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Polity

AFSPA, 1958

Context: The Manipur govt. has extended AFSPA in the hill districts of the state for another 6 months.



About Armed Forces Special Powers Act of 1958 (AFSPA):

- It gives armed forces the power to **maintain public order in “disturbed areas”**.
- The **armed forces may use force or even open fire after giving due warning** if they feel a person is in contravention of the law.
- If “reasonable suspicion exists”, armed forces can also **arrest a person without warrant; enter or search premises without a warrant; and ban possession of firearms**.
- Section 4 of the Act grants officers authority to **“take any action”** – can even cause death.
- **Ministry of Home Affairs or the Governor** can declare whole or part of State or UT as a **disturbed area (Section 3)**.
- Union Govt. **permission is needed to take any action against an officer** for alleged violations.
- It applies to **Army, Air Force and Central Paramilitary forces** etc.

Background of AFPSA:

- It is a reincarnation of a British-era law enacted to quell the protests during the Quit India movement.
- After independence, AFSPA was issued via **four ordinances in 1947**.
- The ordinances **were replaced by an Act in 1948**. It was later repealed and the **present law was passed in 1958**.
- AFSPA came into force in the context of **Naga insurgency of the 1950s**.

Current Scenario

- **Assam:** AFSPA remains in force in certain areas in 9 districts
- **Manipur:** AFSPA remains in force in all hill districts.
- **Arunachal Pradesh:** AFSPA remains in only 3 districts and 2 police stations in 1 district.
- **Nagaland:** AFSPA remains in force in 8 districts
- **Tripura, Mizoram and Meghalaya:** AFSPA has been withdrawn completely.
- **Jammu and Kashmir:** AFSPA remains in force throughout the UT.

LADAKH PROTESTS

Context: There have been protests in Delhi, seeking the inclusion of Ladakh in the Sixth Schedule of the Constitution, along with other demands for regional autonomy.



About the Protests

- Environmentalist Sonam Wangchuk is currently on a protest demanding the implementation of the **Constitution’s Sixth Schedule and statehood for the Union Territory (UT) of Ladakh.**
- Ladakh was turned into a UT without a Legislative Assembly after the special status of Jammu and Kashmir under Article 370 was revoked by Parliament in 2019 and the **erstwhile State was split into the UTs of Ladakh and J&K.**
- Ladakh has erupted in protests several times over the past few years amid concerns about the **protection of land, resources, and employment for local residents, and bureaucratic overreach.**
- It is argued that Ladakh is heading towards an uncertain and destructive future, all in the name of development.
- Its natural resources are under attack in the name of large-scale tourism, hydel and even solar power.
- Climate activists have raised serious concerns regarding mining and industrialization in the fragile glacial ecological system of Ladakh.
- Sixth schedule status is being demanded to protect the high-altitude deserts, glaciers and alpine meadows which are a crucial habitat for rare and endangered species.

About Sixth Schedule

- The Sixth Schedule **under Article 244** of protects tribal populations, allowing for the

creation of **Autonomous District Councils (ADC)** which can frame laws on land, public health, agriculture.

- ADCs exist in **Assam, Meghalaya, Tripura, and Mizoram.**
- Each ADC shall consist of **not more than 30 members**, of whom **not more than four persons shall be nominated by the Governor**, and the rest shall be elected on the basis of adult suffrage.
- Under the provisions of Sixth Schedule, the **Governor of the State is empowered to determine the area** of Autonomous Districts and Autonomous Regions.

POCSO ACT, 2012

Context: The POCSO Act, 2012 has recently been in the news in the context of an alleged rape against a minor girl in West Bengal.



About Protection of Children from Sexual Offences (POCSO) Act, 2012:

- It was enacted in consequence to **India’s ratification of the UN Convention on the Rights of the Child** in 1992.
- It aims to address offences of sexual exploitation and sexual abuse of children, which were either not specifically defined or in adequately penalised.
- The Act **defines a child as any person below the age of 18 years.** The Act provides **punishment as per the gravity of offence.**
- The Act was **amended in 2019 to introduce more stringent punishment including the death penalty** for sexual

crimes on children, with a view to deter such crimes against children.

- The Govt of has also notified the **POCSO Rules, 2020**.
- Nodal Agency: **Ministry of Women and Child Development**

Key provisions of POCSO Act:

- **Gender-neutral legislation:** The Act recognizes that both girls and boys can be victims of sexual abuse.
- **Non-reporting is a crime:** Any person in charge of an institution who fails to report commission of a sexual offence faces punishment.
- **No time limit for reporting abuse:** A victim may report an offence at any time, even years after the abuse.
- **Victim's identity is confidential:** It forbids disclosure of victim's identity in any form of media unless authorised by POCSO special courts.
- The **storage of child pornography** has also been made a new offence.
- **Offence of 'sexual assault' has been defined in explicit terms** unlike the abstract definition of 'outraging modesty of a woman' in the Indian Penal Code.

POCSO Rules 2020:

- **Interim Compensation and Special Relief:**
 - It allows the Special Court to order interim compensation for the child's needs related to relief or rehabilitation after FIR registration. This payment is adjusted against the final compensation, if any.
- **Immediate Payment of Special Relief:**
 - The Child Welfare Committee (CWC) may recommend payment for needs like food, clothes, transport, etc. using funds from the

District Legal Services Authority (DLSA), the District Child Protection Unit (DCPU), or funds maintained under Juvenile Justice Act 2015.

- Payment must be made within a week of receiving the CWC's recommendation.

- **Support Person for the Child:**

- CWC can provide a support person to assist the child throughout the investigation and trial process.
- This person protects the child's best interests such as physical, emotional, and mental well-being, access to medical care, counselling, & education. They also inform the child and their guardians about developments related to the case.

Scheme to Support Pregnant Minor Victims of Sexual Assault

- It was **notified under Section 4 & 6 of the POCSO Act, 2012**.
- It seeks to **assist minor girls who have been abandoned by their families** due to forced pregnancies resulting from rape or gang rape.
- It acknowledges the physical and emotional trauma on minor victims of rape and aggravated assault.
- The scheme, with an outlay of Rs 74.10 crore, will **offer shelter, food, legal aid, medical care and other necessary assistance to victims under the Nirbhaya Fund**.
- It is **not mandatory for victims to possess a copy of the FIR** to avail the benefits provided by the scheme.
- The funds will be utilized to **set up shelters dedicated to these victims, either as standalone shelters or designated wards within existing child care institutions (CCIs)**.

- It will leverage the administrative structure of Mission Vatsalya in collaboration with state govts & CCIs.

Key Data regarding POCSO Act:

- 415 POCSO fast-track courts have been established across India to expedite justice for minor victims.
- According to National Crime Records Bureau (NCRB) 2021 data, 51,863 cases were reported under the Act.
- Out of these cases, 64% were reported under Sections 3 and 5 of the Act, which pertain to penetrative sexual assault and aggravated penetrative sexual assault.

Nirbhaya Fund:

- Established in 2013 and provides for a non-lapsable corpus fund for safety & security of women. It is administered by Dept. of Economic Affairs (DEA) of the Ministry of Finance.
- But Ministry of Women and Child Development selects proposals to be funded under the Nirbhaya Fund.

Mission Vatsalya:

- Centrally Sponsored Scheme under the Ministry of Women & Child Development to achieve development and child protection priorities aligned with the SDGs.

Child Care Institutions:

- Defined under the Juvenile Justice Act 2015 as a facility fit for providing care and protection to children who are in need of such services.

Child Welfare Committees (CWC):

- They are created under the Juvenile Justice Act of 2015.
- It is a quasi-judicial agency and is the final authority on children in need of care and protection. Anyone who is connected to the child can file a petition to the Magistrate of that District, who heads the CWC.

- It is mandatory to form one or more CWCs in every district.

UAPA, 1967

Context: The Union Home Ministry recently declared 'Hiab-ut-Tahrir' as a terrorist organization under the UAPA, 1967 .



About Unlawful Activities (Prevention) Act, 1967 (UAPA):

- It is India's premier anti-terror law. It is an upgrade on the Terrorist and Disruptive Activities (Prevention) Act which lapsed in 1995 and the Prevention of Terrorism Act (POTA) which was repealed in 2004.
- Assigns absolute power to Union Govt., by way of which if the govt. deems an activity as unlawful, then it may declare it so in the Gazette.
 - It provides for the death penalty and life imprisonment as the highest punishments for terrorist acts.
- Investigating agency can file a charge sheet in a maximum of 180 days after arrest and this duration can be extended after intimating the court.
- It allows for the detention of suspects without charge or trial for up to 180 days, and for the denial of bail to the accused unless the court is satisfied that they are not guilty.
- It defines unlawful activity as any action that supports or incites the cession or secession of any part of India, or that

questions or disrespects its sovereignty and territorial integrity.

- **It defines terrorist act** as any act that causes or intends to cause death or injury to any person, or damage or destruction to any property, or that threatens the unity, security or economic stability of India or any other country.
- Under UAPA, **both Indian and foreign nationals can be charged**. It will be applicable to the offenders in the same manner, even if crime is committed on a foreign land, outside India.

2019 Amendment to UAPA:

- **Empowers Union Govt. to designate individuals as terrorists** on certain grounds provided in the Act.
- Empowers Director General of National Investigation Agency (NIA) to grant **approval of seizure or attachment of property**.

NCRB 'Crime in India' Report (2022):

- ✓ Charge sheets in close to 50% of UAPA cases have been filed at least a year after the FIR was registered.
- ✓ 15% of these charge sheets took more than two years to file before a court.



About Section 6A of the Citizenship Act, 1955:

- Section 6A was enacted as part of the **Citizenship (Amendment) Act, 1985**, following the Assam Accord of 1985.
- The Assam Accord was a tripartite agreement between the **Central Govt, the Govt of Assam, and the leaders of the Assam Movement**, which sought to end the influx of illegal migrants from Bangladesh.
- Assam Accords introduced Section 6A, which was meant **exclusively for Assam**. It addresses the issue of large-scale migration preceding the 1971 Bangladesh Liberation War.
- It mandates **detection & deportation of foreigners who entered Assam after March 25, 1971**, marking the creation of Bangladesh.
- The introduction of Section 6A reflects the specific historical and demographic challenges faced by Assam during this critical period.

Provisions and Implications:

- Section 6A created a special provision for Assam by which persons of Indian origin who came from Bangladesh before **1st January 1966**, were deemed to be **citizens of India** as of that date.
- Persons of Indian origin who came to Assam **between 1st January 1966, and 25th March 1971**, and who were detected to be foreigners, were **required to register themselves and were granted**

SECTION 6A OF CITIZENSHIP ACT, 1955

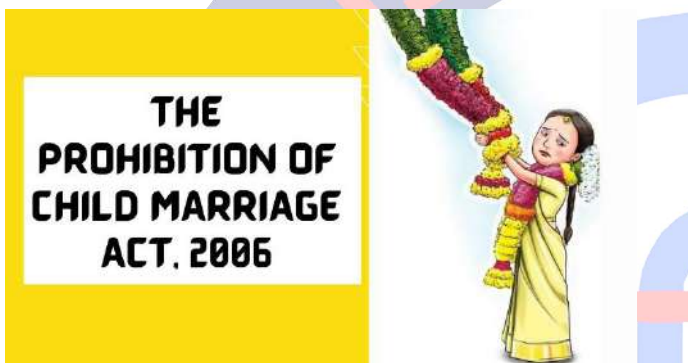
Context: The Supreme Court has upheld the constitutional validity of Section 6A of the Citizenship Act of 1955, which was enacted as part of the 1985 Assam Accords.

citizenship after 10 years of residence, subject to certain conditions.

- Persons who entered Assam after 25th March, 1971, were to be detected and deported under the law.

PROHIBITION OF CHILD MARRIAGE ACT, 2006

Context: Supreme Court recently highlighted some limitations in the implementation of the Prohibition of Child Marriage Act, 2006.



About the Prohibition of Child Marriage Act, 2006:

- The **Child Marriage Restraint Act, 1929**, also known as **Sarda Act**, was the first attempt to curb this practice by setting minimum age of marriage for girls at 14 years & boys at 18 years.
- However, the Act had limited success due to weak implementation, cultural practices, and lack of awareness.
- The 2006 Act was introduced to address these shortcomings. It raises the minimum age of marriage to **18 years for girls and 21 years for boys** & provides for stronger enforcement.

Key Provisions of the 2006 Act:

- **Prohibition and Prevention:**
 - The Act strictly prohibits the solemnization of child marriages. It **grants powers to the court to issue injunctions to prevent such marriages** from being conducted.

- Any person who performs, conducts, directs, or abets child marriage, **including parents or guardians, is considered an offender** under the Act.

- **Punishments and Penalties**

- Anyone involved in the solemnization of a child marriage, including priests and parents, is liable for rigorous **imprisonment up to two years, or a fine up to ₹1 lakh, or both.**

- The Act criminalizes child marriages and punishes the offenders **irrespective of caste, religion, or personal laws.**

- **Validity and Voidability of Child Marriages**

- Child marriages are not automatically void but are **voidable at the option of the contracting parties.**

- A child, once becoming an adult, may seek annulment of the marriage. Such a petition must be **filed within 2 years of minimum age of marriage** (21 for boys & 18 for girls).

- However, cases involving force, kidnapping, trafficking, or where a minor is married off are automatically void.

- **Maintenance and Custody of Children**

- Act provides for **welfare and protection of the child bride or groom.** If marriage is annulled, the court has the **authority to issue orders for financial support** to the female party.

- Court also makes provisions for the **custody and maintenance of any children born out of such marriages**, ensuring their best interests are prioritized.

- Appointment of Prohibition Officers
 - Act mandates appointment of **Child Marriage Prohibition Officers by state govt.** They are responsible for preventing child marriages, collecting evidence, filing complaints, and ensuring prosecutions.
 - They are also tasked with creating awareness about the ill effects of child marriage.
- Role of NGOs and Public
 - Act **encourages participation from NGOs and general public** to report cases and assist in prevention of child marriage.
 - **Any person or organization can approach the court or the police** to stop a child marriage, thus helping to increase community involvement.
- **UN Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1998**
- **UN Convention against Transnational Organized Crime, 2000** (Palermo Convention)

Key Provisions of PMLA

- **Offences & Penalties:** Defines money laundering offences and imposes penalties for such activities - rigorous imprisonment and fines for offenders.
- **Attachment and Confiscation of Property:** Allows for attachment and confiscation of property involved in money laundering. It establishes an Adjudicating Authority to oversee these proceedings.
- **Reporting Requirements:** Mandates certain entities, such as banks and financial institutions, to maintain records of transactions and report suspicious transactions to the Financial Intelligence Unit (FIU).
- **Designated Authority and Appellate Tribunal:** Establishes a Designated Authority to assist in investigation and prosecution. It also provides for the establishment of an Appellate Tribunal to hear appeals against orders of the Adjudicating Authority.
 - **Appeals against decisions of the PMLA Appellate Tribunal lie to the High Courts.**

PMLA, 2002

Context: An AAP leader and politician was recently granted bail under the PMLA 2002 in the Delhi Excise Policy case.



