crops.
- **Economic Perspective:** Dragon fruit under protected cultivation could open new avenues of income generation and agricultural entrepreneurship development to meet the goals of self-reliant India in low and high temperature, frost, and erratic rainfall areas.
- **Enhanced Capacity:** Because of ease of cultivation and management, production of dragon fruit can also be extended to smallholder or marginal cultivators, and entrepreneurs of the small medium, and large-scale plantations through the development of high-density or ultra-high-density orchards and also in backyards, on terraces or as garden fruits.

Policy issues for promoting dragon fruit in India:

- **Need to develop a flexible policy framework:** There should be strong collaboration between State Govt. and Central Govt.; public and private funding institutions to promote dragon fruit not only for economic returns from degraded/dry land areas but also for medicinal uses.
- **Provision of financial support** for marginal or small-scale farmers for dragon fruit cultivation in the form of soft loans and subsidies by the government/cooperative organizations/banks etc.
- **Import strategies:** There is a need to protect the interest of Indian farmers with stringent quality control on imported dragon fruit.
- **Agrotourism:** As in other countries, we need to identify the hot spots for dragon fruit farming in dryland regions. E.g. Kutch in Gujarat has the potential to attract a steady stream of tourists and nature lovers by boosting agricultural tourism in these sites.

GLOBAL TRADE SETTLEMENT IN RUPEE

A system to enable international trade in rupees (INR) was recently introduced by the Reserve Bank of India (RBI), with immediate effect.

About:

- The RBI has let domestic traders to settle international transactions in Indian rupees in order to facilitate trade with Russia, which is hampered by sanctions.
 - ♦ For banks to implement the new system, RBI clearance is required.
- According to the new process, Authorized Dealers (AD) banks in India would open Vostro accounts of correspondent banks of the partner countries to settle trade transactions with any country.

VOSTRO ACCOUNT

- A vostro account is an account a correspondent bank holds on behalf of another bank.
- The Balance in Special Vostro Accounts can be used for:
 - ♦ Payments for projects and investments.
 - ♦ Export/Import advance flow management.
 - ♦ Investment in Government Treasury securities, etc. in terms of extant guidelines and prescribed limits, subject to FEMA and similar statutory provisions.
- It shall require prior approval from the Foreign Exchange Department of Reserve Bank of India.
- Payments from Indian importers will be made in rupees and credited to the correspondent bank of the partner nation's Vostro account.

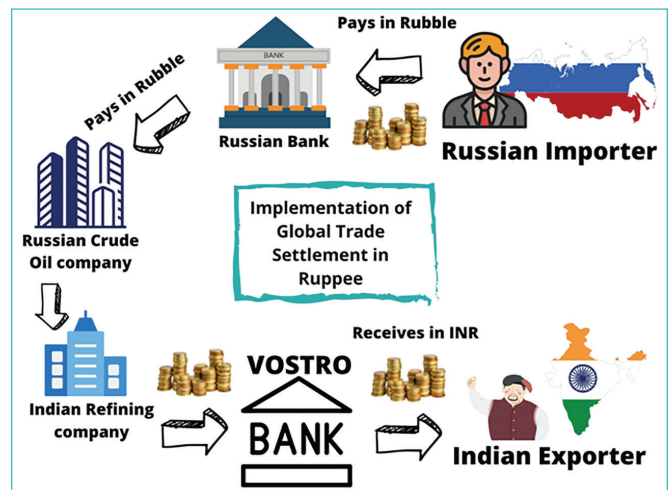
- Similar to this, the balances in the partner country's Vostro account will be used to pay Indian exporters their export revenues in rupees.

Need for Such Move by India:

- When compared to the dollar, the rupee is at an all-time low. Trade with sanctioned nations is to be made easier through this approach.
- As soon as the conflict between Russia and Ukraine started, exporters started to struggle with payments, especially after Russia lost access to the SWIFT payment channel.
 - ♦ The system for facilitating trade has helped to resolve payment concerns with Russia.
- The action would also lessen the risk of currency fluctuations, particularly in light of the massive losses in the parity between the Euro and the Rupee. We regard this as the first step towards the rupee being fully convertible. Additionally, it will support rupee stability in India.

SOCIETY FOR WORLDWIDE INTERBANK FINANCIAL TELECOMMUNICATIONS (SWIFT)

- It is a member-owned cooperative providing secure messaging for international transfers of money between participating banks.
- It provides a secure messaging system for financial transactions between participating banks.
- It was initiated in 1973 by 239 banks from 15 countries and the messaging service was started in 1977.
- At present it serves more than 11,000 institutions operating in over 200 countries.



Benefits of the New Payment Mechanism:

- It will boost Indian exports and the value of Indian Rupee and help in integration of the Indian economy and the global economy via increased trade and FDI flows.

- It will help in saving of the foreign currency and reduce the trade deficit and will help internationalization of the rupee will promote the development of financial markets.
- It will help in the expedition of the transactions with sanctions-hit Russia.
- The decision will help in lowering transaction costs of cross-border trade, investment operations by mitigating exchange rate risks and will be helpful in reducing currency mismatch for financial institutions.

International Concerns:

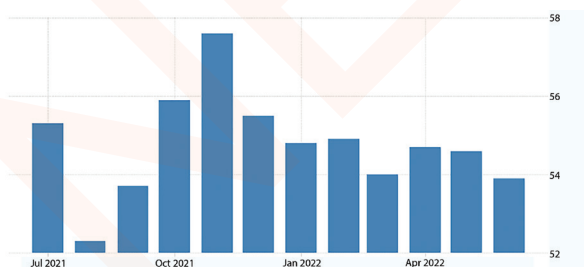
- A comparable Vostro account created for commerce with Iran had run dry because India was prevented from obtaining oil from Iran due to US sanctions. India might face pressure from the West to forbid the use of such a system.

PURCHASING MANAGERS INDEX

Recently, the S&P Global India Manufacturing released the Purchasing Managers' Index (PMI).

About:

- The S&P Global India Manufacturing Purchasing Managers' Index (PMI) slid from 54.6 in May to 53.9 in June.
- Inflation pressures caused the manufacturing sector's growth to the lowest level since September 2021 (in last 9 months).
- As a result, business confidence sentiment has dampened to a 27-month low in June 2022. Hence, only 4% of the firms are expecting growth in performance of the manufacturing sector till next year.
- S&P Global also noted that despite the factory orders and production rising for the twelfth straight month in June, the rates of expansion in both the cases of orders and production reduced to nine-month lows.



Key Findings of the S&P PMI

- **Rise in export orders:**
 - ♦ In June 2022, new export orders rose for the third successive month and employment as a result rose for the fourth successive month.
 - ♦ As per the inputs given by participants in the PMI survey, there were sustained orders due to stronger client

demand. However, growth prospects were restricted by the acute inflationary pressures.

- ♦ Even then, the manufacturing sector showed significant resilience during acute price pressures, rising interest rates, rupee depreciation and a challenging geopolitical landscape.
- ♦ The overall slowdown in growth of the manufacturing sector across a number of measures like factory orders, production, exports, input buying and employment was due to restricted spending by clients and businesses in the face of inflationary tendencies.

• No output change expected

- ♦ The Indian manufacturing industry shows a mixed outlook. However, due to inflationary concerns, the majority of economic experts expect no change in the present level of manufacturing sector output.
- ♦ Producers faced a high rate of input cost inflation and thus the consumers witnessed higher charges due to the pass-through of costs from the producers.
- ♦ There was an increase in input cost for a wide range of inputs such as chemicals, electronics, energy, metals and textiles etc. as reported by the firms.

• Supply chains:

- ♦ There was a recent shortening of input lead times since the onset of COVID-19.
- ♦ This helped to curb the upward pressure on input costs, with a sharp but slower rate increase in the purchase prices and output charges.

Related	Last	Previous	Unit	Reference
Service PMI	59.20	58.90	Points	Jun 2022
Manufacturing PMI	53.90	54.60	Points	Jun 2022
Composite PMI	58.20	58.30	Points	Jun 2022

INDIA MANUFACTURING PMI

- The S&P Global India PMI is derived from a survey of 500 manufacturing companies.
- The Manufacturing PMI is based on five individual indexes with the following weights:
 - ♦ New Orders (30 percent)
 - ♦ Output (25 percent)
 - ♦ Employment (20 percent)
 - ♦ Suppliers' Delivery Times (15 percent)
 - ♦ Stock of Items Purchased (10 percent)
- The Delivery Times index is inverted so that it moves in a comparable direction.
- A reading above 50 indicates an expansion of the manufacturing sector compared to the previous month; below 50 represents a contraction; while 50 indicates no change.

SHRINKFLATION

With the rising inflation, a growing trend of shrinkflation has been witnessed recently.

About:

- Shrinkflation is the practice of reducing the size or quantity of a product while keeping the price of the product same or increasing minimally e.g.
 - A 10 rupee Vim soap bar now weighs 135 grams as compared with 155 grams earlier.
- In some cases, the term may indicate lowering the quality of a product or its ingredients while the price remains the same.

Trend of Shrinkflation:



- Every category of product in the retail sector is experiencing inflationary headwinds.
 - For example, the dairy and beverage segment of ITC Ltd. which is a maker of consumer products such as chips, cookies and soaps etc.
 - Britannia had to pass on 65% of its incremental input cost increases in 2021-22 by reducing weights on existing price points.
- Shrinkflation isn't unique to India. US based eateries such as Subway Restaurants adopted the strategy of shrinking portions in order to cut costs.
- Indian consumer prices in the last few months have crossed the 6% upper limit of the central bank's inflation target range. Headline inflation in April rose to an eight-year high of 7.8%.
- Offering "bridge" packs between popular prices is also another emerging tactic.

- For example, Hindustan Unilever introduced a new size between its 10 and 35 rupee Lifebuoy soap which allowed it to trim the weight of the soap back.

Reasons for Shrinkflation:

Retail Inflation:

- Data from the Ministry of Statistics and Programme Implementation shows that retail inflation in India has surged to 7.79% on an annual basis in April 2022 due to higher edible oil & fuel prices.
- For example, food companies in India are under tremendous pressure owing to rising edible oil prices and dairy prices.

Higher Production Cost:

- Increase in the cost of ingredients or raw materials, energy commodities and labor increase production costs and subsequently diminish producer's profit margins.
- Therefore, reducing the product's weight, volume, or quantity while keeping the same retail price tag can improve the producer's profit margin.
- At the same time, the average consumer doesn't notice a small reduction in quantity. Thus, sales volume is not affected.
- For example, companies such as Unilever Plc's India unit and domestic consumer goods firms Britannia Industries Ltd. and Dabur India Ltd. have adopted shrinkflation in their cheapest packages due to rising costs of edible oils, grains and fuel.

Protect Consumer Base:

- Lower income households especially in rural areas are more sensitive to price changes of products in lower price segments.
- Thus it becomes compulsory on the part of companies to adopt shrinkflation in order to protect their existing consumer base in the face of rising competition and inflation.
- For example, Dabur has reduced the volume (also known as "grammage") on certain products to protect the 1, 5 and 10 rupee price points and prevent inflation-induced drops in consumption.

- Rupee Depreciation:** The Consumer Electronics and Appliances Manufacturer Association has attributed the rupee depreciation against the dollar due to consistent selling of Indian equities by the Foreign Portfolio Investors (FPIs) as the main cause of increase in prices.

- Global Supply chain disruption:** Supply crunch of raw materials due to the Russia-Ukraine war is also having an inflationary effect on inputs of several products in Fast Moving Consumer Goods (FMCG). For example, disruption in supply of Sunflower oil from Ukraine and Oilpalm from Indonesia etc.

Steps taken to control inflation:

- The Monetary Policy Committee of the Reserve Bank of India (RBI) hiked the repo rate to 4.40% after 45 months since August 2018.
- This action was preceded by the rate hike by the US Federal Reserve which had raised the rates in the past few months.
- After RBI's rate hike, most of the Indian banks also increased their lending rates, thus spiking home loan and car loan cost for the buyers.

FEDERAL RESERVE RATE HIKE

Recently, in a bid to cool down raging inflation the Federal Reserve of the United States decided to raise the Federal Funds Rate target by another 75 basis points.

About:

- **Meaning:** The FFR is the interest rate at which commercial banks in the US borrow from each other overnight.
- **Money supply:** The US Fed can't directly specify the FFR but it tries to target the rate by controlling the money supply.
 - ♦ **When the Fed wants to raise the prevailing interest rates** in the US economy, it reduces the money supply, thus forcing every lender in the economy to charge higher interest rates.
 - ♦ The process starts with **commercial banks charging higher to lend** to each other for overnight loans.

Federal Reserve and its Role:

- The US is the world's biggest economy and the Fed is the biggest central bank.
- The US central bank system **performs five broad functions** to promote the effective operation of the American economy.
 - ♦ **Conducting the US monetary policy** to promote maximum employment and stable prices;
 - ♦ **Promoting the stability of the financial system** and seeking to minimize and contain systemic risks through active monitoring and engagement in America and overseas;
 - ♦ **Promoting the safety and soundness of individual financial institutions** and monitoring their impact on the financial system as a whole;
 - ♦ **Fostering safety and efficiency in the payment and settlement system** through services to banks and the federal government that facilitate US-dollar transactions and payments;
 - ♦ **Promoting consumer protection and community development** through consumer-focused supervision and examination, research and analysis of emerging consumer issues and trends, and the administration of consumer laws and regulations.

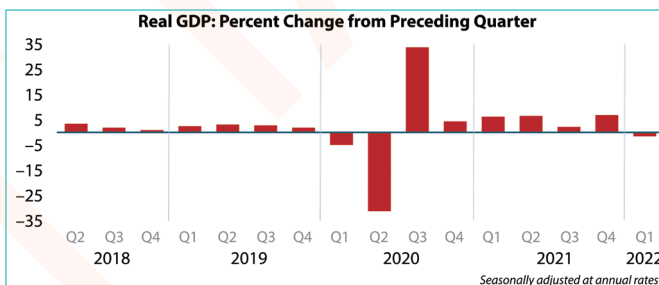
RECESSION

- The most common definition of recession requires the GDP of a country to contract in two successive quarters.
- Contracting GDP typically results in job losses, reduced incomes, and reduced consumption.

Reasons Associated:

- **Monetary tightening:** Fed (or any other central bank) resorts to it when it wants to **rein in inflation** in the economy.
- **To dent the overall demand:** By decreasing the amount of money, as well as raising its price (the interest rate), the Fed hopes to dent the overall demand in the economy.
 - ♦ **Reduced demand for goods and services** is expected to bring down inflation.

Issues/Challenges:



- **Aggressive monetary tightening:** like the one currently underway in the US involves large increases in the interest rates in a relatively short period of time, and it runs the risk of creating a recession.
- **Chances of a soft-landing:** A large increase in the interest rates in a relatively short period of time is called a hard-landing of the economy as against a soft landing (which essentially refers to monetary tightening not leading to a recession).
 - ♦ The chances of a soft-landing for the US exist but are extremely low.
- **Recession:** Since the US GDP has already contracted by 1.6% during the first quarter of 2022, a contraction in the second quarter will imply the US is in recession.
- **Inversion of the bond yield curve:** The ongoing inversion of the bond yield curve is another robust predictor of a recession in the offing.
 - ♦ **Yield-curve inversions** are when shorter-term government bonds have higher yields than longer-term ones, which are often viewed by markets as signs that a recession is coming.

Impact on India:

- **Lower growth:** In the latest update of the World Economic Outlook, the IMF has downgraded the growth projections for the US, China and India.

- **Global slowdown:** Downgrades for China and the United States, as well as for India, are driving the downward revisions to global growth during 2022–23, which reflect the materialization of downside risks.
- **Crude oil prices:** A global slowdown is unlikely to have any positives for India apart from some relief in crude oil prices.
- **India's GDP projections:** The IMF has knocked off almost a full percentage point each off India's GDP projections for the current year and the next.
- **Rapid policy tightening:** For India, the revision reflects mainly less favourable external conditions and more rapid policy tightening.

FINANCIAL SERVICES INSTITUTIONS BUREAU

Recently the Delhi High Court struck down powers of Banks Board Bureau.

About:

- The Appointments Committee of Cabinet has approved a Government resolution for establishing the Financial Services Institutions Bureau (FSIB) in place of the Banks Board Bureau (BBB).
- The FSIB will now select the Chiefs of Public Sector Banks and Insurance Companies.
- The selection process of top officials of Public Sector Insurance companies was pending in the wake of the Delhi High Court decision to strike down the power of Bank Board Bureau (BBB) to select directors and chiefs of PSU Insurers.

Financial Services Institutions Bureau (FSIB):

- The Financial Services Institutions Bureau (FSIB) is a Government body set up under the Department of Financial Services.
- (FSIB) will make recommendations for the appointment of full-time directors and non-executive chairman of state-run financial services institutions.
- It would also issue guidelines for selecting general managers and directors of public sector general insurance companies.
- The board will also be involved in formulating and developing business strategies for state-run banks and help them in their fund-raising plans.
- **Mandate:**
 - ♦ To appoint whole-time directors for Public sector banks , insurance companies.
 - ♦ To monitor and assess the performance.
- **Aim:** To identify manpower capabilities and ensure proper selection of talent for senior positions at financial institutions owned by the government.

- ♦ It also aims to monitor and assess the performance of public sector banks, Government-owned financial institutions and insurance companies.
- **Members:**
 - ♦ FSIB would be headed by a Chairman, a Central Government nominee.
 - ♦ The Board would comprise the Secretaries of the Department of financial services, the chairman of IRDAI, and a Deputy Governor of the RBI.
 - ♦ Additionally, it will have three part-time members who are experts in banking and three more from the insurance sector.
- **Autonomy:** FSIB shall be a professional body with autonomy in its affairs and shall have its own secretariat.
 - ♦ It may appoint a person, or take on deputation from RBI a person in the rank of chief general manager or general Manager in RBI, to act as full-time secretary of its secretariat.

BANKS BOARD BUREAU

- Banks Board Bureau is a self-governing autonomous body of the Central Government.
- It is an advisory authority comprising eminent professionals and officials to improve the management of Public sector banks.
- Banks Board Bureau headquarter is at the Central Office of Reserve Bank of India, Mumbai and started its functioning in 2016.
- BBB was a part of the seven-point strategy of the Indradhanush Mission aimed at revamping the Public Sector Banks.
- It is an autonomous body of officials and distinguished professionals for the PSBs (Public Sector Banks).
- The Bureau is a not-for-profit autonomous body that was initially expected to meet its expenses with upfront support from the Reserve Bank of India and thereafter distribute the expenses among the PSBs.

LABOR INDICATORS

Recently, the Ministry of Statistics and Program Implementation issued the Periodic Labor Force Survey (PLFS) for 2020–21.

The Periodic Labor Force Survey (PLFS):

- PLFS was designed with two major objectives for measurement of employment and unemployment.

- ♦ To measure the dynamics in labor force participation and employment status in the short time interval of three months for only the urban areas in the Current Weekly Status (CWS).
- ♦ To measure the labor force for rural and urban wise estimates on key parameters in both usual and Current Weekly Status.
- The indicators, and 'Current Weekly Status' are: the Labor Force Participation Rate (LFPR), Worker Population Ratio (WPR), Unemployment Rate (UR), etc.

Highlights of the report:

- According to the National Statistical Report, there are more men and urban women in the 60+ age range who work part-time as a percentage of working people in both rural and urban areas.
- In the 26-49 years age group, the employment rate of employees without a kid under the age of 3 years increased to 61.2 percent in 2019–20 from 58.37 percent in 2017–18 and 59.6 percent in 2018–19.
 - ♦ The employment rate of females with at least a child under 3 years of age is less than their employment rate in a household with no child under 3 years of age during 2017-18-2019-20.
 - ♦ For males, however, the presence of a child under age 3 years in the households does not seem to make any difference to their employment rate.
- Compared to 4.8 percent in 2019–20, the unemployment rate dropped to 4.2 percent in 2020–21.
- The percentage of people in the labor force increased from 40.1% in the previous year to 41.6% during 2020-21.
- The worker population ratio increased from 38.2 percent to 39.8 percent over the previous year.

IMPORTANT TERMS

- **Labor Force Participation Rate (LFPR):** LFPR is defined as the percentage of persons in the labor force (i.e. working or seeking or available for work) in the population.
- **Worker Population Ratio (WPR):** WPR is defined as the percentage of employed persons in the population.
- **Unemployment Rate (UR):** UR is defined as the percentage of persons unemployed among the persons in the labor force.
- **Current Weekly Status (CWS):** The activity status determined on the basis of a reference period of last 7 days preceding the date of survey is known as the current weekly status (CWS) of the person.

CENTRAL BANK DIGITAL CURRENCY

The Reserve Bank of India (RBI) is in the process of implementing the Central Bank Digital Currency (CBDC) in a phased manner for wholesale and retail segments.

About:

- The introduction of CBDC was announced in the Union Budget 2022-23.
- Amendments have also been made to the relevant section of the RBI Act, 1934 with the passage of the Finance Bill 2022.
 - ♦ The passage of the bill has enabled the RBI to conduct a pilot and subsequent issuance of CBDC.

Central Bank Digital Currency:

- It is a legal tender and a central bank liability in digital form denominated in a sovereign currency and appearing on the central bank's balance sheet.
- It is the same as a fiat currency and is exchangeable one-to-one with the fiat currency. Only its form is different.
- It can be converted or exchanged at par with similarly denominated cash and traditional central bank deposits.
- It can be transacted using wallets backed by the blockchain and is regulated by the central bank.
- CBDCs enable the user to conduct both domestic and cross-border transactions which do not require a third party or a bank.
- **CBDC and Private virtual currencies or Cryptocurrency:**
 - ♦ The CBDC will be a sovereign-backed digital currency.
 - ♦ CBDC is a digital or virtual currency but it is not comparable to the private virtual currencies or cryptocurrencies that have mushroomed over the last decade. Private virtual currencies do not represent any person's debt or liabilities as there is no issuer.

Benefits:

- **Efficiency of transactions:**
 - ♦ It would reduce the cost of currency management while enabling real-time payments without any inter-bank settlement.
 - ♦ Foreign trade transactions could be speeded up between countries adopting a CBDC.
- **Reduction in high cash usage:** India's fairly high currency-to-GDP ratio holds out another benefit of CBDC as to the extent large cash usage can be replaced by CBDC.
- **Cost effectiveness:** The cost of printing, transporting and storing paper currency can be substantially reduced.
- **Efficiency in the banking system:** The adoption of CBDCs can also have important implications for the banking system.

RUSSIA-UKRAINE SEPARATE GRAIN DEAL

Recently, Russia and Ukraine signed separate deals with Turkey and the United Nations to end a standoff over grain exports brought on by the war in Ukraine.

About:

- Ukrainian and Russian military delegations reached a tentative agreement on a U.N. plan that would allow Russia to export its grain and fertilizers.
- Ukraine was expected to export 22 million tons of grain and other agricultural products that have been stuck in Black Sea ports due to the war.

Reason for signing the Grain Export Deal:

- Ukraine is one of the world's largest exporters of wheat, corn and sunflower oil, but Russia's invasion of the country and naval blockade of its ports have halted shipments.
- Some grain is being transported through Europe by rail, road and river, but the prices of vital commodities like wheat and barley have soared during the nearly five-month war.

Grain Export Deal:

- The deal makes provisions for the safe passage of ships.
- It foresees the establishment of a control center in Istanbul, to be staffed by U.N., Turkish, Russian and Ukrainian officials, to run and coordinate the process.
- Ships would undergo inspections to ensure they are not carrying weapons.
- No Russian ship would escort vessels and that there would be no Russian representative present at Ukrainian ports.
- Ukraine also plans an immediate military response "in case of provocations.

Reason for the Delay Movements of Grains:

- Russia accuses Ukraine of failing to remove sea mines at the ports to allow safe shipping and insists on its right to check incoming ships for weapons.
- Ukraine has argued that Russia's port blockade and launching of missiles from the Black Sea made any shipments unviable.
- Ukraine has sought international guarantees that the Kremlin wouldn't use the safe corridors to attack the Black Sea port of Odessa.
- Ukrainian authorities have also accused Russia of stealing grain from eastern Ukraine and deliberately shelling Ukrainian fields to set them on fire.

Significance of the Deal:

- It was the critical need to get Ukraine's agricultural production and Russia's grain and fertilizer back into world markets.
- The deal will help in relieving the prices of vital commodities like wheat and barley that have soared because of the war.
- The war was endangering food supplies for many developing nations and could worsen hunger for up to 181 million people. The deal will ensure the supply of the grain in the world market again.

Effects of the Russia-Ukraine war on Food Supply:

- The post-pandemic demand for food, extreme weather conditions, supply chain bottlenecks and export restrictions have negatively affected the food market.
- The invasion has added to the widespread inflation in food prices throughout the world, pushing the Food and Agriculture Organization's Food Price Index to an all-time high—the highest it has been since the index began in 1990.
- Somalia was facing an unprecedented shortage of wheat stemming from the halted exports from Russia and Ukraine, as the export route through the Black sea has been shut down since the war started.
- Egypt relies on imported wheat to meet more than half of its daily wheat and calorie requirements. Ukraine and Russia provided for 85 percent of the country's imports in 2020-2021.
- Ukraine was expected to constitute approximately 12 percent of global wheat exports in 2022, consequently affecting countries like Tunisia, Somalia, Egypt and Algeria if it was unable to export grain.

FOREIGN MINISTERS' MEETING OF G-20

Recently, the G20 Foreign Ministers' Meeting was held in Bali, Indonesia.

About:

- The Ministry of External Affairs reaffirmed the importance of fully abiding by bilateral agreements and protocols, and the understandings reached between the two ministers.
- The talks Focused on specific outstanding issues in our bilateral relationship pertaining to the border situation.
- The members also talked about other matters including students and flights.

G-20:

- **Nature:** The G20 is a strategic multilateral platform.
- **Establishment:** The G20 was formed in 1999 in the backdrop of the financial crisis of the late 1990s that hit East Asia and Southeast Asia in particular.
 - ♦ Starting in 1999 as a meeting for the finance minister and central bank governors, the G20 has evolved into a yearly summit involving the Head of State and Government.
- **Aim:** To connect the world's major Developed and Emerging Economies.
 - ♦ It also aims to secure global financial stability by involving middle-income countries.
- **Importance:** The G20 countries include 60 percent of the world's population, 80 percent of global GDP, and 75 percent of global trade.
 - ♦ Developing countries can display their political, economic and intellectual leadership on a par with the most powerful countries.
 - ♦ The G20's rotating presidency ensures that no one country dominates the agenda.
- **Working Mechanism:** The G20 has no permanent secretariat. The agenda and work is coordinated by the representatives of the G20 countries, known as 'Sherpas'.
 - ♦ These Sherpas work together with the finance ministers and governors of the central banks.
 - ♦ On the advice of the G7 Finance Ministers, the G20 Finance Ministers and Central Bank Governors began holding meetings to discuss the response to the global financial crisis that occurred.
 - ♦ The first G20 Summit took place in 2008 in Washington DC, US.
 - ♦ In addition to Summits, the Sherpa meetings (that help in negotiations and building consensus), and other events are also organised throughout the year.
 - ♦ Each year, the presidency invites guest countries.

India and G-20:

- Indian leadership can start to put in motion all its relevant pillars Government, business, academia, innovators, people and media to hold a successful G20 Summit.
- India can enhance the discussion by including critical financial infrastructure – the financial markets, intermediaries and now, the fintech platforms that are the base of all economies.
- India can lead on several issues, most notably on reform of the Bretton Woods institutions.
- Reforms can be made regarding reconfiguration of global financial regulations, design of a new framework for trade in services and digital economy and establishing better cross-border standards for transparency in financial flows.

COUNTERING AMERICA'S ADVERSARIES THROUGH SANCTIONS ACT (CAATSA)

India is on track to attain sanctions waiver from US for buying Russian S-400 missile system.

About:

- CAATSA is a law that came into effect in the US in 2017 and was meant to punish countries having deep engagements with Russia, North Korea, and Iran using economic sanctions.
- Section 231 of the Act empowers the US President to impose sanctions on persons engaged in a "significant transaction" with Russian defence and intelligence sectors. Two of the most stringent of these sanctions are:
 - ♦ suspension of export licences related to munitions, dual-use and nuclear-related items and
 - ♦ ban on American investment in equity/debt of the sanctioned person.
- The US President is given the authority to waive the sanctions on a case-by-case basis.

Recent Developments:

- The US House of Representatives passed a legislative amendment exempting India from CAATSA economic sanctions for purchasing the S-400 missile defence system from Russia in 2018 to deter aggressors such as China.
- National Defense Authorization Act (NDAA) is legislation that Congress passes each year to make changes to the policies and organisation of United States defence agencies and provide guidance on how military funding can be spent.
- The United States considers India to be an important ally in its fight against China. If approved, the Quad collective, of which India is a member, could suffer significant consequences.

Impact of the CAATSA waiver on India:

- The CAATSA exemption will make it easier for India to purchase Russian defence equipment.
- The manufacturer of the S-400 system, Almaz-Antey Air and Space Defence Corporation JSC, is on CAATSA's sanction list.
- In addition to S-400s, India has purchased 1135.6 frigates, Ka-226T helicopters, and joint ventures with Indo Russian Aviation Ltd, Multi-Role Transport Aircraft Ltd, and Brahmos Aerospace.
- It would also have an impact on the purchase of accessories, parts, raw materials, and other assistance.
- The majority of India's military hardware is of Soviet or Russian origin, including the nuclear submarine INS Chakra, the conventional Kilo-class submarine, the supersonic Brahmos cruise missile, the MiG and Sukhoi fighters, the Mi helicopters, and the Vikramaditya aircraft carrier.

Future Implications for India-US Relations:

- The NDAA amendment also urged the US to take additional steps to assist India transition away from its reliance on Russian-made arms.
 - ♦ The National Defense Authorization Act (NDAA) is legislation through which Congress directs how military funding should be used while also modifying the organisation and policies of American defence institutions.
- The amendment is consistent with the recent bilateral strategic relations.
- The United States recognised India as a major defence partner in 2016. Strategic ties have also been strengthened through the formation of organisations such as Quad and I2U2.
- India's strategic interests to reduce its reliance on Russian defence equipment.
- Following its invasion of Ukraine, Russia's reliance on China has grown significantly, and it's unlikely to change soon.
- China is currently Russia's second-largest arms export customer, trailing only India.
- Given India's long-standing border disputes with China, relying on Russian armament systems is not a wise decision in this situation.

S-400 MISSILE DEFENCE SYSTEM

- It is Russia's most advanced long-range surface-to-air missile defence system and is also known as the 'Triumph' missile system.
- It is considered much ahead of the US-developed air defence systems Terminal High Altitude Area Defence system (THAAD).
- It provides four different layers of air defence systems.
- It can simultaneously track 100 airborne targets and engage six of them simultaneously.
- It integrates a multifunction radar, autonomous detection and targeting systems, anti-aircraft missile systems, launchers, and command and control centre.

INDIA-TAJIKISTAN BILATERAL RELATIONS

On the sidelines of the UN Ocean Conference in Lisbon, Portugal, India met with Tajikistan Minister for Climate and Environment, to address a number of matters of shared concern.

About:

- Tajikistan and India have long shared friendly and cordial relations.



- Relations between two countries can be determined through some of the concerned fields:
 - ♦ **Cooperation in International Forums:**
 - Tajikistan has publicly supported India's bid for UNSC permanent membership including in the joint statement issued in 2018.
 - Tajikistan strongly supported SCO Member status for India.
 - However, India supported Tajikistan's accession to WTO in March 2013.
 - India has consistently supported Tajikistan's proposals at the UN on water related issues.
 - ♦ **Connectivity, Trade & Economic Relation:**
 - Indian exports to Tajikistan mainly consist of pharmaceuticals, medical preparations, cane or beet sugar, tea, handicraft and machinery. Indian pharmaceutical products occupy approximately 25% of Tajik market.
 - Different types of ores, slag and ash, aluminum, organic chemicals, herbal oils, dried fruits and cotton are also exported to India by Tajikistan.
 - In 2020, Tajikistan's total import in 2019 was 24.197 million and export to India was USD 0.06 million.
 - ♦ **Indian Community in Tajikistan:**
 - The contribution of medical students studying there to Tajik GDP is approximately USD 9 million per year, while others are members of the Indian Embassy, business community.

Issues faced by Tajikistan:

- Over the past sixty years, an average annual temperature in Tajikistan has increased by 1 degree.
- One thousand out of thirteen thousand glaciers located in Tajikistan mountains have melted away so far.
- In recent years, due to low precipitation in the winter there is a significant decline in water stock in the region's rivers, which in turn led to low-water season during the irrigation and caused a severe drought.
- Tajikistan generates 90% of its electricity in hydro-electric power stations that use renewable 'green' energy sources.

About the Meet:**Both the Ministeries discussed on:**

- Water resources research.
- Glacier monitoring and understanding.
- Non-conventional Energy, etc.
- Global water action and climate resistance.
- Sustainable Development.

Tajikistan's proposals addressing the climate change:

- Facilitate a friendly environment for the "green" economy development.
- Comprehensive support by donor countries and international institutions in an implementation of national strategies for adaptation to climate change.
- Regular monitoring of the generation of water resources, especially glaciers.
- To establish the International Glacier Preservation Fund (IGPF).
- Comprehensive financial and technical assistance by developed countries and international organizations to developing and least developed countries to monitor and preserve sources of water.