About Prevention of Money Laundering Act (PMLA), 2002:

- PMLA was **enacted under Article 253**, which empowers Parliament to make laws for implementing international conventions. It was enacted in pursuance of two treaties to which India was a party:
 - **Clarification about Proceeds of Crime:** Proceeds of the Crime not only includes property derived from the offence but now also includes any other property derived or obtained from any criminal activity relatable or similar to the alleged offence.
 - **Money Laundering Redefined:** Money Laundering was not an independent crime – rather, it depended on another crime,

Amendments to PMLA in 2023

- **Clarification about Proceeds of Crime:** Proceeds of the Crime not only includes property derived from the offence but now also includes any other property derived or obtained from any criminal activity relatable or similar to the alleged offence.
- **Money Laundering Redefined:** Money Laundering was not an independent crime – rather, it depended on another crime,

known as predicate offence or scheduled offence. The amendment seeks to treat money laundering as a stand-alone crime.

- **Defines PEPs (Politically Exposed Persons):** Individuals who have been entrusted with prominent public functions by a foreign country.
- **For Cryptocurrencies:** Virtual digital assets (VDA) trade has been brought under PMLA. New rules mandate crypto exchanges and intermediaries dealing in virtual assets to maintain the KYCs of their clients and report suspicious transactions to FIU.
- **Due diligence documentation for companies:** It has been expanded to include the submission of details such as names of persons holding senior positions, names of partners, etc.
- **Beneficial Owners:** Lowered the threshold for identifying beneficial owners by reporting entities, where the client is acting on behalf of its beneficial owner.
 - 'Beneficial owners' are those entitled to more than 25% of shares/capital/profit – this has now been reduced to 10%.
- **NPOs:** Reporting entities have to register details of the client on DARPAN portal of NITI Aayog if it is a non-profit organization (NPO).

Enforcement Directorate (ED)

- ✓ It is a domestic law enforcement & economic intelligence agency. It is responsible for **enforcing economic laws and fighting economic crimes in India.**
- ✓ Its origin goes back to **May 1956**, when an "enforcement unit" was formed for the Foreign Exchange Regulation Act. In 1957, it was renamed as ED.
- ✓ **Nodal Agency: Department of Revenue, Ministry of Finance**

- ✓ The ED enforces three Acts:
 - **Foreign Exchange Management Act, 1999 (FEMA)**
 - **Prevention of Money Laundering Act, 2002 (PMLA)**
 - **Fugitive Economic Offenders Act, 2018 (FEOA).**

DIRECTOR GENERAL OF CIVIL AVIATION

Context: The DGCA is conducting a probe into the emergency landing of an Air India Express flight in Tiruchi.

About Director General of Civil Aviation:

- It is the **regulatory body** in the field of civil aviation primarily dealing with **safety issues.**
- It is an **attached office** of the **Ministry of Civil Aviation.**
- It is responsible for regulation of air transport services to/from/within India and for enforcement of civil air regulations, air safety and airworthiness standards.
- It also coordinates all regulatory functions with the **International Civil Aviation Organization.**

Headquarters: New Delhi

Functions and Responsibilities of the DGCA:

- One of the main functions of the DGCA is to **ensure the safety** of passengers and crew members on all flights operating in India.
- The organization conducts **regular safety inspections** of all airlines and aircraft to meet the required safety standards.
- It also investigates any incidents or accidents that occur within the Indian airspace and takes appropriate action to prevent similar incidents from happening in the future.

- In addition to safety, the DGCA also plays a crucial role in the growth and development of the Indian aviation industry.
- The DGCA also plays a crucial role in **developing new airports** and modernizing existing facilities to ensure that they can meet the growing demands of the aviation industry.
- The DGCA is also responsible for the **regulation of air traffic** in India. It works closely with the **Airports Authority of India (AAI)** to ensure air traffic is managed safely and efficiently.
- The DGCA also plays a key role in developing new air traffic control systems and technologies to improve the overall efficiency of Indian airspace.
- The DGCA is also responsible for issuing licenses and certificates to pilots, aircraft maintenance engineers, and other aviation personnel.

International Civil Aviation Organization

- ICAO is a **United Nations (UN) specialized agency**, established in 1944, which laid the foundation for the standards and procedures for peaceful global air navigation.
- The **Convention on International Civil Aviation** (also known as Chicago Convention) was signed on 7th December 1944 in Chicago.
- It established the core principles permitting international transport by air, and also led to the creation of the ICAO.
- One of its objectives is to foster the planning and development of international air transport so as to ensure the safe and orderly growth of international civil aviation throughout the world.
- India is among its **193 members**.
- It is headquartered in **Montreal, Canada**.

NATIONAL GREEN TRIBUNAL

Context: The National Green Tribunal's eastern bench is hearing a case on the construction of a commando camp on 28 hectares of forest land in Geleky reserved forest in Assam's Sivasagar district.



About National Green Tribunal:

- NGT has been established under the **National Green Tribunal Act 2010** for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources.
- **New Delhi** is the principal bench of the tribunal and Bhopal, Pune, Kolkata, and Chennai shall be the other four places of sitting of the tribunal.

Composition:

- The Tribunal comprises the **Chairperson, the Judicial Members, and Expert Members**.
- The Chairperson of the NGT is a **retired Judge of the Supreme Court**.
- Other judicial members are retired judges of High Courts.
- Each bench of the NGT will comprise of **at least one judicial member and one expert member**.
- Expert members should have a professional qualification and a **minimum of 15 years'**

experience in the field of environment/forest conservation and related subjects.

- **Powers:** The NGT has the power to hear all civil cases relating to environmental issues and questions that are linked to the implementation of laws listed in **Schedule I** of the NGT Act.
- These include the following:
 - The Water (Prevention and Control of Pollution) Act, 1974;
 - The Water (Prevention and Control of Pollution) Cess Act, 1977;
 - The Forest (Conservation) Act, 1980;
 - The Air (Prevention and Control of Pollution) Act, 1981;
 - The Environment (Protection) Act, 1986;
 - The Public Liability Insurance Act, 1991;
 - The Biological Diversity Act, 2002.
- NGT has appellate jurisdiction to hear appeals as a Court.
- The Tribunal is not bound by the procedure laid down under the Code of Civil Procedure, 1908, but shall be guided by principles of natural justice.
- NGT is mandated to dispose of applications or appeals **finally within 6 months** of the filing of the same.



About Election Symbol Allotment:

- The **Election Symbols (Reservation and Allotment) Order, 1968** empowers the Election Commission to recognize political parties and allot symbols.
- They were introduced to facilitate voting by illiterate people, who can't read the name of the party while casting their votes.
- In the 1960s, it was proposed that the regulation, reservation and allotment of electoral symbols should be done through a law of Parliament, i.e. Symbol Order.
- The Election Commission **registers political parties** for the purpose of elections and grants them **recognition as national or state parties** on the basis of their poll performance. The other parties are simply declared as **registered-unrecognized parties**.
- The recognition determines their right to certain privileges like **allocation of the party symbols, provision of time for political broadcasts** on television and radio stations and **access to electoral rolls**.
- Every national party and every state party is allotted a symbol **exclusively reserved** for its use throughout the country and the states respectively.
- A recognized political party has a reserved symbol that is **not allotted** to any other candidate in any constituency.
- For registered but unrecognized political parties, one of the **free symbols** is allotted as

ELECTION SYMBOL ALLOTMENT

Context: NCP founder Sharad Pawar has filed a plea in the Supreme Court seeking to restrain the Ajit Pawar faction from using the 'clock' symbol in the upcoming Assembly polls in Maharashtra.

a common symbol during an election if that party contests in two Lok Sabha constituencies or in 5% of seats to the Assembly of a State as the case may be.

- As per the Election Symbols (Reservation and Allotment) (Amendment) Order, 2017, party symbols are either:
 - **Reserved:** Eight national parties and 64 state parties across the country have “reserved” symbols.
 - **Free:** The Election Commission also has a pool of nearly 200 “free” symbols that are allotted to the thousands of unrecognised regional parties that pop up before elections.



About EPFO:

- It is a **statutory body** that came into existence under the **Employees' Provident Fund and Miscellaneous Provisions Act, of 1952**.
- The EPFO is under the administrative control of the **Ministry of Labour and Employment**.
- It is one of the world's largest organizations in terms of clientele and the volume of financial transactions undertaken by it.
- An establishment with a minimum of 20 employees is required to register with the EPFO and make provident fund contributions for eligible employees.
 - A wage ceiling of 15,000 per month is set for the employees for mandatory availing of the benefits of the EPF Scheme.

Structure of EPFO:

- The Act and all its schemes are **administered by a tripartite board** called the Central Board of Trustees.
- The board comprises representatives of the **government** (both central and state), **employers**, and **employees**.
- The board is **chaired by the Union Minister of Labour and Employment**.
- The Central Board of Trustees administers a contributory **provident fund**, a **pension scheme** and an **insurance scheme** for the workforce engaged in the **organised sector**

As per the Symbols Order, in case of split in a recognized political party, the ECI decides as to which faction or group is the recognized political party. The reserved symbol is allotted to such faction.

The Supreme Court in *Sadiq Ali v. the ECI* laid down the 3-test formula for determining which faction is to be recognized as the original political party. These are: the aims and objectives of the party; its affairs as per the party's constitution that reflect inner party democracy; majority in the legislative and organization wings.

EMPLOYEES' PROVIDENT FUND ORGANISATION (EPFO)

Context: The Employees' Provident Fund Organisation had a net addition of 18.53 lakh members to its subscriber base in August.

in India, namely the EPF Scheme 1952, the Pension Scheme 1995 (EPS), and the Insurance Scheme 1976 (EDLI).

- EPFO is also the **nodal agency** for implementing **Bilateral Social Security Agreements** with other countries on a reciprocal basis.
 - **Bilateral Social Security Agreements** are instruments executed to protect the social security interests of workers posted in a foreign country.
 - It **avoids double coverage** under the social security legislations of the domestic and host countries.


cerebral palsy, muscular dystrophy, chronic neurological conditions, speech and language disability, thalassemia, haemophilia, sickle cell disease, multiple disabilities including deaf blindness, acid attacks and Parkinson’s disease.

- In addition to this, **Union Govt. has been authorized to notify any other category** of specified disability.
- It increases quantum of **reservation from 3% to 4% in govt jobs and from 3% to 5% in higher education institutes.**
- Every child with benchmark disability between ages of 6 to 18 shall have the **right to free education.**
 - The Act specifies a “Person with Benchmark Disability” as having **at least 40% of a specified disability.**

RPWD ACT, 2016

Context: The Ministry of Social Justice & Empowerment introduced Rights of Persons with Disabilities (Amendment) Rules, 2024 under the RPWD Act of 2016.

TYPES OF DISABILITIES INCREASED TO 21 IN ACT

<p>► The Rights of Persons with Disabilities Act, which overwrote the former Persons with Disabilities Act of 1995, was passed by Parliament in Dec 2016</p> <p>► The number of disabilities have been increased from seven to 21</p> <p>► It added acid attack victims, speech and language disability and specific-learning disability among the list of disabilities</p>		<p>► Dwarfism and muscular dystrophy have been indicated as a separate class of specified disability</p> <p>► The Act also casts the responsibility up on the state governments to take measures to ensure that the disabled persons enjoy their rights equally with others</p> <p>► Additional benefits such as reservation in higher education, government jobs and reservation in allocation of land have also been provided for such persons</p>
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About the Rights of Persons with Disabilities Act, 2016.

- A PWD is defined as someone who has a **long-term impairment that affects their physical, mental, intellectual, or sensory abilities** & this impairment **prevents them from participating fully and effectively in society.**
- The main categories of disability are: **Behavioural/Emotional; Sensory; Physical; and Developmental.**
- The **types of disabilities have been increased from 7 to 21.** The act added mental illness, autism, spectrum disorder,

- **Chief Commissioner for PWDs and State Commissioners** will act as regulatory bodies and Grievance Redressal agencies.
- **National and State Funds** has been created to provide financial support to the persons with disabilities.
- The act also seeks to provide financial incentives for employers who choose to employ PWDs.
- Nodal agency: **Ministry of Social Justice and Empowerment**

Other Policy Initiatives:

Accessible India Campaign:

- ✓ Aims to enhance accessibility by making changes to infra, information and communication systems.

DeenDayal Disabled Rehabilitation Scheme:

- ✓ Central Sector Scheme implemented since 1999 for providing financial assistance to NGOs working for education and rehab of PWDs.

Harmonized Guidelines and Space Standards for Universal Accessibility in India:

- ✓ Prepared by Ministry of Housing and Urban Affairs has been included in RPWD (Amendment) Rules, 2023.
- ✓ Guidelines are not just for PWDs, but also for those involved in planning projects, from construction of govt buildings to master-planning cities.

Unique ID for persons with disabilities (UDID) card:

- ✓ Aims to create a National Database for PwDs and thereby enable them to obtain UDID card to avail schemes and benefits provided by the govt.

WAQF AMENDMENT BILL 2024

Context: The meeting of the Joint Committee on Waqf Amendment Bill saw tense moments as it began with a walkout by the Opposition.



About Waqf (Amendment) Bill 2024:

- The objective of the Waqf (Amendment) Bill, 2024, is to amend the Waqf Act, 1995, to redress the issues and challenges in regulating and managing Waqf properties.

Meaning of waqf:

- Waqf refers to properties dedicated exclusively for religious or charitable purposes under Islamic law, and any other use or sale of the property is prohibited.
- Waqf means that the ownership of the property is now taken away from the person

making Waqf and transferred and detained by Allah.

- 'Waqif' is a person who creates a waqf for the beneficiary.
- As Waqf properties are bestowed upon Allah, in the absence of a physically tangible entity, a 'mutawalli' is appointed by the waqif, or by a competent authority, to manage or administer a Waqf.
- A Waqf can be established through a written deed, legal instrument, or orally.
- Once designated as waqf, the ownership is transferred from the person making the waqf (waqif) to Allah, making it irrevocable.

Origin of the concept of 'waqf':

- Waqf has existed in India since the early days of the **Delhi Sultanate**. Sultan **Muizuddin Sam Ghaor** dedicated two villages to Multan's Jama Masjid and appointed Shaikhul Islam as its administrator.
- As the Delhi Sultanate and subsequent Islamic dynasties flourished in India, the number of Waqf properties grew.
- **British Raj Controversy:** In the late 19th century, the Privy Council criticized Waqf as "perpetuity of the worst kind" and declared it invalid.
- However, the **Mussalman Waqf Validating Act of 1913** upheld the Waqf system in India, despite British criticism.

Waqf Act 1995

- The Waqf Act, originally enacted in 1995, governs the management and administration of Waqf properties in India.
- The Act mandates the establishment of **Waqf Boards at the state level** to oversee these properties.

Key Provisions of the Waqf Act, 1995:

- **Defines Waqf** as a permanent dedication of property for religious or charitable purposes under Muslim law.

- Requires **each state** to establish a **Waqf Board** for managing and administering Waqf properties.
- Establishes the **Central Waqf Council** to advise on Waqf matters.
- Provides mechanisms, including tribunals, for **resolving Waqf property disputes**.
- Mandates the registration and surveying of Waqf properties for proper management.