Current Indian Perspective towards Central Asia:

- India provided a USD 1 billion Line of Credit for Turkmenistan-Afghanistan-Pakistan-India (TAPI) gas pipeline construction projects aimed at boosting bilateral trade.
- To participate in the third India-Central Asia Dialogue, the foreign ministers of the five Central Asian countries visited New Delhi (December'21).
- The Ashgabat Agreement on International Transport and Transit Corridor (ITTC) and the International North-South Transport Corridor (INSTC) are improving connectivity between India and the Central Asian nations.
- Recently, the inaugural India-Central Asia Summit in virtual format was convened by the Indian Prime Minister in January 2022.

INDIA-EU FTA TALKS

Recently, India and the European Union concluded the first round of negotiations for India-EU Trade and Investment Agreements.

About:

- There was a discussion on the Geographical Indicators (GI) and a next round of talks has been scheduled at Brussels, Belgium.

- During the first round, 52 technical sessions covering 18 policy areas of FTA and seven sessions on investment protection and GIs were held.
- Both sides are aiming for the trade negotiations to be broad-based, balanced, and comprehensive, based on the principles of fairness and reciprocity.
- India's bilateral trade with the EU amounted to \$116.36 billion in 2021-22.
 - ♦ At present, the EU is India's second largest trading partner after the US, and the second largest destination for Indian exports.

Significance of the India-EU FTA:

- The trade deal will help to diversify and secure the supply chains, boost economic opportunities for our businesses, and bring significant benefits to the people.
- FTA will strengthen India's attempts to harness its growing domestic economy and middle class to support its rise as a global economic power.
- **Political terms**
 - ♦ From the EU's perspective the free trade agreement (FTA) with India will support the EU's aim of employing FTAs to foster partner countries' integration into the world economy, and will strengthen its role in global trade governance.
 - ♦ From India's perspective, it will boost the "Make in India" campaign and the ambition to establish India as a regional leader and global manufacturing centre.
- A well-negotiated agreement will boost trade and investment flows between the two regions. The EU is India's main source of technology transfer.

Challenges / Issues in India-EU FTA:

- It is not clear whether it will cover only trade in goods, or cover deeper forms of integration such as investment and competition policy.
- India will be a net loser from the FTA in terms of the trade in goods: primarily as a result of the loss of revenues from lower or zero tariffs, although gains are expected from liberalization of the services sector.
- The EU and India have even had trade disputes at the World Trade Organisation (WTO) on wine and spirits and on pharmaceuticals.
- India has also been affected by EU regulations and standards, especially on agricultural exports.
- **Data-secure country:** At present, India is not considered data-secure under EU legislation, despite India amending its Information Technology Act in 2000 and issuing new Information Technology Rules in 2011, in line with the "safe harbour" principles adopted by the United States.

MULTI-AGENCY MARITIME SECURITY GROUP (MAMSG)

The National Security Advisor (NSA) recently inaugurated the first meeting of the Multi-Agency Maritime Security Group (MAMSG).

About:

- The meeting was chaired by India's first National Maritime Security Coordinator (NMSC).
- The MAMSG and post of NMSC has been created on the recommendations of a Group of Ministers (GoM) after the Kargil war.
 - ♦ GoM recommended the establishment of "an apex body for the management of maritime affairs".

Key Highlights of the meeting:

- **The major issues which were discussed included:**
 - ♦ mapping of existing orders and policies on maritime security to identify gaps.
 - ♦ review of standard operating procedures for maritime contingencies.
 - ♦ security of ports and coastal infrastructure, creation of a national maritime database.
 - ♦ capacity building of coastal states and UTs.
- There was a detailed discussion regarding the strengthening of India's maritime capabilities in the wake of turning the Indian Ocean from Ocean of peace to an Ocean of competition & conflicts.
- The NSA stated that the Indian Ocean as a "great asset" for India, and India's responsibility as a premier maritime power is extremely important.

Multi-Agency Maritime Security Group (MAMSG):

- **Members:** MAMSG has members from key Central Ministries, Agencies and Security Forces dealing with maritime affairs and State Maritime Security Coordinators representing all 13 coastal States and UTs.
- **Mandate:** The mandate of the MAMSG includes
 - ♦ To provide a standing and effective mechanism to ensure coordination of all aspects of maritime security including coastal and offshore security.
 - ♦ Fill the institutional, policy, technological and operational gaps in meeting present and future security challenges

- ♦ To address maritime contingencies requiring an urgent and coordinated response.

NATIONAL MARITIME SECURITY COORDINATOR (NMSC)

- **Need:** To reform the coordination of maritime security affairs at the apex level, the Union Cabinet in November 2021 approved the creation of the post of NMSC under the NSA.
- **Mandate:** It will be the highest review body for maritime and coastal security.
- **Functions:**
 - ♦ To ensure cooperation and coordination between the various stakeholders.
 - ♦ Improving the country's blue economy needs.

The Indian Ocean Region:

- The Indian Ocean is the 3rd largest in the world and is bounded by Asia to the north, Africa to the west, and Australia to the east.
- It is the world's busiest trade route with about 80 percent of the world's maritime oil trade passes through the IOR.

Importance of Indian Ocean region for India:

- **Strategic interests-** Long maritime boundary with more than 7,000-kilometer maritime border amidst presence of Global powers such as USA, UK etc.
- **Presence of Important Sea Lanes of Communication and Chokepoints-** such as the Strait of Hormuz, Straits of Malacca, etc. makes it critical to ensuring global trade flows.
- **India's economic interests-** 90 percent of India's trade about 80 percent of its Oil & gas supplies passes through it.
 - ♦ According to the Ministry of Shipping, around 95 per cent of India's trading by volume and 70 per cent by value is done through maritime transport.
- **Resources:** With an EEZ of over 3.1 million sq km India has rich resources(PMN, Cobalt crusts etc) essential for 4th IR & transition to Green energy roadmap.
- **Fisheries Sector:** The marine fisheries sector is a major contributor to the Indian economy and livelihood of the fishing community. With the growth of the economy, the dependence on sea borne trade and maritime resources will increase and hence the need for a more secure maritime region.

Challenges:

- **Chinese String of Pearls:** Encirclement of Strategic locations in IOR through Maritime silk route(MSR), acquisition of military bases(Djibouti) makes it pertinent for India to reshape its maritime security framework.
- **Issues from Pakistan:**
 - ♦ Terrorism, Cross-border infiltrations, illicit drug trafficking etc.
 - ♦ Pakistan's Maritime Doctrine (2018) advocates using High intensity warfare to disrupt enemy's sea lines of communication (SLOC) in war.
- **Combat Illicit Drug Trafficking and terror financing mechanisms:** India is one of the major hubs of illicit drug trade due to its precarious location between the Golden Crescent in the west and Golden Triangle in the east.

Way Forward:

- The Indian economy is growing and with this growth the dependence on sea borne trade and maritime resources will increase accordingly. Securing our maritime interests from a range of threats and challenges necessitates a coordinated approach. Maritime security has, therefore, rightfully gained prominence in India's security discourse as well as international outreach.

INS VIKRANT

INS Vikrant has finished its sea trial recently and it will soon be delivered to the Navy.

About:

- It will complement the INS Vikramaditya which is currently the Navy's lone carrier which was acquired from Russia in 2013.
- The indigenous design and construction of the ship is done by the Indian Navy and Cochin Shipyard Ltd (CSL).
- With INS Vikramaditya and INS Vikrant in service, the MoD will have to make a critical decision about whether to go ahead with constructing a second indigenous aircraft carrier (IAC-2).

INS Vikrant:

- INS Vikrant is 262 meters long, 62 meters wide and 59 meters high including the superstructure.
- It has 14 deck levels, including five in the superstructure.
- For normal operations, the Vikrant cruises at 18 knots (33 kmph).
 - ♦ The consultancy for the propulsion system was provided by the Italian Shipbuilder, Fincantieri.
- The ship is designed for a crew of 1,700. It has over 2,300 compartments.

- ♦ These include specialized cabins to accommodate women officers.
- There is a high degree of automation for machinery operation, ship navigation and survivability.
- The Vikrant is built from SAIL's DMR 249A and B grade steel.
 - ♦ This indigenous warship-grade steel was developed and manufactured by the DRDO and Steel Authority of India (SAIL).

Significance:

- It is a shining example in the nation's quest for 'Aatmanirbhar Bharat' and 'Make in India Initiative,' with more than 76 per cent indigenous content.
- This has grown the country's indigenous shipbuilding capabilities, and developed a large number of ancillary industries.
- It has provided employment opportunities for over 2,000 CSL workers and 12,000 employees in ancillary industries.
- With the delivery of Vikrant, India has joined a select group of nations having the niche capability to indigenously design and build an aircraft carrier.
- It will bolster India's operational profile in the Indian Ocean Region (IOR) and its quest for a blue water Navy that can project power to distant areas of interest.

INS VIKRAMADITYA

- It is the Indian Navy's largest short take-off but assisted recovery (STOBAR) aircraft carrier and warship.
- It was commissioned into service in November 2013.
- It has an overall length of 284m, a maximum beam of 60m, the height of approximately 60m and a displacement of 44,500t.
- The warship has 22 decks and 2,500 compartments, of which 1,750 were completely re-built. It can carry more than 1,600 personnel, including crew.

CENTRAL RESERVE POLICE FORCE (CRPF)

Every year, July 27 is commemorated as Central Reserve Police Force (CRPF) foundation day.

About:

- **Colonial Era:**
 - ♦ These forces were there since the imperial rule of the Britishers and were known as **Crown Representative's Police**.
 - ♦ It came into existence on this day in 1939.
 - ♦ Soon after India's independence from the shackle of the colonial raj, it got its name, Central Reserve Police Force with the enactment of the **CRPF Act on 28th Dec. in 1949**.

- **Formation:**
 - ♦ It was constituted following the **political unrest** and the agitations in the then princely States of India in the backdrop of the **Madras Resolution** of the All-India Congress Committee in **1936**.
- **Ministry:** CRPF officially works under the Ministry of Home Affairs.
- **Function:**
 - ♦ It essentially functions for all states and union territories alike.
 - ♦ The force's job is to **maintain law and order** in the subcontinent and by the virtue of it they combat against insurgencies, act as rescue forces whenever required, etc.
 - ♦ CRPF was the on guard force at the **Indo-Pak border until 1965** when the Border Security Force came into existence specifically for this purpose.
 - ♦ CRPF is also deployed for **international missions for the United Nations**.
 - ♦ The CRPF continues to step in whenever **natural disasters or some unforeseen accidents happen**.
 - ♦ **COBRA** is a special operation unit of the **Central Reserve Police Force (CRPF) of India** proficient in guerrilla tactics and jungle warfare.
- **Capacity:** It is India's largest central armed police force having around 246 battalions, and more than 30,000 personnel.
- ♦ Further, the theatre command system aims to bring greater focus in the allocation of resources and help reduce redundancies.
- **There are two joint services commands in India:**
 - ♦ **Andaman and Nicobar Command (ANC):** Based on the principle of theatre command system, ANC is considered to be the only one of its kind in the country that amalgamates the army, navy and air force.
 - Set up in 2001, ANC is based in Port Blair and is led by officers of the three services on a rotation basis.
 - The command covers India's strategic interests in Southeast Asia and the Malacca Strait.
 - ♦ **Strategic Forces Command (SFC):** As SFC takes care of the nuclear assets of India and is not related to any specific theatre of war.
- **Countries that follow Theatre Command System:**
 - ♦ Various countries around the globe already have some form of theatre or joint command in place to bring better integration among their military forces.
 - ♦ Notably, **the USA was the first country** to enforce a theatre command system with six geographical and four functional commands presently in place.
 - ♦ **Russia** also started with the restructuring of its defence forces in 2008 and has four theatre commands.
 - ♦ **China's** theatre command system is said to be based on the US model and has "five peacetime geographical commands". Chinese Western Theatre Command covers the region along the Indian border.

JOINT THEATRE COMMANDS OF TRI-SERVICES

Recently, the Indian Defence Minister announced the setting up of joint theatre commands of the tri-services to enhance coordination among the armed forces.

About:

- **Idea:**
 - ♦ The idea behind 'Theatre Command System' is to bring **synergistic coordination between the three branches** of the armed forces.
 - ♦ Besides the operational synergies, the theatre command system will also contribute to more streamlined costs and a leaner fighting force.
- **Aim:**
 - ♦ Bringing separate commands for the army, navy, air force under a unified command spearheaded by a single commander.
 - ♦ The integration process would ultimately lead towards the **unified military assets fused into one single command** under one operational head who will be responsible for directing and controlling their activities in a given situation.

UAPA ACT

Recently the National Investigation Agency (NIA) Court in Dantewada has acquitted 121 tribals.

About:

- The Tribals were held over the suspicion of Maoist attack that claimed the life of 25 Central Reserve Police Force jawans in Chhattisgarh's Sukma district in 2017.
- They were all booked under the Unlawful Activities (Prevention) Act (UAPA).
- The tribals who had been kept in jail for five years were denied bail in the past by the NIA court and the Chhattisgarh High Court.
- Now, the court held that there was little evidence that the tribals had any association with the proscribed Maoists.

UAPA Act:

- It was passed in 1967 and aims to effective prevention of unlawful activities associations in India.

- ♦ Unlawful activity means any conduct which constitutes a crime or which contravenes any law whether such conduct occurred before or after the commencement of this Act and whether such conduct occurred in the Republic or elsewhere.
- **Key provisions:**
 - ♦ Both Indian and foreign nationals can be charged.
 - ♦ It is applicable even if the offence is committed outside India.
 - ♦ A charge sheet can be filed in maximum 180 days after the arrests.
 - ♦ The investigation has to be completed within 90 days and if not, the accused is eligible for default bail.
 - ♦ A Special Court under the UAPA conducts trials.

2019 Amendment under UAPA Act, 1967:

- Under the Act, the Union Government may designate an organisation as a terrorist organisation if it:
 - ♦ commits or participates in acts of terrorism,
 - ♦ prepares for terrorism,
 - ♦ promotes terrorism, or
 - ♦ is otherwise involved in terrorism.
 - ♦ the act empowers the Government to designate individuals as terrorists on the same grounds.
- **Approval for seizure of property by NIA:** Under the Act, an investigating officer is required to obtain the prior approval of the Director General of Police to seize properties that may be connected with terrorism.
 - ♦ The act adds that if the investigation is conducted by an officer of the NIA, the approval of the Director General of NIA would be required for seizure of such property.
- **Investigation by NIA:** Under the Act, investigation of cases may be conducted by officers of the rank of Deputy Superintendent or Assistant Commissioner of Police or above.
 - ♦ The act additionally empowers the officers of the NIA, of the rank of Inspector or above, to investigate cases.
- **Insertion to schedule of treaties:** The Act defines terrorist acts to include acts committed within the scope of any of the treaties listed in a schedule to the Act.
 - ♦ The Schedule lists nine treaties, including the Convention for the Suppression of Terrorist Bombings (1997), and the Convention against Taking of Hostages (1979).
- The act adds another treaty to the list. This is the International Convention for Suppression of Acts of Nuclear Terrorism (2005).

Criticism of the Act:

- **Absolute power to investigative agencies:** The Act assigns absolute power to the Union Government, by way of which if the Centre deems an activity as unlawful then it may, by way of an Official Gazette, declare it so.

VARIOUS ANTI TERRORIST ACTS IN INDIA SO FAR

TADA:

- The Terrorist and Disruptive Activities (Prevention) Act, 1987, was at one time the main law used in cases of terrorism and organised crime, but due to rampant misuse, it was allowed to lapse in 1995.
- The law made a confession before a police officer admissible as evidence. Separate courts were set up to hear cases filed under TADA.

POTA:

- In wake of the 1999 IC-814 hijack and 2001 Parliament attack, there was a clamour for a more stringent anti-terror law, which came in the form of The Prevention of Terrorism Act (POTA), 2002.
- A suspect could be detained for up to 180 days by a special court. The law made fundraising for the purpose of terrorism a "terrorist act".
- A separate chapter to deal with terrorist organisations was included.
- The Union Government could add or remove any organisation from the schedule.
- However, reports of gross misuse of the Act by some state governments led to its repeal in 2004.

- **Against Constitutional provisions:** The opposition voiced concerns about the amendments, saying the provisions were against the federal structure of the country enshrined in the Constitution of India.
- **No pre-legislative consultation:** Designating an individual as a terrorist raises serious constitutional questions and has the potential for misuse.
 - ♦ An individual cannot be called a 'terrorist' prior to conviction in a court of law.
 - ♦ It subverts the principle of "innocent until proven guilty."
 - ♦ A wrongful designation will cause irreparable damage to a person's reputation, career and livelihood.
- **Ignoring Fundamental Rights:** It can simply be used to bypass fundamental rights and procedures.
 - ♦ For instance, those arrested under UAPA can be incarcerated up to 180 days without a charge sheet being filed. It thus directly violates Article 21 of the constitution.
- **Gives Discretion to State agencies:** It confers upon the government broad discretionary powers and also authorises the creation of special courts with the ability to use secret witnesses and to hold closed-door hearings.
 - ♦ The UAPA is a fairly harsh law drafted to deal with some harsh circumstances and with people spending more than a decade in jail before being acquitted, its potential for misuse has been realised.

- **Discourages discourse and dissent:** It is being used to suppress dissent through intimidation and harassment thus threatening the very existence of public debate and freedom of press and criminalising the performance of civil liberties.
 - ♦ UAPA empowers the parliament to restrict the rights and freedoms of citizens to protect 'the sovereignty and integrity of India'.
- **Tardy Provision of bail:** The standard for bail under the UAPA is that it cannot be granted unless the court is of the view that the accused is innocent of the alleged offence.

Way Forward:

- **Supreme Court's take:** The court has to intervene with a set of guidelines for invocation of UAPA.
 - ♦ In *Thwaha Fasal vs Union of India*, the Court has acted in its introspective jurisdiction and deconstructed the provisions of the Unlawful Activities (Prevention) Act (UAPA) with a great sense of legal realism.
 - ♦ This paves the way for a formidable judicial authority against blatant misuse of this law.
- **Necessary changes:** The government has to incorporate recent Judicial verdicts to make the law only for the intended purpose and not for political dissent or anything else.
- **Better Governance:** All detentions under the Act should have higher levels of clearance, with a record kept of the rationale applied for future scrutiny.
- **Deploying educational programmes:** Deploying relevant models on the basic principles of justice at every level of law-and-order will reduce misuse of UAPA.
 - ♦ UAPA gives unfettered powers to the government and leaves a person vulnerable in front of the government.
 - ♦ However, given the evolving nature of crime and terrorist activities, it is not possible to completely abandon the law. Hence, the UAPA has to be amended to balance the security interests with fundamental freedom.

of India, friendly relations with foreign states, and the offences under the statutory laws enacted to implement international treaties, agreements, conventions and resolutions of the United Nations, its agencies and other international organisations.

- These include terror acts and their possible links with crimes like smuggling of arms, drugs and fake Indian currency and infiltration from across the borders.
- The agency has the power to search, seize, arrest and prosecute those involved in such offences.
- The agency can take such measures which are necessary for speedy and effective implementation to combat terrorism and other terror related offences.
- **Jurisdiction:** The law under which the agency operates extends to the whole of India and also applies to Indian citizens outside the country; persons in the service of the government wherever they are posted; persons on ships and aircraft registered in India wherever they may be; persons who commit a scheduled offence beyond India against the Indian citizen or affecting the interest of India.
- **Coordination between various intelligence agencies:** The NIA Act permits NIA's assistance to other intelligence agencies of the Federal and State governments.
 - ♦ It can seek assistance from these agencies. It means the coordination between various federal and State intelligence agencies including Intelligence Bureau (IB), the Research and Analysis Wing (RAW), Defence Intelligence Agency (DIA), Department of Revenue Intelligence (DRI), the National Technical Research Organisation (NTRO),
 - ♦ It can also work in close coordination with other Intelligence outfits of State and Union Territories in the minds of the framers of the statute. On the other hand, the NIA Act is not clear on the relationship between agencies and information.

NATIONAL INVESTIGATION AGENCY

Recently MHA has directed the National Investigation Agency (NIA) to take over the investigation of the Udaipur incident in Rajasthan.

About:

- **Establishment:** The National Investigation Act, 2008 (NIA ACT) was enacted and notified in 2008.
 - ♦ After the 26/11 Mumbai attacks in 2008, the reports of committees stimulated India to create a federal Agency to Investigate Terrorism and related offences.
- **Mandate**
 - ♦ It is a central agency mandated to investigate all the offences affecting the sovereignty, security and integrity

Reasons behind the establishment of NIA:

- The overstrained police of Indian states with its restricted territorial jurisdiction and limited resources and expertise are not able to combat terrorism and its related offences properly.
- An agency like the Central Bureau of Investigation (CBI) can investigate certain crimes only with the consent of the appropriate State Government or by a court order.
- Therefore, a federal Agency that has the authority to look into terrorist cases throughout the country and one that is endowed with greater resources and greater expertise would be better positioned to handle Terrorism-related cases.
- Idea of a federal Agency to investigate terrorism and related offences has been mooted by many committees and experts.

ABORTION LAWS IN INDIA

Recently, the Supreme Court (SC) of India expanded the scope of abortion law to allow a single women to end 24-week pregnancy.

About:

- The Supreme Court bridged the gap in the Medical Termination of Pregnancy Act and relevant Rules regarding abortion.
- The apex court in its judgment stated that “Denying an unmarried woman the right to a safe abortion violates her personal autonomy and freedom.
- The SC also observed that a woman's right to reproductive choice is an inseparable part of her personal liberty under Article 21.
 - ♦ Excluding unmarried women and single women from the ambit of the statute goes against the purpose of the legislation.

Key Provisions of the MTP (Amendment) Act, 2021:

- According to the amendments made in the MTP Act in 2021, abortion is permitted only after seeking a medical opinion under stipulated circumstances.
 - ♦ It increased the upper limit of the gestation period to which a woman can seek a medical abortion from 20 weeks as per the MTP Act 1971 to 24 weeks.
- However, abortion rights as per this renewed upper limit can only be exercised in specific cases.
- Now up to 20 weeks of the gestational age, the MTP could be accessed on the opinion of a single registered medical practitioner.
- From 20 weeks up to 24 weeks, the opinion of two registered medical practitioners would be required.
- Under this Act, the permission for medical termination of pregnancy is granted if the permission is supported by a medical opinion and is being sought for at least one of the following reasons:
 - ♦ If the pregnant woman faces a risk to her life by the continuation of the pregnancy.
 - ♦ If the continuation of pregnancy results in grave injury to the woman's physical or mental health.
- **Grounds for termination of pregnancy up to 24 weeks:** After seeking the opinion of two registered medical practitioners, the pregnancy can be terminated up to 24 weeks of gestational age under the conditions given below:

- ♦ If the woman is either a survivor of sexual assault or rape or incest;
 - ♦ If she is a minor;
 - ♦ If there is a change in her marital status during the ongoing pregnancy (due to widowhood or divorce);
 - ♦ If she suffers from major physical disabilities or she is mentally ill;
 - ♦ Termination of pregnancy on the grounds of fetal malformation incompatible with life or the possibility of a seriously handicapped child if the born;
 - ♦ If the woman is situated in humanitarian settings or disaster or stuck in the emergency situations as declared by the Government.
- **Pregnancy beyond 24 weeks:** In case of abortion beyond 24 weeks of pregnancy the abortion is carried out on the grounds of foetal abnormalities. For this kind of abortion, permission is required by a four-member Medical Board, set up set up in each State under the MTP Act
 - **Safeguarding life:** The amended Act, irrespective of any of the above conditions, also permits abortion by a single registered medical practitioner at any stage of the pregnancy if it is immediately necessary to save the life of the pregnant woman.
 - **Case of unmarried woman:** As per the amended 2021 MTP Act provisions, abortion can also be accessed by unmarried women under the above-mentioned conditions as it does not mention the spousal consent necessity. However, if the woman is a minor, the guardian's consent is essential.

THE ABORTION QUESTIONS

➤ Worldwide, **22 million** unsafe abortions performed each year

➤ Abortion has been **legal in India since 1971**

➤ In India, **7m** abortions are conducted annually

➤ Around **50%** of **total abortions** in India estimated to be illegal

➤ **Rate of maternal deaths** attributed to **complications** from unsafe

Indian Medical Association

MTP is a procedure meant to be conducted by an **allopathic doctor** only and cannot be conducted by the paramedical staff on their own as they are not at **all well-equipped** to handle critical medical conditions arising out of excessive bleeding in some cases, especially during incomplete abortions as a result of procedures and prescriptions provided by untrained and unauthorized medical or paramedical professionals during MTPs

- **Section 5A of the Act:** It includes provisions for the privacy protection of a woman undergoing an abortion. The registered medical practitioners are mandated not to "reveal the name and other particulars of a woman whose pregnancy has been terminated", except to a person authorized by the law.
 - ♦ In case of violation or breach of the woman's privacy, such medical practitioners could be punished with imprisonment up to one year or a fine, or both.

Abortion laws in India:

- **Shantilal Shah Committee:** In light of a high number of induced abortions during 1960s in India, the Union Government constituted the Shantilal Shah Committee to deliberate on the legalization of abortion.
- **The Medical Termination of Pregnancy (MTP) Act:** The act was introduced in 1971 to reduce the maternal mortality rate due to unsafe abortions.
 - ♦ MTP Act sets the rules regarding procedure and timing for medical abortion and is an exception to the Indian Penal Code (IPC) provisions of section 312 and 313.

IMPORTANT SECTIONS OF IPC

- **Section 312 of the IPC:** This section effectively makes unconditional abortion illegal in India.
 - ♦ Under this section, a person who "voluntarily causes a woman with child to miscarry" is liable for punishment. He/she may be punished with a jail term of up to 3 years or a fine or both unless it was done in good faith where the purpose was to save the life of the pregnant woman.
- **Section 313 of the IPC:** Under the provisions of this section, a person who causes the miscarriage without the consent of the pregnant woman, irrespective of the stage of her pregnancy, shall be punished with life imprisonment or a jail term extending up to 10 years, as well as a fine.

Evolution of the Medical Termination of Pregnancy (MTP) Act (1971 to 2021):

- **MTP Act 1971:** Under the Act, to access a medical abortion up to 12 weeks of pregnancy, the opinion of the one registered doctor was required and the endorsement of two doctors were required for the abortion up to 20 weeks.
- **Amendment in 2003:** In 2003, new rules were introduced in the MTP Act by an amendment to allow the use of misoprostol (a newly discovered abortion medicine) for medical termination of pregnancy up to seven weeks.
 - ♦ In 2020, some broader amendments to the original MTP Act were introduced and in September 2021 the amended act came into force.

Issues with the MTP Act:

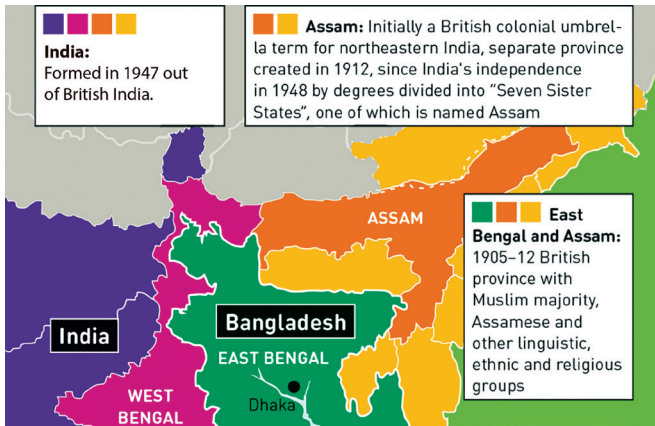
- **The Lancet 2018 study:** As per this study, up to 2015, 15.6 million abortions were accessed annually in India. Under the MTP Act, abortion can be performed only by medical practitioners with specialisation in gynaecology or obstetrics.
- **National Family Health Survey 4 (2015-16):** NFHS 4 data showed that 47% of the abortions in India are carried out by the nurses or Auxiliary Nurse Midwife (ANM), or Lady Health Visitor (LHV), Dai or the family members.
- **The Ministry of Health and Family Welfare's 2019-20 report** on Rural Health Statistics, however indicates rural India faces a 70% shortage of obstetrician-gynecologists.-
- **Illegal abortions:** As the MTP Act does not permit willful abortion, critics have pointed out that it pushes women to access illicit abortions under unsafe and non-sanitary conditions.
 - ♦ As per the statistics, out of 8,00,000 annual unsafe and illegal abortions performed in India, many result in maternal mortality.
- **Overlap with Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act 1994:**
 - ♦ While the right to abortion under the MTP Act involves women's right to control their bodies, they are restricted by the PCPNDT Act from choosing specifically to abort female fetuses. Thus, a woman's bodily autonomy still primarily lies with the state rather than with her.

DEBATE OVER NATIVES VERSUS BENGALI-SPEAKING INDIGENOUS MUSLIMS

The Assam Government has decided to identify 5 Muslim sub-groups as "indigenous" Assamese Muslim communities.

About:

- The indigenous Assamese Muslim communities include the Muslim communities of Goriyas, Moriyas, Julhas, Deshis, and Syeds.
- **Background:** Assamese indigenous Muslims have Assamese as their mother tongue and trace their ancestry to the Ahom kingdom (1228-1826).
 - ♦ Thus, they consider themselves as a part and parcel of the larger Assamese-speaking community, together with Assamese Hindus.
- Bengali-speaking Muslims however migrated afterward and formed a larger population than Assamese-speaking Muslims. Kachin Muslims form a distinct 3rd category.
- **Rational behind the Categorisation:** To ensure development of health, education, financial inclusion, skill development and women empowerment along with preserving their cultural identity.



The Core Issues:

- Consistent demand from the community to recognise themselves as having a separate identity as they have a different history as well as culture from Bengali-speaking Muslims.
- They consider themselves to be native to the state as distinct from those who migrated afterward.

The Government's move:

- 7 sub-committees were formed in July last year to study the socio-economic conditions of these five subgroups.
- Key themes on which the sub-committees were formed- cultural identity, health, education, skill development, population stabilization, financial inclusion, and women empowerment of these communities.
- The cabinet took its decision on the basis of the report of these sub-committees.

Composition of the Groups:

- **Deshi:** They are considered to be the first batch of people to embrace Islam in Assam. They trace their lineage to Ali Mech, a Koch-Rajbongshi chieftain who converted to Islam during the invasion of Bakhtiyar Khilji around 1205 AD.
- **Syed:** As per some accounts, the earliest among them to settle was Syed Badiuddin Shah Mada (Madan Pir) in 1497, the Syed community comprises descendants of their followers.
- **Goriya:** During the Mughals invasions between 1615 and 1682, the Ahom regime took several soldiers Prisoners of War (POW) and they subsequently converted to Islam.
 - Some tribals/Hindus who embraced Islam during Azaan Pir's time also came to be known as Goriya.
 - They get their name from Gaur province in Bengal. Due to marriage alliances with locals, they become integrated with Assamese society.
- **Moriya:** They are descendants of prisoners of war (POW) captured by the Ahoms after an attempted invasion by Turbak Khan in the 16th century. One of their major occupation being work in brass.

- **Julha** -They form a small community originally belonging to undivided Bihar, Odisha and West Bengal.
 - They are believed to be adivasis who embraced Islam.
 - They migrated to Assam in two phases: as weavers during the Ahom regime and as tea garden workers brought by British tea planters in the 19th century.
 - Julha is listed as an MOBC community in Assam.

Intended Benefits:

- **Cultural mainstreaming-** The sub-group has now officially become the part of a larger Assamese-speaking community along with Assamese Hindus.
- **Concerns addressed-** The decision might provide a sigh of relief and trust towards the state.
- **Upholding their identity-** Protection & preservation of the uniqueness of the indigenous Assamese Muslims.
- **Data driven and evidence based policy-** A census might be conducted to "identify and document" the Assamese Muslim community. Various welfare measures can be taken for focused development of these communities.
- **Holistic development-** The developments in areas such as health, cultural identity, education, financial inclusion, skill development, and women empowerment can be planned in targeted ways.
- **Enhanced participation in Politics-** The report of the sub-committees also suggested greater political representation including reservation of a Rajya Sabha seat and reservation in jobs.

The Flip Side:

- Assam has a long troubled history of ethnic, linguistic, and religious clashes. The decision might alleviate the concerns.
- Resentment among other sections- Kachari Muslims were not included in the list. They live in south Assam's Barak Valley - a region dominated by Bengali-speaking Hindus and Muslims.
- They trace their origins to the Kachari kingdom (13th century to 1832) and consider themselves distinct from the Bengali Muslims.
- They perceive the omission as a great injustice.
- Marginalization of Bengali-origin Muslims may take place
- The focus on 'indigenous' Muslim communities of Assam might lead to feeling of apprehension & insecurity in other Muslims of Assam.
- Decline in social capital- the gulf between communities may increase.
- It may become a means of divisive politics furthering law and order issues.
- An inclusive approach to the welfare of all sections of society might bring greater prosperity & peace for all.

NATIONAL FOOD SECURITY RANKING

The Ministry of Consumer Affairs, Food & Public Distribution released the first-ever State Ranking Index for implementation of the National Food Security Act (NFSA), 2013.

About:

- State ranking Index for NFSA attempts to document the status and progress of implementation of NFSA and various reform initiatives across the country, post consultation with states.
- It highlights the reforms undertaken by States and UTs and create a cross-learning environment and scale-up reform measures by all states and union territories.
- The present Index is largely focused on NFSA Distribution and will include procurement, PMGKAY Distribution in future.

Major Highlights of the Index

- Among the 20 big States and Union Territories (UTs), Odisha, Uttar Pradesh and Andhra Pradesh scored the highest and secured the top three positions in the Index, among the list of 34 states and Union territories (UTs).
- Among the special category states (the northeastern, Himalayan, and the Island states), Tripura, Himachal Pradesh and Sikkim obtained the top positions.
- Among the 3 UTs where Direct Benefit Transfer (DBT)- Cash is operational, Dadra and Nagar Haveli & Daman and Diu is the top ranked UT.
- Jharkhand, Uttar Pradesh, Dadra and Nagar Haveli and Daman and Diu scored the highest in terms of coverage, targeting and implementing provisions of NFSA.
- Among big States and UTs, Goa came last while Ladakh ended up at the bottom place among smaller states and UTs.
- Bihar, Andhra Pradesh and Telangana had the best delivery platform displaying the efficiency of the TPDS supply chain.

Three Parameters

- The Index for ranking the states and UTs is built on three key pillars which covers the end-to-end implementation of NFSA through TPDS. These pillars are:
 - Coverage of NFSA, rightful targeting, and implementation of all provisions under NFSA;
 - Delivery platform while considering the allocation of foodgrains, their movement, and last-mile delivery to Fair Price Shops (FPS); and
 - Nutrition initiatives.

NATIONAL FOOD SECURITY ACT (NFSA), 2013

- The National Food Security Act (NFSA) was enacted on July 5, 2013.
- The NFSA provides a legal right to persons belonging to "eligible households" to receive food grains at subsidized price – rice at Rs 3/kg, wheat at Rs 2/kg and coarse grain at Re 1/kg — under the TPDS. These are called central issue prices (CIPs).
- The Act legally entitled upto 75% of the rural population and 50% of the urban population to receive subsidized food grains under Targeted Public Distribution System.
- Coverage of two-thirds of the total population at the all-India level, under two categories of beneficiaries –
 - Antodaya Anna Yojana (AAY) households - food grains entitlement 35kg per household.
 - Priority Households (PHH) – food grains entitlement 5 kg per person/month.
- Special provisions for supplementary nutrition:** Every pregnant woman and lactating mother is entitled to a free meal during pregnancy and six months after childbirth, through the local Anganwadi and also a maternity benefit of not less than rupees six thousand.
 - Every child in the age group of six months to six years is entitled to an age-appropriate meal through the local Anganwadi.
 - Children within the age group of six to fourteen years are entitled to one mid-day meal every day in all schools run by local bodies, Government and Government aided schools.
 - State Government through the local Anganwadi, also identify and provide meals to children who suffer from malnutrition, so as to meet the specified nutritional standards.
- Women Empowerment:** Eldest woman 18 years or above mandated to be the head of the household for the purpose of issuing ration cards.
- The Act is now being implemented in all 36 States/UTs and covers about 81.35 crore persons.



NOMINATION OF MEMBERS TO RAJYA SABHA

Recently, the President has nominated members to the Rajya Sabha under Article 80(3) of the Constitution.

About:

- Music maestro Ilaiyaraaja, sports icon P T Usha, acclaimed screenwriter V Vijayendra Prasad and philanthropist and spiritual leader Veerendra Heggade were nominated to the Rajya Sabha recently.
- These members belong to four southern states, Tamil Nadu, Kerala, Andhra Pradesh, and Karnataka.
- At present, the Rajya Sabha has 245 members. Of these,
 - ♦ 229 members represent the states,
 - ♦ 4 members represent the Union Territories and
 - ♦ 12 members are nominated by the President.

NOTE

The maximum strength of the Rajya Sabha is fixed at 250. It consists of 238 representatives of the states and union territories (elected indirectly) and 12 members nominated by the President on the recommendation of the Union Government.

Rationale behind the Nomination of Members:

- The President nominates members to the Rajya Sabha from people who have special knowledge or practical experience in art, literature, science, and social service.
- Though the main composition of the two Houses of Parliament is elective, either direct or indirect, the President has been given the power to nominate certain members to Rajya Sabha as an adequate representation of certain interests will not be possible through the competitive system of election.
- They are expected to participate in the debates with an amount of learning and importance that the other members do not ordinarily associate with Rajya Sabha.

NOTE

A nominated member, however, is allowed to join a political party within the first six months of taking a seat without attracting any disqualification under the Anti-Defection Law (Tenth Schedule of the Constitution).

Qualifications

The Constitution lays down the following qualifications for a person to be chosen as a member of the Rajya Sabha:

- He must be a citizen of India.
- He must make and subscribe to an oath or affirmation before the person authorized by the election commission for this purpose.

- He must be not less than 30 years of age.
- He must possess other qualifications prescribed by Parliament.

Additional qualification

- The Representation of People Act (1951) requires that the person to be nominated to Rajya Sabha must be registered as an elector for a parliamentary constituency.

Role of nominated members:

- **Powers and privileges:** Nominated members of Rajya Sabha enjoy all the powers and privileges to which the elected MPs are entitled.
 - ♦ They can take part in the proceedings of the House in a normal manner.
- **Election of President and Vice-President:** Nominated members are not allowed to vote in the election of the President.
 - ♦ However, they do have the right to vote in the election of the Vice-President.

About Rajya Sabha

- Rajya Sabha is a permanent body and is not subject to dissolution.
- However, one-third of the members retire every second year, and are replaced by newly elected members. Each member is elected for a term of six years.
- The Vice President of India is the ex-officio Chairman of Rajya Sabha.
- The House also elects a Deputy Chairman from among its members. Besides, there is also a panel of "Vice Chairmen" in the Rajya Sabha.
- The senior-most minister, who is a member of Rajya Sabha, is appointed by the Prime Minister as Leader of the House.
- The Fourth Schedule of the Constitution deals with the allocation of seats in the Rajya Sabha to the States and Union Territories.

Special Powers of Rajya Sabha

- To empower Parliament to make laws in respect of any matter enumerated in the State List in the national interest by adopting a resolution to this effect (Article 249), creation of All India Services (article 312), and approving Proclamations (issued under article 352 or article 356 or article 360) if the Lok Sabha stands dissolved or the dissolution of the Lok Sabha takes place within the period allowed for the approval of the Proclamation by Parliament.

Rajya Sabha vs. House of Lords vs. Senate

- Though the President of India is not a member of either House of Parliament and does not sit in the Parliament to attend its meetings, he is an integral part of the Parliament.
- In this respect, the framers of the Indian Constitution relied on the British pattern rather than the American pattern.

- ♦ In Britain, the Parliament consists of the Crown (King or Queen), the House of Lords (Upper House), and the House of Commons (Lower House).
- ♦ By contrast, the American President is not an integral part of the legislature.
- ♦ In the USA, the legislature, which is known as Congress, consists of the Senate (Upper House) and the House of Representatives (Lower House).
- The parliamentary form of government emphasizes the interdependence between the legislative and executive organs. Hence, we have the 'President-in-Parliament' like the 'Crown-in-Parliament' in Britain.
 - ♦ The presidential form of government, on the other hand, lays stress on the separation of legislative and executive organs.
 - ♦ Hence, the American President is not regarded as a constituent part of Congress.
- In Britain, the House of Lords (Upper House) cannot oppose and obstruct the House of Commons (Lower House).
 - ♦ The House of Lords is only a dilatory chamber—it can delay an ordinary bill for a maximum period of one year and a money bill for one month.
- Thus, the position of the Rajya Sabha in our constitutional system is not as weak as that of the House of Lords in the British Constitutional system nor as strong as that of the Senate in the American Constitutional system.
- ♦ Promoting Socio-Cultural Sustainability
- ♦ Scheme for Certification of Sustainable Tourism
- ♦ Information, Education and Communication (IEC) and Capacity Building
- ♦ Governance.
- The Scheme will encourage adoption of principles of sustainable tourism including environmental, socio-cultural and economic sustainability. Some of the initiatives will include:
 - ♦ While planning projects for destination development, states will consult with local communities and stakeholders.
 - ♦ States will encourage the use of renewable energy, eco-friendly materials, e-vehicles, and other environmentally friendly technologies in projects.
 - ♦ States will ensure the development of accessible infrastructure and services at the Scheme's designated destinations.
 - ♦ A sufficient emphasis will be placed on capacity building of local communities, particularly among youth and women, to enable them to take up jobs and opportunities in the tourism sector.
 - ♦ States will promote local entrepreneurship and self-employment in the tourism value chain.
 - ♦ States will also sensitise tourists to respect the environment and behave responsibly.

NATIONAL STRATEGY FOR SUSTAINABLE TOURISM (NSST)

The Ministry of Tourism (MoT) launched the National Strategy for Sustainable Tourism and Responsible Traveller Campaign.

About:

- NSST was launched during the "National Summit on Developing Sustainable and Responsible Tourist Destinations" by MoT, in collaboration with the United Nations Environment Programme (UNEP) and the Responsible Tourism Society of India.
- It aims for sustainability in the Indian tourism sector, by ascertaining resilient, inclusive, carbon-neutral, and resource-efficient tourism while protecting natural and cultural resources.
- Sustainable and responsible tourism practices will be implemented in various projects and initiatives through Swadesh Darshan 2.0 (revamped Swadesh Darshan Scheme) which was launched during the summit.
- The key pillars of Sustainable Tourism according to NSST are:
 - ♦ Promoting Environmental Sustainability.
 - ♦ Protecting Biodiversity
 - ♦ Promoting Economic Sustainability

SUSTAINABLE TOURISM & SWADESH DARSHAN 2.0

- **Sustainable Tourism:** According to UNEP is defined as "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities."
- Sustainable tourism will help achieve SDG 8 (Decent work and economic growth), SDG 12 (responsible consumption and production), SDG 14 (Life below water) and SDG 17 (global partnership for sustainable development).
- **Swadesh Darshan 2.0:** The scheme aims to develop a strong framework for integrated tourism destination development in collaboration with the states/UTs and local governments in order to promote sustainable and responsible tourism in the country.
- **The strategic objectives of the Scheme are:**
 - ♦ To enhance the contribution of tourism to the local economies.
 - ♦ To create jobs including self-employment for local communities.
 - ♦ To enhance the skills of local youth in tourism and hospitality.
 - ♦ To increase private sector investment in tourism and hospitality.
 - ♦ To preserve and enhance the local cultural and natural resources.

STARTUP FOR RAILWAYS

Indian Railway Innovation Policy "Start-ups for Railways" was launched by the Ministry of Railways (MoR).

About:

- **Aims and Objectives:** In order to boost the participation of a large and untapped start-up/ MSME/ Innovator/ Entrepreneur ecosystem, the policy aims to bring scale and efficiency to the fields of operation, maintenance and infrastructure creation in Indian Railways.
 - ♦ It also aims to provide innovative solutions to eleven problem statements, such as broken rail detection, Track Cleaning Machine, Rail Stress Monitoring System, etc. in phase 1 of program's implementation.
- Promoting the idea of "Innovation Culture" and "Jan Bhagidari" to achieve the true essence of democracy, the Ministry encouraged start-ups to take advantage of this opportunity and assured them of support in the form of a 50% capital grant, as well as market, scale, and ecosystem assurances.
- Grant of up to Rs. 1.5 crore to innovators on an equal sharing basis, with provision of milestone wise payment.
- To ensure transparency and objectivity, the entire process is online, from problem statement generation to prototype development.
- Prototypes will be tested on railways. Following the successful performance of prototypes, increased funding will be provided to scale up deployment.
- A transparent and fair system will be used to select the Innovator/s, which will be handled through an online portal inaugurated today by the Minister of Railways.
- Intellectual property rights (IPR) developed will be retained solely by the innovator.
- To avoid delays, the entire product development process should be decentralised at the divisional level.
- **Significance:** Indian Railways operates at a massive scale and is among the world's largest rail network carrying 23 million travellers and 3.5 MT of freight daily.

Issue with Indian Railways:

- Indian Railway is marred by various issues like crowded networks with substandard infrastructure; high operating ratio with low internal revenue generation; passenger safety and quality of service issues; technical glitches, and so on.
- Committees led by Bibek Debroy and Anil Kakodkar had made various recommendations for railway reform.
- The government has undertaken various reforms to boost efficiency, promote modernization and innovation of railways like Smart coaches, SRESTHA – New R&D organisation to serve the future technology needs of Railways, Project Saksham, etc.

BIBEK DEBROY COMMITTEE

Recommendations of Bibek Debroy Committee Restructuring of Indian Railways:

- Need for the creation of a separate tariff regulator so as to keep railways away from politics.
- Railway's recruitment should be done by single entity instead of UPSC, SSC.
- Further needs to decentralise railway operation to increase efficiency.
- Need to decrease cross subsidisation by keeping a balance between freight and passenger fare.
- Railway budget should be merged with the annual budget.
- Shifting towards online procurement and auctioning.

ROLLOUT OF LABOUR CODES

The Government is deliberating over the timeline for the rollout of the four labour codes, which were proposed in 2019-2020.

About:

- The government of India had notified four broad labor codes to replace 29 sets of labor laws:
 - ♦ The Code on Wages, 2019
 - ♦ The Industrial Relations Code, 2020
 - ♦ The Code on Social Security, 2020
 - ♦ The Occupational Safety, Health and Working Conditions Code, 2020
- However, their rollout was delayed due to the COVID-19 pandemic.
- Thus, the highest levels of government are undertaking renewed deliberations on a fresh implementation schedule.
- The deliberations involve divergent views on whether to implement all four codes simultaneously or the choice of a gradual rollout.

Aims and objectives of the Labour Codes:

- Reduction in the complexity of compliance process due to multiplicity of labour laws and facilitation in setting up of enterprises.
- To enable creation of the environment for development of business and industry in India.
- To generate employment opportunities without diluting basic aspects of safety, security and health of workers.

Key Features of the Proposed Labour Codes:

- Widening of coverage of social security to cover informal and gig/ platform workers in terms of statutory minimum wage, social security, working hours, healthcare, etc.

- Provision of greater flexibility to employers in hiring decisions without government permission.
 - ♦ By raising the threshold for requirement of a standing order i.e. rules of conduct for industrial establishments workmen from 100 to 300 workers.

New Provisions in the Codes:

- Setting up of Social Security Fund for formulating schemes for welfare of the unorganised workers, gig workers and platform workers.
- Extension of coverage under Employees' State Insurance Corporation (ESIC) to pan-India, i.e., in all districts in the country.
- Introduction of ESIC coverage on a voluntary basis for establishments having less than 10 employees.
- Benefits under ESIC can also be made applicable through notification to an establishment carrying on hazardous or life threatening occupation in which even a single employee is employed.
- Extension of benefits to unorganised workers, gig workers and platform workers and the members of their families through ESIC or Employees' Provident Fund Organization (EPFO).
- For the persons engaged in Fixed Term Employment (FTE), the proportionate benefit of service has been extended without requirement of minimum service of 5 years for gratuity. The person having a contract for one year under FTE will also be eligible for gratuity.

Feasibility of the Rollout:

- **Rollout gradually or simultaneously:** The Labour Ministry is planning a simultaneous implementation of all four codes as most of the states are ready with their respective draft rules.
 - ♦ Phase-wise rollout might result in lack of implementation of the 2 labour codes in the next phase.
- **Rollout timing concerns:** Though early-2023 is being considered a feasible time for rollout of the labour codes, it will be too close to the 2024 general elections.
- **Concurrent nature of the labour codes:** Labour is a concurrent subject as per the seventh schedule to the Constitution of India. Thus, both the Center and all states will need to frame the respective laws and rules.
- **Pending process:** The Parliament of India had cleared the four labour codes in 2020. The Union government had also pre-published the draft rules for all the four labour codes. However, some state governments have not completed the process of framing draft rules yet. For example,
 - ♦ Drafting rules of the Code on Social Security and The Occupational Safety, Health and Working Conditions Code is pending in most of the States.

- ♦ Draft rules for all four labour codes are pending in West Bengal, 3 in Rajasthan.
- ♦ Draft rules are also pending in Andhra Pradesh, Meghalaya and Nagaland.

- **Progress in drafting rules:** In 2021, only 10-11 states had drafted rules for the labour codes. But now, 30 states have completed draft rules for Wage Code, 26 for Industrial Relations and 24 each for Occupational Safety, Health and Working Conditions and Social Security Code.
- **Wider Consultations:** The process of Legislative reforms on Labour includes consultation with stakeholders including Central Trade Unions, Employers' Associations and State Governments in the form of tripartite consultation. The draft legislations are finalised after considering comments/suggestions received from various stakeholders.

Conclusion:

- Rollout of the 4 labour codes should be conducted at the earliest to facilitate ease of doing business and the attainment of economies of scale in Indian industries.

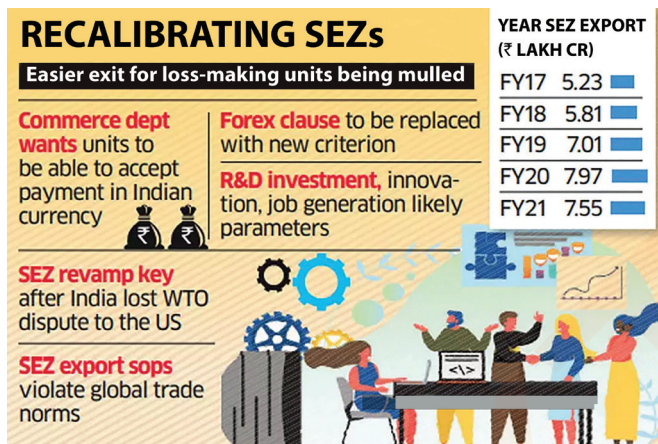
BILL TO REVAMP SPECIAL ECONOMIC ZONES (SEZs)

The Government of India is bringing out a new legislation to replace the existing SEZ Act, 2005.

About:

- The new bill has been named as Development of Enterprises and Service Hubs (DESH) Bill.
- The DESH bill has been brought as the Government's focus was on domestic investments, easing compliances, and integration of land banks and procedures.
- The Government of India initiated several steps to improve the investment attractiveness of SEZs and constituted the Baba Kalyani Committee to suggest changes to India's SEZ policy based on inputs from various stakeholders.
- The bill is expected to bring about a paradigm shift by moving the focus from exports to domestic investments, eliminating compliance and procedural challenges, and integrating multiple models of economic zones such as SEZs, coastal economic zones, and food and textile parks.
- In transforming the existing SEZs into enterprises and service hubs, the focus will be on boosting economic activity and the domestic market, integrating the various models, facilitating ease of doing business and generating employment.
- DESH is also expected to enable states to play a greater role in the integration of all existing industrial parks within states with existing SEZs across the country.

- The Bill also proposes to set up an integrated single-window clearance mechanism for the grant of time-bound approvals for the establishment and operation of these hubs, including single application forms and returns.
- The new bill is expected to ensure tax rebates/refunds/financial subsidies to developers/companies in the hub, in a manner similar to the existing SEZs, but with no export compulsion Net Foreign Exchange (NFE) obligation.
- Existing ports, airports, inland container depots, land stations, etc., are proposed to be transformed into Development Hubs with a clear demarcation of processing and non-processing areas.



Problems with Existing SEZs:

- While the 2005 SEZ Act was brought in with the hope of making India a manufacturing powerhouse of the world, it had very limited positive effect.
- The 262 operational SEZs set up over this period currently have only 5,576 operational units and account for less than 20 per cent of the country's exports.
- More than 1 lakh acres of land within the current SEZs is still not occupied.
- While the earlier SEZ Act did provide for enhanced Ease of Doing Business (EoDB) through single-window clearances through the office of the Development Commissioner, the implementation has been a mixed bag in some states which did not do away with their individual departmental approvals.

DRAFT NATIONAL POLICY FOR MEDICAL DEVICES, 2022

The Department of Pharmaceuticals under the Ministry of Chemicals and Fertilizers has prepared an approach paper to a draft National Policy for Medical Devices, 2022.

About:

- The new policy aims to reduce India's dependence on import of high-end medical devices.
- The Department has proposed adopting public-private partnerships to reduce the cost of healthcare, drive efficiency, and aid quality improvements in medical devices manufactured in the country.
- It is also proposing enabling a pricing environment with no price control on newly developed innovation in the sector.

Need for the Policy:

- India's medical devices sector has so far been regulated as per provisions under the Drugs and Cosmetics Act of 1940, and a specific policy on medical devices has been a long standing demand from the industry.
- Nearly 80 per cent of the medical devices currently sold in the country are imported, particularly high-end devices.
- India has one of the lowest per capita spend on medical devices at \$3, compared to the global average of per capita consumption of \$47.

Key Highlights of the Draft Policy:

- With the new policy, the government aims to reduce India's import dependence from 80 per cent to nearly 30 per cent in the next 10 years, and become one of the top five global manufacturing hubs for medical devices by 2047.
- The policy also aims to increase India's per capita spend on medical devices.
- **Focus areas of the policy** The key focus areas of the draft policy include:
 - ♦ incentivising core technology projects and exports through tax refunds and rebates,
 - ♦ creating a single-window clearance system for licensing medical devices,
 - ♦ de-risking and decarbonising the supply chain,
 - ♦ creating a central pool of vendors and workers,
 - ♦ establishing a dedicated mechanism for the local industry's engagements with international regulatory agencies,
 - ♦ increasing share of medical technology companies in research and development to around 50 per cent, among other things,
 - ♦ a dedicated fund for encouraging joint research involving existing industry players, reputed academic institutions and startups,
 - ♦ implementing a Uniform Code for Medical Device Marketing Practices (UCMDMP),
 - ♦ coherent pricing regulation, to make available quality and effective medical devices to all citizens at affordable prices etc.

Medical devices sector Market:

- Globally, the market is currently dominated by the US which has a 40 per cent market share, Europe with a 25 per cent share and Japan with a 15 per cent share.
- In China, the sector is valued at around \$96 billion and has been growing at a pace of over 20 per cent for several years.
- India is expected to be home to 25 billion-dollar medical technology companies and will achieve a 10-12 per cent global market share in the medical devices sector to arrive at a \$100-300 billion industry by 2047.

Issues with medical devices sector in India:

- The government has noted that the medical devices sector in India suffers from a considerable cost of manufacturing disability vis-à-vis competing economies, inter alia, on account of:
 - ♦ lack of adequate infrastructure, domestic supply chain and logistics,
 - ♦ high cost of finance,
 - ♦ inadequate availability of power,
 - ♦ limited design capabilities,
 - ♦ low focus on research and development (R&D) and skill development etc.

Measures to Promote Medical Devices Manufacturing in India:

- The Union Government had launched the production-linked incentive scheme (PLI scheme) last year to encourage domestic manufacturing of high-end medical devices.
- The Government also approved applications of manufacturing commitments worth over Rs 730 crore for production of devices such as CT Scan and MRI machines, dialysers, anesthesia unit ventilators, transcatheter aortic heart valves, stents, heart occluders, and others.

JUVENILE JUSTICE (CARE AND PROTECTION OF CHILDREN) AMENDMENT BILL 2021

Recently, Rajya Sabha passed the Juvenile Justice (Care and Protection of Children), Amendment Bill, 2021 to amend the Juvenile Justice Act, 2015. The bill was passed in Lok Sabha in March 2021.

About:

- It authorises District Magistrate including Additional District Magistrate to issue adoption orders under Section 61 of the JJ Act, in order to ensure speedy disposal of cases and enhance accountability.
- The District Magistrates have been further empowered to ensure its smooth implementation, as well as garner synergized efforts in favour of children in distress conditions.

- Any Child Care Institutions shall be registered after considering the recommendations of the District Magistrate.
- The DM shall independently evaluate the functioning of District Child Protection Units, Child Welfare Committees (CWC), Juvenile Justice Boards, Specialised Juvenile Police Units, Child care Institutions etc.
- The new provisions under the bill redefines the eligibility parameters for the appointment of CWC members.
 - ♦ Criteria for disqualification of the CWC members have also been introduced to ensure that only the persons capable of rendering quality service with requisite competence and integrity are appointed to CWC.
- Presently there are three categories (petty, serious and heinous) defined under the Act which are referred to while considering the cases of children in conflict with the law.
 - ♦ However, it was observed that some of the offences do not strictly fall under any of these categories.
 - ♦ It has been decided that offences where the maximum sentence is more than 7 years imprisonment but no minimum sentence has been prescribed or minimum sentence of fewer than 7 years is provided, shall be treated as serious offences within this Act.

Need for Amendment:

- As of July 2018, there were 629 adoption cases pending in various courts.
 - ♦ In order to expedite adoption proceedings, the Bill transfers the power to issue adoption orders to the district magistrate.
- It addresses several concerns that were flagged by the National Commission for Protection of Child Rights (NCPCR).
 - ♦ NCPCR audit of Child Care Institutions (CCIs) in 2020 highlights that many CCIs were not registered, some have no toilets and drinking water.
 - ♦ Rehabilitation of children is not a priority for childcare homes and children are reportedly kept in such institutions to get funds.
 - ♦ Therefore the bill aimed at strengthening the Child Welfare Committees and providing support and justice to Children.
- Several difficulties faced in implementation of various provisions of the Juvenile Justice (Care and Protection of Children Act) 2015 have also been addressed.

Juvenile Justice (Care and Protection of Children Act) 2015:

- It was introduced and passed in Parliament in 2015 to replace the Juvenile Delinquency Law and the Juvenile Justice (Care and Protection of Children Act) 2000.
- The Act seeks to achieve the objectives of the United Nations Convention on the Rights of Children as ratified by India on December 11, 1992.

- It allows the trial of juveniles in conflict with the law in the age group of 16-18 years as adults, in cases where the crimes were to be determined.
- The nature of the crime, and whether the juvenile should be tried as a minor or a child, was to be determined by a Juvenile Justice Board.
- The Act streamlined adoption procedures for orphans abandoned and surrendered children and had introduced foster care in India.
- The existing Central Adoption Resource Authority (CARA) has been given the status of a statutory body to enable it to perform its function more effectively.
- The law had also made provision that while adopting a child, priority is given to disabled children and physically and financially incapable children.
- Special provisions have been made to tackle child offenders committing heinous offences in the age group of 16-18 years.
- The Juvenile Justice Board is given the option to transfer cases of heinous offences by such children to a Children's Court (Court of Session) after conducting the preliminary assessment.

- electronic Human Resource Management System (e-HRMS), and
- Monitoring and Evaluation Framework.

Feature of the scheme:

- To support the transition from rules based to roles based HR Management. Aligning work allocation of civil servants by matching their competencies to the requirements of the post.
- To emphasize on 'on-site learning' to complement the 'off-site' learning.
- To create an ecosystem of shared training infrastructure including that of learning materials, institutions and personnel.
- Calibration of all Civil Service positions to a Framework of Roles, Activities and Competencies (FRACs) approach and to create and deliver learning content relevant to the identified FRACs in every Government entity.
- To make available to all civil servants, an opportunity to continuously build and strengthen their Behavioral, Functional and Domain Competencies in their self-driven and mandated learning paths.
- **Implementation:**
 - To enable all the Central Ministries and Departments and their Organizations to directly invest their resources towards co-creation and sharing the collaborative and common ecosystem of learning through an annual financial subscription for every employee.
 - To encourage and partner with the best-in-class learning content creators including public training institutions, universities, start-ups and individual experts.
 - To undertake data analytics in respect of data emit provided by iGOT- Karmayogi pertaining to various aspects of capacity building, content creation, user feedback and mapping of competencies and identify areas for policy reforms.

MISSION KARMYOGI

Recently, the Government of India's Mission Karmayogi programme to build civil service capacity received a \$47 million boost from the World Bank.

About:

- It was launched in 2020 with the objective of enhancing governance through Civil Service Capacity Building.
- As per this programme IAS officers were mandated to attend a week-long training annually, and periodic four-week training to allow reflection and learnings.
- **Aim:** Mission Karmayogi aims to prepare the Indian Civil Servant for the future by making him more creative, constructive, imaginative, innovative, proactive, professional, progressive, energetic, enabling, transparent and technology-enabled.
 - Empowered with specific role-competencies, the civil servant will be able to ensure efficient service delivery of the highest quality standards.
- **Pillars of the mission:**
 - Policy Framework,
 - Institutional Framework,
 - Competency Framework,
 - Digital Learning Framework (Integrated Government Online Training Karmayogi Platform (iGOT-Karmayogi),

Probable benefits of the scheme:

- The programme will try to improve human resource management practices among the officers. It will focus more on role based management. It will aim to allocate roles and jobs based on competencies of the officers.
- The mission has also created an online platform called iGOT-Karmayogi. iGOT stands for Integrated Government Online Training. This platform will provide content to learn from global best practices rooted in "Indian ethos."
- Civil servants will also have to undertake courses on this platform on which the officers' performance will be evaluated. A Special Purpose Vehicle will monitor the platform. The SPV will be a not-for-profit organization under Section 8 of the Companies Act.

RIGHT TO REPAIR

Recently, The Department of Consumer Affairs has proposed to bring the "Right to Repair" framework to the country.

About:

- The Union government has recently announced that it is working on a "Right to Repair" framework to cut down restrictive practices introduced by some manufacturers so that people can get goods such as consumer durables, phones, and cars fixed on their own.
- Right to repair is the legal concept that allows consumers to repair the products they buy or choose their own service providers instead of going through the manufacturer.
- Monopoly on repair processes infringes the customer's right to choose.
- Repairing gadgets like mobile phones and laptops will soon be a consumer right.

Major Highlights:

- A committee has been set up, chaired by Nidhi Khare to develop the "comprehensive framework" on the Right to Repair.
- It will identify important equipment including Farming equipment, mobile phones/ tablets, consumer durables, and automobiles/automobile equipment, among other sectors.

Proposed Framework:

- Tech companies should provide complete knowledge and access to manuals, schematics, and software updates.
- The parts and tools to service devices, including diagnostic tools should be made available to third parties, including individuals so that the product can be repaired if there are minor glitches.
- When any gadget lasts for more than a particular period, it has to be replaced due to the unavailability of parts. This culture of 'planned obsolescence' won't be encouraged.
- **Planned obsolescence:** A policy of producing consumer goods that rapidly become obsolete and so require replacing, achieved by frequent changes in design, termination of the supply of spare parts, and the use of non-durable materials.
- The framework is touted to bring an end to the monopoly of manufacturers in the market.

Global Practices

- Right to repair has been in practice in many countries including European nations, the USA, etc.
- Recently, The US passes the world's first 'right to repair' law for digital electronics.

Importance of the Move:

- Even though Indians are eager to repair gadgets rather than

replace them, the high cost of repairs and unavailability of parts make it easier to buy new products.

- Manufacturers don't reveal full servicing information which adds to the misery of consumers and it will empower consumers and product buyers in the local market.
- It also helps to increase the trade between the original-equipment manufacturers and third-party buyers and sellers.
- It will be promoting sustainability by doing away with the disposable gadget era, the right to repair states that customers must own a product completely after purchase.
- The new rule will help consumers repair and modify the product with ease and at a reasonable cost.

Key Issues:

- Large tech companies, including Apple, Microsoft, Amazon, and Tesla, have been lobbying against the right to repair.
- There is apprehension that opening up companies' intellectual property to third-party repair services or amateur repairers could lead to exploitation and impact the safety and security of their devices.
- Such initiatives can threaten data security and cyber security.
- Tech companies are often criticized for making it impossible to replace their parts in older models.

Right to Repair Movement

- The movement traces its roots back to the very dawn of the computer era in the 1950s.
- Activists and organizations around the world have been advocating for the right of consumers to be able to repair their own electronics and other products as part of the 'right to repair' movement.
- The movement aims to get companies to make spare parts, tools, and information on how to repair devices available to customers and repair shops.
- It aims to increase the lifespan of products and to keep them from ending up in landfills.
- It is argued that these electronic manufacturers are encouraging a culture of 'planned obsolescence' — which means that devices are designed specifically to last a limited amount of time and to be replaced.

Way Ahead:

- Manufacturing an electronic device is a highly polluting process. It makes use of polluting sources of energy, such as fossil fuel, which has an adverse impact on the environment.
- With the right to repair become a game-changer both for the sustainability of the products but also will serve as a catalyst for employment generation through Aatmanirbhar Bharat (self-reliant India) by allowing third-party repairs.

WOMEN SELF-HELP GROUPS (SHG's)

The Union Government is aiming at raising the annual income of each woman in self-help groups (SHG's) to Rs 1 lakh by 2024.

About:

- The **National Rural Livelihoods Mission (NRLM)** in 2011 had set an agenda to cover 7 Crore Rural Poor Households in the Country and support them for livelihood collectives in a period of 8-10 years.
- NRLM has scaled up the SHG model across 28 States and Union Territories of the country, reaching more than 67 million women with help from the World Bank.
- The women have saved \$1.4 billion and leveraged a further \$37 billion from commercial banks.
- A study conducted in 2020 reported that SHGs had a strong impact on women's empowerment, including political participation, knowledge of administration, financial literacy, mobility and decision-making.
- Till 2014, the project involved 2.35 lakh houses, had 80,000 crore bank linkages with non-performing assets (NPAs) at 9.58 per cent.

Mission 1 lakh for 2024:

- It aimed at raising the annual income of each woman in self-help groups (SHGs) to Rs 1 lakh by 2024.
- To facilitate women farmer producer companies and clusters by connecting them with e-commerce platforms such as Flipkart and Amazon and linking state markets at the domestic level.
- It would also help them with upskilling, branding and packaging.