Proposed changes by the 2024 Amendment:

- The Waqf Amendment (Bill) 2024 proposes changing the name of the parent Act to the **Unified Waqf Management, Empowerment, Efficiency, and Development Act of 1995**.
- **Waqf Formation:** Waqfs can be formed by (i) declaration, (ii) recognition of long-term use, or (iii) endowment when succession ends.
 - Only practicing Muslims for at least five years can declare waqfs, with ownership of the property being mandatory.
- **Government Property:** Government properties identified as waqf will **revert to state ownership**. The District Collector will determine ownership in disputed cases.
- **Waqf Property Determination:** The Waqf Board's power to determine waqf properties is removed.
- **Waqf Survey:** Collectors will conduct waqf surveys under state revenue laws.
- **Central Waqf Council:** Two non-Muslim members are added. MPs, judges, and eminent persons need not be Muslims. However, Muslim members must include two women.
- **Waqf Boards:** State governments will appoint representatives, including two non-Muslims and members from Shia, Sunni, and backward Muslim communities. Women representation remains mandatory.
- **Tribunal Composition:** Muslim law experts are removed. Tribunals will include a District

Court judge and a state officer of joint secretary rank.

- **Appeals:** Tribunal decisions can be appealed to the High Court within 90 days.
- The central government can set rules on registration, waqf accounts, and Board proceedings.
 - Audits can be conducted by the CAG.
- **Separate Waqf Boards:** Separate Waqf Boards are allowed for **Bohra** and **Agakhani** sects.

SEBI

Context: The scandal involving SEBI chairperson Madhabi Puri Buch has once again garnered attention as opposition leader Rahul Gandhi raises the issue.



About Securities and Exchange Board of India:

- SEBI is a **statutory body** established by the **Securities and Exchange Board of India Act, 1992**.
- The basic functions of SEBI is to **protect the interests of investors** in securities and to promote and **regulate the securities market**.
- Headquarters: **Mumbai**.
- The **regional offices** of SEBI are located in Ahmedabad, Kolkata, Chennai and Delhi.

- It was established on the recommendation of **Narasimham Committee**.

Background:

- Before SEBI came into existence, **Controller of Capital Issues** was the regulatory authority, it derived authority from the Capital Issues (Control) Act, 1947.
- In April, 1988 the SEBI was constituted as the regulator of capital markets in India under a **resolution of the Government of India**.
- Initially SEBI was a non-statutory body without any statutory power.
- It became autonomous and was given statutory powers by **SEBI Act 1992**.

Structure:

- SEBI Board consists of a **chairman** and several other **whole time and part time members**.
- SEBI also appoints various committees, whenever required to look into the pressing issues of that time.
- Further, a **Securities Appellate Tribunal (SAT)** has been constituted to protect the interest of entities that feel aggrieved by SEBI's decision.
- SAT consists of a Presiding Officer and two other Members.
- It has the **same powers as vested in a civil court**.

Powers and Functions of SEBI:

- SEBI is a quasi-legislative and quasi-judicial body which can draft regulations, conduct inquiries, pass rulings and impose penalties.
- It functions to fulfill the requirements of three categories:
 - **Issuers:** By providing a marketplace in which the issuers can increase their finance.
 - **Investors:** By ensuring safety and supply of precise and accurate information.

- **Intermediaries:** By enabling a competitive professional market for intermediaries.

- By Securities Laws (Amendment) Act, 2014, SEBI is now able to **regulate any money pooling scheme worth Rs. 100 cr. or more** and attach assets in cases of non-compliance.
- SEBI Chairman has the authority to order **search and seizure** operations.
- SEBI board can also seek information, such as telephone call data records, from any persons or entities in respect to any securities transaction being investigated by it.
- SEBI performs the function of **registration and regulation** of the working of **venture capital funds** and **collective investment schemes** including mutual funds.
- It also works for promoting and regulating self-regulatory organizations and prohibiting fraudulent and unfair trade practices relating to securities markets.

SIXTH SCHEDULE

Context: Sonam Wangchuk ended his fast-demanding statehood and inclusion in the 6th schedule for Ladakh, after government agrees to talks.

About Sixth Schedule:

- The Sixth Schedule of the Constitution provides for the administration of tribal areas in **Assam, Meghalaya, Tripura and Mizoram** to safeguard the rights of the tribal population in these states.
- This special provision is provided under **Article 244(2)** and **Article 275(1)** of the Constitution.
- It was based on the reports of **Bardoloi Committee** formed by the Constituent Assembly.
- The committee report stated that there was a need for a system of

- administration that would allow tribal areas to become developed.
- The report also called for the protection of these tribal areas from exploitation by the people in the plains and preserving their distinct social customs

Provisions of the 6th schedule:

- **Article 244(2):** The provisions of the Sixth Schedule shall apply to the administration of the tribal areas in the States of Assam, Meghalaya, Tripura, and Mizoram.

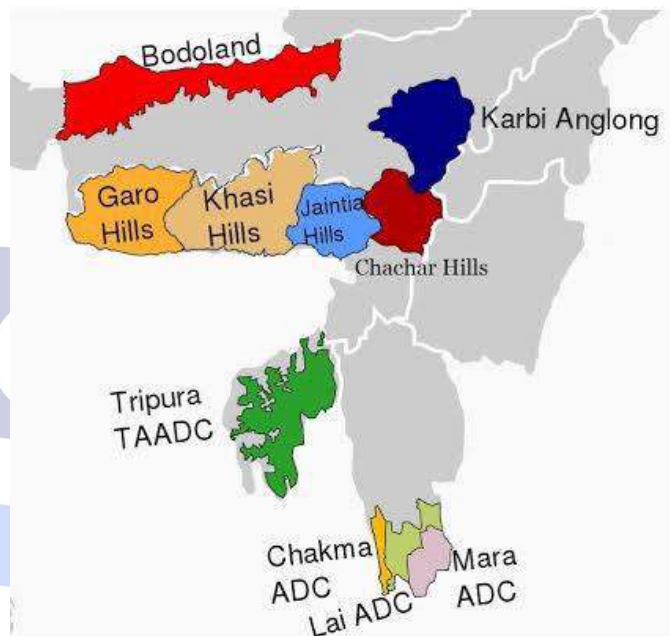
Autonomous districts and autonomous regions:

- The tribal areas in the four states of Assam, Meghalaya, Tripura, and Mizoram are to be administered as Autonomous Districts.
- If there are different Scheduled Tribes in an autonomous district, the Governor can divide the district inhabited by them into Autonomous Regions.
- The Governor is empowered to organize and reorganize the autonomous districts. He can also increase, decrease the boundaries or alter the name of any autonomous district.

Constitution of District Councils and Regional Councils:

- There shall be a District Council for each autonomous district consisting of not more than 30 members, of whom not more than four persons shall be nominated by the Governor, and the rest shall be elected on the basis of adult suffrage.
- There shall be a separate Regional Council for each area constituted an autonomous region.

AUTONOMOUS DISTRICT COUNCILS



Assam	<ul style="list-style-type: none"> • North Cachar Hills District • Karbi Anglong District • Bodoland Territorial Areas District
Meghalaya	<ul style="list-style-type: none"> • Khasi Hills District • Jaintia Hills District • Garo Hills District
Mizoram	<ul style="list-style-type: none"> • Chakma District • Mara District • Lai District
Tripura	<ul style="list-style-type: none"> • Tripura Tribal Areas District

Powers of the District Councils and Regional Councils to make laws:

- The District and Regional councils are empowered to make laws on certain specified matters like lands, management of forest (other than the Reserved Forest), inheritance of property, etc.
- These councils also empowered to make law for the regulations and control of money-lending or trading by any person other than Scheduled Tribe residents in that Scheduled District.
- However, all laws made under this provision require the assent of the Governor of the State.

Administration of justice in autonomous districts and autonomous regions:

- The District and Regional Councils are empowered to constitute Village and District Council Courts for the trial of suits and cases where all parties to the dispute belong to Scheduled Tribes within the district.
- The High Courts have jurisdiction over the suits and cases which is specified by the Governor.
- However, the Council Courts are not given the power to decide cases involving offenses punishable by death or imprisonment for five or more years.

Other powers of DC and RCs:

- The District and Regional Councils are empowered to assess and collect land revenue and impose taxes on professions, trades, animals, vehicles, etc. The Councils are given the power to grant licenses or leases for the extraction of minerals within their jurisdiction.
- The District Councils and Regional Councils are given the power to establish, construct or manage primary schools, dispensaries, markets, cattle ponds, fisheries, roads, road transport and waterways in the districts.
- To autonomous districts and autonomous regions, the acts of Parliament or the state legislature do not apply or apply with specified modifications and exceptions.
- The Governor can appoint a commission to investigate and provide a report on any issue pertaining to the management of the autonomous districts or regions.

INDIAN CYBER CRIME COORDINATION CENTRE (I4C)

Context: A recent study by I4C has shown that Indians are likely to lose over 1.2 lakh crore rupees over the next year to cyber fraud.



सहवीर्य करवावहै • Working Together With Vigour

About I4C:

- I4C has been established under the **Ministry of Home Affairs (MHA)** to deal with cybercrime in the country in a coordinated and comprehensive manner.
- The I4C focuses on tackling issues related to cybercrime and improving coordination between various Law Enforcement Agencies (LEAs) and stakeholders.
- It is located in **New Delhi**.

Functions:

- To act as a nodal point in the fight against cybercrime.
- Identify the research problems and needs of LEAs and **take up R&D activities** in developing new technologies and forensic tools in collaboration with academia / research institutes within India and abroad.
- To **prevent misuse of cyberspace** for furthering the cause of extremist and terrorist groups.
- Suggest **amendments in cyber laws** to keep pace with fast changing technologies and international cooperation.
- To coordinate all activities related to implementation of **Mutual Legal Assistance Treaties (MLAT)** with other countries related to cybercrimes in consultation with the concerned nodal authority in MHA.

Components of I4C:

- **National Cybercrime Threat Analytics Unit (TAU):** For reporting threats pertaining to cybercrimes at regular intervals.

- **National Cybercrime Reporting Portal (NCRP):** To report various cybercrime complaints by citizens at all India level on a common platform on a 24x7 basis from “anywhere, anytime”.
- **National Cybercrime Training Centre (NCTC):** To impart training to government officials, especially state law enforcement agencies.
- **National Cybercrime Research and Innovation Centre:** To carry out research for the development of indigenous tools for the prevention of cybercrimes.
- **Platform for Joint Cyber Crime Coordination Team:** For coordination, sharing of modus operandi of cybercrimes, data/information among states/UTs LEAs.
- **Cybercrime Ecosystem Management Unit:** For creating mass awareness in cyber hygiene for prevention of cybercrimes.
- **National Cybercrime Forensic Laboratory (Investigation) Ecosystem:** For helping LEAs in cyber forensics investigation.

- The history of the Civil Registration System (CRS) in India dates back to the middle of the 19th century.
- In 1886 a **Central Births, Deaths and Marriages Registration Act** was promulgated to provide for voluntary registration throughout British India.

Post-independence:

- The **Registration of Births and Death Act (RBD Act)** was enacted in 1969 to promote uniformity and comparability in the registration of Births and Deaths across the country and compilation of vital statistics based thereon.
- With the enactment of the Act, registration of births, deaths and stillbirths has become mandatory in India.
- The **Registrar General of India** is empowered under **Section 3(3)** of the **Registration of Births and Deaths (RBD) Act, 1969** to take steps to coordinate and unify the activities of Chief Registrars of Births and Deaths of all States.
- Implementation of the statute is vested with the State Governments.

CIVIL REGISTRATION SYSTEM

Context: Union Home Minister Amit Shah recently launched the Civil Registration System (CRS) mobile application to integrate technology with governance.

About the Civil Registration System:

- Civil Registration System (CRS) in India is the unified process of continuous, permanent, compulsory and universal **recording of the vital events (births, deaths, stillbirths) and characteristics** thereof.
- The data generated through a complete and up-to-date CRS is essential for socio-economic planning.

History:

Registrar General of India

- The Registrar General of India was **founded in 1961** by the Government of India under the **Ministry of Home Affairs**.
- It arranges, conducts and analyses the results of the demographic surveys of India including the Census of India and Linguistic Survey of India.
- The position of Registrar is usually held by a civil servant holding the rank of Joint Secretary.

Registration of Births and Death Act 1969

- The Registration of Births and Death Act (RBD Act) was enacted in 1969 to promote uniformity and comparability in the registration of births and deaths across the

country and compilation of vital statistics based thereon.

- With the enactment of the Act, registration of births, deaths and stillbirths has become mandatory in India.
- The registration of births and deaths in the country is done by the functionaries appointed by the state governments.
- The directorates of Census Operations are the sub-ordinate offices of Office of the Registrar General and these offices are responsible of monitoring the working of the Act in their concerned state and Union Territory.

International Relations

FIVE EYES

Context: Five Eye' countries are extending support to Canada in the Nijjar case.

About Five Eyes



- It is a multilateral intelligence-sharing network shared by over 20 different agencies of five English-speaking countries — **Australia, Canada, New Zealand, the United Kingdom and the United States.**
- These countries are parties to the multilateral UK-USA Agreement, a **treaty for joint cooperation in signals intelligence.**
- These partner nations exchange a wide spectrum of intelligence within one of the

world's most tightly-knit multilateral agreements as part of the collaboration.

- The alliance's origins can be traced back to the **Second World War.**
- The UK and the US decided to share intelligence after successfully breaking German and Japanese codes, respectively.
- In 1943, the Britain-USA (BRUSA) agreement laid the foundations for what would become the UK-USA (UKUSA) agreement.
- Following this, the UKUSA (UK-USA) was signed in 1946. Canada joined it in 1949, and New Zealand and Australia did so in 1956, forming the alliance.
- In recent years, common interests, such as **balancing the rise of China**, have led to a closer alignment among the Five Eyes countries.

QUAD

Context: India reiterates its view that QUAD is not a military alliance but a regional grouping.



About QUAD

- The Quadrilateral Security Dialogue, is a diplomatic partnership among **Australia, India, Japan, and the US**.
- It focuses on stability and prosperity in the **Indo-Pacific region**, promoting an open, stable, and resilient environment
- The Quad aims to address pressing regional challenges, including health security, climate change, infrastructure, technology, cybersecurity, humanitarian assistance, maritime security, countering disinformation, and counter-terrorism.
- It was established in 2007 by the Japanese Prime Minister **Shinzo Abe**, the group went dormant due to concerns over China's reactions, particularly after Australia withdrew in 2008
- It was revived in 2017 amid shifting regional attitudes toward China's influence, culminating in its first formal summit in 2021
- The **Malabar naval exercise** is a military exercise between the navies of QUAD members.
- "Quad-plus" meetings have included nations like South Korea, New Zealand, and

Vietnam, indicating potential for future expansion.

- The Quad remains an **informal grouping** without a formal secretariat or institutional framework
- China has criticized the grouping as a '**Asian-NATO**' and accused it of sowing discord in the region.
- India's traditional wariness of formal military alliances and preference for strategic autonomy, impedes the further deepening of cooperation on security issues

About AUKUS

- AUKUS is a trilateral **security partnership** between the **United Kingdom, the USA and Australia**.
- It consists of two key pillars.
 - Pillar 1 focuses on supporting Australia to acquire its first conventionally armed, nuclear-powered submarine fleet.
 - Pillar 2 focuses on cooperation in **eight advanced military capability** areas like artificial intelligence (AI), quantum technologies, innovation, information sharing, and cyber, undersea, hypersonic and counter-hypersonic and electronic warfare domains.