Future Scope:

- According to the Rural Ministry, envisaging a multi-sector role for SHGs, will ensure that each woman gets an annual income of Rs 1 lakh.
- Around 60-70% women working in agri-allied sector should be able to diversify themselves and move towards millet cultivation and horticulture.
- These will ease the burden for lakhs of rupees in subsidies for chemical fertilizers enhancing per head income of women.

SELF HELP GROUPS (SHG's)

- The SHG Bank Linkage Project launched by NABARD in 1992 has currently evolved into the world's largest microfinance project.
- However, it was enhanced as a national movement in 2011 and became National Rural Livelihoods Mission (NRLM) – world's largest poverty alleviation programme.
- The NRLM assisted the poor's access to affordable, trustworthy financial services such as bank accounts, savings accounts, credit, insurance, remittances, pensions, and financial services counseling.

GLOBAL GENDER GAP INDEX

Recently, the World Economic Forum (WEF) unveiled its Global Gender Gap Ranking for 2022.

About:

- The Global Gender Gap Index was started in 2006. The index tracks changes in gender disparities over time in order to determine the degree of gender equality.
- The Global Gender Gap index works on the current state and evolution of gender parity across four key dimensions:
 - ♦ Economical Opportunities
 - ♦ Educational Opportunities
 - ♦ Healthcare Services
 - ♦ Political Empowerment.
- 1 represents full gender parity and 0 represents complete imparity.

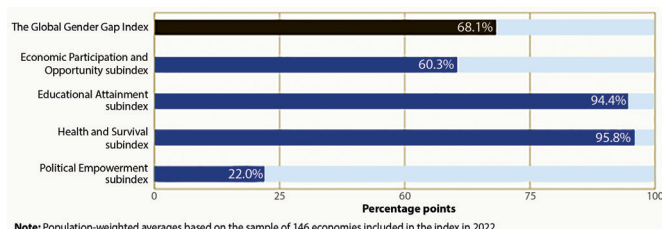
INDIA'S REPORT CARD

Index/sub-index	2022 (146 countries)		2021 (156 countries)	
	Rank	Score	Rank	Score
Global Gender Gap index	135	0.629	140	0.625
Political Empowerment	48	0.267	51	0.276
Economic Participation & opportunity	143	0.350	151	0.326
Educational attainment	107	0.961	114	0.962
Health and survival	146	0.937	155	0.937

Key Findings of the report:

- According to the Report, at the current rate of progress, it will take 132 years to reach full parity. This represents a slight four-year improvement.
- However, it does not compensate for the generational loss which occurred between 2020 and 2021.

- **Top countries:**
 - ♦ Iceland (more than 90%)
 - ♦ Finland (86%)
 - ♦ Norway (84.5%)
 - ♦ Sweden (82.2%)
- **Regional Observations:** North America leads all regions, having closed 76.9% of its gender gap however, South Asia reports the lowest performance- 62.4%.



India's Performance on Global Gender Gap Index 2022:

- **Political Empowerment:** India ranks 48th out of 146. India's rank is therefore above the global average in this category.
- **Economic Opportunity:** India ranks a lowly 143 out of the 146 countries where only Iran, Pakistan, and Afghanistan is behind India in core, which is far below the global average. These highlight the proportion of women in the labor force, wage parity for comparable jobs, earned income, etc.
- **Educational Opportunity:** India ranks 107th out of 146, and its score has significantly lowered since last year (114th).
- **Healthcare services:** India is ranked the last (146th), which shows the sex ratio at birth and life expectancy.

WORLD ECONOMIC FORUM (WEF)

- The WEF is an international non-profit organization which offers a venue for leaders from business, government, and civil society to interact.
- Discussions at the WEF influence public sector and corporate decision-making, particularly on issues of global importance such as - poverty, socio-economic challenges and recovery, and climate change.
- Other WEF initiatives, like the Mission on Cyber Resilience to speed net-zero emissions and the Economic Opportunity of Nature-Positive Solutions, will be introduced as part of Agenda 2022.

WORLD POPULATION PROSPECTS, 2022

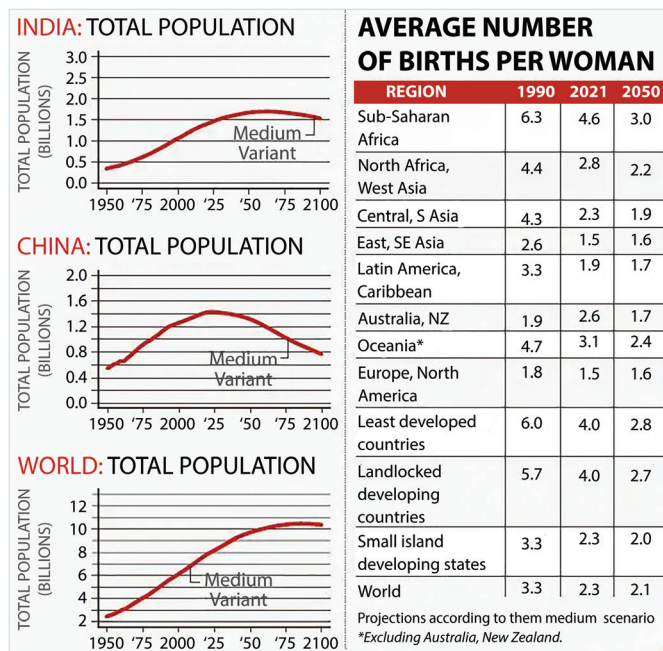
The United Nations has recently released the 2022 edition of the World Population Prospects (WPP) on world population day.

About:

- World Population Prospects 2022 is the twenty-seventh edition of the official estimates and projections of the global population that have been published by the United Nations since 1951.
- They form a comprehensive set of demographic data to assess population trends at the global, regional, and national levels.
- This report provides an overview of global population trends focusing on the period from 1950 to 2050 and presents a summary of key demographic prospects during the second half of the present century.

Major findings of the report:

- **India:** India's population will overtake China by around 2023 to become the most populous country.
 - ♦ By 2050, India's population will reach 1,668 million, far exceeding China's declining population at 1,317 million.
 - ♦ More than half of the projected increase in global population up to 2050 will be concentrated in just eight countries: the Democratic Republic of the Congo, Egypt, Ethiopia, India, Nigeria, Pakistan, the Philippines, and the United Republic of Tanzania
- **Global Scenario:** Asia is the most populous continent with 4.7 billion people accounting for 61 percent of the global population.
 - ♦ Nearly 17 percent of the world population resides in Africa (1.3 billion), followed by 10 percent in Europe while only 0.5% resides in Oceania (43 million).
- **Rate of Population growth:** World's population is growing at its slowest pace since 1950.
 - ♦ World population is expected to hit 8.5 billion in 2030 and 9.7 billion in 2050, peaking at around 10.4 billion people in the 2080s before steadying at that level until 2100.
- **Life expectancy:** Several developing countries have been experiencing a net drop in birth rates.
 - ♦ Covid has impacted global life expectancy with central and southern Asia and Latin America expecting a fall in life expectancy at birth by almost three years between 2019 and 2021.
 - ♦ The combined population of Australia and New Zealand has however gained 1.2 years due to lower mortality risks during the pandemic.
- The population of older persons is increasing both in numbers and as a share of the total.
- The share of the global population aged 65 years or above is projected to rise from 10% in 2022 to 16% in 2050.



KEY TERMS

- **Birth Rate** (or crude birth rate): It is the number of live births per 1,000 population in a given year.
- **Death Rate** (or crude death rate): It is the number of deaths per 1,000 population in a given year.
- **Life Expectancy**: The average number of additional years a person could expect to live if current mortality trends were to continue for the rest of that person's life. Most commonly cited as life expectancy at birth.
- **Maternal Mortality Ratio**: The number of women who die as a result of pregnancy and childbirth complications per 100,000 live births in a given year.
- **Replacement rate**: The level of fertility at which a couple has only enough children to replace themselves or about two children per couple.
- **Total Fertility Rate (TFR)**: The average number of children that would be born alive to a woman (or group of women) during her lifetime if she were to pass through her childbearing years conforming to the age-specific fertility rates of a given year.
 - ♦ This rate is sometimes stated as the number of children women are having today.

Major Factors:

- A sustained drop in fertility has led to an increased concentration of the population at working ages (between 25 and 64 years).
- Declining levels of mortality with increased levels of life expectancy at birth is leading to population growth.

- Economic growth has created an opportunity for accelerated economic growth per capita also known as the "demographic dividend".
- International migration to population growth (net inflow of 80.5 million) has exceeded the balance of births over deaths (66.2 million) for high-income countries between 2000 and 2020.
 - ♦ Outflows of the population were mainly due to temporary labor movements, such as in Pakistan (a net flow of -16.5 million), India (-3.5 million), and Sri Lanka (-1.0 million).
- Global life expectancy at birth fell to 71 years in 2021 from 72.8 in 2019, mostly due to the impact of the coronavirus pandemic.

Impact of COVID:

- In low and middle-income countries, the availability of and the demand for contraception and unintended pregnancies and births, remained relatively stable.
- In high-income countries, successive waves of the pandemic have generated short-term fluctuations in the number of pregnancies and births.

Importance of the report For India:

- Working towards enhancing the lives of its current and future citizens and addressing challenges plaguing the economy will help India in reaping its demographic dividend.
- It will help strengthen India's claim for permanent membership in the U.N. Security Council.

REPORT ON ROAD SAFETY

Recently, the Lancet released a new analytical series on road safety.

About:

- This is the first study that gives country-specific estimates of the effect of addressing the four main road safety risk factors through interventions in 74 studies in 185 countries.
- **Four key factors**: targeting four key risk factors for road injuries and deaths — speeding, drunk driving, non-use of crash helmets and seatbelts — could prevent between 25 percent and 40 percent of all fatal road injuries worldwide every year.
- **Aim**: to provide the tangible impetus for the global road safety community to focus on implementing evidence-based interventions, especially in low- and middle-income countries
 - ♦ It calls for increased political and financial commitments, and for road safety to be included in mainstream development policies.
- **SDG**: It argues that this is essential to achieve the UN Sustainable Development Goal to halve road traffic crash fatalities and injuries by 2030.

Major Highlights of the Report:

- Globally, road traffic crashes kill more than 13.5 lakh people each year, with over 90 percent of those fatalities occurring in Low-and Middle-Income Countries (LMICs).
- Motorcyclists wearing helmets can save nearly 13,703 lives in China followed by Brazil (5,802 lives), and India (5,683 lives) annually.
- Passing and enforcing rules on wearing seat belts can save an estimated 121,083 and 51,698 lives respectively.
- Avoiding drunk driving could save between 347,000 and 540,000 lives worldwide every year.
- Enforcement of speed limits can help prevent an estimated 88,374 deaths in China, 1,027 in Spain, and 815 in the UK.
- Road Traffic Injuries (RTIs) are the eighth leading cause of death globally for all ages. Close to 14 lakh people die each year, and up to 5 crores are injured by RTIs.
- Improving post-crash care could save two lakh lives a year globally, adding there is a strong case for strengthening trauma care in LMICs, equivalent to a 17 percent reduction in deaths.

SAFETY CHECK | The table lists the country-wise number of lives that can be saved through interventions in key road safety risk factors. For instance, 20,554 lives can be saved in India every year if steps are taken to check vehicle speed



	Drunk-driving	Helmet use	Speeding	Seat belt use
India	NA	5,683	20,554	3,204
U.S.	5,188	14,121	22,353	2,409
China	248	13,703	88,374	13,228
Mexico	1,072	911	7,532	2,395
S.A.	2,684	176	6,233	3,718
Thailand	652	3,057	6,557	1,872
Turkey	72	202	3,064	1,691

Road Safety Status in India:

- Speeding accounts for nearly 91,239 or 69.3% of total road accidents in India.
- India accounts for almost 10% of all crash-related deaths while accounting for only 1% of the world's vehicles.
- With only 1 percent of the world's vehicles, India accounts for almost 10 percent of all crash-related deaths.

ROAD TRAFFIC INJURIES (RTIs) ARE THE EIGHTH-LEADING CAUSE OF DEATH WORLDWIDE



NATIONAL ROAD SAFETY POLICY

The Government has taken the following steps to improve safety on the roads:

- Raise awareness about issues related to road safety by highlighting the implications of road accidents and the steps which have to be taken to reduce the number of incidents.
- Launched a Road Safety Information Database to help with increasing the quality of data collection, transmission, analysis, and crash investigation by extending a hand to Union Territories, States, and local bodies.
- Safer Road Infrastructure to ensure better standards in terms of design and safety of urban and rural roads e.g. Intelligent Transport Systems (ITS)
- Safer Vehicles:** The vehicles on the roads must be signed off as in line with international standards so that they pose the least threat in terms of safety on the roads and harm to the environment.
- Safer Drivers:** The government will take measures to ensure that only highly capable and competent drivers are behind the wheel by making the system of driver licensing stricter.
- Safer conditions for Vulnerable Road Users:** The needs of people on the road (including the physically challenged, the vulnerable, and non-motorized transport) will be taken into account during the design and construction of all road facilities.
- Road Traffic Safety Education and Training:** Publicity campaigns, training, and education will be used to create awareness and instill road safety knowledge.
- Safety Laws Enforcement:** Various state and other governments will be aided by the Government of India to strengthen enforcement.
- Emergency Medical Amenities for Accidents on the Road:** There will be all efforts made by the government to ensure that everyone who is involved in accidents on the road will get quick, superior medical care.
- HRD and Research for Road Safety:** Programmes of road safety research will be encouraged by the government.

Changes needed to Improve Status:

- Stricter regulation for routinely wearing helmets and seat belts, and obeying speed limits.
- Interventions to check speeding and promotion of crash helmets.
- Encouraging the use of seatbelts to save lives.
- Interventions such as infrastructure changes and electronic speed control.

- Focus on strict regulation against risk factors such as speeding, drunk driving, and non-use of crash helmets.
- The country-specific estimates on the potential lives saved by road traffic interventions will go a long way in promoting the urgency of implementing a safe systems approach in India and the world.

GUIDELINES FOR MISSION VATSALYA

Ministry of Women and Child Development (WCD) issued guidelines for Mission Vatsalya.

About:

- Mission Vatsalya is an umbrella scheme that is Centrally Sponsored Scheme for child protection services in the country.
- **Background:** Before 2009, Ministry of WCD implemented three schemes for children in need of protection:
 - ♦ the programme for juvenile justice for children in need of care and protection, and children in conflict with law;
 - ♦ the integrated programme for street children;
 - ♦ scheme for assistance to homes for children.
- In 2010, these were combined into a single scheme known as the Integrated Child Protection Scheme (ICPS).
- It was renamed "Child Protection Services" Scheme in 2017, and Mission Vatsalya in 2021-22.

Objectives:

- To ensure that every child in India has a healthy and happy childhood.
- Provide equal opportunities for them to reach their full potential
- Assist them in flourishing in all aspects over time and foster a sensitive, supportive, and synchronised ecosystem for child development.
- Assist States and UTs in carrying out the mandate of the Juvenile Justice Act (JJ), 2015 and achieve the SDGs (SDGs).

Key Guidelines:

- Mission Vatsalya guidelines define the process by which funds will be distributed to states under various heads by defining institutionalised arrangements.
- **Eligibility:** In order to access Central funds and benefits under Mission Vatsalya states will have to retain the official name. Only a correct translation of the official name is permissible.
- **Approval Board:** The Mission Vatsalya Project Approval Board (PAB), chaired by the WCD Secretary, will scrutinise and approve annual plans and financial proposals received from States and UTs for grant release.
- **Membership of Board:** PAB members will include Secretaries of Home Affairs, Social Justice and Empowerment, Panchayati

Raj, Rural Development, Housing and Urban Affairs, Labour, Youth Affairs and Sports, School Affairs and Literacy, and the Niti Aayog CEO.

- **Funding pattern:** It will be implemented as a Centrally Sponsored Scheme in collaboration with State Governments and UT's administrations, with a 60:40 fund-sharing pattern.
 - ♦ However, for the eight Northeastern States, as well as Himachal Pradesh, Uttarakhand, and the J&K UT's, the share of the Centre and the State/UT's will be 90:10.
 - ♦ In UT's without a legislature, the Union Government will cover the entire cost.
- **State and District level coordination:** At the State level, a committee led by the Chief Secretary will monitor, review, and promote convergence in the scheme's implementation. There will also be a district-level committee.
- **Coordination and support to SARA and CARA:** It will assist State Adoption Resource Agencies (SARA), which will assist the Central Adoption Resource Authority (CARA) in promoting in-country adoption and regulating inter-country adoption.
 - ♦ SARA is responsible for coordinating, monitoring, and developing non-institutional care work in the state, including adoption.
- **24x7 support:** Mission Vatsalya, in collaboration with states and districts, will provide a 24-hour helpline service for children, as defined by the JJ Act of 2015.
- **Child home and welfare centre:** Children in need of care, as well as special needs children, will be placed in separate homes based on gender (including separate homes for transgender children) and age.
- **Services offered:** These institutions will provide special educators, therapists, and nurses to impart occupational therapy, speech therapy, verbal therapy, and other remedial classes to students who are unable to attend school due to physical or mental disabilities.
 - ♦ Employees in these specialised divisions must also be proficient in sign language, Braille, and other related languages.
- **Establishment of open shelters:** The state government will support the establishment of open shelters to care for runaway children, missing children, trafficked children, working children, children in street situations, child beggars, child substance abusers, and so on.
- **Monetary support:** Financial assistance has also been prescribed for vulnerable children who live with extended families or in foster care, to help with their education, nutrition, and health needs.
- **Grading of Child Care Institutions (CCI):** State Governments are required to grade each child care institution (CCI) at regular intervals. The grading will be based on infrastructure, service quality, children's well-being, particularly in terms of health and education, restoration and rehabilitation of children.

GREEN TECHNOLOGY

A recent study published in the journal "Nature Ecology and Evolution" highlighted the negative impacts of green technology adoption.

About:

- There have been efforts and attempts to replace fossil fuel-based plastic with biodegradable polymers due to increased public pressure against marine plastic pollution.
 - ♦ Biodegradable Polymers are made up of plant starches.
- A technique called 'Horizon Scanning' was used by a team of 30 multidisciplinary experts to arrive at their conclusions.
- The researchers claim that biodegradable plastic bags do not biodegrade under natural conditions in the ocean and their widespread adoption can cause marine litter as well.
- The long term impact of biodegradable plastic on the environment remains unknown, hence they can lead to a fresh set of problems.
- The researchers also highlighted the threat to marine ecology due to the growing demand for renewable energy technology, such as lithium batteries for electric cars.
 - ♦ Deep sea 'brine pools' of more saline water, contain higher concentrations of lithium and could become future sites for extraction.
 - ♦ The study finds that these ecosystems support diverse species, many of which are largely undiscovered.

HORIZON SCANNING TECHNIQUE

- It is a technique which seeks to identify novel but poorly known issues that are likely to become important consequences over the next decade.
- This methodology is meant to "primarily act as signposts, putting focus on particular issues and providing support for researchers and practitioners to seek investment in these areas" before they have a major impact.
- It is also an effective way of assembling experts from diverse subject areas to examine common issues and formulate more comprehensive solutions.
- The horizon scan method has been previously used to identify issues that are now known to have universal environmental impact.
 - ♦ A scan from 2009 gave an early warning about the danger that microplastics (tiny plastic debris smaller than 5 mm) pose to marine environments.

Green Technology:

- Green technology is an umbrella term that describes the use of technology and science to create products and services that are environmentally friendly.
- Green technology encompasses a wide area of scientific research, including energy, atmospheric science, agriculture, material science, and hydrology.
- The goal of green tech is to protect the environment, repair damage done to the environment in the past, and conserve the Earth's natural resources.
- Many green technologies aim to reduce emissions of carbon dioxide and other greenhouse gases in order to prevent climate change.
- Solar power is one of the most successful green technologies and is now cheaper to deploy than fossil fuels in many countries.

Other Challenges:

- Overfishing has already been recognised as an immediate problem, with the WTO calling for the prohibition of subsidies towards those engaging in fishing of overfished stocks.
- There are around 10 billion tonnes of small lanternfishes in the mesopelagic zone (a depth of 200m – 1,000m), which are not fit for human consumption but can be sold as food to fish farms, or be used as fertiliser.
- The large-scale harvesting of mesopelagic fish would cause immense environmental damage, because these species act as an ocean pump and remove carbon from the atmosphere.

About Biodiversity:

- Biodiversity (from Biological Diversity) is a term used to describe the enormous variety of life on Earth. It can be used more specifically to refer to all of the species in one region or ecosystem.
- Each of these species and organisms work together in ecosystems to maintain balance and support life.
- Biodiversity supports everything in nature that we need to survive: food, clean water, medicine, and shelter.
- WWF's 2020 Living Planet Report found an average 68% decline in global populations of mammals, fish, birds, reptiles, and amphibians since 1970.

Importance of Marine Diversity:

- Marine biodiversity is the variety of life in our ocean. It includes all animals, plants and microorganisms living in our ocean.

- The term is also used to describe the abundance of species living in an area.
- Marine biodiversity is a critical aspect of all three pillars of sustainable development—economic, social and environmental—supporting the healthy functioning of the planet and providing services that underpin the health, well-being and prosperity of humanity.
- Marine biodiversity allows nature in our ocean to be productive, resilient and adaptable to environmental changes.
- Marine biodiversity can prevent one species' extinction from causing wider negative impacts on a marine ecosystem.
- The ocean, and the life therein, are critical to the healthy functioning of the planet, supplying half of the oxygen we breathe and absorbing annually about 26 per cent of the anthropogenic carbon dioxide emitted into the atmosphere.
- Marine ecosystems provide innumerable services for coastal communities around the world. For example, mangrove ecosystems are an important source of food for more than 210 million people.

Major Risks to Marine Biodiversity:

- In the ocean, fishing has had the single greatest impact on biodiversity over the past 50 years. Overall one-third of fish stocks are overfished and another 60 percent are fished at their maximum sustainable levels.
- Coastal land and sea use change has had the second largest impact on marine biodiversity.
 - ♦ Development along coastlines as well as offshore aquaculture, bottom trawling, and oil and gas extraction have altered habitats, and toxic pollutants in agricultural and industrial runoff poison coastal fish harvests.
- Carbon dioxide emissions are making the ocean more acidic, making it harder for shellfish, corals, and types of plankton to survive.
- A growing driver of marine biodiversity decline is climate change, which is expected to decrease ocean's net primary production between 3 and 10 percent and fish biomass by 3 to 25 percent by the end of the century.

Various Initiative Towards Marine Biodiversity:

- **Convention on Biological Diversity (CBD):**
 - ♦ The Convention encompasses three complementary objectives: the conservation of biodiversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the utilization of genetic resources.
- **Sustainable Development Goals (SDGs):**
 - ♦ In the 2030 Agenda for Sustainable Development and the SDGs, global leaders highlighted the urgency of taking action to improve the conservation and sustainable use of marine biodiversity.

- ♦ In particular, SDG 14 is aimed at conserving and sustainably using the oceans, seas and marine resources for sustainable development and emphasizes the strong linkages between marine biodiversity and broader sustainable development objectives.
- **The Global Ocean Biodiversity Initiative (GOBI):**
 - ♦ It is an international partnership of organisations committed to advancing the scientific basis for conserving biological diversity in the marine environment.
 - ♦ GOBI contributes expertise, knowledge and data to support the CBD efforts to identify ecologically and biologically significant marine areas.
- The Ministry of Earth Sciences (MoES), GoI had allocated Rs.84.00 Cr for the implementation of a national R&D programme on Marine Living Resources (MLR) between 2017 and 2020.
 - ♦ The initiative intends to enhance the ornamental and baitfish stocks in the wild.
 - ♦ The GoI had taken several initiatives over the years for the conservation of coastal and marine resources and their management through the implementation of law and continuous monitoring.
 - ♦ For example, the Wildlife Protection Act of India (1972) provides legal protection for many marine animals.

Way Forward:

- If we are to achieve the SDGs and the Aichi Biodiversity Targets, we will have to abandon business-as-usual approaches and mainstream biodiversity into our development planning, governance and decision-making.
- We will have to mobilize resources to make the on-the-ground changes that are so desperately needed.
- Furthermore, stakeholders at all levels will need to be conscious of how their actions and behaviours affect the marine ecosystems on which we all depend, and make conscious decisions to improve our relationships with the ocean, which has given us so much throughout human history.

DERECHO

States of Nebraska, Minnesota and Illinois in the US were hit by a storm system called a Derecho.

About:

- A Derecho is a widespread, long-lived, straight-line windstorm that is associated with a band of rapidly moving showers or **thunderstorms**.
 - ♦ Straight-line storms are those in which **thunderstorm** winds have no rotation, unlike a **tornado**. These storms travel hundreds of miles and cover a vast area.

- The name Derecho has been derived from the Spanish word 'la derecha' which means 'straight'.
- It is a warm-weather phenomenon and a Derecho generally, but not always, occurs during summertime beginning in May, with most hitting in June and July.
- However, they are a rare occurrence as compared to other storm systems like **tornadoes or hurricanes**.
- For a storm to be classified as a Derecho it must have
 - ♦ wind gusts of at least 93 km per hour;
 - ♦ wind damage swaths extending more than 400 km and
 - ♦ The time gap between successive wind damage events should not be more than three hours.

TYPES OF STORMS

Thunderstorm:

- A thunderstorm is a rain shower during which you hear thunder. Since thunder comes from lightning, all thunderstorms have lightning.
- A thunderstorm is the result of convection.
 - ♦ Usually created by surface heating, convection is an upward atmospheric motion that transports whatever is in the air along with it—especially any moisture available in the air.
- A thunderstorm is classified as “severe” when it contains one or more of the following: hail one inch or greater, winds gusting in excess of 50 knots (57.5 mph), or a tornado.

Tornado:

- A tornado is a violently rotating column of air that extends from a thunderstorm to the ground.
- It's often portended by a dark, greenish sky.
- The most violent tornadoes come from supercells, and large thunderstorms that have winds already in rotation.
- About one in a thousand storms becomes a supercell, and one in five or six supercells spawns off a tornado.
- Their winds may top 250 miles an hour and can clear a pathway a mile wide and 50 miles long.

Hurricane:

- A hurricane is a type of storm called a tropical cyclone, which forms over tropical or subtropical waters.
 - ♦ Hurricanes originate in the Atlantic basin, the eastern North Pacific Ocean, and, less frequently, the central North Pacific Ocean.
- Hurricanes form over warm ocean waters. Sometimes they strike land.
- They produce winds of 119 kilometers per hour (74 mph) or higher. There are five types, or categories, of hurricanes.
 - ♦ The scale of categories is called the Saffir-Simpson Hurricane Scale. The categories are based on wind speed.

Types of Derecho:

- Derecho falls into three categories – progressive, serial, and hybrid.
 - ♦ **Progressive Derecho:** A progressive Derecho is associated with a short line of **thunderstorms** that may travel for hundreds of miles along a relatively narrow path. It is a summer phenomenon.
 - ♦ **Serial Derecho:** A serial Derecho has an extensive squall line – wide and long – sweeping across a large area. It usually occurs during spring or fall.
 - ♦ **Hybrid Derecho:** Hybrid Derecho has the features of both progressive and serial Derechos.

Occurrence of Derecho:

- They mostly occur across central and eastern parts of the United States.
- In 2010, Russia witnessed its first documented Derecho.
- They have also swept through Germany and Finland, and more recently in Bulgaria and Poland.

RED PANDA

Recently, the Padmaja Naidu Himalayan Zoological Park has started an ambitious programme to release 20 Red Pandas in about five years to the forests.

About:

- Padmaja Naidu Himalayan Zoological Park has started an ambitious programme to release 20 of these furry mammals in about five years to the forests.
 - ♦ The Padmaja Naidu park in Darjeeling, is one of the high-altitude zoos in the country and has been quite successful in captive breeding of the furry mammals.
- The Pandas will be released in the Singalila National Park, the highest protected area in West Bengal.

Red Pandas:

- Red pandas are shy, solitary and arboreal animals and considered an indicator species for ecological change.
- It is slightly larger than a domestic cat with a bear-like body and thick russet fur.
- They have sharp, semi-retractable claws that help them grip slippery branches and they have long, bushy tails for balance and to cover themselves in winter, presumably for warmth.
- It was originally thought to be two subspecies—the Himalayan red panda and the Chinese red panda.
 - ♦ But the growing evidence suggests they may be two distinct species instead.
 - ♦ The Chinese red panda is a bit larger and has more distinct rings on its fluffy tail.

Range and Habitat:

- Almost 50 per cent of the Red Panda's habitat is in Eastern Himalayas. They live in the rainy mountain forests of Nepal, India, Bhutan, Northern Myanmar (Burma), and Central China.
- It thrives best at 2,200-4,800m, in mixed deciduous and conifer forests with dense understories of bamboo.
- In India, it is found in Sikkim, western Arunachal Pradesh, Darjeeling district of West Bengal and parts of Meghalaya. It is also the state animal of Sikkim. In India it is estimated to have around 2500 Red Panda in total.

Conservation Status:

- **IUCN:** Endangered
- **Indian Wildlife (Protection) Act, 1972:** Schedule-I
- **CITES:** Appendix-I

Threats:

- Habitat degradation due to excessive extraction of fuel wood is the biggest threat to the red panda habitat in Sikkim and Western Arunachal Pradesh.
- Diseases that can spread from domesticated animals.
- Poaching and Hunting for furs.

India's efforts to protect Red Panda:

- WWF-India works with local communities to reduce their dependence on fuelwood by introducing them to innovative techniques to meet their energy demands.
 - ♦ In Sikkim, more than 200 individuals have been trained in manufacturing bio-briquettes.
- Local communities are involved in alternate livelihood activities that draw benefits for them, while also supporting conservation initiatives.
 - ♦ In Arunachal Pradesh, community-based tourism enables the locals to earn additional income from the tourists coming to see red pandas.
- Working with local communities to reduce forest dependence and involving them in conservation measures addresses the threat of habitat degradation and fragmentation.

- ♦ WWF-India has also collaborated with the Sikkim Anti-Rabies and Animal Health (SARAH) and launched a programme to sterilize feral dogs in order to control their growing population around critical wildlife areas.

SINGALILA NATIONAL PARK

- Singalila National Park is located at the higher ridges of Darjeeling Himalayas in the state of West Bengal.
- Situated at altitudes ranging between 7,900 ft and 12,000 ft, the park is the highest in West Bengal. The park comprises a variety of flora and fauna.

HUMAN-ANIMAL CONFLICT

Recently, the Minister of State for Forest, Environment and Climate Change tabled the data on Human-Animal conflict in Lok Sabha.

About:

- According to the data between 2018-19 and 2020-21, 222 elephants were killed by electrocution across the country, 45 by trains, 29 by poachers and 11 by poisoning.
- Among Tigers, too, 29 were killed by poaching between 2019 and 2021, while 197 tiger deaths are under scrutiny.
- Among human casualties of conflict with animals, elephants killed 1,579 humans in three years — 585 in 2019-20, 461 in 2020-21, and 533 in 2021-22.
- Odisha accounted for the highest number of these deaths at 322, followed by Jharkhand at 291 (including 133 in 2021-22 alone), West Bengal at 240, Assam at 229, Chhattisgarh at 183, and Tamil Nadu at 152.
- Tigers killed 125 humans in reserves between 2019 and 2021. Maharashtra accounted for nearly half these deaths, at 61.
- Among the 222 elephant deaths caused by electrocution, Odisha accounted for 41, Tamil Nadu for 34 and Assam for 33.
- Odisha (12 out of 45) also had the highest number of elephant deaths caused by trains, followed by West Bengal (11) and Assam (9).
- Poaching deaths were highest in Meghalaya (12 out of 29) while poisoning deaths were highest in Assam (9 out of 11, including 8 in 2018-19 alone).
- It was also informed that as a result of concerted efforts made for protection and conservation of wildlife, the population of several wildlife species like Tigers, Elephants, Asiatic Lion, Rhino etc. in the country has increased.

PROTECTED BUT NOT SAFE

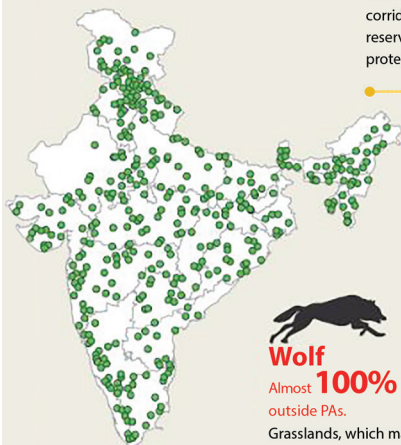
Many Schedule-1 species, which are accorded the highest degree of protection under the law, are found outside notified protected areas

990 protected areas in India (in green) comprising 4.88 per cent of total land area



Tiger
29% outside tiger reserves.

Lansdowne Forest Division, a tiger corridor between Corbett and Rajaji tiger reserves, has 22-25 tigers but is not a protected area (PA)



Elephant
67% outside PAs.

Data from West Bengal and Jharkhand indicates that a herd spent about 235-265 days in a year outside the protected areas between 2005 and 2008



Wolf
100% outside PAs.

Grasslands, which make up the wolves' habitat, are not notified as PAs



Gangetic dolphin
Almost 100% outside PAs.

Gangetic dolphins are found along the entire stretch of the Ganga, but only the Vikramshila Gangetic Dolphin Sanctuary in Bihar's Bhagalpur district is a notified PA



Blackbuck
50% outside PAs.

58 per cent blackbucks were found outside the Velavadar Blackbuck National Park in Bhavnagar, Gujarat, in 2010

KHEJRI (PROSOPIS CINERARIA)

Scientists and environmentalists have warned that Rajasthan's State tree Khejri, is dying a slow death.

About:

- The proposed installation of solar power plants in Jodhpur district's Phalodi tehsil has led to a major confrontation with the Bishnoi activists, who have strongly protested against the felling of khejri trees, which is the State tree of Rajasthan.

Khejri (Prosopis Cineraria)

- Khejri (Prosopis cineraria) covers about two-thirds of the total geographical area of Rajasthan and is of immense significance culturally and economically.
- The tree supports the rural economy like no other wild vegetation does and for this reason, Khejri is called the state tree of Rajasthan.
- The tree is also present in the Middle East region and is called Ghaf Tree. One can also find Khejri Tree in some parts of Haryana bordering Rajasthan having similar ecological conditions.

Ecological Role:

- Khejri tree plays an important role in maintaining the ecosystem of Thar region because of its ability to survive in dry weather.
- Prosopis cineraria, locally called as Khejri or Jandi is an indigenous tree, which effectively stabilizes sand dunes and can withstand periodic burial.

A Self-Sacrificing Tree:

- Khejri not only thrives in drought conditions and in poor soils, but also encourages the growth of crops planted near it if its lateral roots are pruned.
 - Pruning of the roots doesn't appear to adversely affect the growth of the trees themselves, they say.
- Besides, as legumes, the trees also fix atmospheric nitrogen and return it to the soil. The dead leaves of the tree are natural fertilizers.

Economic Significance

- Khejri is the lifeline of the desert. It is an alternative source of income for many people in Rajasthan during the dry season.
- Besides being the staple food of the livestock, khejri is also used as a fuelwood.

Cultural Importance:

- Culturally, the tree holds a very important place in lives of Rajasthanis, especially the Bishnois.
- The tree is considered as sacred as 'Tulsi' by many, giving it an important religious significance.
- Its fruit is used to make the popular dish 'Sangri'.

Human-Animal Conflict:

- Human-wildlife conflict refers to the interaction between wild animals and people and the resultant negative impact on people or their resources or wild animals or their habitat. It occurs when growing human/animal populations overlap with established wildlife/human territory, creating a reduction of resources or life for some people and/or wild animals.

Causes of Human-Animal conflict:

- Assessments of human-wildlife conflicts indicate that the main causes of human wildlife conflict include:
 - Habitat loss.
 - Growth of population of wild animals.
 - Changing cropping patterns that attract wild animals to farmlands.
 - Movement of wild animals from forest areas to human dominated landscapes for food and fodder.
 - Movement of human beings to forests for illegal collection of forest produce.
 - Habitat degradation due to growth of invasive alien species, etc.

- Khejri bark is used medicinally for a range of ailments and can be ground up and made into flour, and famously, saved thousands of lives during the Great Rajputana Famine of 1868.
- Khejri is the tree that inspired the Chipko movement.

A BRIEF HISTORY

- In 1730 AD, a small village located 26 km south-east of Jodhpur in Rajasthan witnessed probably the first and most fierce environment protection movement in the history of the country.
- Amrita Devi of Khejarli village and her three young daughters laid down their lives to protect the sacred trees which the ruler of Marwar Maharaja Abhay Singh had ordered to be cut down for building his new palace.
- This inspired other members of the community and a total of 363 people sacrificed their lives in coming days trying to save the trees by hugging them while the king's men chopped their bodies with axes.
- The 'martyrs' belonged to the Bishnoi community and the trees which they were protecting were 'Khejri'. In the 1970s, this sacrifice became the inspiration behind the Chipko Movement.

Threat to Khejri Tree:

- The root cause of decline in the Khejri cover is its excessive lopping (cutting of branches), which all farm owners do annually to procure its fruit, pods, leaves, branches and twigs. Indiscriminate cutting of branches takes its toll on the tree and its decay gets expedited.
- Besides, declining water table, growth of parasite *Gonoderma lucidum* and land use changes are the other causes responsible for the decrease in the numbers of the tree.

CULTIVATION OF AMARANTHUS

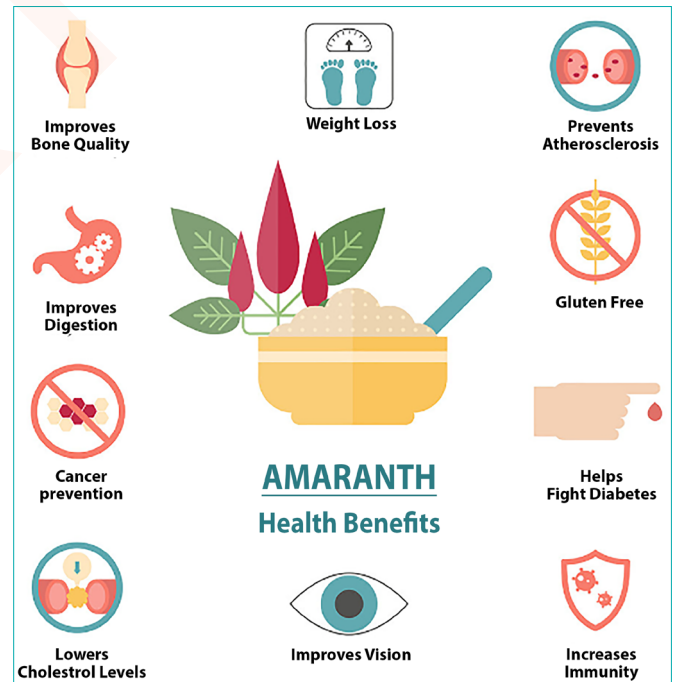
In recent times, the cultivation of Amaranthus plants has gained prominence.

About:

- Amaranthus belongs to the species *Amaranthus*. Its scientific name is *Amaranthus hypochondriacus*.
- It is also known as Ramdana which is loosely translated as 'the lord's grain' or 'the grain gifted by god'.
- **Geographical Conditions:**
 - The suitable soil for growing amaranthus is well-drained loamy soil with a mildly acidic character and a warm temperature.

- It needs soil temperatures of between 18 °C and 25 °C.
- It grows widely in the Himalayan region.
- Additionally, it is grown in Tamil Nadu, Gujarat, Maharashtra, and Madhya Pradesh.
- **Significance:** The seed, flower and leaves of the Sowing can be done throughout the year are used as food. The entire plant can be a component of medicines.
 - The plant is considered as a 'Superfood' because it contains high nutraceutical values.
 - Amaranth is planted for ornamental purposes because of its stunning stalks, large leaves and vibrant coloured flowers. They have been used as a food colourant due to the presence of betacyanin pigments.
 - It is also a 'pseudocereal', which is gluten-free and high in protein and other nutrients. Their pigments vary from maroon to crimson and are placed under the category of pigweeds.
 - Amaranthus is an excellent source of calcium, magnesium, potassium, vitamin A, B and C, and an incredible source of vitamin K and the crop offers the most nutrition per calorie than other foods.

Benefits of Amaranthus:



- Amaranth oil is valued for its versatile uses across various industries like pharmaceuticals and cosmetics in the manufacturing of shampoos, rubber chemicals and aromatics.

DECRIMINALIZING MINOR OFFENSES UNDER THE FOREST ACT, 1927

The Ministry of Environment, Forest and Climate Change (MoEFCC) has proposed the decriminalization of minor sections of the law of Indian Forest Act, 1927.

About:

- **Need for the change:**
 - ♦ An analysis by the Union Government for Science and Environment found that Indian courts took between 9 to 33 years to clear a backlog of cases for environmental violations.
 - ♦ At the start of 2018, there were nearly 45,000 cases awaiting trial, and 35,000 more cases were added that year. In five of the seven environmental legislation, over 90% of the charges were still pending trial.
- **Changes Proposed:**
 - ♦ The Ministry aims to replace a clause in the Act that provides for imprisoning violators with one that only requires them to pay a fine.
 - ♦ The changed rules, however, do not apply to violations that cause grave injury or loss of life.
 - ♦ At present the act has a provision that states that violators will be punishable with imprisonment up to five years or with a fine up to 1 lakh, or both.
 - ♦ The Ministry stated that the Act is being undertaken to decriminalize minor sections of the law, which will include:
 - Carrying timber into the forest
 - Trespassing by cattle
 - Felling of a tree
 - Damaging a tree reserved under a special provision of the state law
 - Carrying/Kindling fire in forest areas.
 - ♦ Appointment of an "adjudication officer". The officer will have the authority to decide on a penalty for cases of environmental violations such as reports not being submitted or information not provided when demanded.
- **Objectives behind proposed amendment:**
 - ♦ It emphasizes decriminalization if a very minor legal infringement occurs.
 - ♦ Quick resolution by aggregating minor offenses.
 - ♦ Minimizing the residents' compliance burden.
 - ♦ Rationalization of penalties and preventing citizen harassment.
- **Significance:**
 - ♦ **Categorization:** It will help to ease the difficulties faced in differentiating between major and minor offenses.
 - ♦ **Easing the Process:** Given that repeat offenders already receive the same degree of penalty as first-time offenders, it will also discourage habitual offenders from committing more crimes.

- **Criticism:**
 - ♦ **Climate Change factor:** It might go on incentivizing offense, especially because Land degradation in India due to felling trees is extremely alarming.
 - ♦ **Ambiguity in the amendment:** It does not clarify whether the Rs 500 fine is the cost of felling one tree or an entire forest.
 - ♦ **Autonomy of the States:** This move by the Union govt, somewhere infringes the rights of the states to govern their forest provisions within the state.
- **The Indian Forest Act, 1927:**
 - ♦ The Indian Forest Act 1927, replaced the Forest Act, of 1878.
 - ♦ Section 2 of the Indian Forest Act, 1927 defines certain terms like cattle, forest officer, forest offenses and forest produce.
 - ♦ Forest produce includes timber, charcoal, wood-oil, bark, resin, trees and leaves, flowers and fruits, plants, cocoon, honey, wax, rocks and minerals, and water bodies such as rivers, ponds, lakes, and wild animals including their skins, tusks, bones, and horns.
 - ♦ Chapter II, III, and IV of the Indian Forest Act define reserved, village, and protected forests respectively
 - **Reserved Forests:** Enables the State government to exercise the power to issue a notification under Section 4 to declare any forest or a piece of land a reserved forest in the manner provided in the Act.
 - **Village Forests:** Enables the State Government to assign rights to any village community over the land that may have been constituted as reserved forest for the use of that community.
 - **Protected Forests:** The Indian Forest Act, 1927 defines Protected Forests. It is any forestland or wasteland (Section 29).
 - The states of Haryana, Punjab, Bengal, Madhya Pradesh, and Bihar adhered to the Act, which was adopted by the states as they saw fit. Other states abided by their own forest acts.

CLIMATE CHANGE AND NORTH-EAST FLOODS

The Northeastern part of India (esp. Assam) witnesses floods almost every year, and the extent of devastation has increased this year.

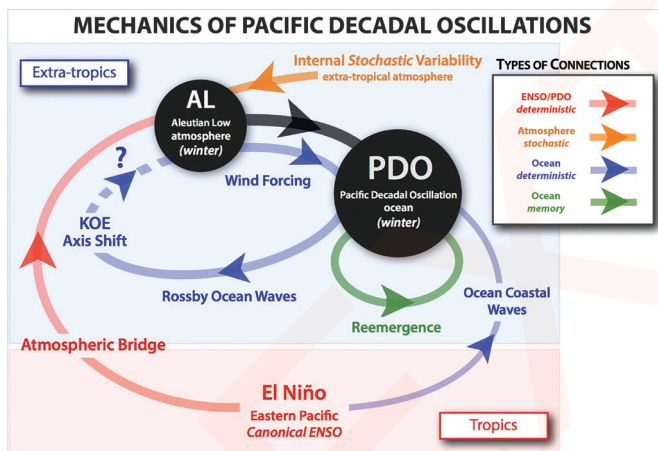
About:

- Because of the unique topology and steep slopes suddenly giving way to plains, the northeast region is prone to river course changing.

- But now, the frequency of these changes is increasing because of heavy rainfall resulting in floods.
- The Global and Planetary Change paper forecasts that the annual mean surface temperature will rise by 0.64°C between 2011 and 2040 and rainfall may increase by 0.09 mm/day (33 mm/pa).

Scenario in NE States:

- Currently, the flood-drought cycle has started to occur within a year, particularly during the monsoon season.
- **Assam:** A new scenario was presented in the state where the dry drought-like districts were intermixed with floods due to rainfall in other districts. The number of rainy days decreased in most districts to the north of the Brahmaputra.
- **Arunachal Pradesh:** Districts like West Kameng and East Kameng showed a decrease in the flow of mountain springs and streams in recent decades, which could be due to the decrease in rainfall.
- **Nagaland:** The gradient of the rivers is not as steep but recent instances of heavy rainfall events have brought floods to places that had not witnessed such calamities in decades.



Reasons responsible for Changes in Rainfall Patterns:

- **Land degradation:** The drying of the land has increased the frequency and intensity of dry periods and droughts. An increase in moisture and the drying up together affected the rainfall patterns in unpredictable ways.
- **Climate change factor:** Heavy rainfall is replacing continuous low or normal rainfall during monsoon combined with the melting of glaciers due to rising temperature, increasing the possibility of frequent flash floods in low-lying areas.
- **Pacific Decadal Oscillation:** Sea surface temperatures change in a cycle over the subtropical Pacific Ocean, with each phase lasting a decade.
 - ♦ The Pacific Decadal Oscillation reaches its maximum every 20 years (PDO).
 - ♦ PDO is also influenced by global warming since it reduces the temperature differential between ocean layers.

- **Sunspot epoch:** Rainfall patterns in the Northeast varied dramatically from one Sunspot epoch to the next during the monsoon.
 - ♦ This indicates that the seasonal depression of low pressure over the nation may have developed differently.

Sunspot epochs are alternating periods of increased and decreased activity on the Sun's surface that influence the climate of Earth.

Impacts:

- Shifting rainfall patterns affect the flow of rivers, the amount of snow cover, and the health of mountain springs, particularly agriculture and fishing, flora and fauna.
- Extreme rainfall events brought on by climate change start a cascading effect that increases soil erosion on hill slopes devoid of forest cover.
 - ♦ Rivers' courses change as a result of increased surface runoff.
- Transport and hospitality services like food and medicine get disrupted. The flooding has damaged the electricity supply in many districts. The damage is not just being linked to infrastructure.
 - ♦ According to one estimate, the present floods have affected 36 lakh people and have washed away almost 60,000 animals.

Measures needed to be taken:

- Natural forces cannot be tamed, but communities can be equipped to preempt large-scale disasters (such as mega-floods) and thus, prepare better.
- Flood mitigation and disaster risk reduction should be at the center of any major infrastructure drive in an ecologically and geomorphologically vulnerable region like the Northeast.
- There has to be a pointed focus on creating infrastructure that is sensitive to local geomorphological dynamics and community needs so that they don't end up worsening the conditions.

RAMSAR SITES

Recently, India added 5 Ramsar Sites in July and 10 Ramsar Sites in August, taking the total number of the Ramsar sites to 64 in India.

Sites added in July:

- Three of these newly inducted Ramsar sites are in Tamil Nadu and one each in Madhya Pradesh and Mizoram.
- Karikili Bird Sanctuary, Pallikaralai Marsh Reserve Forest and Pichavaram Mangrove in Tamil Nadu.

Sites Added in August:

10 NEW RAMSAR SITES		
S. No	Name of the Ramsar Site	State
1.	Koonthankulam Bird Sanctuary	Tamil Nadu
2.	Satkosia Gorge	Odisha
3.	Nanda Lake	Goa
4.	Gulf of Mannar Marine Biosphere Reserve	Tamil Nadu
5.	Ranganathituu BS	Karnataka
6.	Vembannur Wetland Complex	Tamil Nadu
7.	Vellode Bird Sanctuary	Tamil Nadu
8.	Sirpur wetland	Madhya Pradesh
9.	Vedanthangal Bird Sanctuary	Tamil Nadu
10.	Udhayamarthandapuram Bird Sanctuary	Tamil Nadu

- Pala wetland is in Mizoram and Sakhya Sagar in Madhya Pradesh.

Ramsar Sites in India:

- India's Ramsar wetlands are spread over 11,000 sq km — around 10% of the total wetland area in the country — across 18 States.
- No other South Asian country has as many sites though this has much to do with India's geographical breadth and tropical diversity.
- The National Wetland Inventory and Assessment compiled by the Indian Space Research Organization, estimates India's wetlands to span around 4.63% of the total geographical area of the country.
- Gujarat has the maximum area followed by Andhra Pradesh, Uttar Pradesh and West Bengal.

Wetlands:

- According to the Environment Ministry, Wetlands are an "area of marsh, fen, peatland or water; whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters, but does not include river channels, paddy fields, human-made water bodies/tanks specifically constructed for drinking water purposes and structures specifically constructed for aquaculture, salt production, recreation and irrigation purposes.
- Wetlands are also known to have among the highest soil-carbon densities and therefore play a major role in buffering carbon dioxide emissions.

Criteria to be enlisted as a Ramsar Site:

- To be Ramsar site, the wetland must meet at least one of nine criteria as defined by the Ramsar Convention of 1961, such as supporting vulnerable, endangered, or critically endangered species or threatened ecological communities or, if it regularly supports 20,000 or more waterbirds or, is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks are dependent upon.

RAMSAR CONVENTION

- It is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources.
- The Convention was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975. Since then, almost 90% of UN member states have become "Contracting Parties" and committed to the Convention's three pillars:
 - ♦ Work towards the wise use of all their wetlands.
 - ♦ Designate suitable wetlands for the list of Wetlands International Importance and ensure their effective management.
 - ♦ Cooperate internationally on transboundary wetlands, shared wetland systems and shared species.
 - ♦ **Montreux Record:** The Montreux Record is a register of wetland sites on the List of Ramsar wetlands of international importance where changes in ecological character have occurred, are occurring, or are likely to occur as a result of technological developments, pollution or other human interference.

AI BASED MANDARIN TRANSLATION DEVICES

Indian soldiers will soon be able to understand Mandarin and reply instantly when they come on face to face with Chinese soldiers on the Line of Actual Control (LAC).

About:

- It is a 600gram Artificial Intelligence-based device developed by an Indian start-up, Cogknit.
- It is one of the 75 AI-enabled products and applications unveiled by the Defense Minister at the 'AI in Defense' symposium.
- It is an offline handheld language translation system that works on AI.
- It is bidirectional with a range of 5-10 feet and converts Mandarin to English.
- It has been tested in forwarding areas and the Army has given a lot of assistance. Its performance will improve as more and more data comes from the field.

Significance:

- Efforts are always put to maintain peace on the ground during the patrols on the borders or the meetings of the local commanders on various occasions.
- But language is always a major hindrance and interpreters need to be present during occasions like flag meetings.
- The device will help in understanding mandarin and the Indian Soldiers will be able to reply instantly.

Artificial Intelligence:

- Artificial intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions.
- The term may also be applied to any machine that exhibits traits associated with a human mind such as learning and problem-solving.
- The ideal characteristic of artificial intelligence is its ability to rationalize and take actions that have the best chance of achieving a specific goal.
- A subset of artificial intelligence is machine learning (ML), which refers to the concept that computer programs can automatically learn from and adapt to new data without being assisted by humans.
- The goals of artificial intelligence include computer-enhanced learning, reasoning, and perception.

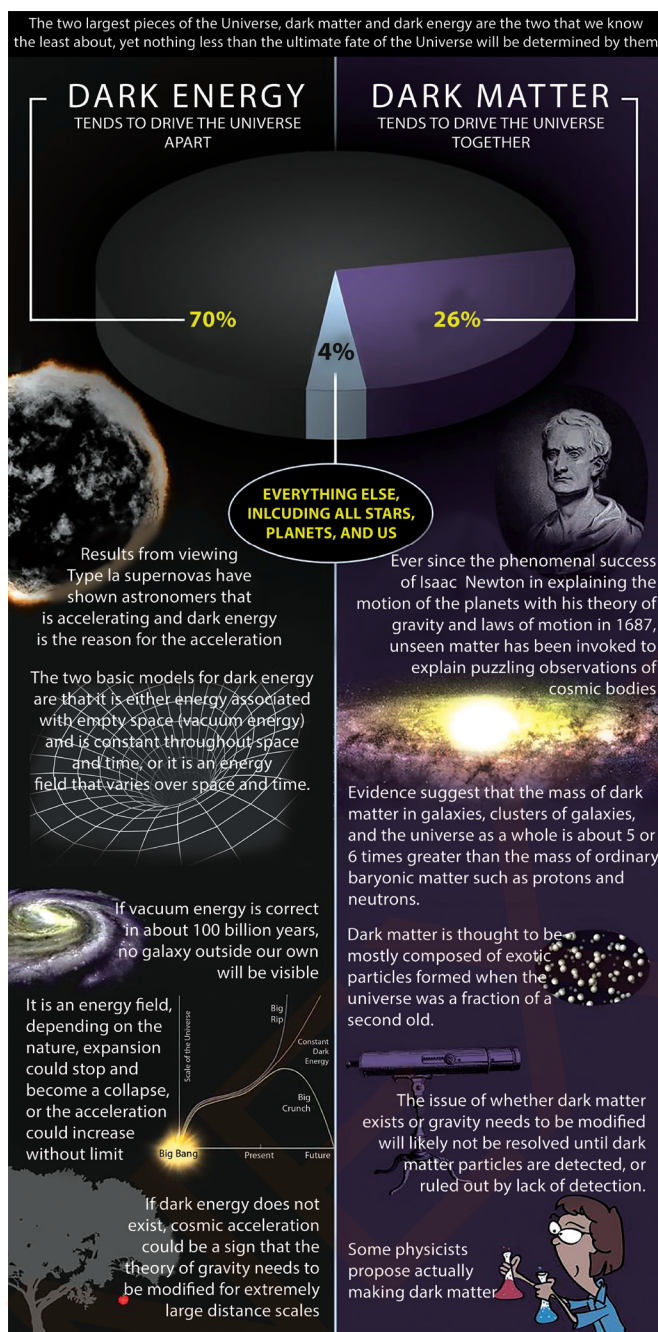
- AI is being used today across different industries from finance to healthcare.
- Weak AI tends to be simple and single-task oriented, while strong AI carries on tasks that are more complex and human-like.

DARK MATTER

Recently, a highly sensitive experiment named LUX-ZEPLIN (LZ) has been used to detect Dark Matter in the Universe.

About:

- Dark Matter is made up of particles that do not have a charge, which means they do not interact through electromagnetic interactions.
- These particles have been named as "dark", because they do not emit light, which is an electromagnetic phenomenon, and "matter" because they possess mass like normal matter and hence interact through gravity.
 - ♦ Only 5% of the entire visible Universe is made up of all matter and the rest of 95% is Dark Matter and dark energy.
- Dark Matter seems to outweigh visible matter roughly six to one, making up about 27% of the universe.
- Dark Matter is invisible. The evidence supporting the existence of Dark Matter is derived from gravity pull.
- **Particles used for Observing Dark Matter:**
 - ♦ Neutrino would have been very helpful in detecting Dark Matter but they are too light and hence would not be useful.
 - ♦ Other postulated entities include the supersymmetric partner of the Z boson, a particle that mediates the electro-weak interaction.
 - ♦ There are other explanations that talk about "hidden sector particles" and Axions, a boson and a condensate of Dark Matter.
 - ♦ Still there is research going on to find one of these particles which interact with Dark Matter.
- Dark matter can be classified into three main categories namely cold, warm, and hot.
 - ♦ These categories have no relation with actual temperatures. Instead, they describe the rate at which particles randomly move within the universe before slowing down, which in turn leads to the expansion of the universe as a whole.



Difference between Dark Matter and Dark Energy:

- Dark Matter acts as an attractive force, a kind of cosmic cement that holds our universe together.
 - ♦ This is because Dark Matter does interact with gravity, but it doesn't reflect, absorb, or emit light.
- Dark energy is the far more dominant force of the two, accounting for roughly 68 percent of the universe's total mass and energy.
 - ♦ Dark Matter makes up 27 percent. And the rest — a measly 5 percent — is all the regular matter we see and interact with every day.

Evidence for the existence of the Dark Matter:

- There is strong indirect evidence for Dark Matter, and this evidence is reflected at various levels like distance scales.
- For example, If we look at stars all the way from the center of any galaxy to its rim, there is a marked difference between the observed plot of star speeds and the calculated value.
- This means that there is a definite amount of Dark Matter in the galaxy.
- **Evidences from the Distance Scale:**
 - ♦ The universe can be observed at various levels — at the level of electrons and nuclei or atoms, or galaxies, or galaxy clusters, or even larger distances where the entire universe can be mapped and studied.
 - ♦ The Bullet cluster is formed through the merging of two galaxy clusters. Physicists found from their calculations that the way these mergers took place could not be fully explained if we believed that the visible universe was all that existed.
 - ♦ Therefore, there should be something like Dark Matter as well as an estimate of how much Dark Matter there should be in the universe.
- Similar arguments exist from mappings of the universe such as the Sloan Digital Sky Survey and studies of the filamentous nature of the universe at a closer look.

Dark Energy:

- Dark Energy is a hypothetical form of energy that exerts a negative, repulsive pressure, behaving like the opposite of gravity.
- It is a mysterious force that's causing the rate of expansion of our universe to accelerate over time, rather than to slow down.
- Like Dark Matter, Dark Energy is not directly observed, but rather inferred from observations of gravitational interactions between astronomical objects.

LUX-ZEPLIN (LZ)

- LZ Dark Matter Detector has been installed deep down the Black Hills in South Dakota in Sanford Underground Research Facility (SURF). It is the most sensitive Dark Matter detector experiment in the world.
- It is a next generation Dark Matter experiment, selected by the US Department of Energy (DOE) as one of the three 'G2' (for Generation 2) Dark Matter experiments.
- The name LZ stems from the merger of two previous Dark Matter detection experiments: LUX (Large Underground Xenon) and ZEPLIN (ZonEd Proportional scintillation in Liquid Noble gases).

GENETICALLY MODIFIED (GM) CROPS

Recently, the Haryana Government gave a no-objection certificate (NOC) for major field trials of Herbicide-Tolerant (HT) and insect-resistant Bt Cotton variety.

About:

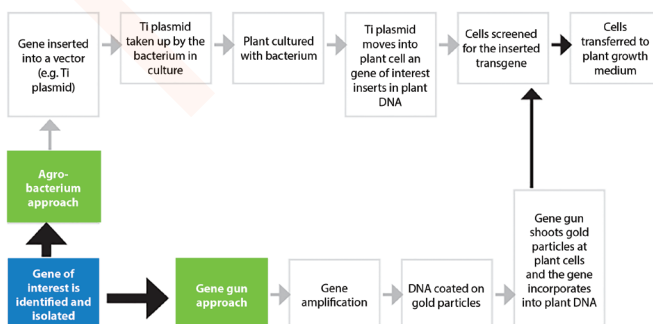
- The field trials will be conducted by Mahyco for the Bt Cotton variety called BG-2 RR.
- The trials will be conducted during the coming kharif harvest season and the field trials are likely for the North Zone.
- Till now, India has allowed commercial use of BG-1 and BG-2 GM cotton in the country while the approval for the BG-2 RRF has been pending at various stages.
 - The available BG-2 RRF can provide protection against devastating pest attack.
- The Union Government for the first time has exempted certain types of genome-edited crops from the stringent regulations applicable on genetically modified or GM crops, paving the way for further R&D on them.

About Genetically Modified (GM) Crops:

- A GM/transgenic crop is a plant that has a novel combination of genetic material obtained through the use of modern biotechnology.
 - Genetic Modification is a technology that involves inserting DNA into the genome of an organism.
- Genetic modification of plants involves adding a specific stretch of DNA into the plant's genome, giving it new or different characteristics.
- This could include changing the way the plant grows, or making it resistant to a particular disease.
- The new DNA becomes part of the GM plant's genome which the seeds produced by these plants will contain.

Development of GM Crops:

- Development of GM crops starts with the identification of genes of interest and isolating them from the host organism.
- The gene is incorporated into the DNA of crop plants using laboratory based gene gun or agrobacterium approaches.



GM Crops Permitted in India:

- Bt Cotton:** Bt cotton is the only GM crop that has been approved for commercial cultivation in 2002 by the Government of India.
- Bt Brinjal:** Bt Brinjal is resistant to brinjal shoot fly was approved by the Genetic Engineering Appraisal Committee (GEAC) in 2009.
 - But due to the 10 years moratorium imposed on GM crops by the Technical Expert Committee (TEC), no further action on commercialization has been taken.
 - GEAC has again allowed biosafety research field trials of two new transgenic varieties of indigenously developed Bt Brinjal in eight states during 2020-23.
- GM Mustard:** GM mustard Dhara Mustard Hybrid 11 (DMH 11) developed by Delhi University is pending for commercial release.

Reason for Not Commercializing GM Crops in India:

- India is still undecided on genetically GM crops despite the regulatory authority — Genetic Engineering Appraisal Committee (GEAC) — giving the environmental clearance for GM brinjal and mustard.
- India hasn't got any new GM crops since 2009 after the Supreme Court declared a 10-year moratorium on genetically modified crops.
- Though the Union Government has said field trials of GM crops can be carried out if the concerned State Governments permit them, many life science firms have not come forward in view of the politics involved in it.
 - Companies feel that if they begin field trials, on any change in the government in the State where the events are held, the new government can ban or stop it.
- Since research and development (R&D) requires huge expenditure, the companies are not willing to take any risk. This has also led to some of the firms shutting their R&D operations in India.

Concerns Associated with the GM Crops:

- Bio safety of animal health:**
 - Risk of toxicity, due to the nature of the product or the changes in the metabolism and the composition of the organisms resulting from gene transfer.
 - Newer proteins in transgenic crops from the organisms, which have not been consumed as foods, sometimes have the risk of these proteins becoming allergens.
- Ecological Concerns:**
 - Gene flow due to cross pollination for the traits involving resistance can result in development of tolerant or resistant weeds that are difficult to eradicate.
 - GM crops could lead to erosion of biodiversity and pollute gene pools of endangered plant species.
 - Genetic erosion has occurred as the farmers have replaced the use of traditional varieties with monocultures.

• **Environment Concerns:**

- ♦ Effect of transgenic plants on population dynamics of target and non-target pests, secondary pest problems, insect sensitivity, evolution of new insect biotypes, environmental influence on gene expression, development of resistance in insect population, development of resistance to herbicide.

- ♦ **Gene escape into the environment-** accidental cross breeding GMO plants and traditional varieties through pollen transfer can contaminate the traditional local varieties with GMO genes resulting in the loss of traditional varieties of the farmers.

• **Socio Economic and Ethical Consideration:**

- ♦ **Potential benefits to the consumers and farmers:** Due to the increasing seed market, the developing countries may get dependent on few suppliers.

• **Public Attitude:**

- ♦ Consumer response depends on perceptions about risks and benefits of genetically modified foods. The media, individuals, scientists and administrators, politicians and NGO's have the responsibility to educate the people about the benefits of GM foods.

Regulatory Framework in India:

- Biosafety regulations cover assessment of risks and the policies and procedures adopted to ensure environmentally safe applications of biotechnology.
- The regulatory framework for transgenic crops in India consists of the following rules and guidelines.
 - ♦ Rules, 1989 under Environment Protection Act (1986)
 - ♦ Seed Policy, 2002
 - ♦ Recombinant DNA guidelines, 1990
 - ♦ Guidelines for research in transgenic crops, 1998.
- The two main agencies identified for implementation of the rules are the Ministry of Environment, Forests and Climate Change and the Department of Biotechnology, Government of India.
- The rules have also defined competent authorities and the composition of such authorities for handling various aspects of the rules.
- There are six competent authorities as per the rules.
 - ♦ Recombinant DNA Advisory Committee (RDAC)
 - ♦ Review Committee on Genetic Manipulation (RCGM)
 - ♦ Genetic Engineering Approval Committee (GEAC)
 - ♦ Institutional Biosafety Committees (IBSC)
 - ♦ State Biosafety Coordination Committees (SBCC)
 - ♦ District Level Committees (DLC)
- Out of these, the three agencies that are involved in approval of new transgenic crops are:
 - ♦ **IBSC** - set-up at each institution for monitoring institute level research in genetically modified organisms.

- ♦ **RCGM** - set-up at DBT to monitor ongoing research activities in GMOs and small scale field trials.
- ♦ **GEAC** - set-up in the Ministry of Environment, Forests and Climate Change to authorize large-scale trials and environmental release of genetically modified organisms.

GM Crop Cultivation around the Globe:

- In 2014, GM crops were grown in 28 countries on an area of 181.5 million hectares. The global market value of these crops is estimated to be US\$15.7 billion.
- USA, Brazil, Argentina, India and Canada are five top GM growing countries, together accounting for approx. 90% area of the GM cultivation.
 - ♦ In 2014, India became the fourth largest cultivator of GM crops by acreage and second largest producer of cotton.
- Soybean, maize, cotton and canola with herbicide tolerance and insect resistance are the major GM crops grown around the world.

GM CROPS IN INDIA

Bt Cotton:

- Cotton plants are often infested by bollworms which destroy the cotton buds and bolls thus rendering the crop useless.
- But cotton developed through GM technology has a gene for resisting the pest.
- The Bt gene obtained from soil bacterium *Bacillus thuringiensis* has been inserted into cotton DNA making the modified plant resistant to bollworm.
- Monsanto introduced its first-generation Bt cotton, called Bollgard I (BG-I) in 2002 and Bollgard II (BG-II) in 2006, the latter of which is still the de facto GM cotton variety.
 - ♦ BG-II contains two genes from the bacterium *Bacillus thuringiensis* (hence Bt cotton) and BG-I contains only one gene.