About I2U2

- It is a new strategic partnership formed between **India, Israel, the United Arab Emirates, and the United States**.
- It is also referred to as the **West Asian Quad**
- It was established to enhance cooperation and collaboration in various areas such as water, energy, transportation, space, health, and food security.

- The main objective of this grouping is to promote economic development, scientific innovation, and regional stability.

CARBON BORDER ADJUSTMENT MECHANISM

Context : EU's CBAM is bringing serious challenges to Indian exports to European Countries



- CBAM is part of the “Fit for 55 in 2030 package”, which is the EU’s plan to reduce greenhouse gas emissions by at least 55% by 2030 compared to 1990 levels in line with the European Climate Law.
- The CBAM is a policy tool aimed at reducing Carbon Emissions by ensuring that **imported goods are subject to the same carbon costs as products produced within the EU.**
- The CBAM will be implemented by requiring importers to declare the quantity of goods imported into the EU and their embedded Greenhouse Gas (GHG) emissions on an annual basis.
- To offset these emissions, importers will need to surrender a corresponding number of CBAM certificates, the price of which will be based on the weekly average auction price of EU **Emission Trading System**

(ETS) allowances in €/tonne of CO₂ emitted.

- CBAM will ensure its climate objectives are not undermined by carbon-intensive imports and spur cleaner production in the rest of the world.
- It can encourage non-EU countries to adopt more stringent environmental regulations, which would reduce global carbon emissions.
- It can prevent **carbon leakage** by discouraging companies from relocating to countries with weaker environmental regulations.
- The revenue generated from CBAM will be used to support EU climate policies, which can be learned by other countries to support Green Energy.
- It will have an adverse impact on India's exports of metals such as Iron, Steel and aluminum products to the EU, because these will face extra scrutiny under the mechanism.
- The carbon intensity of Indian products is significantly higher than that of the EU and many other countries because coal dominates the overall energy consumption.
- Therefore, direct and indirect emissions from iron and steel and aluminium are a major concern for India as higher emissions would translate to higher carbon tariffs to be paid to the EU.

EU DEFORESTATION REGULATION

Context: The European Commission has proposed to extend the implementation of its deforestation regulation by a year.



About EU Deforestation Regulation:

- It is a European Union regulation that aims to **counter deforestation**.
- It requires companies registered in the EU that import or export specific items to ensure that they have **not been produced on land that was deforested** after December 31, 2020.
- The EU-DR covers **seven primary commodities** and a variety of products derived from these.
- While the main commodities are **cattle, cocoa, coffee, oil palm, rubber, soya, and wood**, the derived commodities are several such as meat products, leather, chocolate, coffee, palm nuts, palm oil derivatives, glycerol, natural rubber products, soybeans, soy-bean flour and oil, fuel wood, wood products, pulp and paper and printed books.

India's opposition to the EUDR

- There is criticism that this is just a form of **non-tariff barrier** to trade, as **EU itself has reduced its primary forest cover** to increase agricultural output before the said date, and now is not allowing other countries to do the same as they struggle with population pressure on resources.
- India's stand is that it **violates Most Favored Nation (MFN) and National Treatment** principles.
- This is the second such measure by the EU after its **Cross Border Adjustment Mechanism**.

- It is estimated that both together are likely to adversely affect exports from India to EU worth \$9.5 billion.

ABRAHAM ACCORDS

Context: As the war in Gaza completes a year, a look back at major developments in the Middle East prompts an understanding of the Abraham Accords.



About Abraham Accords:

- The Abraham Accords are a series of agreements **signed in 2020** between **Israel and several Arab states**, marking a historic **shift in diplomatic relations** in the Middle East.
- They were named '**Abraham Accords**' in reference to the **supposed common ancestor of the Jews and the Arabs**, the biblical Abraham, and as an expression of brotherhood.

Countries involved:

- **Israel:** agreed to normalize diplomatic relations with the participating Arab nations, marking a significant departure from the historically hostile relationships.
- **United Arab Emirates (UAE):** The first Arab country to formally announce its **normalization of relations** with Israel under the Accords. This includes the establishment

of full diplomatic relations, as well as economic, technological, and cultural exchanges.

- **Bahrain:** The **Bahrain-Israel Peace Agreement** encompasses diplomatic relations and cooperation in various sectors.
- **Sudan:** Sudan joined the Abraham Accords by agreeing to normalize relations with Israel. This led to the removal of Sudan from the **U.S. list of state sponsors of terrorism**.
- **Morocco:** This agreement included the **United States' recognition of Morocco's sovereignty over Western Sahara** in exchange for Morocco's engagement with Israel.

However, the progress made through the Abraham Accords has since then been diminished due to the ongoing conflict in Gaza and uncertainty over the future of Palestine.

INDO-US NUCLEAR DEAL

Context: Holtec International, a New Jersey firm's interest in entry into the Indian nuclear market might help in reaping the benefits of the 2008 Civil Nuclear Deal.

About Indo-US Nuclear deal:

- It is a 2008 agreement between India and USA for civil nuclear cooperation.

Background:

- During the Cold war period, India maintained a non-aligned stance which tilted in favor of the USSR.
- USA favored Pakistan in South Asia as the two countries were treaty allies.
- However, following the rise of China, the United States under President Bush started favoring India with an aim to contain China.
- The US therefore offered India civil nuclear technology and access to uranium, the fuel it needed for nuclear power reactors.

- The Indian government agreed to sign a **123 Agreement** (or the U.S.-India Civil Nuclear Agreement).

The Deal:

- **NSG Waiver:** Along with the 123 Agreement, the **Nuclear Suppliers Group (NSG)** gave a **special waiver** to India that enabled it to sign cooperation agreements with a dozen countries.
- **Separate Programmes:** It enabled India to separate its civilian and military programmes and placed its civilian nuclear facilities under the **International Atomic Energy Agency (IAEA) safeguards**.
- **Transfer of Technology:** It refrains India from transfer of enrichment and reprocessing technologies to states that do not have them and India should also support international efforts to limit their spread.

Nuclear Suppliers Group

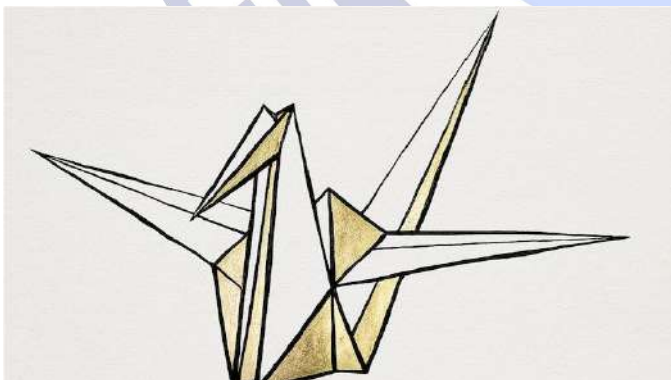
- ✓ It is a group of nuclear supplier countries that seeks to contribute to the non-proliferation of nuclear weapons through the implementation of two sets of Guidelines for nuclear exports and nuclear-related exports.
- ✓ It was created following the explosion in 1974 of a nuclear device by a non-nuclear-weapon State (India), which demonstrated that nuclear technology transferred for peaceful purposes could be misused.
- ✓ The grouping has 48 participating governments and the NSG Guidelines are implemented by each member in accordance with its national laws and practices.
- ✓ The NSG takes decisions by consensus.
- ✓ Membership of the grouping provides access to the latest and most efficient nuclear technologies.
- ✓ India has been seeking membership of the grouping with a formal application in 2016. But it is consistently blocked by China due to India being a non-signatory to NPT.

Nuclear Non-Proliferation Treaty

- ✓ The NPT is an international treaty whose objective is to prevent the spread of nuclear weapons and weapons technology, to foster the peaceful uses of nuclear energy, and to further the goal of disarmament.
- ✓ The treaty was signed in 1968 and entered into force in 1970. Presently, it has 191 member states.
 - India is not a member.
- ✓ It requires countries to give up any present or future plans to build nuclear weapons in return for access to peaceful uses of nuclear energy.
- ✓ It represents the only binding commitment in a multilateral treaty to the goal of disarmament by the nuclear-weapon States.
- ✓ Nuclear-weapon states parties under the NPT are defined as those that manufactured and exploded a nuclear weapon or other nuclear explosive devices before 1st January 1967.

NIHON HIDANKYO

Context: The Nobel Peace Prize was awarded to Nihon Hidankyo, an organization comprising survivors of the atom bomb attacks in Hiroshima and Nagasaki.



About Nihon Hidankyo:

- The 2024 Nobel Peace Prize was awarded to Japanese organization Nihon Hidankyo for its

efforts to achieve a world free of nuclear weapons.

- The members of Nihon Hidankyo are survivors of the atom bombings in Hiroshima and Nagasaki in 1945.
 - Those who survived are called “Hibakusha” or bomb affected people.
- Many of these survivors spearheaded the global movement to end nuclear weapons.
- The United States dropped two nuclear bombs on the cities of **Hiroshima** (August 6) and **Nagasaki** (August 9) in 1945.
 - The “Little Boy” in Hiroshima is thought to have killed 100,000 people and “Fat Man” in Nagasaki at least 40,000.
- Founded on August 10, 1956, Nihon Hidankyo describes itself as the only nationwide organization of Atomic bomb survivors of Hiroshima and Nagasaki.
- Its main objectives are the welfare of the Hibakusha, the elimination of nuclear weapons and due compensation to the victims.
- The group has worked towards telling stories of the Hibakusha to make known to the people their experiences, actual damage and after effects of the atomic bombing, both within and outside Japan; sending atomic bomb sufferers to the UN, nuclear weapon states and other countries.
- One of the reasons for the Nobel Committee’s decision is that the nuclear taboo is now under pressure.

👤 This year’s award is the latest in a line of Nobel awardees who have worked for disarmament. At least 10 Nobel Peace Prizes have been awarded for the cause since 1901.

The 2017 Nobel Peace Prize was awarded to the International Campaign to Abolish Nuclear Weapons (ICAN).

COLOMBO SECURITY CONCLAVE

Context: Recently, the members of Colombo Security Conclave (CSC) signed a Charter and a memorandum of understanding, for the establishment of the CSC secretariat in Colombo.



About Colombo Security Conclave:

- It is a **regional security grouping** comprising India, Bangladesh, Sri Lanka, Maldives, and Mauritius.
- The CSC's core objective is to promote regional security by addressing transnational threats and challenges of common concern to the Member States.

Origin:

- The CSC, initially known as the **Trilateral for Maritime Security Cooperation**, evolved out of trilateral meetings between National Security Advisors (NSAs) and Deputy NSAs from **India, Maldives, and Sri Lanka**, starting in 2011.
- It came to a standstill after 2014 due to rising tensions between India and the Maldives.
- Since its revival and re-branding as the CSC in 2020, **Mauritius** and more recently,

Bangladesh were added as members of the grouping.

- Current members of CSC include **India, Bangladesh, Maldives, Mauritius, and Sri Lanka**, while the **Seychelles** is an **observer nation**.

Goals of CSC: Cooperation under the CSC focuses on **five goals**:

- Maritime safety and security.
- Countering terrorism and radicalisation.
- Combating trafficking and transnational organised crime.
- Cyber security and protection of critical infrastructure and technology.
- Humanitarian assistance and disaster relief.

Defence Exercises: In November 2021, India, Sri Lanka, and Maldives conducted **Exercise Dosti XV** in Maldives.

- India, Sri Lanka, and Maldives subsequently conducted their first joint exercise in the Arabian Sea under the aegis of the CSC.

Dialogues and Meetings: The first dialogue among the three countries took place in 2011 in the Maldives, followed by meetings in Sri Lanka (2013) and India (2014).

- The dialogue stalled after 2014 due to rising India-Maldives tensions and China's growing influence in the Indian Ocean.
- It was revived and re-branded as the Colombo Security Conclave in 2020.

Significance of CSC: The CSC strengthens India's Indian Ocean outreach, counters China's influence, enhances maritime security, aligns with the SAGAR vision, and fosters sub-regionalism among six Indian Ocean nations on a shared security platform.

UNITED NATIONS INTERIM FORCE IN LEBANON (UNIFIL)

Context: India has joined the troop contributing countries in the UN Interim Force in Lebanon and aligned itself against

Israeli military's actions that wounded two peacekeepers in Lebanon.



About UNIFIL:

- Originally, UNIFIL was created by the Security Council in **March 1978** after **Israel's invasion of Lebanon**.
- **Mandate:** According to Security Council resolutions **425** and **426**, UNIFIL was established to:
 - Confirm the withdrawal of Israeli forces from southern Lebanon.
 - Restore international peace and security.
 - Assist the Government of Lebanon in ensuring the return of its effective authority in the area.
- The mandate had to be adjusted twice, due to the developments in 1982 and 2000.
- It has around 10,500 peacekeepers coming from **48 troop contributing countries**.
- The Mission maintains an intensive level of operational and other activities amounting to approximately 14,500 activities per month.
- Seventeen percent of activities are carried out jointly with the Lebanese Armed Forces.
- UNIFIL is complemented by a five-vessel **Maritime Task Force**.
- **Funding:** UNIFIL is funded through a separate account **approved** on an annual basis by the **General Assembly**.

WORLD FOOD DAY

Context: World Food Day is commemorated to celebrate the establishment of the United Nations Food and Agriculture Organization (FAO).

About World Food Day:

- World Food Day, observed annually on **October 16th**, serves as a global call to action in the fight against hunger and malnutrition.
- It emphasizes **Sustainable Development Goal 2 (SDG 2)** i.e., **Zero Hunger**.
- **2024 theme:** "Right to Foods for a Better Life and a Better Future."



Food and Agriculture Organization

- It is a **specialized agency** of the **United Nations** that leads international efforts to defeat hunger and improve nutrition and food security.
- Its goal is to achieve food security for all and make sure that people have regular access to enough high-quality food to lead active, healthy lives.
- **Headquarters:** Rome (Italy).



→ **Member countries:** 195 members - 194 countries and the European Union.

→ Its sister bodies are the **World Food Programme (WFP)** and the **International Fund for Agricultural Development (IFAD)**.

→ **Reports published by the FAO:**

- The State of the World's Forests (SOFO),
- The State of World Fisheries and Aquaculture (SOFIA),
- The State of Agricultural Commodity Markets (SOCO),
- The State of Food Security and Nutrition in the World (SOFI)

World Food Programme

→ It was founded in 1961 by the Food and Agriculture Organization (FAO) and United Nations General Assembly (UNGA) with its headquarters in Rome, Italy.

→ It is also a member of the United Nations Sustainable Development Group (UNSDG), a coalition of UN agencies and organizations aimed at fulfilling the Sustainable Development Goals (SDGs).

→ The international community has committed to end hunger, achieve food security and improve nutrition by 2030.

→ WFP works in over 120 countries and territories to bring life-saving food to people displaced by conflict and made destitute by disasters.