Genetic Engineering Appraisal Committee (GEAC):

- The Genetic Engineering Appraisal Committee (GEAC) functions in the Ministry of Environment, Forest and Climate Change (MoEF&CC).
- It is responsible for appraisal of activities involving large scale use of hazardous microorganisms and recombinants in research and industrial production from the environmental angle.
- The committee is also responsible for appraisal of proposals relating to release of genetically engineered (GE) organisms and products into the environment including experimental field trials.
- GEAC is chaired by the Special Secretary/Additional Secretary of MoEF&CC and co-chaired by a representative from the Department of Biotechnology (DBT).

NAIROBI FLIES

Around 100 students of an engineering college in East Sikkim have reported skin infections after coming in contact with Nairobi flies.

About:

- It is a species of insect native to East Africa.
- Nairobi flies are also called Kenyan flies or dragon bugs.
- These are small, beetle-like insects that belong to two species, *Paederus eximius* and *Paederus sabaeus*.
- They are orange and black in color, and thrive in areas with high rainfall, as has been witnessed in Sikkim in the past few weeks.
- Like most insects, they are attracted by bright light.

Effects on Human:

- In general, the insects attack pests that consume crops and are beneficial for humans but sometimes, they come in contact with humans directly and cause harm.
- These flies do not bite, but if disturbed while sitting on anyone's skin, they release a potent acidic substance that causes burns.
 - ♦ This substance is called pederin, and can cause irritation if it comes in contact with the skin, leading to lesions or unusual marks or coloring on the skin.
- The skin begins to heal in a week or two, but some secondary infections can occur, especially if the victim scratches the irritated skin.



- 1. What is Nairobi Fly?**
 - Nairobi flies are small, orange and black-colored insects also known as Kenyan flies or gradon bugs.
- 2. Where are they found?**
 - They are generally found in high rainfall, hot and humid regions. In Bhutan, it is found in the southern belts.
- 3. How serious is Nairobi Fly?**
 - It is not so serious. The bug doesn't bite, it causes skin irritations once the acid is released from the bug.

4. Symptoms of Nairobi Dermatitis.

- Itching, Burning, erythema (redness of the skin), and oozing 12 to 36 hours later.

5. Treatment/ Management of Nairobi Fly Inflammation

- Immediately wash the affected area, and apply cold and wet compresses.
- In severe cases, it is treated with antibiotics, steroids, and antihistamines.

6. Prevention of Nairobi Fly Dermatitis



Reduce contact with the bug by using bed nets, wearing long-sleeved clothes, and avoiding sitting under lights at night (Like most insects, Nairobi flies are attracted by bright light).



Blow off or brush off gently if the fly lands on your skin.



Wash the area of your skin thoroughly with soap and water where the fly landed.

Historical Outbreaks:

- Major outbreaks happened in Kenya and other parts of eastern Africa. In 1998, unusually heavy rain caused a large number of insects to come into the region.

- Outside Africa, outbreaks have happened in India, Japan, Israel, and Paraguay in the past.

Protecting oneself Against Nairobi Flies:

- Sleeping under mosquito nets can help.
- If a fly lands on a person, it should be gently brushed off, and should not be disturbed or touched to reduce the chances of it releasing pederin.

CO-DOPANTS FOR SOLAR CELLS

Scientists have identified co-dopants that can increase the photovoltaic performance of transparent metal oxides.

About:

- In recent years solar cell technology has achieved tremendous growth as a sustainable source of energy.
- Energy generation and storage being the need of the hour, many efforts are being made around the world to develop cost-effective options.
- A research team focused on the electron transport layer of solar cell devices which is made up of transparent metal oxides.
- Transparent metal oxides such as ZnO , In_2O_3 and SnO_2 showed excellent electrical and optical properties.
- The team explored the role that effective dopant can play in improving the efficiency of Tin oxide (SnO_2) as an efficient transparent metal oxide for solar devices.
- SnO_2 film surface coverage was enhanced by the addition of dopants Al/La which allowed modification of energy level and enhanced electron mobility, thereby improving the functional properties of SnO_2 via the facile metal ions doping strategies.
- This study shows the benefits of co-dopants in increasing the photovoltaic performance, repeatability, and stability in solar devices.

Solar Cells:

- Solar cells, also called photovoltaic cells, convert the energy of light into electrical energy using the photovoltaic effect.
- When light shines on PV cells that light may be reflected, absorbed, or pass right through the cell.
- The PV cell is composed of semiconductor material.
 - ♦ Most of these are silicon cells, which have different conversion efficiencies and costs ranging from amorphous silicon cells (non-crystalline) to polycrystalline and monocrystalline (single crystal) silicon types.
- The efficiency of a PV cell is simply the amount of electrical power coming out of the cell compared to the energy from the light shining on it, which indicates how effective the cell is at converting energy from one form to the other.

- The amount of electricity produced from PV cells depends on the characteristics (such as intensity and wavelengths) of the light available and multiple performance attributes of the cell.

Solar Energy:

- Solar energy is the radiation from the Sun capable of producing heat, causing chemical reactions, or generating electricity.
- Solar Energy can be harnessed in few different ways:
 - ♦ **Photovoltaic cells**, which convert sunlight into electricity.
 - ♦ **Solar thermal technology**, where heat from the sun is used to make hot water or steam.
 - ♦ **Passive solar heating**, which can be as simple as letting the sun shine through windows to heat the inside of a building.
- Unfortunately, though solar energy itself is free, the high cost of its collection, conversion, and storage still limits its exploitation in many places.
- Solar radiation can be converted either into thermal energy (heat) or into electrical energy.

TiHAN: FIRST AUTONOMOUS NAVIGATION FACILITY

The Union Minister of State for Science & Technology inaugurated India's first Autonomous Navigation facility, TiHAN at the IIT Hyderabad.

About:

- It is a multidisciplinary initiative that will make India a global player in the futuristic and next generation 'smart mobility' technology.
- It will be the source of futuristic technology generation for autonomous vehicles and testbed on Autonomous Navigations (Aerial & Terrestrial).
 - ♦ It will allow the testing of the next generation autonomous navigation technologies accurately and allow faster technology development and global market penetration.
 - ♦ At present, there is no such test bed facility in India to evaluate the autonomous navigation of vehicles.
- It is a multi-departmental initiatives from Electrical Engineering, Computer Science and Engineering, Mechanical and Aerospace Engineering, Civil Engineering, Mathematics, Design, Liberal Arts and Entrepreneurship at IIT Hyderabad.

Significance of this Initiative:

- It is seen as one of the steps toward India's vision of 'Atmanibhar Bharat', 'Skill India' and 'Digital India'.
- It will provide a unique platform for high quality research between academia, industry and R&D labs both at the national and international level, thus making India a global leader in autonomous navigation technologies.

- India's mobility sector is one of the world's largest markets and the TiHAN - IITH will be the source of futuristic technology generation for autonomous vehicles.
- The TiHAN-IITH testbed on Autonomous Navigations (Aerial & Terrestrial) will allow us to test the next generation autonomous navigation technologies accurately and allow faster technology development and global market penetration.

CONNECTED AUTONOMOUS VEHICLES (CAVS)

- CAVs combine connectivity and automated technologies to assist or replace humans in the task of driving.
 - ♦ This can be through a combination of advanced sensor technology; on-board and remote processing capabilities; GPS and telecommunications systems.
- A connected vehicle is able to share information (or data) with other sources both inside and outside of the vehicle. This could be with other vehicles, with road infrastructure or with any other connected network or thing.
- Automated technologies are those which undertake parts of the driving task, or in the case of full autonomy, the whole driving task.

VACCINE FOR CERVICAL CANCER

Cervavac, developed by the Serum Institute of India, has been approved by the Drug Controller General of India for market authorisation.

About:

- Cervavac is India's first quadrivalent human papillomavirus vaccine (qHPV) vaccine.
- The vaccine is based on VLP (virus-like particles), similar to the hepatitis B vaccine.
- It provides protection by generating antibodies against the HPV virus's L1 protein.
- Vaccination can be started at the relatively young age of nine.

Cervical Cancer:

- Cervical cancer is a common sexually transmitted infection. Long-lasting infection with certain types of human papillomaviruses (HPV) is the main cause of cervical cancer.
- Worldwide, cervical cancer is the second most common cancer type and the second most common cause of cancer death in women of reproductive age (15–44).
- It is preventable as long as it is detected early and managed effectively.
- WHO has set Cervical Cancer Elimination Strategy Targets for 2030.

- ♦ It entails that 90% of girls should be fully vaccinated with the HPV vaccine by the age of 15.
- ♦ 70% of women should be screened with a high-performance test by 35 years of age and again by 45 years of age.

Existing Vaccines:

- Two vaccines licensed globally are available in India — a quadrivalent vaccine (Gardasil, from Merck) and a bivalent vaccine (Cervarix, from GlaxoSmithKline).
- Although HPV vaccination was introduced in 2008, it has yet to be included in the national immunization programme.
- A vaccine delivery and demonstration project led by international non-profit organization PATH was started in 2009 in Andhra Pradesh and Gujarat.
 - ♦ But it had to be suspended in 2010 as a result of public concern allegedly arising from the deaths of seven girls who received the vaccine.

Indian Scenario of the Cervical Cancer:

- In India, cervical cancer accounted for 9.4 per cent of all cancers and 18.3 percent of new cases in 2020 according to a report in the Indian Journal of Gynaecologic Oncology (December 2021).
- India accounts for about a fifth of the global burden according to the World Health Organization's International Agency for Research on Cancer (IARC-WHO).
- It kills one woman every eight minutes in the country.
- Screening and vaccination are two powerful tools that are available for preventive cervical cancer. Still there is little awareness among women for prevention of this cancer and less than 10% of Indian women get screened.

HUMAN PAPILLOMAVIRUS (HPV)

- HPV is the name of a very common group of viruses. They do not cause any problems in most people, but some types can cause genital warts or cancer.
- There are about 100 types of HPV that affect different parts of the body.
 - ♦ More than 30 strains of the human papilloma virus (HPV) can affect the genitals. Of those, approximately 13 are considered "high risk" because they can lead to cervical cancer.
- Genital HPV is spread through contact with (touching) the skin of someone who has an HPV infection.
- HPV does not usually shows any symptom.
- There is no cure for the virus itself, but many HPV infections go away on their own. In fact, about 70 to 90 percent of cases of HPV infection are cleared from the body by the immune system.

PSLV-C53 MISSION

Recently, ISRO has placed three foreign satellites in precise orbit under its second dedicated commercial mission.

About:

- Indian Space Research Organization (ISRO) has launched the PSLV-C53 mission using its workhorse Polar Satellite Launch Vehicle (PSLV).
- The modified launch vehicle took off from the second launchpad at the Satish Dhawan Space Center, Sriharikota Range (SHAR).

Important features of the mission:

- It is ISRO's 55th mission and second dedicated mission for the commercial arm of ISRO, New Space India Limited (NSIL).

NEWSPACE INDIA LIMITED (NSIL)

- **Establishment:** It was incorporated in 2019 under the Companies Act, 2013.
- **Nature:** It is a wholly owned Government of India company, under the administrative control of the Department of Space (DOS).
 - ♦ It is the commercial arm of Indian Space Research Organisation (ISRO).
- **Objective:** It seeks to enable Indian industries to take up high technology space related activities.
 - ♦ It is also responsible for promotion and commercial exploitation of the products and services emanating from the Indian space programme.

The major business areas of NSIL includes:

- Production of Polar Satellite Launch Vehicle (PSLV) and Small Satellite Launch Vehicle (SSLV) through industry.
 - Production and marketing of space-based services, including launch services and space-based applications like transponder leasing, remote sensing and mission support services.
 - Building of Satellites (both Communication and Earth Observation) as per user requirements.
 - Transfer of technology developed by ISRO centers/ units and constituent institutions of Dept. of Space.
 - Marketing spin off technologies and products/ services emanating out of ISRO activities.
- The mission also served an additional purpose for ISRO, which decided to use the fourth stage, the PS4, as a stationary platform in orbit to conduct scientific experiments.
 - ♦ The PSLV is a four stage/engine expendable rocket powered by solid (first and third stages) and liquid (second and fourth stages) fuels alternatively.

- The fourth stage will be powered, generating power on board, and will be stabilized with altitude control and host some experiments by some of the young startups enabled by InSpace.
- The fourth stage will have a computer control system to fire its thrusters, sensors such as star sensors that will enable it to look at the stars, find its own position, and also send commands from the ground.
- The fourth stage can also be used in missions where the load is light, like on the PSLV-C53.

PSLV

- Polar Satellite Launch Vehicle (PSLV) is the third generation launch vehicle of India.
- It is the first Indian launch vehicle to be equipped with liquid stage.
- It was first successfully launched in 1994 and since then emerged as the reliable and versatile workhorse launch vehicle of India.
- It can take up to 1,750 kg of payload to Sun-Synchronous Polar Orbits of 600 km altitude.

Sun-synchronous Orbit:

- It is a particular kind of polar orbit in which Satellites traveling over the polar regions are synchronous with the Sun.
- Satellites are synchronized to always be in the same 'fixed' position relative to the Sun.
- The satellite in this orbit always visits the same spot at the same local time – for example, passing the city of Paris every day at exactly noon.
- PSLV has successfully launched two spacecraft – Chandrayaan-1 in 2008 and Mars Orbiter Spacecraft in 2013 – that later traveled to Moon and Mars respectively.

Importance of the Mission:

- The PSLV Orbital Experimental Module (POEM) is going to be functional after this mission which will help take over the control of the primary mission computer to another computer.
 - **POEM:** The PSLV Orbital Experimental Module or POEM is a platform that will help perform in-orbit experiments using the final, and otherwise discarded, stage of ISRO's workhorse rocket, the Polar Satellite Launch Vehicle (PSLV).
- The PSLV is a four-stage rocket where the first three spent stages fall back into the ocean, and the final stage (PS4) — after launching the satellite into orbit — ends up as space junk.
- Through the PSLV-C53 mission, the spent final stage will be utilized as a "stabilized platform" to perform experiments.
- POEM is carrying six payloads, including two from Indian space start-ups Dirgantara and Dhruva Space.

- It has a dedicated Navigation Guidance and Control (NGC) system for attitude stabilization, which stands for controlling the orientation of any aerospace vehicle within permitted limits.
- The NGC will act as the platform's brain to stabilize it with specified accuracy.
- It will help reduce debris as ISRO will use the PS-4 stage as an orbital platform for experiments.

CAPSTONE SATELLITE

Recently, NASA launched Cislunar Autonomous Positioning System Technology Operations and Navigation Experiment (CAPSTONE Satellite).

About:

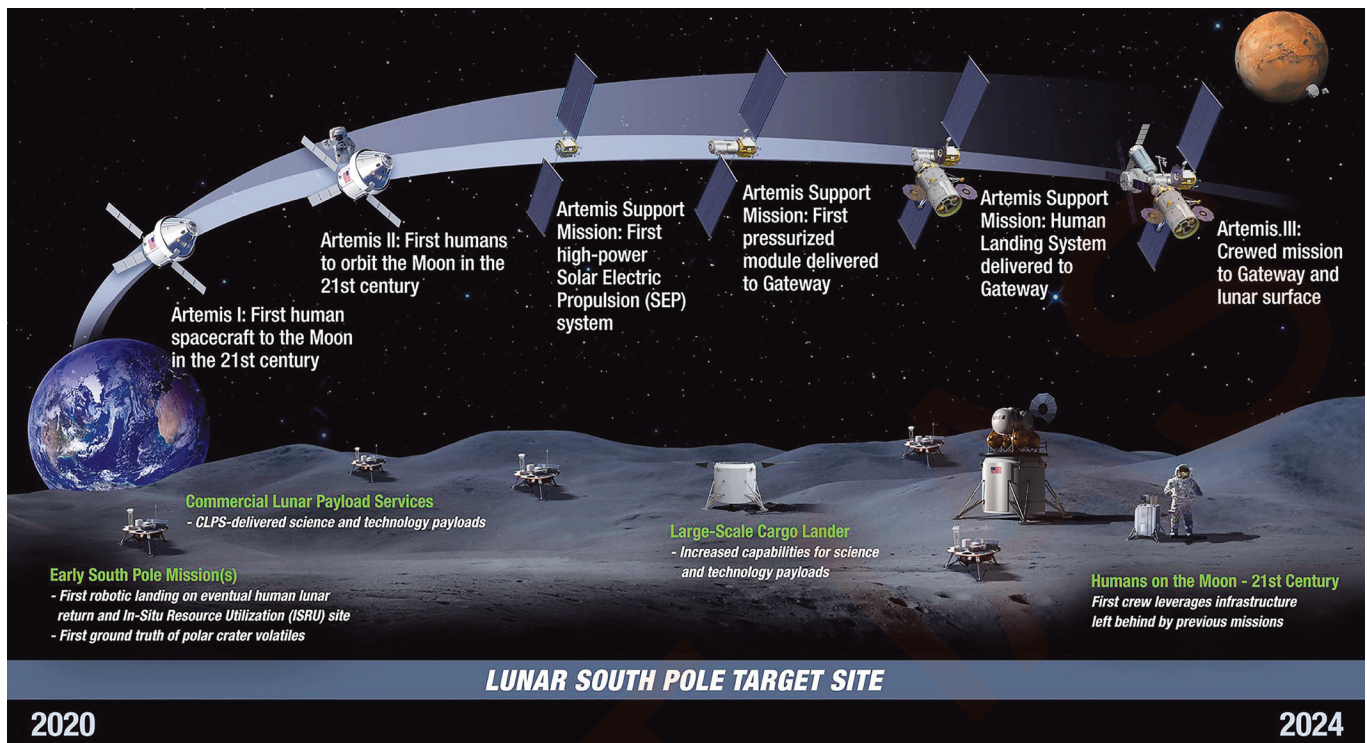
- It is a small sized first spacecraft which aims to test a unique, elliptical lunar orbit.
- **Objective:** It will perform calculations to determine where the CubeSat is in its orbital path.
- Help to reduce risk for future spacecraft by validating innovative navigation technologies and verifying the dynamics of the halo-shaped orbit.
 - The orbit, formally known as a near rectilinear halo orbit (NRHO), is an elongated location at a precise balance point in the gravities of Earth and the Moon, which offers stability for long-term missions like Gateway and requires minimal energy to maintain.

Mission objectives:

- Verify the characteristics of a cis-lunar near rectilinear halo orbit for future spacecraft.
- Demonstrate entering and maintaining this unique orbit that provides a highly-efficient path to the Moon's surface and back.
- Demonstrate spacecraft-to-spacecraft navigation services that allow future spacecraft to determine their location relative to the Moon without relying exclusively on tracking from Earth.
- Lay a foundation for commercial support of future lunar operations.
- Gain experience with small dedicated launches of CubeSats beyond low-Earth orbit, to the Moon, and beyond.

Important features:

- CAPSTONE will communicate directly with LRO and utilize the data to locate CubeSat and its position in space relative to LRO.



LUNAR RECONNAISSANCE ORBITER (LRO)

- LRO is a robotic mission that sets out to map the moon's surface.
- LRO observations have enabled numerous groundbreaking discoveries, creating a new picture of the moon as a dynamic and complex body.
- These developments have set up a scientific framework through which to challenge and improve our understanding of processes throughout the solar system.
- The information retrieved from the mission will be used to evaluate CAPS (Cislunar Autonomous Positioning System) which is CAPSTONE's autonomous navigation software.
- It will also study a specific orbit where NASA plans to build a small space station for astronauts to stop at before and after going to the moon's surface.
- Mission's main task is to explore how best to stay in the desired orbit by measuring how long it takes radio signals to travel back and forth to Earth.
- The spacecraft will also test an alternative method of finding its position by working with another spacecraft circling the moon.

NOTE

Although the mission is gathering information for NASA, it is owned and operated by a private company, Advanced Space, based in Westminster, Colo.

Significance:

- The mission will demonstrate an innovative spacecraft-to-spacecraft navigation solution at the Moon from a near rectilinear halo orbit slated for Artemis' Gateway.
- It will assist NASA's Artemis program to send astronauts back to the moon through a dedicated gateway.
- It will also help develop a small space station around the moon which would make it easier for astronauts to reach more parts of the moon.
- Since no spacecraft has yet traveled near-rectilinear halo orbit before, and without a global positioning system at the moon, the mission will help reduce uncertainty in the spacecraft's location at any moment.
- It will help future spacecraft determine their location without the help of Earth-based antennae.
- For a spacecraft headed to the moon, CAPSTONE is inexpensive, costing just under \$30 million.

Way Ahead:

- If tested successfully CAPSTONE will demonstrate key commercial capabilities for future space missions that could perform without support from the ground.
- The mission will also go a long way to help NASA partners to test cutting-edge tools for mission planning and operations, paving the way and expanding opportunities for small and more affordable space and exploration missions to the Moon, Mars and other destinations throughout the solar system.

MARBURG VIRUS DISEASE

Two fatal cases of Marburg Virus Disease (MVD) were reported in the Ashanti region, Ghana recently.

About:

- The source of infection is unknown, and both the cases have not been found to be epidemiologically linked.
- An outbreak of MVD has only been reported once previously in West Africa, and this is the first time MVD has been notified in Ghana.
- An outbreak of MVD may represent a serious public health threat as it is severe and often fatal.

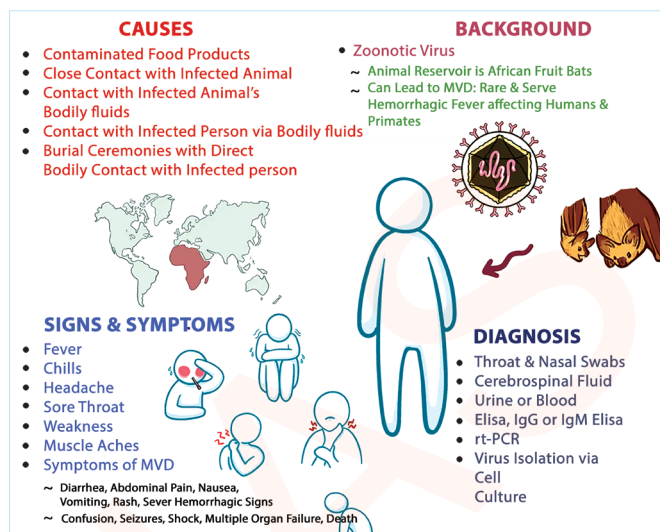
MVD:

- Marburg virus, a member of the family Filoviridae and genus Marburgvirus, is a zoonotic virus that is initially transmitted from animals to humans.
- Both Marburg virus and Ebola virus belong to the Filoviridae family of viruses and have the capacity to cause outbreaks with high fatality rates.
- The animal reservoir in nature for the Marburg virus is the African fruit bat (i.e., *Rousettus aegyptiacus*).
- MVD is a rare but severe hemorrhagic fever that affects both people and non-human primates.

BACKGROUND

Marburg virus was first recognized in 1967, when outbreaks of hemorrhagic fever occurred simultaneously in laboratories in Marburg and Frankfurt, Germany, and in Belgrade, Yugoslavia (now Serbia).

- Transmission:** It occurs from person to person and spreads through direct contact such as through broken skin or mucous membranes in the eyes, nose, or mouth with
 - Blood or body fluids of a person who is sick with or died from Marburg virus disease, or objects contaminated with body fluids from the person.
 - Semen from a man who recovered from MVD, even if they no longer have symptoms of severe illness.
 - The reservoir host of MVD is the African fruit bat, *Rousettus aegyptiacus*.
- Signs and Symptoms:** After an incubation period of 2-21 days, symptom onset is sudden and marked by fever, chills, headache, and myalgia.
- Diagnosis:** Clinical diagnosis of MVD can be difficult. Many of the signs and symptoms of MVD are similar to other infectious diseases (such as malaria, typhoid fever, or dengue) or viral hemorrhagic fevers that may be endemic in the area (such as Lassa fever or Ebola).



- Treatment:** There is no specific treatment for MVD. Supportive hospital therapy should be utilized, which includes balancing the patient's fluids and electrolytes, maintaining oxygen status and blood pressure, replacing lost blood and clotting factors, and treatment for any complicating infections.
 - Experimental treatments are validated in non-human primate models but have never been tried in humans.
- Prevention:** Preventive measures against MVD are not well defined, as transmission from wildlife to people remains an area of ongoing research.

URANIUM MINING IN RAJASTHAN

Rajasthan has recently started uranium mining at Sikar District.

About:

- Recently huge reserves of Uranium have been found at Rohil Tehsil near the capital city of Rajasthan.
- Rajasthan is the third State where uranium has been found, after Jharkhand and Andhra Pradesh.

Significance of Uranium mining for India:

- India has 21 operational nuclear reactors and six under construction, which use uranium as fuel. Most of this fuel is imported from other countries which is a huge sum of our forex reserves.
- The nuclear component of India's energy production is currently under 3 per cent at 6,000 MW.
- By 2032, India expects to have 45,000 MW of nuclear capacity, provided it has assured uranium fuel supplies.

Existing Uranium Mines in India:

- Uranium deposits occur in Singhbhum and Hazaribagh districts of Jharkhand, Gaya district of Bihar, and in the sedimentary rocks in Saharanpur district of Uttar Pradesh.
- Some uranium is found in the copper mines of Udaipur in Rajasthan.
- India produces about 2 percent of the world's uranium. The total reserves of uranium is estimated at 30,480 tonnes.

Thorium in India:

- Thorium is also derived from monazite.
- Kerala, Jharkhand, Bihar, Tamil Nadu and Rajasthan are the main producers.
- The other mineral carrying Thorium is thorianite. The known reserves of thorium in India are estimated to be between 457,000 and 508,000 tonnes.

Effects of Uranium Mining:

- Uranium mining and processing are associated with a wide range of potential adverse human health risks.
- Some of these are congenital deformities, sterility, spontaneous abortions and cancer.
- These health risks typically are most relevant to individuals occupationally exposed in this industry but certain exposures and their associated risks can extend via environmental pathways to the general population.
- Protracted exposure to radon decay products generally represents the greatest radiation-related health risk from uranium-related mining and processing operations. Radon's alpha-emitting radioactive decay products are strongly and causally linked to lung cancer in humans.
- Several studies have linked exposure to uranium in drinking water to kidney diseases.
- The World Health Organisation has set a provisional safety standard of 30 microgrammes of uranium per litre.

SCIENTIFIC PROPERTY OF URANIUM

- Uranium is a hard, dense, malleable, ductile, silver-white, radioactive metal.
- Uranium metal has a very high density. When finely divided, it can react with cold water.
- In air it is coated by uranium oxide, tarnishing rapidly. It is attacked by steam and acids. Uranium can form solids solutions and intermetallic compounds with many of the metals.

LUMPY SKIN DISEASE

More than 1,500 animals, mainly cows and buffaloes, have died in Gujarat due to the infectious lumpy skin disease, which has spread in 14 districts of the State.

**About:**

- It is caused by infection of cattle or buffalo with the poxvirus Lumpy skin disease virus (LSDV).
 - The virus is one of three closely related species within the genus capripoxvirus, the other two species being Sheeppox virus and Goatpox virus.
- Due to its infectious nature and its implications on the economy, the World Organisation for Animal Health (OIE) declares it as a notifiable disease.
- **Symptoms:**
 - It appears as nodules of two to five-centimetre diameter all over the body, particularly around the head, neck, limbs, udder and genitals.
 - The lumps gradually open up like large and deep wounds.
- **Transmission:**
 - The LSD virus easily spreads by blood-sucking insects like mosquitoes, flies and ticks and through saliva and contaminated water and food.
- **Spread:**
 - Historically, LSD has remained confined to Africa, where it was first discovered in 1929, and parts of West Asia.
 - LSD was first reported in Asia and the Pacific region in 2019 in north west China, Bangladesh and India.
- **Treatment:** No treatment is available for the disease.

POLICING ETHICS

Recently, Policing ethics was in News.

About:

- Ethics is a branch of philosophy that involves systematic study of human actions from the point of view of its rightfulness or wrongfulness
- Ethics as a subject and practice has presence and relevance with respect to all facets of human life.
- However, unlike most other occupations the role of the police has an ethical or moral dimension.
- Policing exhibits an additional layer of ethical and moral decision-making that distinguishes it from the ethical practice exercised by most citizens.

Policing Ethics:

- **Protection of life and liberty:** Human societies give primacy to life and liberty as fundamental moral values. The job of the police is to routinely decide whether to arrest or not a person (an indicator of freedom) and sometimes policing involves the decision of whether to take away someone's life or not.
 - ♦ For example, the community policing or democratic policing model of 'Janamaithri Suraksha Project' in Kerala helped in crime reduction and enhanced the image of the enforcement agencies in the eyes of the public.
- **Complexity in decision making:** To arrive at any moral decisions, the police have to consider a complex array of actions such as the goodness and badness of a person, the motivation and intentions of his/her action, and its different consequences.
 - ♦ For example, ethical dilemmas faced by police officers whether to grant bail to habitual offenders or to keep him/her as an undertrial in jail.
- **Rule of law:** Also, while making such complex decisions, the police community has to follow the respective laws of the land and adhere to the standard operating procedures (SOPs) and protocols put in place for them. Also, the nexus between politicians, police, and criminals threatens the rule of law in India.
 - ♦ For example, in 2019 Hyderabad fake encounters or extrajudicial killings by police officers.
- **Emotional Intelligence:** Policing involves a higher risk of danger or hostility in the performance of the duty. Also, police officers in the course of their work are more likely to

experience a range of emotions like fear, anger, suspicion, excitement, thrill, and boredom than public servants in other occupations.

- ♦ Thus, to perform their duties as effectively as possible, police must be emotionally intelligent and respond to this array of emotions in the right way. For example, suicides by IPS Officers in India.
- **The National Human Rights Commission, 1998** opined that the police must be "low in authority and high in accountability" in a democratic society. Also, the definition of police ethics and police institutions exist to serve the highest of moral purposes such as to protect the rights to life, liberty, and property of citizens in a democratic polity.
 - ♦ That is why human rights protection is a core police function. For example, proactive responses to instances of eve teasing in Patna (Bihar) by IPS Officer Shivdeep Lande.
- **Good ends and problematic means:** Gandhian ethics propagates the idea of the ethicality of both means and ends in ethics and human interface. However, in practice police routinely employ harmful methods such as coercion and deception in the exercise of their law and order duties.
 - ♦ This inconsistency between good ends and problematic means sets up a dangerous unethical precedent and moral dynamic.
 - ♦ For example, the suspension of IPS Officer Amrit Paul over corruption charges in the PSI recruitment scam case.
- **Political Interference:** Politicians frequently use transfer and suspension as means for police officers to fall in line. Suspension serves as a form of humiliation and transfers cause financial loss and disruption to the policeman's family.
 - ♦ Transfers in many cases are carried out without even consulting the relevant senior police officer.
- **Politicization of the police:** As per the Padmanabhan committee, major reasons for the politicization of the police are the lack of a proper tenure policy for the posting of officers at different levels and misuse of the arbitrary postings and transfers for political gains.
 - ♦ For example, the appointment of K. Annamalai, a former IPS Officer as the new Chief of a national party in Tamilnadu.
- **Threat to good governance:** When the rule of law gets replaced by the rule of politics, it demoralizes honest and competent police officers trying to renovate Indian police institutions. This ultimately threatens the establishment and sustenance of ethical governance in India.

- For example, misuse of the Central Bureau of Investigation (CBI), Narcotics Control Bureau (NCB), Enforcement Directorate (ED), etc. institutions to suppress dissenting voices and settle political scores.
- **Disturbed Chain of Command:** Punitive measures by political masters severely affects the police morale and damages the intra-organizational chain of command. This in turn undermines the authority of their superiors who despite being honest, competent, and fair-minded, cannot be supportive or politically useful.
 - For example, frequent cases of mistrust and animosity between IPS Officers, local politicians and state service officials.
- **Gender disparity:** Policing in India is considered as one of the most male dominated professions in the world. Women in general are perceived as a soft gender or weaker sex and one needing protection. Policing in contrast is a demanding job involving long and uncertain hours of duty. Thus, women are underrepresented and are not assigned significant field missions yet.
 - However, a leading example of exception to general misconceptions was Kiran Bedi. As an IPS officer she strived for excellence in her policing duties. Her transformation of Tihar jail (Asia's largest prison) and that of the inmates became a success model.
- **Model Police Act:** The Government of India needs to fulfill its promise of bringing a Model Police Act based on the recommendations of the Sorabjee Committee.
- Thus, it is pertinent that policing should involve development of right ethical attitudes and moral approaches to solve problems relating to integrity and probity in public life. Police officers also need to evolve unique problem-solving perspectives in their highly challenging areas of operations during investigation and law & order duties.

VERSTEHEN (UNDERSTANDING)

The german word 'verstehen' which means understanding was in News Recently.

About:

- The concept of Verstehen or 'understanding' was popularized by sociologist Max Weber.
- As per this concept, analysis of human actions cannot be done only with the research methods followed in natural sciences with 'absolute objectivity'.
- In Weber's views, a variety of human actions can be interpreted through recognition and empathy as it will provide a better understanding of social phenomena in society.