International Fund for Agricultural Development (IFAD)

→ It is an international financial institution and a specialized agency of the United Nations.

→ It was established in 1977 through United Nations General Assembly Resolution 32/107 (15 December 1977) as one of the **major outcomes of the 1974 World Food Conference**.

→ **Headquarters:** Rome, Italy

→ It is a member of the **United Nations Development Group**.

Governance:

→ The Governing Council is the principal decision-making body and consists of more than 160 members.

→ The 18-member Executive Board oversees daily operations.

Functions:

→ It focuses exclusively on **rural poverty reduction**, working with poor rural populations in developing countries to eliminate poverty, hunger and malnutrition; raise their productivity and incomes; and improve the quality of their lives.

→ IFAD seeks to **empower rural people to increase their food security**, improve the nutrition of their families and increase their incomes through **funding of grants and low-interest loans** to several projects.

→ The IFAD assists vulnerable groups such as smallholder farmers, pastoralists, foresters, fishers and small-scale entrepreneurs in rural areas by providing, among others, access to weather information, disaster preparedness, social learning and technology transfer that enables farmers to feed growing populations and increase the climate resilience of rural farming systems.

AUKUS

Context: Shashi Tharoor's opinion piece in the Hindu mentions the changing canvas of the Indo Pacific including the many mini-laterals forming in the region.



About AUKUS:

- It is a trilateral security partnership between the **United Kingdom, the United States of America, and Australia** agreed in 2021.
- AUKUS is intended to strengthen the ability of each government to support security and defense interests, building on longstanding and ongoing bilateral ties.
- It consists of **two key pillars**.
 - **Pillar 1** focuses on **supporting Australia to acquire its first conventionally armed, nuclear-powered submarine fleet**. (It does not involve the transfer of nuclear weapons to Australia.)
 - **Pillar 2** focuses on cooperation in **eight advanced military capability areas**: artificial intelligence (AI), quantum technologies, innovation, information sharing, and cyber, undersea, hypersonic and counter-hypersonic and electronic warfare domains.

KAZAN DECLARATION

Context: The 16th BRICS Summit saw the leaders adopt the Kazan Declaration: 'Strengthening Multilateralism for Just Global Development and Security'

Key Outcomes

- The **16th BRICS Summit** was hosted by Russia in Kazan from October 22 to October 24, 2024.

- Welcomed new BRICS partners from **Egypt, Ethiopia, Iran, Saudi Arabia, and the UAE**, expanding the bloc's influence in the Global South.
- The theme was **"Strengthening Multilateralism for Just Global Development and Security"**.
- The objective was to economic cooperation, multilateralism, geopolitical concerns, and the interests of the Global South.
- It called for peaceful resolution to the **Ukraine conflict** through diplomacy.
- Raised concerns over the humanitarian crisis in **Palestine** and condemnation of violence in Gaza, West Bank, and Lebanon.
- It emphasized on the reform of global **financial architecture** and multilateralism.
- Showed support for the continued functioning of the G20 and a reformed, responsive global financial system.
- Shows dedication for the promotion of **local currencies for cross-border payments** to reduce trade barriers.
- Agreement to explore the establishment of a **BRICS Grain Exchange** and a BRICS Cross-Border Payment System.
- Stressed on addressing **antimicrobial resistance** and enhancing healthcare collaboration.
- Showed support for **India's Big Cats Conservation** initiative and collaboration on protecting endangered species.



About BRICS

- BRICS is an acronym for the grouping of the world's leading emerging economies, namely **Brazil, Russia, India, China and South Africa**.
- The grouping was first informally formed during a meeting of the leaders

of BRIC (Brazil, Russia, India, and China) countries on the sidelines of the G8 Outreach Summit in St. Petersburg, Russia, in 2006.

- BRICS has a flexible structure, with **no formal headquarters or secretariat**. It operates through a system of meetings and summits held annually
- In 2023, during the 15th BRICS Summit, held in South Africa, six countries were invited to join the alliance.
- These were - **Iran, the United Arab Emirates, Saudi Arabia, Argentina, Egypt, and Ethiopia**.
- The aim of the alliance is to **challenge the economic and political monopoly of the West**.
- The group sets priorities and has discussions once every year during the BRICS summit, which members take turns hosting.

LINE OF ACTUAL CONTROL

Context: India and China have reached a deal on easing tensions along the LAC through patrolling arrangements and de-escalation of border tensions.



About Line of Actual Control:

- The LAC is the **demarcation** that separates Indian-controlled territory from Chinese-controlled territory.

- It is divided into **three sectors**: the eastern sector which spans Arunachal Pradesh and Sikkim, the middle sector in Uttarakhand and Himachal Pradesh, and the western sector in Ladakh.
- India considers the LAC to be **3,488 km** long, while the Chinese consider it to be only around **2,000 km**.
- The LAC is **not India's claim line**.
- India's claim line is the line seen in the official boundary marked on the maps as released by the Survey of India, including both Aksai Chin and Gilgit-Baltistan.
- In China's case, LAC is the claim line except in the eastern sector, where it claims the entire Arunachal Pradesh as South Tibet.

Disagreements on LAC:

- The western sector of the LAC is heavily contested.
- Here, the LAC emerged from two letters written by Chinese PM Zhou Enlai to PM Jawaharlal Nehru in 1959, after he had first mentioned such a 'line' in 1956.
- After the 1962 War, the Chinese claimed they had withdrawn to 20 km behind the LAC of 1959, which coincides with the so-called **McMahon Line** in the eastern sector.

Indian Response to China's Designation of the LAC:

- India rejected the concept of LAC in both 1959 and 1962, as it is the line China has created.
- The Chinese line was a disconnected series of points on a map that could be joined up in many ways.
- India wants the line to omit gains from aggression in 1962 and base it on the actual position on September 8, 1962 before the Chinese attack.
- During the Doklam crisis in 2017, the Chinese Foreign Ministry spokesperson urged India to abide by the '1959 LAC'.

Current scenario:

- India formally accepted the **concept of the LAC** when the Indian PM paid a return visit to Beijing in 1993 (after Chinese Premier Li Peng’s 1991 visit to India).
- The two sides signed the **Agreement to Maintain Peace and Tranquility** at the LAC.
- The reference to the LAC was unclear on whether it referred to the LAC at the time of the one identified in 1959 or 1962.
- To reconcile the differences about some areas, the Joint Working Group on the border issues has been assigned the task of clarifying the alignment of the LAC.

- The LoC emerged from the 1948 ceasefire line negotiated by the UN after the Kashmir War.
- It was designated as the LoC in 1972, following the Shimla Agreement between the two countries (India and Pakistan).
- It is delineated on a map signed by DGMOs of both armies and has the international sanctity of a legal agreement.
- On the other hand, the LAC is only a concept. It is not agreed upon by the two countries, neither delineated on a map or demarcated on the ground.

Legacy Issues of Depsang Plains and Demchok:

- The **Depsang Plains** are located close to the strategically important Daulat Beg Oldie.
- The Depsang Plains issue began in 2013 when China carried out an 18-km incursion in the area.
 - Despite the two countries agreeing then to go back from their positions, the PLA troops did not vacate the area completely.
- In **Demchok**, which is in the southern part of eastern Ladakh, the problem is mainly at the Charding Ninglung Nullah (CNN) junction.
 - In multiple instances, the PLA also stopped Indian graziers at the Saddle Pass at the CNN junction, well within India’s perception of the LAC.

EU’S NATURE RESTORATION LAW

Context: EU’s Nature Restoration Law could act as a model for India in tackling land desertification.



About EU Nature Restoration Law:

- On June 17, 2024 the EU Environmental Council approved the Nature Restoration Law, a landmark legislation for restoration of degraded ecosystems.
- It is a crucial part of the EU’s 2030 biodiversity strategy and the European Green Deal.
- The new law aims to restore ecosystems, including species and habitats that exist on EU’s land and in seas to:
 - enable the long-term and sustained recovery of biodiverse and resilient nature,

Present agreement:

- The Union government has announced that India and China have reached an agreement on patrolling arrangements and the resolution of the military standoff at the LAC, including Depsang and Demchok.

LAC v LoC

- contribute to achieving the EU's climate mitigation and climate adaptation objectives, and
- meet international commitments.
- According to the European Commission, 81% of habitats in the EU currently have a “poor” status, and one in three bee and butterfly species are in decline.

Targets under the law:

- The primary target of the new legislation is long-term recovery of ecosystems.
- Ideally this should cover at least 20% of the EU's land and sea areas by 2030, and all ecosystems in need of restoration by 2050.
- Priority should be given to areas under the Natura 2000 – a network of 27,000 natural sites protected by EU legislation.
- The Restoration Law also has specific targets based on existing legislations, for urban, forest, marine, and agricultural ecosystems, for pollinating insects, and those related to river connectivity.
- Some of these are:
 - Reversing the decline of pollinator population by 2030
 - No net loss of green urban space and tree cover by 2030, and an increase in their area thereafter
 - Increasing stock of organic carbon
 - Restoring drained peatlands under agricultural use
 - Restoring the habitats of iconic marine species such as dolphins and porpoises, sharks and seabirds
 - Restoring at least 25,000 km of rivers to a free-flowing state by 2030

Implementation:

- Countries in the EU bloc are expected to submit **National Restoration Plans** to the Commission within two years – by mid-2026 – specifying their plans to achieve the targets.

- Monitoring and reporting progress on these targets will be under the purview of the countries themselves.
- The **European Environment Agency** will prepare technical reports on this progress.
- The European Commission will report to the European Parliament and the Council on the law's implementation.

ASEAN

Context: The 44th ASEAN Summit held this month highlighted mounting regional concerns, especially the crisis in Myanmar.



Image: ASEAN

About ASEAN:

- The **Association of Southeast Asian Nations** is a regional organization which was established to promote political and social stability amid rising tensions among the Asia-Pacific's post-colonial states.
- The motto of ASEAN is “**One Vision, One Identity, One Community**”.
- 8th August is observed as ASEAN Day.
- **ASEAN Secretariat** – Jakarta, Indonesia.
- **Member Nations:** Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei, Vietnam, Laos, Myanmar, Cambodia.

Evolution of ASEAN:

1967	• Establishment via Bangkok Declaration
1995	• Southeast Asia Nuclear Weapon Free Zone Treaty
1997	• Adoption of ASEAN Vision 2020
2003	• Bali Concord for establishment of ASEAN Community
2008	• Adoption of ASEAN Charter
2015	• Launch of ASEAN Community

- ASEAN Community is comprised of **three pillars**:
 - ASEAN Political-Security Community
 - ASEAN Economic Community
 - ASEAN Socio-Cultural Community

Institutional Mechanism of ASEAN:

- **Chairmanship**: rotates annually, based on the alphabetical order of the English names of Member States.
- **ASEAN Summit**: The supreme policy making body of ASEAN.
 - As the highest level of authority in ASEAN, the Summit sets the direction for ASEAN policies and objectives. Under the Charter, the Summit meets twice a year.
- **ASEAN Ministerial Councils**: The Charter established four important new Ministerial bodies to support the Summit.
 - ASEAN Coordinating Council (ACC)
 - ASEAN Political-Security Community Council
 - ASEAN Economic Community Council
 - ASEAN Socio-Cultural Community Council

- **Decision Making**: The primary mode of decision-making in ASEAN is **consultation and consensus**.
 - However, the Charter enshrines the principle of **ASEAN-X** – if all member states are in agreement, a formula for **flexible participation** may be used so that the members who are ready may go ahead while members who need more time for implementation may apply a flexible timeline.

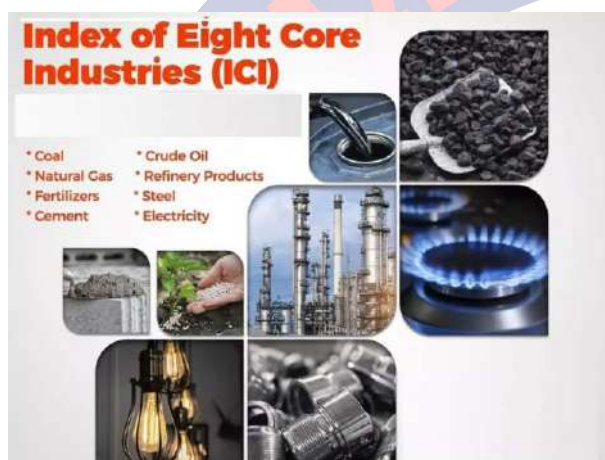
Forums led by ASEAN:

- **ASEAN Regional Forum (ARF)**: Launched in 1993, the twenty-seven-member multilateral grouping was developed to facilitate cooperation on political and security issues to contribute to regional confidence-building and preventive diplomacy.
- **ASEAN Plus Three**: The consultative group initiated in 1997 brings together ASEAN's ten members, **China, Japan, and South Korea**.
- **East Asia Summit (EAS)**: First held in 2005, the summit seeks to promote security and prosperity in the region and is usually attended by the heads of state from ASEAN, Australia, China, India, Japan, New Zealand, Russia, South Korea, and the United States.
- **ASEAN Defence Ministers Meeting (ADMM)-Plus Meeting**: The ADMM-Plus is a platform for ASEAN and its eight Dialogue Partners to strengthen security and defence cooperation for peace, stability, and development in the region.
 - The ADMM-Plus countries include ten ASEAN Member States and eight Plus countries, namely Australia, China, India, Japan, New Zealand, ROK, Russian Federation, and the United States.
 - The first ADMM-Plus was convened at Ha Noi, Vietnam in 2010.

Economy

INDEX OF CORE INDUSTRIES

Context: Output level in core sectors slipped to a 9-month low in August, and year-on-year growth slipped 1.8%, marking the first contraction in three and a half years.



About Core Industries in India:

- The core sector in India comprises **eight key industries**.
- Growth rate of core sector is a **crucial indicator of the overall health of the Indian economy**. A strong growth rate in the core sector often signals a positive economic outlook.
- The **Index of Eight Core Industries (ICI)** is prepared every month and released by the **Dept. for Promotion of Industry & Internal Trade (DPIIT)**, Ministry of Commerce & Industry.
- ICI comprises various components that collectively reflect performance and vitality of India's industrial sector. These components include:
 - **Coal production**, excluding Coking coal.
 - **Electricity** from thermal, nuclear, and hydro sources & imports from Bhutan.
 - Total **crude oil** production.
 - **Cement production** in both large plants and mini plants.
 - Total production of **natural gas**.
 - Production of **alloy and non-alloy steel**.
 - Total **refinery production**.
 - **Fertiliser:** Production of urea, ammonium sulphate, calcium ammonium nitrate, single superphosphate, among others.
- The current weightage in ICI is Refinery Products (28.04%) > Electricity (19.85%) > Steel (17.92%) > Coal (10.33%) > Crude Oil (8.98%) > Natural Gas (6.88%) > Cement (5.37%) > Fertiliser (2.63%).
- Choice of base year of ICI is according to the choice of **base year for the Index of Industrial Production (IIP)**. The base year in the current series of ICI and IIP is **2011-12**.
- IIP helps in measuring the growth rates in different industry groups of the economy in a fixed period.
 - It is a composite index that shows short-term changes in production volume of a basket of industries compared to a chosen base period.
- ICI comprises **40.27% of the weight of items included in the IIP**.

INFLATION TARGETING

Context: The RBI Governor recently spoke about the risk of interest rate cuts as retail inflation continues to be high in India.



About Inflation Targeting in India:

- Inflation targeting is a monetary policy in which a **central bank sets an explicit target for rate of inflation** and adjusts its policy instruments, such as interest rates, to achieve it.
- **New Zealand pioneered** inflation targeting in 1990, and it has since become widely adopted worldwide.
- In India, **Flexible Inflation Target (FIT)** framework was adopted in 2016.
- RBI has set an **inflation target of 4% with a tolerance band of +/- 2%** with regards to the Consumer Price Index (CPI). This means that RBI aims to keep inflation at 4% but will tolerate inflation between 2% to 6%.

Monetary Policy Committee (MPC):

- It was set up consequent to **Monetary Policy Framework Agreement (2015)** between Union Govt and RBI to task RBI with the responsibility for price stability and inflation targeting.
- **RBI Act, 1934 was amended and by virtue of Section 45ZB**, Union Govt constitutes a six-member MPC.
- Union Govt determines the inflation target **in terms of Consumer Price Index, once**

in every five years in consultation with the RBI.

- Composition: Section 45ZB says the MPC shall consist of **6 members**:
 - RBI Governor as its ex officio chairperson,
 - Deputy Governor in charge of monetary policy
 - An officer of RBI
 - 3 persons appointed by Govt.

Wholesale Price Index (WPI)

- ✓ It measures changes in **prices of goods sold and traded in bulk** by wholesale businesses to other businesses.
- ✓ Office of Economic Adviser, **Commerce & Industry Ministry** releases it.
- ✓ Base year: 2011-12

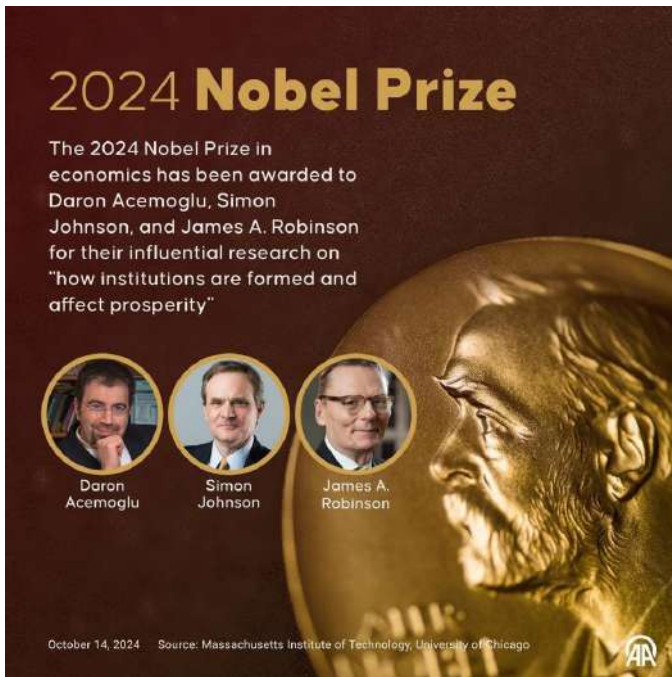
Consumer Price Index (CPI)

- ✓ Measures price change from point of view of a retail buyer. It is released by **National Statistical Office (NSO)**.
- ✓ Calculates price change of **services and commodities** such as food, medical care, education, housing, fuel, etc.
- ✓ Has several sub-groups including food and beverages, fuel and light, housing and clothing, bedding and footwear.
- ✓ Four types of CPI are as follows:
 - CPI for Industrial Workers
 - CPI for Agricultural Labourer
 - CPI for Rural Labourer
 - CPI (Rural/Urban/Combined)
- ✓ Of these, first 3 are compiled by Labour Bureau. Fourth is compiled by NSO.
- ✓ Base Year for CPI is 2012.

NOBEL PRIZE FOR ECONOMICS

Context: The Nobel Memorial Prize in Economics for 2024 was awarded to Daron Acemoglu, Simon Johnson, and James A.

Robinson for their research into why some nations are more prosperous than others.



- The study highlights the critical role of societal institutions in determining a country’s prosperity.
- It distinguishes between inclusive institutions that foster growth and extractive institutions that hinder it.
- It explains how colonial history shaped modern economic disparities.
- The research offers policy insights for building inclusive institutions to promote long-term prosperity.
- It has global implications for reducing inequality and promoting sustainable development.

NON-BANKING FINANCIAL INSTITUTIONS

Context : RBI is concerned about rapid expansive tactics of NBFCs to capture the market.

- The 2024 Nobel awardees’ research focused on the **role of societal institutions in determining a country’s economic prosperity.**
- The laureates distinguished between **inclusive institutions**, which promote democracy, rule of law, and protection of property rights, and **extractive institutions**, where power is concentrated and resources are exploited for the benefit of a few.
- Their study explains how inclusive institutions foster long-term economic growth by providing stability and incentives, while extractive institutions undermine growth by discouraging investment and innovation.
- The researchers also explored how **European colonization** shaped current economic disparities by establishing either inclusive or extractive institutions, with decisions influenced by factors such as mortality risks during colonization.



About NBFCs

- An NBFC is a company registered under the Companies Act, 1956 or Companies Act, 2013, involved in various financial activities like lending, investing in securities, leasing, insurance.

- They offer various banking services but do not have a banking license.

Key Features:

- NBFCs provide diverse financial services like personal loans, home loans, vehicle loans, gold loans, microfinance, insurance, and investment management.
- They can accept public deposits for a **minimum of 12 months and a maximum of 60 months.**
- However, NBFCs cannot accept **demand deposits.**
- They do not form part of the **payment and settlement system and cannot issue cheques drawn on itself.**
- The company should have a minimum net owned fund of at least Rs. 10 crores to be eligible for NBFC registration.
- The RBI has been given the powers under the RBI Act 1934 to register, lay down policy, issue directions, inspect, regulate, supervise and exercise surveillance over NBFCs that meet the **50-50 criteria of principal business.**
- RBI considers a company's principal business to be financial in nature if more than **50% of its total assets and gross income come from financial activities.**
- This definition ensures that only companies primarily involved in financial operations are registered as NBFCs and fall under RBI's regulatory oversight.

VIZHINJAM INTERNATIONAL SEAPORT

Context: The first phase of the Vizhinjam International Seaport is set to commence in December 2024.



About Vizhinjam International Seaport:

- Located in **Vizhinjam**, near Thiruvananthapuram in Kerala.
- It is India's **first Deepwater Container Transshipment Port.**
- The port is currently being developed in **landlord model** with a **Public Private Partnership** component on a Design, Build, Finance, Operate and Transfer (DBFOT) basis.
 - Under **landlord model**, port authority acts as regulatory body and as landlord, while port operations are carried out by private companies (Adani Vizhinjam Port Pvt Ltd).
- The port boasts a natural depth of more than 18 meters, which can be further scaled up to 20 meters.
 - This depth is crucial as it enables the port to accommodate large vessels and mother ships with substantial cargo capacities.
- Initial capacity in the first phase is set at **one million** (twenty-foot equivalent units) TEUs, with potential for expansion to **6.2 million TEUs.**
- **Progress:** The first phase of Vizhinjam International Seaport will be commissioned by December 2024. Phases 2 and 3 are expected to be completed by 2028.



India has **12 major ports.** However, the country lacks a landside mega-port and terminal

infrastructure to deal with ultra-large container ships.

Hence, nearly 75% of India's transshipment cargo is handled at ports outside India, mainly Colombo, Singapore, and Klang.

BIMA TRINITY

Context: IRDAI has stated that the Bima Sugam Platform for insurance (which is part of the Bima Trinity) will be launched very soon.

About Bima Trinity:



- Insurance Regulatory & Development Authority of India (IRDAI), under its 'Vision Insurance for all' by 2047, aims to ensure that every citizen has a life, health and property insurance cover and every business is supported by appropriate insurance solutions.
- IRDAI plans to launch Bima Trinity - Bima Sugam, Bima Vistar, and Bima Vaahaks - in collaboration with insurance firms.

Components of Bima Trinity:

- **Bima Sugam:**
 - Unified platform that combines insurers and distributors to simplify policy purchases, service requests, and claims settlement for customers.
- **Bima Vistar:**

- Comprehensive bundled policy that covers life, health, property, and accidents. It provides defined benefits for each risk category.
- **Bima Vaahaks:**
 - Women's workforce that will operate at Gram Sabha level to educate women about benefits of comprehensive insurance, particularly Bima Vistar.

Insurance Sector in India

- ✓ According to Economic Survey 2022-23, life insurance density in India increased from USD 11.1 in 2001 to USD 91 in 2021.
- ✓ As per IRDAI, **insurance penetration in India** increased from **3.76% in 2019** to **4.21% in 2021** (11.7% growth).
- ✓ **Life insurance penetration in 2021** was **3.2%**, almost twice that of emerging markets and above the global average.
- ✓ **Insurance density increased from USD 78 in 2020-21 to USD 91 in 2021-22.**
- ✓ India is the **10th biggest insurance market globally** & is projected to be the **6th biggest market** by 2032.

About IRDAI:

- ✓ It is a statutory body established under the **IRDA Act 1999.**
- ✓ It **supervises and regulates the insurance sector** in India.
- ✓ Aims: Protect interests of insurance policyholders & to regulate and ensure orderly growth of insurance sector.
- ✓ Nodal Ministry: Ministry of Finance
- ✓ Head Office: **Hyderabad.**
- ✓ Composition: **IRDAI is a 10-member body** - a Chairman, five full-time members, and four part-time members appointed by the Government of India.



Insurance penetration measures the contribution of insurance premiums to the GDP of a country in percentage terms. Insurance density, meanwhile, is the ratio of insurance premium to the total population.

INDEX OF INDUSTRIAL PRODUCTION

Context: Index of Industrial Production (IIP) contracted marginally in August, the first such occasion since October 2022.



About Index of Industrial Production

- It is one of the Prime indicators of economic development for the measurement of trends in the behavior of Industrial Production over a period of time with reference to a chosen base year.
- It indicates the relative change of physical production in the field of industries during a specified year as compared to the previous year.
- It is computed and published by the **Central Statistical Organization (CSO)** on a monthly basis.

Base Year:

- The base year is always given a value of 100.

- The current base year for the IIP series in India is **2011-12**.
- So, if the current IIP reads as 116, it means that there has been 16% growth compared to the base year.

Art & Culture

SHOMPEN TRIBE

Context: The Great Nicobar Project is expected to cause serious disturbances to the Shompen

About Shompen Tribe



- They reside in dense tropical rain forests of the Great Nicobar Island of **Andaman and Nicobar** group of Islands.
- Around 95% of the island is covered in rainforest.
- They are one of the most isolated tribes on Earth.
- They are one of the least studied Particularly Vulnerable Tribal Groups (PVTGs) in India.
- The Shompen habitat is also an important biological hotspot, and there are two National Parks and one Biosphere Reserve, namely **Campbell Bay National Park, Galathea National Park, and Great Nicobar Biosphere Reserve**.
- Population: Though according to the Census (2011), the estimated population of Shompen is 229, the exact population of Shompen is unknown till today.
- Most of them remain in the forest and have little or no contact with outsiders.

- They are **semi-nomadic hunter-gatherers** and their main sources of livelihood are hunting, gathering, fishing, and a little bit of horticultural activities in a rudimentary form.
- They live in small groups, whose territories are identified by the rivers that criss-cross the rainforest.
- Being nomadic, they typically set up forest camps where they live for a few weeks or months, before moving to another site.
- They collect a wide variety of forest plants, but their staple food is the pandanus fruit, which they call larop.
- Shompen speak their own language, which has many dialects.
- They are of short to medium stature, have a round or nearly broad head shape, narrow nose, a broad facial profile, and distinctly exhibit Mongoloid features such as light brown to yellow brown skin and oblique eye features.
- Shompen have nuclear families comprising husband, wife, and their unmarried children.
- A Shompen family is controlled by the eldest male member, who controls all activities of the women and kids.
- Monogamy is the general rule, although polygamy is allowed too.

Tribes of Andaman and Nicobar Islands

- Andaman and Nicobar Islands which have originally been the abode of six aboriginal tribes i.e., the **Andamanese, Onges, Jarawas, Sentinelese, Nicobarese and Shompens**.
- Except Nicobarese, the rest of the 05 tribes are Particularly Vulnerable Tribal Groups (PVTGs).

- The tribes of the Islands belong to two different races.
- The Andamanese, Jarawas, Onges and the Sentinelese living in the Andaman group of islands belong to the Negrito group while the Nicobarese and Shompens, living in Nicobar Islands belong to the Mongoloid group.

The Great Nicobar Island Project

- The Great Nicobar Island (GNI) project, launched in 2021, is a mega project to be implemented at the southern end of the Andaman and Nicobar islands.
- It involves developing a trans-shipment port, an international airport, township development, and a 450 MVA gas and solar-based power plant on the island.
- The project was implemented after a report by NITI Aayog which identified the potential to utilise the advantageous position of the island, which is approximately equidistant from Colombo in Sri Lanka to the southwest and Port Klang (Malaysia) and Singapore to the southeast.



CLASSICAL LANGUAGES

Context: The Union Cabinet has approved classical language status for Marathi, Bengali, Assamese, Pali and Prakrit.

About Classical Languages:

- The **Ministry of Culture** provides the guidelines regarding Classical languages.
- **Criteria** evolved by Government of India to determine declaration of a language as a Classical language is as under:
 - High antiquity of its early texts/recorded history over a period of **1500-2000 years**;
 - A body of ancient literature/texts, which is considered a valuable heritage by generations of speakers;
 - The literary tradition be **original and not borrowed** from another speech community;
 - The classical language and literature being distinct from modern, there may also be a discontinuity between the

classical language and its later forms or its offshoots.

- Currently, **six languages** enjoy the ‘**Classical**’ status: Tamil (declared in 2004), Sanskrit (2005), Kannada (2008), Telugu (2008), Malayalam (2013), and Odia (2014).
 - On October 3rd, **5 more languages** were added to the list: **Marathi, Bengali, Assamese, Pali and Prakrit**, taking the total to 11.
- All the Classical Languages except **Pali and Prakrit** are listed in the **Eighth Schedule** of the Constitution.
- Benefits available to languages notified as a Classical language:
 - Two major annual **international awards** for scholars of eminence in classical Indian languages.
 - **Centre of Excellence** for studies in Classical Languages is set up.
 - The University Grants Commission is requested to create, to start with at least in the Central Universities, a certain number of **Professional Chairs** for the Classical Languages so declared.

NOBEL PRIZE IN LITERATURE

Context: The 2024 Nobel Prize in Literature was awarded to South Korean author Han Kang for her “intense poetic prose” that explores historical traumas and human fragility.



About the literature Nobel:

- It has been **awarded annually since 1901**, to an **author from any country** who has, in the words of the will of Swedish industrialist Alfred Nobel, "in the field of literature, produced the **most outstanding work in an idealistic direction**".
- Though individual works are sometimes cited as being particularly noteworthy, the award is **based on an author's body of work as a whole**.
- It is **one of the five Nobel Prizes** established by the will of Alfred Nobel in 1895. Literature is traditionally the final award presented at the Nobel Prize ceremony.