Ethics and Human Interface:

- For a rightful and detailed understanding, a social observer or researcher needs to put themselves in the position of the individual observed. It will enable them to see and comprehend the meanings behind the person's action and the meanings attached to the person's motivation, purpose, or outcomes of actions.
 - **For example,** Gandhiji's decisions like choosing salt for Civil Disobedience Movement, living semi-clothed life in Ashram, etc. were based on the understanding of Indians' problems and a sense of deeper empathy for the Antyodaya (Talisman).
- Human actions have different meanings in different cultures and societies. Therefore, without proper understanding, the observer might misinterpret human gestures and actions.
 - **For example,** various body gestures like handshakes, hugs, waving, clapping, holding hands together for *Namaste*, bowing head slightly, way of group communication, etc. has different meanings in different countries and cultures.

Types of Verstehen (Understanding):

- **Direct observational understanding:** In this type, a researcher observes an individual's actions. By simply observing, one can confirm and determine the meaning of the action taken.
 - **For example,** Observing someone playing, singing, writing, etc. However, observational understanding alone is not sufficient to explain human action.

Way Forward:

- **The Shah Commission of Inquiry report 1978** recommended the government to consider the viability and desirability of insulating the police from the politics in India and to devote their attention on police duties. By law, it can be intended to stop political interference.
- **National Police Commission:** To protect the police from outside political influences, the National Police Commission had offered a number of important suggestions. They can be implemented for systemic reforms in policing.
- **The National Human Rights Commission (1998)** recommendation for police practice to comply with carefully worked out ethical principles of necessity and proportionality. To balance the moral rights of victims with those of suspects should also be followed.
- **Supreme Court directives in Prakash Singh judgment:** The directives given by the Supreme Court were; constitution of State Security Commissions, separation of investigation and law & order duties, fixed tenure of 2 years, setting up of Police Establishment Board and Police Complaints Authority etc. They should be implemented in a timely manner for the ethical functioning of policing in India.
- **Soli Sorabjee committee:** The committee had recommended on October 30, 2006 "to enable the police to operate as an efficient, effective, people-friendly, and responsive agency."

- **Empathetic understanding:** In this type, a researcher tries to understand the meaning of an act with respect to the motives or reasons behind the act. To understand the real motives or underlying reasons well, Weber advocated that one had to “get into the shoes” of the people doing the action.
 - ♦ **For example,** Playing or singing as a leisure activity or as a profession, are the performers enjoying themselves or are the actions based on responsibility or duty, etc.

The Motives behind Social Action:

- Structural transition in society is determined by social action. The causes and meanings related to social action are important in understanding what pushes social change.
 - ♦ **For example,** the menace of open defecation can be tackled only when behavioral change is induced within communities in rural and semi-urban areas. Meta-son preference will continue to exist as long as human societies don't inculcate and promote the idea of gender equality.
- According to Weber, social changes occur when any society encourages certain types of motives for individual actions. This evidently makes human actions equally relevant in understanding the phenomenon of social change.
 - ♦ **For example,** in his book 'The Protestant Ethic and the Spirit of Capitalism, Weber explained how the emergence of Calvinism (a branch of Protestantism) promoted frugal living, the habit of saving money, and investments in the business.
 - ♦ This happened because success and profit-making were attributed to God's satisfaction with the person's actions. This religious idea eventually led to the emergence of capitalism in northern Europe in the 16th and 17th centuries.

Types of Social Actions:

According to Weber, there are four ideal types of social actions.

- **Traditional social action:** It refers to actions controlled and regulated by socio-cultural norms in society.
 - ♦ **For example,** inter-caste and inter-religious marriages are still resisted in modern societies due to adherence to traditional social norms.
- **Affective social actions:** These actions are determined by one's emotional state wherein one might not think of the consequences of actions.

- ♦ **For example,** widespread hate speeches by politicians and community leaders have far-reaching consequences of disturbing social stability and communal harmony.
- **Value rational social actions:** These actions are determined by a conscious belief in the inherent value of a certain type of behavior.
 - ♦ **For example,** Pandit Din Dayal Upadhyay's belief and propagation of the ethical tenet of 'integral humanism'.
- **Instrumental rational social actions:** These actions are carried out to achieve a certain goal.
 - ♦ **For example,** Civil Rights Movement by Martin Luther King Jr. was directed at eliminating the worst form of racial discrimination and exploitation meted out to the African-American community in the U.S.

Multi-faceted nature of Social Actions:

- However, it must be noted that no social action is purely just one of the four types. These types simply serve as a means to look at real actions and help in their categorization.
- While the 21st-century modern society values efficiency and utilitarianism and encourages instrumental rational social actions, it is also important to pay attention to other social aspects influencing human actions.
 - ♦ **For example,** social issues like surrogacy, euthanasia, punishment of juveniles, media trials, LGBTQ recognition as a mainstream gender, etc. have complex ethical and moral connotations.

Way Forward:

- Modern human societies need to have a better and deeper understanding of social cues, cultural differences, intergenerational gaps, and religious norms of various communities and strive for peaceful and harmonious coexistence.
- Taking important lessons from the lives of great saints, leaders, and reformers like Gandhiji's 7 Sins, Gautam Buddha's 'Madhyam Marga', Gurunanak's speaking truth without fear and Islam's advocacy of philosophical reflection upon moral conduct, etc. can help individuals and societies in practicing and cherishing the life of humanity and compassion.

ALLURI SITARAMA RAJU

Recently the Prime Minister unveiled a 30-foot-tall bronze statue of Alluri Sitarama Raju at Bhimavaram in Andhra Pradesh.

About:

- The 125th birth Anniversary of Alluri coincides with the 75th Independence year of India.
- While inaugurating the statue, Prime Minister felicitated Alluri Sirama Raju, Alluri's nephew, and Bodi Dora, son of Alluri's close lieutenant Mallu Dora.

Alluri Sitarana Raju:

- **Early Life:** Alluri Sitarama Raju was born in 1897 in a village called Mogallu near Bhimavaram in Andhra Pradesh.
- Alluri is best remembered for leading the Rampa Rebellion against the British.
- In this rebellion he organised the tribal people of Visakhapatnam and East Godavari districts to revolt against the foreigners.
- He was inspired by the revolutionaries of Bengal to fight against the British Government.
- His best achievements are considered to be organising Adivasis against the atrocities by the police, the forest and revenue officials and extensively toured the 'Manyam' area.
- He made the owners aware of the forest produce and prepared them to fight against the oppressive Madras Forest Act, 1882.
- When he organised tribals to defend their rights on the produce, he gained tremendous understanding of the terrain that had helped him a great deal in his future guerrilla war against the British forces.

Role in Freedom Struggle:

- Sitarama Raju was not from tribal community but understood the restrictions that the British colonial administration placed on the tribal way of life.
- From his childhood Raju channelled the discontent of the hill people in Ganjam, Visakhapatnam, and Godavari into a highly effective guerrilla resistance against the British.
- Colonial rule threatened the tribals' traditional podu (shifting) cultivation, as the Government sought to secure forest lands.
- The Forest Act of 1882 banned the collection of minor forest produce such as roots and leaves, and tribal people were forced into labour for the colonial government.

- Strong anti-government sentiment, shared by the muttadars who were aggrieved by the curtailment of their powers by the British, exploded into armed resistance in August 1922.
- Several hundred tribals led by Raju attacked the Chintapalle, Krishnadevipeta and Rajavommangi police stations in the Godavari agency.

RAMPA REBELLION OR MANYAM REBELLION

- The Rampa Rebellion of 1922, also known as the Manyam Rebellion.
 - It was a tribal uprising, led by Alluri Sitarama Raju in Godavari Agency of Madras Presidency, British India.
- The Rampa administrative area was home to about 28,000 tribes.
 - These tribes followed the 'Podu' system of cultivation, whereby every year some amounts of forest tracts were cleared for cultivation, as it was their only source for food.
 - While for the tribes, the forests were essential for their survival, the Britishers wanted to evict them so that they could plunder these areas for wood, which would eventually help in building their railways and ships.
 - To get the forests cleared, 'The Madras Forest Act, 1882' was passed, thereby restricting the free movement of the tribal communities and prohibiting them from engaging in their traditional Podu agricultural system.
 - This oppressive order was the beginning of the Manyam Rebellion.
- It began in August 1922 and lasted until the capture and killing of Raju in May 1924.

Legacy:

- Sitarama Raju is a symbol of India's culture, tribal identity, valour, ideals and values.

BUDDHISM

Archaeological Survey of India (ASI) has taken up the conservation work of the Ancient Buddhist site on the bank of Bhima River near Kanaganahalli in Karnataka.

About:

- In the process of clearing the debris, they discovered an Ashokan edict which put the villages on the world map.

- The Edicts of Ashoka are 33 inscriptions engraved on pillars, large stones, and cave walls by Ashoka the Great (r. 268-232 BCE).
- The edicts convey the message that the people should adhere to the concept of Dhamma, defined as “right behavior”, “good conduct” and “decency toward others”.
- A Maha Stupa has been discovered which was referred to as Adholoka Maha Chaitya (the Great Stupa of the netherworlds) in the inscriptions and, more significantly, the stone-portrait of Emperor Ashoka, surrounded by his queens and female attendants.
 - The Maha Stupa is believed to have been developed in three constructional phases – Maurya, Early Satavahana and Later Satavahana periods stretching from 3rd Century B.C. to 3rd Century A.D.
 - The Stupa is believed to have been destroyed in an earthquake.
- The recoveries included around 60 dome slabs with the sculptural rendering of Jataka stories.
- Satavahana monarchs and certain unique depictions of Buddhist missionaries sent by Ashoka to different parts;
- 72 drum-slabs decorated with a variety of Dharma-Chakras, Stupas, the first sermon, Bodhi-tree, Naga Muchulinda, Vihara complexes;
- Over 10 inscribed sculptures of the Buddha, over a dozen Buddha-Padas;
- Parts of sculptures of Yakshas and lions and 250 Brahmi inscriptions with varied paleographical features.
 - The Brahmi script is the earliest writing system developed in India after the Indus script.
 - It is one of the most influential writing systems; all modern Indian scripts and several hundred scripts found in Southeast and East Asia are derived from Brahmi.
- This is connected to “karma,” which refers to how a person’s good or bad actions in the past or in their past lives can impact them in the future.
- There are two main groups of Buddhism: Mahayana Buddhism and Theravada Buddhism.
- Mahayana Buddhism is common in Tibet, China, Taiwan, Japan, Korea, and Mongolia.
 - It emphasizes the role models of *bodhisattvas* (beings that have achieved enlightenment but return to teach humans).
- Theravada Buddhism is common in Sri Lanka, Cambodia, Thailand, Laos, and Burma (Myanmar).
 - It emphasizes a monastic lifestyle and meditation as the way to enlightenment.

STATE EMBLEM

Recently, the first look at the State Emblem atop the New Parliament House was revealed.

About:

- The Prime Minister recently gave the nation a first glimpse of the State Emblem atop the new Parliament House coming up as part of the Central Vista Project.
- The lions on the new 9,500 kg emblem appear to be angry, with their fangs visible, as opposed to the grace and glory of the original. Many found it to be a distortion of the actual emblem.

State Emblem

- The State emblem is an adaptation from the Sarnath Lion Capital of Ashoka.
- **Sarnath Lion:** In the original, there are four lions, standing back to back, mounted on an abacus with a frieze carrying sculptures in high relief of an elephant, a galloping horse, a bull, and a lion separated by intervening wheels over a bell-shaped lotus.
 - Carved out of a single block of polished sandstone, the capital is crowned by the Wheel of the Law (Dharma Chakra).
- **State Emblem:** Adopted by the Government of India on 26 January 1950, only three lions are visible, the fourth being hidden from view.
 - The wheel appears in relief in the center of the abacus with a bull on right and a horse on the left and the outlines of other wheels on the extreme right and left.
 - The bell-shaped lotus has been omitted.
 - The words Satyameva Jayate from Mundaka Upanishad, meaning ‘Truth Alone Triumphs’, are inscribed below the abacus in the Devanagari script.

Buddhism:

- Buddhism is one of the world’s largest religions and originated in India in 563–483 B.C.E. with Siddhartha Gautama.
- Buddhists believe that human life is a cycle of suffering and rebirth, but that if one achieves a state of enlightenment (nirvana), it is possible to escape this cycle forever.
- Siddhartha Gautama was the first person to reach this state of enlightenment and was, and is still today, known as the Buddha.
- Buddhists do not believe in any kind of deity or god, although there are supernatural figures who can help or hinder people on the path towards enlightenment.
- Buddhists believe in a wheel of rebirth, where souls are born again into different bodies depending on how they conducted themselves in their previous lives.

- **Symbolism**

- ♦ **Sarnath Lion:** The four lions of the capital joined back to back, symbolize stress on equality and justice in all spheres of life.
 - The four lions are also representative of the four core spiritual philosophies of Buddha since Buddha himself is symbolized as a lion.
 - The circular wheel in the middle is a form of Buddhist Dharma Chakra and is known as the Ashok Chakra after the emperor popularized it.
- ♦ **State Emblem:** The three lions visible on the capital's representation in the State Emblem signify Strength, Courage, and Confidence. It also signifies constant vigilance over all four directions.
 - The 24 spokes of the Chakra represent the number of hours in a day and portray the passage of time.
 - The spokes signify moving forward in life and thus one avoids stagnation of the mind.
 - The four animals depicted alternatively between the chakras are regarded as the guardians of four directions - the lion for the north, the elephant for the east, the horse for the south, and the bull for the west.

Legal Provisions related to State Emblem:

- **The State Emblem of India (Prohibition of Improper Use) Act, 2005:** It is an act to prohibit the improper use of State Emblem of India.
 - ♦ The act extends to the whole of India, and also applies to citizens of India outside India.
 - ♦ no person shall use the emblem or any colourable imitation thereof in any manner which tends to create an impression that it relates to the Government.
 - ♦ No person shall use the emblem for the purpose of any trade, business, calling or profession or in the title of any patent.
 - ♦ The Union Government may make such provision by rules as appears to it to be necessary, to regulate the use of the emblem in official seal.
 - ♦ There is a provision to penalize the individual if the provisions of the act are contravened.

UNESCO PANEL ON INTANGIBLE CULTURAL HERITAGE

India has been elected to the Intergovernmental Committee of UNESCO's 2003 Convention for the Safeguarding of the Intangible Cultural Heritage (ICH).

About:

- During the 9th General Assembly of the 2003 Convention held at UNESCO headquarters, Paris, the elections for the Intergovernmental Committee took place.

- India has previously served as a member of the ICH Committee twice from 2006 to 2010 and from 2014 to 2018.
- Against the four seats falling vacant within the Asia-Pacific group, six countries, namely, India, Bangladesh, Vietnam, Cambodia, Malaysia, and Thailand had presented their candidature.
- India received 110 votes from the 155 State Parties that were present and voting.

INTANGIBLE CULTURAL HERITAGE

- **Intangible cultural heritage ("ICH"):** According to UNESCO, ICH refers to the practices, representations, expressions, knowledge, and know-how, transmitted from generation to generation within communities, created and transformed continuously by them, depending on the environment and their interaction with nature and history.
 - ♦ **Heritage**, as it is transmitted from generation to generation.
 - ♦ **Cultural**, as it provides communities a sense of identity and continuity, as culture does.
 - ♦ **Intangible**, as it lies essentially in the human spirit, is transmitted by imitation and immersion in practice, and doesn't necessarily require a specific place or material objects.
- Intangible cultural heritage exists only in the present. The expressions of the past that are no longer practiced are part of cultural history but are not intangible cultural heritage as defined in the Convention for the Safeguarding of Intangible Cultural Heritage.
 - ♦ Intangible cultural heritage is what communities today recognize as part of their cultural heritage. Therefore, it is often called "living heritage".

UNESCO:

- **Establishment:** in 1945, at London, United Kingdom representatives of forty-four countries decided to create an organization that would embody a genuine culture of peace.
- **Founding vision:** To establish the "intellectual and moral solidarity of mankind" and thereby prevent the outbreak of another world war.
- **Current vision:** UNESCO stands for United Nations Educational, Scientific and Cultural Organization.
 - ♦ It seeks to build peace through international cooperation in education, sciences, and culture.
 - ♦ UNESCO's programmes contribute to the achievement of the Sustainable Development Goals defined in the 2030 Agenda, adopted by the UN General Assembly in 2015.

UNESCO's Convention for the Safeguarding of the Intangible Cultural Heritage:

- It was adopted in 2003.
- **The purposes of this Convention are:**
 - ♦ to safeguard the intangible cultural heritage;
 - ♦ to ensure respect for the intangible cultural heritage of the communities, groups, and individuals concerned;
 - ♦ to raise awareness at the local, national, and international levels of the importance of the intangible cultural heritage, and of ensuring mutual appreciation thereof;
 - ♦ to provide for international cooperation and assistance.
- **Organs of the Convention**
 - ♦ **General Assembly of States Parties:** It is the sovereign body of this Convention.
 - ♦ **Intergovernmental Committee:** The Committee consists of 24 members.
 - It is elected in the General Assembly of the Convention according to the principles of equitable geographical representation and rotation.
 - States Members to the Committee are elected for a term of four years.
 - ♦ Some of the core functions of the Intergovernmental Committee include:
 - Promoting the objectives of the Convention,
 - Providing guidance on best practices, and
 - Making recommendations on measures for the safeguarding of intangible cultural heritage.
 - The Committee also examines requests submitted by States Parties for the inscription of intangible heritage on the Lists as well as proposals for programmes and projects.

Some of the priority areas that India will focus upon include:

- Fostering community participation and strengthening international cooperation through intangible heritage.
- Promoting academic research on intangible cultural heritage,
- Aligning the work of the Convention with the UN Sustainable Development Goals.

The Significance of India's Election to the Convention:

- As a member of the intergovernmental committee, India will have the opportunity to closely monitor the implementation of the 2003 Convention.
- With the aim of strengthening the scope and impact of the Convention, India seeks to mobilize the capacity of different actors worldwide in order to effectively safeguard intangible heritage.
- Noting the imbalance in the inscriptions on the three lists of the Convention, India shall endeavor to encourage international

dialogue within the State Parties to the Convention in order to better showcase the diversity and importance of living heritage.

MODHERA SUN TEMPLE

The Ahmedabad Railway Station will be developed on the theme of Modhera Sun Temple in the next five years.

About:

- Modhera Sun Temple is located in Mehsana, neighbouring Ahmedabad district.
- **Built in the 11th century** during the **Chalukya dynasty** in honor of the Sun God, it is one of the major tourist destinations in North Gujarat.
- Situated on the banks of **Pushpavati River**.
- It is surrounded by a terra-formed garden of flowering trees and songs of birds.
- The remains of the Sun Temples at Modhera are relics of times gone by when **reverence of the natural elements fire, air, earth, water** and sky were at their peak sharing space with myriad manifestations of Vedic gods.

PADMANABHASWAMY TEMPLE

Recently, the Supreme Court extended the time for completion of the special audit of 25 years of accounts of Sree Padmanabhaswamy temple and its trusts to August 31, 2022.

About:

- The origin of the Temple of Sree Padmanabhaswamy is lost in antiquity.
 - ♦ Some Historians say the temple dates back to the 8th century but the present structure was built in the 18th century by the then Travancore Maharaja Marthanda Varma.
- It is the only major temple structure in Kerala that represents an amalgamation of the Dravidian style of architecture and the indigenous features of the architecture of Kerala.
- It is one of the most famous Vaishnava Shrines of South India and is one of the few temples where Lord Vishnu is represented in the reclining form lying on Adishesha and Brahma the creator, seated on a lotus that stems from the navel of Lord Vishnu.
- **Features**
 - ♦ The Gopuram or the gateway of this temple is very similar to the temples of Dravidian style mostly found in Tamil Nadu.
 - No other major temple in Kerala has a Gopuram of such an elaborate nature.

AZORES HIGH

According to a new study, an extremely large 'Azores High' (a subtropical weather phenomenon) has resulted in abnormally dry conditions across the western Mediterranean.

About:

- Azores High is a subtropical high pressure system that extends over the eastern subtropical North Atlantic and western Europe during winter.
- It is associated with anticyclonic winds in the subtropical North Atlantic and is formed by dry air aloft descending the subtropics and coincides with the downward branch of the Hadley Circulation.
- The researchers showed that the Azores High expansion is driven by external climate forces and that the only external forcing that produces this signal in the industrial era is atmospheric greenhouse gas concentrations.

Associated Weather:

- An annual drying of 5-10 millimetres per year per decade has been recorded in the Iberian Peninsula throughout the second half of the 20th century.
- A further 10-20 per cent drop in winter precipitation is expected by the end of the 21st century.
- These projected changes make agriculture of the Iberian region some of the most vulnerable in Europe. The study projected:
 - ♦ Olive-growing regions in southern Spain will suffer a 30 per cent decline in production by 2100.
 - ♦ Cultivation area in grape-growing regions across the Iberian Peninsula will shrink 25-99 percent by 2050 due to severe water deficits that will render land unsuitable for viticulture.

Frequent Azores High Area events:

- The study identified a robust increase in the frequency of extremely large Azores High Area (AHA) events and an overall expansion signal in the winter Azores High over the past 100 years.
- Azores High expansion emerged after 1850 and strengthened in the twentieth century, consistent with anthropogenically driven warming.
- An expanding Azores High agrees with reports of a poleward shift in the North Atlantic storm track and an increase in

anticyclone frequency at the Azores High's poleward edge as well as a positive trend in regional subtropical indicators.

DIGI YATRA PROJECT

Consultative Committee of Ministry of Civil Aviation discussed 'DIGI YATRA' project.

About:

- It is a project conceived to achieve contactless, seamless processing of passengers at Airports, based on Facial Recognition Technology (FRT).
- The project basically envisages that any traveller may pass through various checkpoints at the airport through a paperless and contactless processing, using facial features to establish the identity which would be linked to the boarding pass.
- The privacy issues have been taken care of in the system.
- It provides a decentralised mobile wallet-based identity management platform which is cost effective and addresses privacy/data protection issues in implementation of Digi Yatra.
- **Proposal for first phase,**
 - ♦ In the first phase, Digi Yatra is proposed to be rolled out at two Airports namely Varanasi and Bengaluru in August 2022 and at five Airports namely Pune, Vijayawada, Kolkata, Delhi and Hyderabad by March next year.

DIGI YATRA FOUNDATION (DYF)

- It has been set up as a joint venture (JV) company in 2019 under Section 8 of the Companies Act, 2013 whose shareholders are AAI (26% shares) and BIAL, DIAL, GHIAL, MIAL and CIAL.
- These 5 shareholders equally hold the remaining 74% of the shares. The Foundation was formed, with the objective of creating the Digi Yatra Central Ecosystem (DYCE).
- Digi Yatra Foundation will be a pan-India entity and the custodian of the Passenger ID validation process.

PRADHAN MANTRI NATIONAL APPRENTICESHIP MELA

Pradhan Mantri National Apprenticeship Mela was held in the month of July under the ambit of the Prime Minister's Skill India Mission.

About:

- It is being organised by the Ministry of Skill Development and Entrepreneurship (MSDE).
- It is a one-day event hosted across multiple locations that features 36 sectors and more than 1000 companies.
- It is being held every month to boost career opportunities and practical training for apprentices.
- **Major Goals:** The main purpose of this programme is to encourage companies to hire more apprentices.
 - ♦ It also assists employers in discovering and developing their potential via training and practical skill set.
 - ♦ It increases employment opportunities for apprentices and improves their skill set.
- **Eligibility Criteria:** Candidates must have a 5th-12th grade pass certificate, a skill training certificate, an ITI Diploma, or a graduate degree to participate.
 - ♦ Candidates will also earn National Council for Vocational Education and Training (NCVET)-recognized certifications, improving their employability after the training.
 - ♦ Under this selected individuals will receive a monthly stipend in accordance with government criteria for gaining new skills.

PM SKILL INDIA MISSION

- It seeks to train over 40 crore Indians in different industry-related jobs.
- The vision is to create an empowered workforce by 2022 with the help of various schemes and training courses.
- It was launched by the Union Government in 2015.
- It is chaired by the Prime Minister.
- It includes initiatives such as National Skill Development Mission, Pradhan Mantri Kaushal Vikas Yojana (PMKVY) scheme, Skill Loan scheme etc.

INDIA INNOVATION INDEX, 2022

Third edition of the Innovation Index was released by NITI Aayog.

About:

- Karnataka has bagged the top rank in the Major States category.
 - ♦ It has topped in this category in all three editions of the Index so far.

- Manipur was the top performer in the Northeast and Hill States category.
- Chandigarh was the top performer in the Union Territories and City States category.
- Chhattisgarh, Odisha, Bihar and Gujarat were at the bottom of the index.

India Innovation Index:

- It is prepared by the NITI Aayog and the Institute for Competitiveness.
- **Purpose:** It ranks the states and the union territories on their innovation performance to build healthy competition amongst them.
 - ♦ It highlights the scope of innovation analysis in the country by drawing on the framework of the Global Innovation Index.
 - ♦ It contributes to the Government's effort to monitor select global indices through the Global Indices to drive Reform and Growth (GIRG) mechanism, for which the NITI Aayog is the nodal organization.
- **Major Pillars:** Index is prepared on seven key pillars which were further classified as five "enabler" and two "performance" pillars.
 - ♦ Five 'Enabler' pillars that measure inputs are: human capital, investment, knowledge workers, business environment, and safety and legal environment.
 - ♦ Two 'Performance' pillars that measure output are: knowledge output, and knowledge diffusion.
 - ♦ The indicators are now distributed across 16 sub-pillars, which, in turn, form seven key pillars.
 - ♦ The number of indicators has increased from 36 (in the India Innovation Index 2020) to 66 (in the India Innovation Index 2021).
- **Benefits of the Index:** Innovation is critical in promoting the country's resilience and self-reliance. It can help us in:
 - ♦ Poverty Alleviation
 - ♦ Generating livelihood opportunities
 - ♦ Contributing towards Aatmanirbhar Bharat
- **Major Findings:** India's average innovation score is arguably insufficient, given the country's ambitious targets to be named among the top 25 nations in the Global Innovation Index.
- **Major Recommendations:** Increasing Gross Domestic Expenditure on R&D (GDERD).
 - ♦ Promoting private sector participation in R&D.
 - ♦ Closing the gap between industry demand and what the country produces through its education systems.

DATA RECAP

UNLOCKING THE SPACE SECTOR

- India accounts for only about 2% of the global space economy.
- India has 368 private space firms, making it 5th in the world after the US, the UK, Canada and Germany.

NATIONAL FOOD SECURITY RANKING

- Overall Ranking:** Odisha, Uttar Pradesh and Andhra Pradesh secured the top three positions in the Index.
- special category states:** Tripura, Himachal Pradesh and Sikkim secured the top three positions.
- UTs:** Dadra and Nagar Haveli & Daman and Diu is the top ranked UT.

GROUP OF SEVEN (G7)

- The members of G7 are Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.

DRAFT NATIONAL POLICY FOR PERSONS WITH DISABILITY (PwD), 2021

- According to the 2011 Census:** 2.21 percent of the Indian population has some form of disability, compared to the global average of 15%.
- Literacy rate:** 55 percent (male 62%, female 45%). Only about 5% of PwDs have a graduate degree or higher.
- Employment:** Roughly 36% of all PwDs are employed (male-47%, female-23%).

MARBURG VIRUS DISEASE

- Family:** Filoviridae
- Genus:** Marburgvirus
- It is a zoonotic disease.
- Animal reservoir in nature for the Marburg virus is the African fruit bat.

GENETICALLY MODIFIED (GM) CROPS

- Bt cotton is the only GM crop that has been approved for commercial cultivation.
- USA, Brazil, Argentina, India and Canada are five top GM growing countries.
- In 2014 India became the fourth largest cultivator of GM crops by acreage and second largest producer of cotton.

G-20

- The G-20 is a strategic multilateral platform.
- The G-20 countries include 60 percent of the world's population, 80 percent of global GDP, and 75 percent of global trade.
- The G-20 has no permanent secretariat.

MODHERA SUN TEMPLE

- Located in Mehsana, neighbouring Ahmedabad district.
- Built in the 11th century during the Chalukya dynasty in honor of the Sun God.

PADMANABHASWAMY TEMPLE

- Only major temple structure in Kerala that represents an amalgamation of the Dravidian style of architecture and the indigenous features of the architecture of Kerala.
- It is one of the few temples where Lord Vishnu is represented in the reclining form.

SUB-CATEGORISATION OF OBCS

- 97% of all jobs and educational seats have gone to just 25% of all sub-castes classified as OBCs.
- 24.95% of these jobs and seats have gone to just 10 OBC communities.
- 37% of the total — have zero representation in jobs and educational institutions.
- 994 OBC sub-castes have a total representation of only 2.68% in recruitment and admissions.

KHEJRI (PROSOPIS CINERARIA)

- Prosopis cineraria, locally called as Khejri or Jandi is an indigenous tree.
- Khejri is the state tree of Rajasthan
- The tree is also present in the Middle East region and is called Ghaf Tree.
- It covers about two-thirds of the total geographical area of Rajasthan.

ECOLOGICAL SIGNIFICANCE OF RAINFORESTS

- Provide habitat to more than half of the world's plant and animal species on just 6% of Earth's surface.

- It makes half of the Earth's wildlife & two-thirds of its plant species.
- These rainforests are called "the lungs of the earth".
- The Amazon Rainforest produces approximately 20 percent of the world's oxygen.
- **Tropical Rainforests:** found in Central and South America, western and central Africa, western India, Southeast Asia, the island of New Guinea, and Australia.
- **Temperate Rainforests:** The Pacific coast of North America, the southeast coast of Chile, South America, small parts in the U.K., New Zealand, Japan, South Australia, and Norway.

NAIROBI FLIES

- Species of insect native to East Africa also called Kenyan flies or dragon bugs.
- Belong to two species, *Paederus eximius* and *Paederus sabaeus*.

RED PANDA

- Red pandas are considered an indicator species for ecological change.
- Almost 50 per cent of the Red Panda's habitat is in Eastern Himalayas.
- They live in the rainy mountain forests of Nepal, India, Bhutan, Northern Myanmar (Burma), and Central China.

- in India, it is found in Sikkim, western Arunachal Pradesh, Darjeeling district of West Bengal and parts of Meghalaya. It is also the state animal of Sikkim.
- **IUCN Status:** Endangered
- **Indian Wildlife (Protection) Act, 1972:** Schedule-I

GLOBAL GENDER GAP INDEX, 2022

- At the current rate of progress, it will take 132 years to reach full parity.
- **Top countries:** Iceland (more than 90%), Finland (86%), Norway (84.5%), Sweden (82.2%)
- **India:** India ranks 135th out of 146.
 - ♦ **Political Empowerment:** India ranks 48 out of the 146 countries.
 - ♦ **Economic Opportunity:** India ranks 143rd out of 146.
 - ♦ **Educational Opportunity:** India ranks 107th out of 146.
 - ♦ **Healthcare services:** India is ranked the last (146th).

LABOR INDICATORS

- Compared to 4.8 percent in 2019–20, the unemployment rate dropped to 4.2 percent in 2020–21.
- The percentage of people in the labor force increased from 40.1% in the previous year to 41.6% during 2020-21.
- The worker population ratio increased from 38.2 percent to 39.8 percent over the previous year.



Test Yourself

Multiple Choice Questions

1. Consider the following statements:
 1. Green ammonia production means the process of making ammonia is 100% renewable and carbon-free.
 2. Pink hydrogen refers to hydrogen generated through electrolysis powered by nuclear energy and it is usually considered green.
 3. Grey hydrogen accounts for more than 90% of the hydrogen produced in the world todayWhich of the statements given above is/are correct?
 - (a) 1 and 2 only
 - (b) 3 only
 - (c) 1 and 3 only
 - (d) 1, 2 and 3
2. With reference to the gig economy, consider the following statements:
 1. In the gig economy, temporary and flexible jobs are more common and companies hire independent contractors instead of full-time employees.
 2. Lack of technological knowledge and inadequate digital connectivity can be a disadvantage for a labor aspiring to get employed in the gig economyWhich of the statements(s) given above is/are correct?
 - (a) 1 only
 - (b) 2 only
 - (c) Both 1 and 2
 - (d) Neither 1 nor 2
3. Consider the following statements:
 1. Under the voluntary Bonn Challenge, India has pledged to bring into restoration 13 million hectares of degraded and deforested land by 2030
 2. Permaculture and monoculture practices have increased soil degradation.
 3. Plants and soils together currently absorb an estimated 30 per cent of the CO₂ emitted by human activities each year.Which of the statements given above is/are correct?
 - (a) 1 and 3 only
 - (b) 1 only
 - (c) 2 and 3 only
 - (d) 1, 2 and 3
4. With reference to the Group of Seven (G7), which of the following statements is incorrect?
 - (a) It is an intergovernmental organization and an informal forum of the leading industrialized nations or advanced democracies.
 - (b) It has launched the Indo-Pacific Economic Initiative (IPEF) in 2022 summit held under Germany's Presidency.
 - (c) Its founding members are the United States, France, Italy, Japan, the UK, and West Germany only
 - (d) It constitutes 9.8 % of the world's population and 43.4 % of global GDP"
5. With reference to the Medical Termination of Pregnancy (MTP) (Amendment) Act, 2021; consider the following statements:
 1. It decreased the upper limit of the gestation period to which a woman can seek a medical abortion from 24 weeks.
 2. It overlaps with the provisions of the PCPNDT Act, 1994.Which of the statement(s) given above is/are correct?
 - (a) 1 only
 - (b) 2 only
 - (c) Both 1 and 2
 - (d) Neither 1 nor 2
6. Which of the following pairs are correctly matched?