Han Kang:

- She is a South Korean writer who has delved into themes of patriarchy, violence, grief, and historical injustices.
- She is the **first South Korean** to win the award and she writes in Korean.
- Her most famous work is **The Vegetarian**, which won the 2016 International Booker Prize.
- **Other notable works:** Human Acts, The White Book, We Do Not Part, Greek Lessons



The Nobel Prize in Literature 1913 was awarded to Rabindranath Tagore

"because of his profoundly sensitive, fresh and beautiful verse, by which, with consummate skill, he has made his poetic thought, expressed in his own English words, a part of the literature of the West".

He was also the first Indian and the first non-European to be awarded the Nobel prize.

KADAR TRIBE

Context: The Kadar tribe of Kerala has taken up active restoration of natural forests degraded by invasive species.



About Kadar Tribe:

- The Kadars are a small **indigenous tribal community** in South India.
- They reside along the hilly border between Cochin in Kerala and Coimbatore in Tamil Nadu.
- They are **traditional forest dwellers** who depend on forest produce for sustenance.
- They do not practice agriculture, building shelters thatched with leaves and shifting locations as their employment requires.
- They prefer to eat rice obtained in trade or as wages rather than to subsist on food of their own gathering.
- They have long served as **specialized collectors of honey, wax, sago, cardamom, ginger, and umbrella sticks** for trade with merchants from the plains.

- Kadar have a symbiotic relationship with nature, and they believe in the **coexistence of Kadar and Kaadu** (forest).
- The Kadar have traditional protocols to ensure the sustainable use of forest resources.
- Every practice of resource collection—be it honey, firewood, resin, or herbs—is designed to allow time for regeneration.
- Their population was estimated at approximately 2,000 individuals in the early 21st century.
- They speak the Dravidian languages of **Tamil and Kannaḍa**.
- They worship jungle spirits as well as local forms of the Hindu deities.
- They are listed as a **Particularly Vulnerable Tribal Group (PVTG)** in Kerala, but not in Tamil Nadu.
- In 2014 the Kadar community in Vazhachal, Kerala received Community Forest Resource rights under the **Forest Rights Act**.



Presently, the Kadar community is involved in the work of removal of **invasive alien species** from the forests of the region.

Prominent **invasive species** being targeted: *Lantana Camara*, *Chromolaena odorata*, *Mimosa diplotricha* and *Mikania micrantha*.

NATIONAL MISSION FOR MANUSCRIPTS

Context: The Union Ministry of Culture is set to revive and relaunch the National Mission for Manuscripts.



archaeological or artistic interest and which has been in existence for **not less than 100 years**.

NATIONAL AYURVEDA DAY

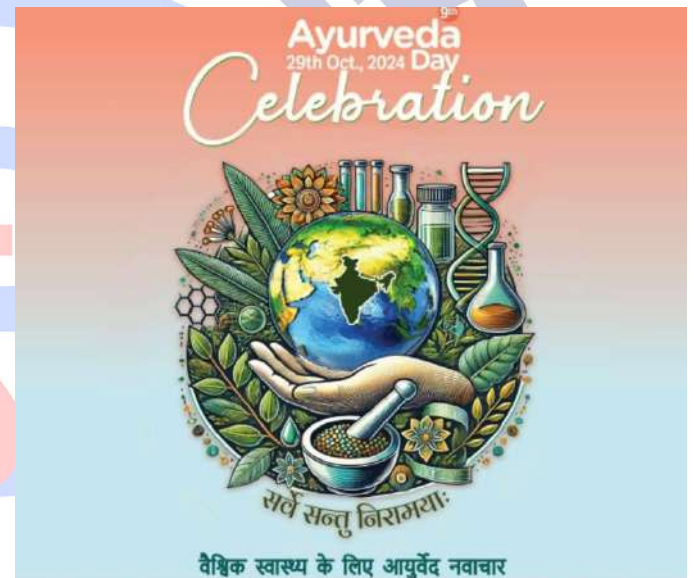
About the National Mission for Manuscripts:

- The National Mission for Manuscripts was established in **2003**, by the **Ministry of Tourism and Culture**.

Objective:


- The key objectives of the National Mission for Manuscripts are **documentation, conservation, digitization, and online dissemination** of the manuscript heritage of India.
- To achieve this mandate, the mission has established more than **100 Manuscripts Resource Centres** and **Manuscripts Conservation Centres** all over India.
- India possesses an estimated **ten million manuscripts**, probably the largest collection in the world.
- These cover a variety of themes, textures and aesthetics, scripts, languages, calligraphies, illuminations, and illustrations.
 - A **manuscript** is a **handwritten composition** on paper, bark, cloth, metal, palm leaf, or any other material **dating back at least seventy-five years** that has significant scientific, historical, or aesthetic value.

Context: Prime Minister Narendra Modi launched health-linked projects worth nearly Rs 12,850 crore on October 29, which is the ninth Ayurveda Day and also the festival of Dhanteras.



About Ayurveda Day:

- The national Ayurveda Day is celebrated on **Dhanvantari Jayanti**, the birth anniversary of god Dhanvantri.
- The central government started Ayurveda Day celebrations in 2016 to **create more awareness about Ayurveda**.
- The birth anniversary of Dhanvantari was chosen to mark this day, as Dhanvantari is considered the **physician of Gods**.
- Ayurveda Day honors Lord Dhanvantari's contributions, aiming to raise awareness about Ayurveda's foundational principles, healing practices, and lifestyle approaches.

 The **Ancient Monuments and Archaeological Sites and Remains Act, 1958** defines an "**Ancient Monument**" any structure, erection or monument, or any tumulus or place of interment, or any cave, rock-sculpture, inscription or monolith which is of historical,

- The theme for 2024 is **Ayurveda Innovation for Global Health** and the focus is on **four areas**:
 - women's health,
 - workplace wellness,
 - school wellness programmes, and
 - food innovation.



As part of Ayurveda Day celebrations, the government has announced the expansion of Pradhan Mantri Jan Arogya Yojana to cover all senior citizens aged 70 and above. With the Ayushman Vaya Vandana card, elderly persons above 70 years of age will get free treatment in hospitals.

KONARK SUN TEMPLE



- It is a classic example of the Odisha style of architecture or **Kalinga architecture**.
- The temple complex has the appearance of a **100-foot-high solar chariot**, with 24 wheels and pulled by six horses, all carved from stone.
- It is oriented towards the east so that the first rays of the sunrise strike the main entrance.
- The **wheels** of the temple are **sundials**, which can be used to calculate time accurately to a minute.
- Around the base of the temple, there are images of animals, foliage, warriors on horses, and other interesting structures.
- The temple also features elaborate stone carvings depicting scenes from Hindu mythology.
- The temple, built from **Khondalite rocks**, is also known as **black pagoda** due to its dark colour.
- The temple remains a site of contemporary worship for Hindus, during the annual **Chandrabhaga Festival**, around the month of February.
- **Location:** It is located on the coastline of Odisha in **Puri district**.
- Also called the **Surya Devalaya**, the temple is dedicated to the Hindu god Surya.
- Textual evidence indicates that **Narasimha I** (who reigned between 1238 and 1264) of the **Eastern Ganga dynasty** built the temple in 1250.
- It was designated a UNESCO World Heritage Site in 1984.

Features:

Environment

LEOPARD



- There have been increased instances of leopard attacks on humans and cattle in parts of Central and Eastern India.
- In March 2024, the 5th cycle leopard population estimation was done by National Tiger Conservation Authority & Wildlife Institute of India, in collaboration with states.
- India's leopard population is estimated at **13,874 individuals**
- Central India shows a slight growth population. But regions like Shivalik hills and Gangetic plains have shown a decline. Overall, there's a **1.08% per annum growth since 2018**.

Highest concentration of population:

- Nagarjunasagar Srisailam Tiger Reserve (AP)
- Panna National Park (MP)
- Satpura National Park (MP)

State-wise Distribution:

- Madhya Pradesh: 3907
- Maharashtra: 1985
- Karnataka: 1,879

Conservation Status:

- IUCN Red List: Vulnerable

- CITES: Appendix I
- Wildlife (Protection) Act, 1972: Schedule I

GREAT WHITE PELICAN



- According to a recent study, great white pelicans are increasingly **avoiding Indian wetlands due to habitat destruction**.
- The great white pelican, also known as the eastern white pelican, rosy pelican or simply 'white pelican' is a bird in the pelican family.
- It **breeds from southeastern Europe through Asia and Africa**, in swamps and shallow lakes.
- The great white pelican is a huge bird. It measures 140 to 180 cm in length with a 28.9 to 47.1 cm enormous pink and yellow bill.
- The **wingspan measures 226 to 360 cm** - the latter measurement is one of the highest ever recorded among extant flying animals.
- **IUCN Status: Least Concern**

HALARI DONKEY

- Halari Donkey is one of the important livestock in the semi-arid landscape of Saurashtra's Jamnagar and Dwarka district of the state of Gujarat.



- The **Bharwad and Rabari** pastoralists are the main communities that use this donkey as a pack animal to carry luggage during migration with small ruminants.
- The **Kumbhar** (potter) community also uses this animal for pottery work in the Jamnagar region.
- The Halari donkey's milk is also said to be one of the most expensive in the world which can go upto Rs 1000 for its medicinal values.
- A survey of Halari Donkey and its keepers in 2015 found that only 1200 individuals of the breed were existing.
- Halari Donkey is currently in a threatened state and requires immediate steps towards conservation to reverse the declining trend in the population.



SWALLOWTAIL BUTTERFLIES



- They are large, colorful butterflies in the family Papilionoidea, and include over 550 species.
- Though the majority are tropical, members of the family inhabit every continent except Antarctica.
- The family includes the largest butterflies in the world, the birdwing butterflies of the genus Ornithoptera.
- The forked appearance in some of the swallowtails' hindwings, which can be seen when the butterfly is resting with its wings spread, gave rise to the common name swallowtail.
- Colour patterns may vary, although many species have yellow, orange, red, green, or blue markings on an iridescent black, blue, or green background.
- Sexual and seasonal differences in coloration also occur.
- India hosts 77 of the 573 swallowtail butterfly species recorded across the world so far.
- The overexploitation of 25 species of host plants valued for their medicinal properties threatens the swallowtail butterflies in the forest habitats of a part of Assam.

- The International Union for Conservation of Nature designated the northeastern part of the country, where 69 species have been recorded, a 'swallowtail-rich zone' under the Swallowtail Conservation Action Plan.

KARVI FLOWER



- Karvi (*Strobilanthes callosa*) is a shrub native to the **Western Ghats**, displaying a fascinating life cycle where it thrives during the monsoon, only to appear dry for seven years before its spectacular flowering in the eighth year.
- The flowers, resembling miniature funnels, start as pink buds that unfold into a vibrant purple-blue, creating a breathtaking visual spectacle.
- Karvi (*Strobilanthes callosa*) is a shrub which is found in the Western Ghats along the west coast of India.
- It comes alive and green every year during the monsoon, but once the rains are over, all that is left is dry and dead-looking stems.
- This pattern repeats itself for seven years, but in the eighth year the plant bursts into mass flowering.

Neelakurinji Flowers

- It is a shrub of the Acanthaceae family that famously blooms once every 12 years.
- It is endemic to Western Ghats, covering the slopes of Kerala, Karnataka and Tamil Nadu.

- Their scientific name is 'Strobilanthes Kunthiana'.
- The Topli Karvy (*Strobilanthes sessilis*), the Karvy (*Strobilanthes callosa*) and the Kurinji (*Strobilanthes kunthiana*), all belong to the *Strobilanthes* genus.
- The Topli Karvy is found more in the northern section of the Western Ghats in Maharashtra.
- The Karvy grows on the steepest cliffs where trees can't grow.

ECOMARK SCHEME

Context: The Ministry of Environment, Forest and Climate Change has notified the Ecomark rules under the LiFE Mission.

About Ecomark Scheme:

- The Ecomark Scheme provides accreditation and labelling for household and consumer products that meet specific environmental criteria while maintaining quality standards as per Indian norms.

Key Objectives of the Ecomark Scheme:

- **Promoting Sustainable Consumption:** The scheme encourages the demand for environment-friendly products by fostering consumer awareness of eco-conscious choices.
- **Enhancing Production Practices:** It motivates manufacturers to adopt environmentally friendly production methods, aligning with sustainable development goals.
- **Ensuring Accurate Labelling:** The scheme ensures that products carry accurate environmental labels and eliminates misleading information.
- **Resource Efficiency and Circular Economy:** It promotes lower energy consumption and resource efficiency, contributing to a circular economy.

Implemented by: Central Pollution Control Board (CPCB).

- The **Bureau of Indian Standards (BIS)** will collaborate in ensuring strict environmental standards for accredited products.

Ministry: Environment, Forest and Climate Change

Impact on Environmental and Consumer Awareness:

- **Minimal Environmental Impact:** Products certified under the Ecomark scheme will adhere to specific environmental criteria to reduce ecological footprints.
- **Building Consumer Awareness:** The scheme aims to increase consumer understanding of environmental issues and the benefits of sustainable consumption.

- **Habitat:** They are living in shallow coastal waters on soft sandy or muddy bottoms and spawns mostly on intertidal beaches at summer-spring high tides.
- There are four extant horseshoe crab species:
 - The American horseshoe crab (*Limulus polyphemus*) along the eastern coast of the USA and in the Gulf of Mexico,
 - The tri-spine horseshoe crab (*Tachypleus tridentatus*),
 - The coastal horseshoe crab (*Tachypleus gigas*)
 - The mangrove horseshoe crab (*Carcinoscorpius rotundicauda*)
- The last three are Indo-Pacific species found mainly in the coastal waters of India, Southeast Asia, China and Japan.
- In India, **Odisha** is the largest habitat of horseshoe crabs

Conservation status in India: Schedule IV, Wildlife Protection Act 1972

IUCN Status:

- American horseshoe crab: Vulnerable
- Tri-spine horseshoe crab: Endangered
- The two other species are not listed yet

HORSESHOE CRABS



- It belongs to a class called **Merostomata**, living fossils, or those organisms that haven't changed in millennia.
- It is a **marine chelicerate arthropod**. The Chelicerata is a division within the Arthropoda, containing animals such as spiders, scorpions, harvestmen, mites and ticks.
- Like all arthropods, they have a segmented body and segmented limbs and a thick chitinous cuticle called an exoskeleton.


GRADED RESPONSE ACTION PLAN (GRAP)

Context: The GRAP is currently in place in the Delhi-National Capital Region due to poor air quality.



What is GRAP ?