Port /Place	Country
1. Duqm	- Oman
2. Assumption Island	- Seychelles
3. Sabang	- Indonesia
4. Kori creek	- Pakistan

Select the correct answer using the codes given below:
 - (a) 1 and 2 only
 - (b) 3 and 4 only
 - (c) 1, 2 and 3 only
 - (d) All of the above
7. Purchasing Managers Index (PMI), as seen in the news sometimes, gives an idea about which of the following?
 - (a) Manufacturing Sector only
 - (b) Service Sector only
 - (c) Both Manufacturing and Services Sectors
 - (d) Neither Manufacturing nor Services Sectors
8. With reference to Shrinkflation, consider the following statements:
 1. It occurs due to shrinking in the level of production of goods and services in any economy.
 2. Generally, it is also referred to as deflation or package downsizing or grammage.Which of the statement(s) given above is/are correct?
 - (a) 1 only
 - (b) 2 only
 - (c) Both 1 and 2
 - (d) Neither 1 nor 2
9. Consider the following statements:
 1. The Large Hadron Collider is a giant, complex machine built to study the smallest known building blocks of all things.
 2. The Higgs Boson is the only elementary particle with no spin.
 3. The Higgs boson gives mass to neutrinos.
 4. The Standard Model of Particle Physics is at present best theory to describe the most basic building blocks of the universe.Which of the statements given above is/are correct?
 - (a) 1, 2 and 4 only
 - (b) 1, 3 and 4 only
 - (c) 2 and 4 only
 - (d) 1 and 4 only
10. With reference to the Nairobi Flies, Consider the following statements:
 1. It is a species of insect native to Japan.
 2. They release a potent acidic substance that causes burns on human skin.
 3. They belong to two species, *Paederus eximius* and *Paederus sabaeus*.

Which of the statements given above is/are correct?

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

11. Consider the following statements:

1. Dark matter is made up of particles that do not have a charge.
2. Dark Matter is a repulsive force that drives the universe's ever-accelerating expansion.
3. 95% of the universe is made up of dark matter and dark energy.
4. Dark Matter is a more dominant force than Dark Energy.

Which of the statements given above is/are correct?

- (a) 1 and 4 only (b) 1 and 3 only
(c) 2, 3 and 4 only (d) 1, 3 and 4 only

12. Consider the following statements:

1. Genetic Modification is a technology that involves inserting DNA into the genome of an organism.
2. Bt cotton is the only genetically modified crop that has been approved for commercial cultivation in India.
3. Maize with herbicide tolerance and insect resistance is one of the major GM crops grown around the world.
4. The Genetic Engineering Appraisal Committee is responsible for authorizing large-scale trials and environmental release of genetically modified organisms in India.

Which of the statements given above is/are correct?

- (a) 1 and 2 only (b) 1, 2 and 3 only
(c) 2, 3 and 4 only (d) 1, 2, 3 and 4

13. With reference to the Derecho, Consider the following statements:

1. A derecho is a straight-line windstorm that is associated with a band of rapidly moving showers or thunderstorms.
2. It is a cold-weather phenomenon.
3. For a storm to be classified as a derecho it must have wind gusts of at least 93 km per hour.
4. A serial derecho is associated with a short line of thunderstorms that may travel for hundreds of miles along a relatively narrow path.

Which of the statements given above is/are correct?

- (a) 1 and 2 only (b) 1 and 3 only
(c) 3 and 4 only (d) 2 and 4 only

14. Consider the following statements:

1. The 2022 Central Consumer Protection Authority (CCPA) guidelines are an extension of the 2017 guidelines.
2. The Consumer Protection Act 2019, has no provision regarding the product liability.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

15. With reference to the Central Consumer Protection Authority of India, consider the following statements:

1. It is a regulatory body established as per the provisions of the section 10(1) of the Consumer Protection Act, 2019.
2. It works under the administrative control of the Ministry of Consumer Affairs.
3. The body consists of one Chief Commissioner as head & four other Commissioners.

Which of the statements given above is/are correct?

- (a) 2 and 3 Only (b) 1 and 2 Only
(c) 1 and 3 Only (d) 1, 2 and 3

16. With reference to the labor codes, consider the following statements:

1. Preparation of draft rules by the Centre and half of the States is sufficient for their rollout.
2. Most of the states have not drafted rules for the Occupational Safety, Health and Working Conditions Code, 2020

Which of the statement(s) given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

17. Which of the pollutants given below are common to both National Air Quality Index (AQI) and National Ambient Air Quality Standards (NAAQS)?

- | | |
|----------------|------------|
| 1. Ozone | 2. Ammonia |
| 3. PM 2.5 | 4. Arsenic |
| 5. Benzopyrene | |

Select the correct answer from the code given below:

- (a) 1 and 2 only (b) 1 and 3 only
(c) 1, 2 and 3 only (d) 2, 3 and 4 only

18. Consider the following statements:

1. Cervical cancer is a common sexually transmitted disease.
2. It is caused by the Human papillomavirus (HPV).
3. Cervavac, India's first quadrivalent HPV, provides protection against the virus by generating antibodies against the HPV virus's L1 protein.
4. Vaccination can only be started after the age of fifteen.

Which of the statements given above is/are correct?

- (a) 2 and 3 only (b) 1, 2 and 3 only
(c) 2 and 4 only (d) 1, 3 and 4 only

19. With reference to the red Pandas consider the following statements:

1. Red pandas are shy, solitary and arboreal animals.
2. Recent evidence shows that the Himalayan red panda and the Chinese red panda are the two subspecies.
3. Almost 50 per cent of the Red Panda's habitat is in Eastern Himalayas.

Which of the statements given above is/are correct?

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

20. India Innovation Index is prepared by which of the following Ministries / Organisations?

- (a) Ministry of Education
(b) Reserve Bank of India (RBI)
(c) Ministry of Statistics and Programme Implementation
(d) NITI Aayog

21. Consider the following statements with respect to Pradhan Mantri National Apprenticeship Mela:

1. It is jointly organised by the Ministry of Skill Development and Entrepreneurship (MSDE) and NITI Aayog.
2. It seeks to boost career opportunities and provide practical training for apprentices.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

22. Consider the following statements:

1. The Edicts of Ashoka are 33 inscriptions engraved on pillars, large stones, and cave walls by Ashoka the Great.
2. Buddhists do not believe in any kind of deity or god.
3. The Brahmi script is the earliest writing system developed in India before the Indus script.

Which of the statements given above is/are correct?

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

23. Which of the following are well known applications of space technology in India?

1. Navigation
2. Remote sensing
3. Telecommunication
4. Disaster Management
5. Weather forecasting

Select the correct answer from the codes given below:

- (a) 1 and 3 only (b) 2 and 4 only
(c) 3, 4 and 5 only (d) 1, 2, 3, 4 and 5

24. With reference to Rights of Persons with Disability, consider the following statements:

1. It increased the number of disabilities from 7 to 27.
2. The Act replaces the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995.
3. It increases the quantum of reservation for people suffering from disabilities from 3% to 4% in government jobs and from 3% to 5% in higher education institutes.
4. Every child with benchmark disability between the age group of 6 and 14 years shall have the right to free education.

Select the correct answer using the code given below:

- (a) 1 and 3 only (b) 2 only
(c) 1, 2 and 4 only (d) 2 and 3 only

25. Consider the following statements:

1. The Governor General of India when railways were first introduced in India was Lord Dalhousie.
2. It was suggested by the Bibek Debroy Committee to merge the railway budget along with the annual budget.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

26. Consider the following statements:

1. The National Strategy for Sustainable Tourism has been launched in collaboration with the United Nations Educational, Scientific and Cultural Organization (UNESCO).
2. Carbon-neutral and resource-efficient tourism are among the objectives of the National Strategy for Sustainable Tourism.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

27. Consider the following statements:

1. National Anti-Doping Agency (NADA) is a statutory body established in 2005.

2. Its key objectives is to implement World Anti-Doping Agency (WADA) anti-doping rules and to promote education.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

28. Consider the following statements:

1. Enforcement Directorate (ED) is part of the Ministry of Home Affairs.
2. The main objective is enforcement of Foreign Exchange Management Act 1999 (FEMA) and the Prevention of Money Laundering Act 2002 (PMLA).
3. Recently, enforcement of FEAO was also brought under the jurisdiction of ED.

Which of the statements given above is/are correct?

- (a) 1 and 4 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3 only

29. With reference to statutory provisions for bail, consider the following statements:

1. Statutory bail is an inderfeisable right', regardless of the nature of the crime.
2. The 60 or 90-day limit is only for ordinary penal law. Special enactments allow greater latitude to the police for completing the probe.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

30. With reference to the 'Khejri Tree,' consider the following statements:

1. It is the most abundant tree species found in the Kutchh region of Gujarat.
2. Like legumes, it also fixes atmospheric nitrogen and return it to the soil.
3. It was the tree that inspired the Chipko movement in India.

Which of the statements given above are correct?

- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3

31. Which of the following are among the major objectives of the 'Draft National Policy for Medical Devices, 2022'?

1. It aims to reduce India's import dependence to nearly 30 per cent in the next 10 years.
2. It aims to decrease India's per capita spend on medical devices in the next five years.

Select the correct answer using the codes given below.

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

32. With reference to the State Ranking Index for implementation of the National Food Security Act, consider the following statements:

1. The Index has been launched by the NITI Aayog.
2. Nutrition initiatives undertaken by the States is one of the parameters used to create the Index.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

33. With reference to the nominated members of Rajya Sabha, consider the following statements:
1. A nominated member is not allowed to vote in the election of the President and the Vice-President.
 2. A nominated member is not allowed to join a political party after becoming a member of the Parliament.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
34. Consider the following statement regarding the DESH Bill:
1. It was enacted on the recommendation of the Nandan Nilekani Committee.
 2. The prime focus of the Bill is to promote exports and will not deal with the domestic market.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
35. Consider the following statements regarding the Ramsar Sites:
1. The Ramsar Convention was signed in the Turkish city of Ramsar.
 2. Nalsarovar Bird Sanctuary and Chilka lake are the only 2 Ramsar sites to be added in the Montreux Records.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
36. Consider the following statements regarding the Human-Animal Conflict:
1. Maharashtra accounts for the maximum number of deaths caused by Tiger.
 2. The Population of Asiatic lions has decreased in the last few years.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
37. Consider the following statements:
1. Mission Vatsalya is a Centrally Sector Scheme for child protection services in the country.
 2. It aims to ensure every child in India has a healthy and happy childhood and provide equal opportunities for them to reach their full potential.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
38. Which among the following institutions publishes the Global Gender Gap Index?
- (a) World Bank
(b) World Economic Forum
(c) UN Human Rights Council
(d) World Health Organization
39. How does the National Rural Livelihood Mission seek to improve the socio-economic condition of the society?
- (a) By setting up large new industries.
(b) By setting up 'Self-Help' Groups and providing upskilling
(c) By providing free chemical fertilizers to the farmers.
(d) By providing micro-irrigation facilities in rural farms.
40. With reference to CAATSA, consider the following statements.
1. It was intended to use economic sanctions only against nations with close ties to Russia.
 2. According to this Act, US President is given the authority to waive the sanctions on a case-by-case basis.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
41. Worker Population Ratio (WPR) is:
- (a) The percentage of persons employed among the persons in the Labor force.
(b) The percentage of persons unemployed among the persons in the Population.
(c) The percentage of employed persons in the population.
(d) The percentage of persons unemployed among the persons in the labor force.
42. Tajikistan shares its international boundaries with which of the following countries?
1. China
 2. Afghanistan
 3. Turkmenistan
- Select the correct code from the given below options:
- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) All of the above
43. Maritime Indo Pacific Endeavor exercise is to be held between:
- (a) India and Australia (b) India and USA
(c) India and Singapore (d) India and Japan
44. The problem of international sanctions is related to the-
1. goods and services
 2. gold and silver
 3. dollars and other hard currencies
 4. exportable surplus
- Select the correct answer using the codes given below:
- (a) 1, 2, and 3 only. (b) 1 and 2 only
(c) 1 and 3 only (d) All of the Above
45. Dragon fruit is grown in which of the following State(s) of India?
1. Rajasthan
 2. Uttar Pradesh
 3. Karnataka
- Select the correct answer using the codes given below:
- (a) 1 and 2 only (b) 1 and 3 only
(c) All of the Above (d) None of the above
46. Consider the following types of forests:
1. Reserved Forests
 2. Village Forests
 3. Protected Forests
- Which of the above is/are associated with the wasteland under the Indian Forest Act of 1927?
- (a) 1 and 2 only (b) 2 only
(c) 1 and 3 only (d) 3 only
47. Three of the following criteria have contributed to the Climate Change in North East Region in recent times:
1. Adaptation of flora and fauna to warm and humid conditions
 2. Pacific Decadal Oscillation
 3. Endemism
 4. Intensity of dry periods and droughts.

5. Threat perception
6. Heavy rainfall

Which three of the given above criterias are correct criteria in this context?

- (a) 1, 2 and 6
- (b) 2, 4 and 6
- (c) 1, 3 and 5
- (d) 3, 4 and 6

48. Consider the following statements regarding freedom fighter Alluri Sitarama Raju:

1. He was a political activist who founded the Bombay Presidency Association .
2. He led the famous "Rampa Rebellion" or Manyam Rebellion in Madras Presidency.
3. He took leadership of the Civil Disobedience Movement from south India .

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1 and 3 only
- (c) 2 only
- (d) 2 and 3 only

49. Consider the following regarding the Large Hadron Collider (LHC):

1. It is a giant, complex machine built to study particles that are the smallest known building blocks of all things.
2. The Compact Muon Solenoid is the largest general-purpose particle detector experiment at the LHC.

Which of the statements given above is/are correct?

- (a) 1 Only
- (b) 2 Only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

50. Which of the following statement/s are correct regarding critical minerals?

1. Australia is the largest producer of cobalt.
 2. Critical minerals are used in electric vehicle (EV) batteries
- Select the correct answer using the codes given below:

- (a) 1 Only
- (b) 2 Only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

51. Which of the following states topped the first-ever State Ranking Index under the National Food Security Act (NFSA)?

- (a) Kerala
- (b) Uttar Pradesh
- (c) Tamil Nadu
- (d) Odisha

52. Consider the following statements regarding Sustainable Development Goals (SDGs):

1. India is behind all south Asian nations except Pakistan in its 2021 SDG ranking.
2. SDG India Index is developed by Oxfam India in collaboration with the United Nations.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

53. Consider the following statements regarding Nominated members in Rajya Sabha:

1. They are not allowed to vote in the election of the Vice-President.
2. They can not join any political party as technically they are independent members.
3. They can take part in the proceedings of the House.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 3 only
- (d) 1, 2 and 3

54. With reference to Sustainable Development Goals (SDG), consider the following pairs:

1. **SDG 4** : Quality Education
2. **SDG 7** : Affordable And Clean Energy
3. **SDG 12** : Sustainable Cities And Communities

How many pairs given above is/are correctly matched?

- (a) None of the pairs
- (b) Only one pair
- (c) Only two pairs
- (d) All three pairs

55. With reference to Convention for the Safeguarding of the Intangible Cultural Heritage, consider the following statements:

1. Intangible Cultural Heritage is living cultural heritage.
2. Religions or languages are recognized under the Convention.

Which of the statements given above is/are not correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

56. With reference to Countering America's Adversaries Through Sanctions Act' (CAATSA) , consider the following statements:

1. It was passed by a Republican-controlled U.S. Congress in July 2017.
2. It is meant to punish countries having deep engagements with Russia, North Korea, and China using economic sanctions

Which of the statements given above is/are correct?

- (a) 1 Only
- (b) 2 Only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

57. Derecho, recently seen in the news ,is related to which of the following?

- (a) Frog Species of the Tropics
- (b) Windstorm
- (c) Supersonic missile
- (d) Mountain Peak

58. The national motto of India, 'Satyameva Jayate' inscribed below the Emblem of India is taken from:

- (a) Katha Upanishad
- (b) Chandogya Upanishad
- (c) Aitareya Upanishad
- (d) Mundaka Upanishad

59. Consider the following statements:

1. India is projected to surpass China as the world's most populous country in 2023 according to the World Population Prospects, 2022.
2. National Family Health Survey 5, 2021 found that India's total fertility rate has increased in the last decade.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

60. With reference to Red Pandas, consider the following statements:

1. They live in high-altitude forests of India and China only .
2. They are currently listed as Vulnerable species by the IUCN Red List of Threatened Species.

Which of the statements given above is/are correct?

- (a) 1 Only
- (b) 2 Only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

61. Consider the following statements regarding Global Gender Gap Index, 2022:
1. It is published by UN's Inter-Agency Network on Women and Gender Equality (IANWGE).
 2. India's score is above the global average in Political Empowerment dimension.
 3. India is ranked the last among all the countries in Health and Survival dimension.
- Select the correct answer using the codes given below:
- (a) 1 only (b) 2 only
(c) 2 and 3 only (d) 1, 2 and 3
62. Which of the following is/are provisions of the Medical Termination of Pregnancy (Amendment) Act, 2021?
1. It decreases the gestation period of women seeking abortion up from 24 weeks to 20 weeks.
 2. It allows unmarried women to terminate a pregnancy in case of failure of the contraceptive method or device.
- Select the correct answer using the codes given below:
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
63. Which of the following best describes the Troika of Group of 20 (G20)?
- (a) The country holding the presidency, together with the previous and next presidency-holder.
 - (b) Three permanent member countries holding veto power in decision making of G 20.
 - (c) Personal representatives of a head of state or head of government.
 - (d) Both a and b
64. Consider the following statements regarding Global Platform for Disaster Risk Reduction (GP2022):
1. The outcome of GP2022 was summarised as the "Bali Agenda for Resilience".
 2. Coalition for Disaster Resilient Infrastructure (CDRI) was first proposed by India during GP2022.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
65. Which of the following are the possible disadvantages of Genetically Modified Crops?
1. Possible disruption of ecosystem and biodiversity
 2. Increase in the cost of cultivation
 3. Comparatively lesser production than natural cultivation
 4. Greater use of pesticides and insecticides during farming
- Select the correct answer using the codes given below:
- (a) 1 and 2 only (b) 2 and 3 only
(c) 1, 2 and 4 only (d) 1, 3 and 4 only
66. Which of the following are provisions of Medical Termination of Pregnancy (MTP) Act 2021?
1. It increased the upper limit of the gestation period to which a woman can seek a medical abortion to 24 weeks from 20 weeks.
 2. Abortion can be carried out at any time by a single registered medical practitioner where it is immediately necessary to save the life of the pregnant woman.
 3. Under it, an unmarried women can also access abortion under the above-mentioned condition.
- Select the correct answer using the codes given below:
- (a) 1 and 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3
67. Consider the following statements regarding Pichavaram Mangrove Forest:
1. It is located in West Bengal and is a part of Sundarbans National Park.
 2. It is recently added in the Ramsar sites of wetlands.
 3. It is also a part of the World Network of Biosphere Reserves (Man and Biosphere Reserve).
- Select the correct answer using the codes given below:
- (a) 1 only (b) 1 and 3 only
(c) 2 only (d) 2 and 3 only
68. Consider the following statements regarding the Prevention of Money Laundering Act (PMLA):
1. Enforcement Directorate (ED) is classified as a 'police agency' by the Act since it has powers of summons, arrests, and raids.
 2. Under the PMLA, the burden of proof of innocence lies with the accused and not the Enforcement Directorate (ED).
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
69. Consider the following statements:
1. Manufacture, import, sale and use of carry bags made of plastic less than seventy-five microns is banned in India.
 2. India Plastics Pact is a joint initiative between the World Wide Fund for Nature-India (WWF India) and the Confederation of Indian Industry (CII)
- Which of the statements given above is/are not correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
70. What are the possible impacts of the US Federal Reserve's rate hike on the Indian economy?
1. Foreign Portfolio Investors will earn more in India.
 2. Weakening of the domestic currency.
 3. Widening of the current account deficit.
 4. Gold prices may soar.
 5. Higher Job cuts.
- Which of the given above options are correct?
- (a) 1 and 2 only (b) 3, 4 and 5 only
(c) 2, 3 and 5 only (d) 1, 2, 3, 4 and 5
71. With reference to plastic waste, consider the following statements;
1. Bangladesh was the first country to ban thin plastic bags.
 2. Plastic bags have the highest life span among all the plastic waste.
 3. India is a signatory to the International Convention on Prevention of Marine Pollution.
- Which of the given above statements is/are correct?
- (a) 1 only (b) 2 only
(c) 3 only (d) 1 and 3 only

- 72.** Consider the following statements regarding a 'Gig economy':
1. The gig workers usually receive payment on a task-by-task basis.
 2. The gig work often involves connecting with clients or customers through an online platform.
 3. The gig worker is a full time employee of the company with fixed work hours.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 1 and 2 only
(c) 3 only (d) 1, 2 and 3
- 73.** Consider the following statements
1. All the G7 countries and India are a part of G20.
 2. All G-7 members other than Japan are NATO members.
- Which of the statements given above is/are incorrect?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
- 74.** With reference to Coalition for Disaster Resilient Infrastructure (CDRI), consider the following statements:
1. It was launched by Japan during the United Nations Climate Action Summit in 2019 at France .
 2. It has been expanding its membership consistently by attracting a wide variety of economically advanced countries, developing countries, and countries that are most vulnerable to climate change and disasters.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
- 75.** With reference to Arctic Council consider the following statements:
1. It was established after the Ottawa Declaration.
 2. It is Headquartered in Norway.
 3. It has eight members including India.
- Which of the statements given above are correct?
- (a) 1 only (b) 1 and 2 only
(c) 1 and 3 only (d) 1, 2 and 3
- 76.** Consider the following statements
1. The National Centre for Polar and Ocean Research (NCPOR), Goa manages the entire Indian Antarctic program.
 2. India is a signatory to the Antarctic Treaty System.
 3. India is among the original signatory members of the Antarctic Treaty System.
- Which of the above statements is/are correct?
- (a) 1 only (b) 2 only
(c) 1 and 2 only (d) 1, 2 and 3
- 77.** Consider the following statements
1. The Family Court doesn't deal with the Orders of Protection Against Domestic Violence.
 2. Several sorts of courts dealing with specific family issues, such as children's courts and orphans' courts, are merged into the family court.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
- 78.** With reference to G-7, consider the following statements:
1. The G7 is an intergovernmental organization and a formal forum of the leading developed and developing countries.
 2. European Union representatives always participate in the annual meeting of the heads of state and government of the G7 as permanent guests.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
- 79.** Consider the following statements:
1. Bail is the temporary release of an accused person awaiting trial.
 2. The term bail is defined under the Criminal Procedure Code.
 3. The Criminal Procedure Code empowers magistrates to grant bail for bailable offences as a matter of right as per their discretion.
- Which of the statements given above is/are incorrect?
- (a) 2 only (b) 2 and 3 only
(c) 1 and 3 only (d) 1, 2 and 3
- 80.** Consider the following statements with reference to recent guidelines with respect to Bail:
1. The bail applications must be resolved within two weeks unless the provisions require otherwise.
 2. Applications for anticipatory bail are expected to be disposed of within six weeks, with the exception of any intervening application.
- Which of the statements given above is/are incorrect?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
- 81.** Consider the following statements:
1. Central Consumer Protection Authority is a regulatory body established in 2020 as per the provisions of section 10(1) of the Consumer Protection Act, 2019.
 2. It is administered by the Ministry of Economic Affairs.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
- 82.** Consider the following statements with reference to the Central Consumer Protection Authority's new Guidelines:
1. No hotel or restaurant shall add a service charge automatically or by default in the bill.
 2. Service charges shall not be collected from consumers by any other name.
 3. Service charge shall not be collected by adding it along with the food bill and levying GST on the total amount.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) 2 and 3 only (d) 1, 2 and 3
- 83.** Consider the following statements:
1. The Ministry of Social Justice and Empowerment has released the draft policy for Persons with Disability (PwD).

2. It replaces National Policy for Persons with Disabilities, 2006.
3. The policy aims Creation of Cross Disability Early Intervention Centre.
4. The policy focuses on the traditional causes of disability.
- Which of the statements given above is/are correct?
- (a) 1 and 2 only (b) 2 and 3 only
(c) 1, 2, and 3 only (d) 1, 2, 3, and 4.
- 84.** Consider the following statements:
1. According to the 2011 Census 2.21 percent of the Indian population has some form of disability.
 2. The total PwD population's literacy rate is around 55 percent (male 62%, female 45%).
 3. Ministry of Health and Family Welfare is also working on the Unique Disability ID (UDID) project.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 1 and 2 only
(c) 2 and 3 only (d) 1, 2 and 3
- 85.** Consider the following statements:
1. Single-use plastic includes grocery bags, food packaging, bottles, straws, containers, cups and cutlery, polystyrene (thermocool) used in decoration, and balloons.
 2. Under the ban the Government has prohibited the manufacture, import, stocking, distribution, sale, and use of all identified single-use plastic items.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2.
- 86.** With reference to Alluri Sitarama Raju, consider the following statements:
1. He belonged to a tribal community of Kerala.
 2. He organised Adivasis against the atrocities by the police, the forest and revenue officials.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
- 87.** With reference to Modhera Sun Temple, consider the following statements:
1. The temple was built during the reign of Chalukya Dynasty.
 2. The temple is situated on the banks of the Sabarmati River.
 3. The Ahmedabad Railway Station will be developed on the theme of Modhera Sun Temple.
- Which of the statements given above is/are correct?
- (a) 1 and 3 only (b) 2 and 3 only
(c) 1 and 2 only (d) 1, 2 and 3
- 88.** Consider the following statements:
1. Padmanabhaswamy Temple is the only major temple structure in Kerala that has an amalgamation of the Dravidian style architecture and the indigenous features of the architecture of Kerala.
 2. In Padmanabhaswamy Temple Lord Vishnu is represented in the reclining form lying on Adishesha.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
- 89.** Agenda 2036, sometimes seen in news is related to :
- (a) greater collaboration and support for African led initiatives to ensure the achievement of the aspirations of African people.
 - (b) net zero emissions from the European Union nations
 - (c) to realise Africa's potential and to focus towards increased cooperation and integration of African states
 - (d) elimination of coal based power plants from India
- 90.** Federal Reserve Rate is the rate of borrowing by banks in which of the following countries?
- (a) United States of America (b) United Kingdom
 - (c) China (d) France
- 91.** International Bullion Exchange (IIBX) has been recently launched in which state of India?
- (a) Maharashtra (b) Gujarat
 - (c) Delhi (d) Karnataka
- 92.** Which of the following phenomena are the driving force behind the need for space sustainability?
1. Orbital Crowding 2. Space Debris
 3. Magnetic storms
- Which of the statements given above is/are correct?
- (a) 1 and 3 only (b) 2 and 3 only
(c) 1 and 2 only (d) 1, 2 and 3
- 93.** With reference to African Union (AU), consider the following statements:
1. It was officially launched in 2005 at Dublin, South Africa.
 2. The AU structure promotes participation of African citizens and civil society.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
- 94.** Consider the following statements:
1. The aim of theatre Command System is to bring synergistic coordination between the three branches of the Indian Armed Forces.
 2. There is only one joint services command in India based at Andaman and Nicobar islands.
- Which of the statements given above is/are correct?
- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2
- 95.** With reference to Marburg Virus Disease (MVD), consider the following statements:
1. MVD initially spread from animals to humans.
 2. The disease was first recognized in 1967.
 3. MVD can cause severe illness but never turns fatal.
- Which of the statements given above is/are correct?
- (a) 1 and 3 only (b) 2 and 3 only
(c) 1 and 2 only (d) 1, 2 and 3

96. With reference to PSLV Orbital Experimental Module (POEM), consider the following statements:

1. It is an ISRO experimental mission which performs out-orbit scientific experiments using the spent PS4 stage as an orbital platform.
2. It derives its power from the mounted solar panels only.
3. It navigates using four sun sensors, a magnetometer, gyros & NavIC.

Which of the statements given above is/are correct?

- (a) 2 only (b) 1 and 3 only
(c) 3 only (d) 1 and 2 only

97. It is a hard, dense, malleable, ductile, silver-white, radioactive metal and has a very high density. When the metal is finely divided, it can react with cold water. The mining and processing of this metal is associated with a wide range of potential adverse human health risks.

The above paragraph best describes which of the following metals?

- (a) Thorium (b) Uranium
(c) Platinum (d) Palladium

98. Which of the following research stations of India are presently active in the Antarctic region?

1. Maitri
2. Bharati
3. Dakshin Gangotri

Select the correct answer using the codes given below:

- (a) 1 and 3 only (b) 1 and 2 only
(c) 2 and 3 only (d) 1, 2 and 3

99. With reference to Arctic Council, consider the following statements:

1. It has a total of ten members.
2. India has an observer status to the council.
3. Its headquarters is located in Norway.

Select the correct answer using the codes given below:

- (a) 1 and 3 only (b) 1 and 2 only
(c) 2 and 3 only (d) 1, 2 and 3

100. With reference to NewSpace India Limited (NSIL), consider the following statements:

1. It has been established under the Companies Act, 2013.
2. One of its objectives is to enable Indian industries to take up high technology space related activities.

Which of the statements given above is/are correct?

- (a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

ANSWER KEY

1. (d)	2. (c)	3. (a)	4. (b)	5. (b)	6. (c)	7. (c)	8. (b)	9. (a)
10. (b)	11. (b)	12. (d)	13. (b)	14. (a)	15. (b)	16. (b)	17. (c)	18. (b)
19. (c)	20. (d)	21. (b)	22. (d)	23. (d)	24. (d)	25. (c)	26. (b)	27. (b)
28. (b)	29. (c)	30. (b)	31. (a)	32. (b)	33. (d)	34. (d)	35. (d)	36. (a)
37. (b)	38. (b)	39. (b)	40. (c)	41. (c)	42. (a)	43. (a)	44. (d)	45. (b)
46. (d)	47. (b)	48. (c)	49. (a)	50. (b)	51. (d)	52. (a)	53. (c)	54. (c)
55. (b)	56. (a)	57. (b)	58. (d)	59. (a)	60. (d)	61. (c)	62. (b)	63. (a)
64. (a)	65. (a)	66. (d)	67. (c)	68. (b)	69. (d)	70. (d)	71. (d)	72. (b)
73. (c)	74. (b)	75. (b)	76. (c)	77. (b)	78. (b)	79. (a)	80. (d)	81. (a)
82. (d)	83. (c)	84. (b)	85. (c)	86. (b)	87. (a)	88. (c)	89. (a)	90. (a)
91. (b)	92. (d)	93. (b)	94. (a)	95. (c)	96. (c)	97. (b)	98. (b)	99. (c)
100. (c)								



Test Yourself

Subjective Questions

GS PAPER-I

1. Critically Analyze the effect that implementation of Self-help group would have on transforming lives of women sustainably in the contemporary context.
2. Examine the potential of the Integrated Horticulture Mission. Elaborate on the policy taken by the Government of India to meet the challenges of Drought prone areas while bridging the gap of demand and supply in the Indian market.
3. What are the factors responsible for gender disparity in India? Discuss the provisions and contributions made by the Government on these lines.

GS PAPER-II

4. What is the mandate of Group of Seven (G7)? Compare and contrast its relevance with the Group of 20 (G20) in light of recent geopolitical and geostrategic challenges.
5. What are the laws on abortion in India? Evaluate their efficacy in promoting medical abortions (MA) and preventing sex-selective abortions in India.
6. In light of the statement, "the problem is not how to wipe out the differences but how to unite with the differences intact" suggest policy interventions required for upliftment of persons with disability.
7. State the need for Anti-Doping legislation? Suggest reforms to enhance functionality of National Anti-Doping Agency (NADA)?
8. Critically analyse the effectiveness of the Prevention of Money Laundering Act (PMLA) in holding those who engage in money laundering activities accountable under the law.
9. Discuss the need of having a National Policy for Medical Devices, 2022. Enlist the aims and objectives of such a Policy.
10. What is the rationale behind the nomination of members to the Parliament? Critically analyse their contribution as legislators by citing specific examples.

11. With regards to children in need of care and protection, state the initiatives undertaken by the Government of India to comply with Juvenile Justice Act?

GS PAPER-III

12. "Transition to green hydrogen and green ammonia is one of the major requirements for reduction of emissions, especially in the hard to abate sectors." Comment
13. What is a gig economy? Examine the potential of India's gig economy in fulfilling the objectives of inclusive growth, sustainable development and attainment of \$5 trillion economy status.
14. Maritime security is key pillar of India's security architecture. In this context discuss the current framework of India's maritime security, the challenges it faces and measures to address them.
15. Pressures that adversely impact marine biodiversity also undermine and compromise the healthy functioning of the planet and its ability to provide the services that we need to survive and thrive. Analyse.
16. What is Graded Response Action Plan (GRAP)? Highlight the recent policy changes in GRAP to mitigate the air pollution crisis in the NCR region.
17. Critically examine the need for unlocking the space sector technology and exploration to the private sector in India. What are the necessary policy changes in this regard?
18. In light of achieving SDG, discuss the challenges and threats to sustainable tourism?

GS PAPER-IV

19. Discuss the ethical concerns and dilemmas faced by the police personnel in performance of their duties with suitable examples.
20. Establishment of ethical and moral society is not possible without proper understanding of socio-cultural norms and behavioral traits of social groups. Comment.