- GRAP is a framework designed to **combat air pollution in the Delhi-NCR region**.
- It was introduced as an emergency response mechanism, and its implementation is triggered **when the Air Quality Index (AQI) reaches "poor" levels**.
- GRAP is particularly **important during the winter months** when air quality tends to plummet.
- The **Commission for Air Quality Management (CAQM)** in NCR and adjoining areas oversees the implementation of GRAP.
- It collaborates with the Ministry of Environment, Forest and Climate Change (MoEFCC).
- The CAQM has constituted a sub-committee for the operationalization of the GRAP.
- The orders and **directions of the CAQM will prevail in case of any conflict between directions** issued by the State governments and the CAQM.
- **GRAP consists of four stages**, each with targeted actions to be taken by the necessary authorities and agencies.
 - Stage I: "Poor" air quality (Delhi AQI: 201-300)
 - Stage II: "Very Poor" air quality (Delhi AQI: 301-400)
 - Stage III: "Severe" air quality (Delhi AQI: 401-450)
 - Stage IV: "Severe+" air quality (Delhi AQI > 450)

 The CAQM is a statutory body established under the **CAQM in National Capital Region (NCR) and Adjoining Areas, Act 2021**. It undertakes action for the prevention and control of Air pollution in Delhi-NCR & Adjoining Areas which impacts the air quality of the region. It coordinates its actions on monitoring of air quality with the govt of Delhi and the adjoining

states, which includes Punjab, Haryana, Rajasthan, and Uttar Pradesh.

CAENORHABDITIS ELEGANS



- The 2024 Nobel Prize for Physiology (Medicine) marks the **fourth time that a Nobel Prize has been awarded for scientific research related to Caenorhabditis elegans**.
- Caenorhabditis elegans is a **free-living transparent roundworm** about 1 mm in length that lives in temperate soil environments.
- It is the **first multicellular organism to have its whole genome sequenced**, and is the **first organism to have all its neural connections mapped**.
- Scientists were able to sequence its genome in 1998, years before we were able to do the same for flies and mice.
- The worm is **inexpensive, easy to store and consists of less than 1000 cells** – thus making it very helpful in scientific research.
- It is **widely used in neural and molecular biology based research**.

NATIONAL TIGER CONSERVATION AUTHORITY

Context: The Odisha government has translocated a female tiger from Maharashtra's Tadoba-Andhari tiger reserve to the Similipal Tiger Reserve to enhance the genetic diversity of the tiger population.

About National Tiger Conservation Authority:

- It is a **statutory body** under the **Ministry of Environment, Forest, and Climate Change (MoEFCC)**.
- It was **established in 2006** under **Wildlife (Protection) Act 1972**.

Objectives:

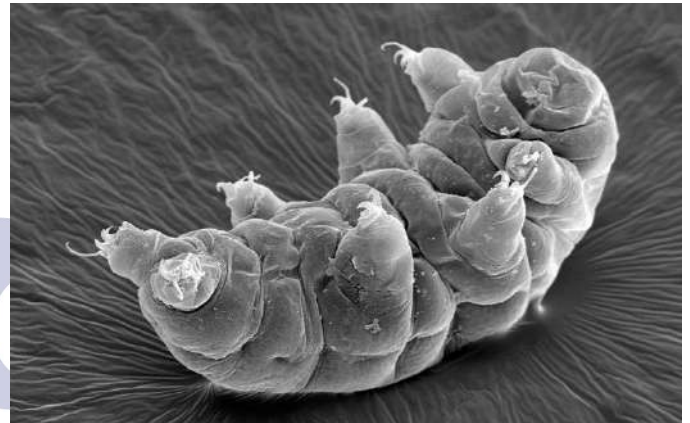
- Providing **statutory authority to Project Tiger** so that compliance of its directives becomes legal.
- Fostering accountability of Center-State in **management of Tiger Reserves** by providing a basis for MoU with States within the federal structure.
- Providing for an oversight by Parliament.
- Addressing livelihood interests of local people in areas surrounding Tiger Reserves.



NTCA Composition:

- **Minister in charge of MoEFCC (as Chairperson)**
- Minister of State in MoEFCC (as Vice-Chairperson)
- Three members of Parliament
- The Secretary (MoEFCC), and other members.

TARDIGRADES



- Tardigrades are also known as **water bears** or **moss piglets**.
- They are **free-living tiny invertebrates** belonging to the **phylum Tardigrada**.
- They are known to **survive extreme conditions** — such as exposure to extreme temperatures, extreme pressures (both high and low), air deprivation through a latent state of life known as **cryptobiosis**.
- Tardigrades have also survived exposure to outer space
- Around 1,300 species of tardigrades are found worldwide.

Habitat:

- They are considered **aquatic** because they require a thin layer of water around their bodies to prevent dehydration, they've also been observed in **all kinds of environments**, from the deep sea to sand dunes.
- **Freshwater mosses and lichens** are their preferred habitat, hence their nickname, moss piglet.
- Researchers found **three factors** that help this species **survive radiation**.
 - It has the ability to quickly **repair double-strand breaks in DNA** due to radiation exposure, by using a protein called TRID1.
 - The second factor involved a **gene that was switched on during exposure to radiation**, resulting in the generation

of two proteins that are known to be important for mitochondrial synthesis of ATP—in tardigrades, it appears they also help with DNA repair.

- It has the ability to **minimize damage from radiation by producing a large number of proteins that serve as effective antioxidants**—they clear out free radicals before they can cause problems in the creature's cells.
- **Significance:** The findings could one day be harnessed to help protect astronauts from radiation during space missions, clean up nuclear pollution or improve cancer treatment, according to a report in Nature.

Science & Technology

NUCLEAR POWER IN INDIA

Context: Today's editorial in The Hindu analyzes the opportunities and challenges of the proposed private sector involvement in India's nuclear energy sector.



Nuclear Power in India:

- It's the **6th largest source** of electricity in India, contributing about **2% of India's total electricity generation**. India currently has 22 nuclear reactors in 7 power plants, which together produce **6.78 GW of power**.

- Of these reactors, **18 are Pressurized Heavy Water Reactors (PHWRs) and 4 are Light Water Reactors (LWRs)**.
- In January 2021, the Kakrapar Atomic Power Project (KAPP-3), India's first 700 MWe unit and the biggest indigenously developed variant of the PHWR, was connected to the grid.
- Union govt has allowed joint ventures between **Nuclear Power Corp. of India Ltd. (NPCIL) and PSUs**. NPCIL has joint ventures with National Thermal Power Corp. (NTPC) and Indian Oil Corp. Ltd. (IOCL).
- Govt is **aiding expansion of nuclear installations to new parts** of the country. For example, an upcoming plant in Gorakhpur (Haryana).
- India is also working on an entirely **indigenous thorium-based nuclear plant, "Bhavni,"** which will be the first of its kind using Uranium-233.
- **Experimental thorium plant 'Kamini'** already exists in Kalpakkam.

- The **upcoming nuclear power plant in Jaitapur (Maharashtra) would be world's most powerful** nuclear power plant with 6 state-of-the-art Evolutionary Power Reactors (EPRs).
- India aims to increase nuclear power capacity from to **22.4 GW by 2031**.
- Functioning of all nuclear power related facilities in India is governed by the **Atomic Energy Act of 1961**.

Bharat Small Reactors:


- In the 2024 Union Budget, the govt. announced that it will **partner with the private sector to develop Bharat Small Reactors (BSRs)**.
- BSRs are a **type of Small Modular Reactor (SMR)** designed for India's energy needs. These reactors are compact, factory-built reactors with a **power capacity of up to 300 MW**.
- They aim to provide a safe, cost-effective, and low-carbon energy source, particularly suitable for locations that cannot accommodate larger nuclear plants.
- Development of BSRs involves collaboration of Union Govt and the private sector. This marks a historic shift in India's nuclear policy, as **Atomic Energy Act, 1962 previously barred private sector participation**.
- BSRs, aligned with global trends in SMRs, are based on India's existing PHWR technology.

About Nuclear Energy:

- ✓ Nuclear energy is the energy released from the nucleus, or core, of atoms.
- ✓ It has high energy density, meaning that a small amount of nuclear fuel can produce a large amount of energy.
- ✓ There are two primary methods of harnessing nuclear energy:
 - **Nuclear Fission:** This is the process of splitting the nucleus of an atom

into two smaller nuclei, releasing a large amount of energy in the process.

- **Nuclear Fusion:** This is the process of combining the nuclei of two light atoms to form a heavier nucleus. This process powers the sun and other stars.

 Nuclear power, along with hydrogen energy, were identified as key to India's LT-LCDS (Long Term Low Carbon Development Strategy) presented at COP 27 in Egypt (2022).

RASHTRIYA VIGYAN PURASKAR

Context: There have been multiple allegations of politicization of the recently announced RVP (Rashtriya Vigyan Puraskar) awards.



About Rashtriya Vigyan Puraskar:

- It is a new set of awards introduced by the Government of India in the **fields of Science, Technology, and Innovation**.
- Objective: To recognize the notable and inspiring contributions made by scientists, technologists, and innovators **individually or in teams in various fields of science, technology, and technology-led innovation**.
- It is one of the highest recognitions in the field of science, technology, and innovation in India.

Eligibility:

- Scientists/ technologists/innovators working in **govt, private organizations, or any individual working outside any**

organization who have made **distinguished contributions** in terms of path-breaking research, innovation, or discovery in any field of **science, technology, or technology- led innovation** shall be eligible for the awards.

- **People of Indian origin** staying abroad with contributions benefiting Indian communities or society shall also be eligible for the awards.
- Scientists will be **selected across 13 domains**, namely Physics, Chemistry, Biological Sciences, Mathematics & Computer Science, Earth Science, Medicine, Engineering Sciences, Agricultural Science, Environmental Science, Technology & Innovation, Atomic Energy, Space Science and Technology, and Others.
- The representation from each domain/field, including **gender parity** will be ensured.

Categories of awards:

- **Vigyan Ratna (VR)** award will recognize **lifetime achievements** & contributions made in any field of science and tech.
- **Vigyan Shri (VS)** award will recognize **distinguished contributions** in any field of science and technology.
- **Vigyan Yuva-Shanti Swarup Bhatnagar (VY-SSB)** award will recognize young scientists **below age of 45 years** who made an exceptional contribution in any field of science and technology.
- **Vigyan Team (VT)** award to be given to a team comprising **three or more scientists/researchers/innovators** who have made an exceptional contribution working in a team in any field of science and technology.

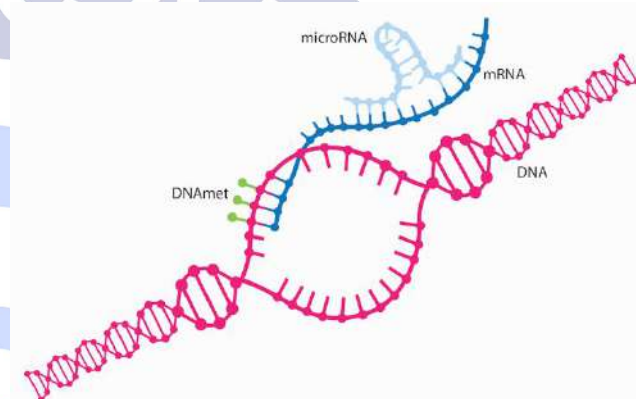
Decision and Ceremony:

- All nominations received for RVP are placed before the **Rashtriya Vigyan Puraskar Committee (RVPC)**, headed by the **Principal Scientific Adviser (PSA)** to the Government of India.

- The award ceremony for all categories of awards will be held on **23rd August (National Space Day)**.

MICRORNA

Context: Victor Ambros and Gary Ruvkun have received the 2024 Nobel Prize in Medicine, for their discovery of microRNA and its role in gene regulation.



What s MicroRNA ?

- MicroRNAs (miRNAs) are a class of **non-coding RNAs that play key roles in regulating gene expression**.
- Gene expression refers to whether a **particular gene is making too much, too little or the normal amount of its protein** at a particular time.
- Molecules of miRNA are **found in cells and in the bloodstream**.
- They are typically composed of **approximately 21 to 24 nucleotides**, making them **much smaller than messenger RNAs (mRNAs)**, which carry instructions for protein synthesis. Their small size allows them to bind to specific target mRNAs.

How does miRNA control gene expression ?

- miRNA controls gene expression mainly by **binding with messenger RNA (mRNA) in the cell cytoplasm**.
- Instead of being translated quickly into a protein, the mRNA will be either destroyed

and its components recycled, or it will be preserved and translated later.

- So, if the level of a particular microRNA is under-expressed (its level in the cell is too low), the protein it normally regulates may be over-expressed (its level will be unusually high); if the microRNA is over-expressed (its level is unusually high), its protein will be under-expressed (its level will be unusually low).

Biological Functions:

- They play **critical roles in various biological processes**, such as growth, cell differentiation, proliferation, and apoptosis (programmed cell death).
- They are involved in maintaining **cellular homeostasis** and responding to environmental cues.
 - Cellular homeostasis is the maintenance of stable conditions in cells.

Disease Implications:

- **Alteration in miRNA expression results in changes in the profile of genes** involving a range of biological processes, contributing to numerous human disorders.
- They play a **role in many cancers**, in carcinogenesis, malignant transformation and metastasis.
 - **Carcinogenesis:** Formation of cancer (uncontrolled development of cells), whereby normal cells also transform into cancer cells. It is also called oncogenesis or tumorigenesis.
 - **Malignant transformation:** Process by which cells acquire properties of cancer. This may occur as a primary process in normal tissue, or secondarily as malignant

degeneration of an existing benign (harmless) tumour.

- **Metastasis:** Spread of cancer from the place where they first formed to another body part. Cancer cells break away from the original (primary) tumour, travel through the blood or lymph system and form a new tumour in other organs or tissues.

About Ribonucleic Acid (RNA)

- ✓ Nucleic acid found in all living cells, made of nucleotides containing **ribose sugars, nitrogenous bases & various phosphate groups**.
- ✓ It is composed of ribose sugar, phosphate, and bases such as **adenine, guanine, cytosine, and uracil**.
- ✓ The **majority of RNA is single-stranded**, but there are some double-stranded RNA viruses. The length and structure of the RNA molecule can vary.
- ✓ Slight structural difference between the sugars in them adds **stability to DNA, making it more suitable for genetic information storage**, whereas RNA's relative instability makes it more suitable for its more short-term functions.

About Nobel Prize:

- ✓ The Nobel Prizes were **established by Alfred Nobel in 1895** and are given to "those who, during the preceding year, have conferred the greatest benefit to humankind."
- ✓ The first Nobel Prize was given in **1901**, and it has been provided for **physics, chemistry, medicine, literature, and peace** almost every year since.
- ✓ In 1968, the **Nobel Prize in Economic Sciences** was established and has been since been awarded by Sveriges Riksbank (Sweden's central bank).
- ✓ Prizes may be given **only to individuals, except the Peace Prize**, which may also be

conferred upon an institution. However, 3 individuals at max, can share a prize.

- ✓ All the Nobel Prizes are given in **Stockholm, Sweden** except for the Nobel **Peace Prize** which is awarded in **Oslo, Norway**.
- ✓ Each Nobel Prize consists of a gold medal, a diploma bearing a citation, and a sum of money.
- ✓ **Rabindranath Tagore was the first non-European and Indian** to get a Nobel Prize in 1913 in literature.

INDIAAI MISSION

Context: The IndiaAI Mission has selected 8 Responsible AI Projects against the Expression of Interest (EoI) floated under the Mission.



About IndiaAI Mission:

- The IndiaAI Mission will establish a comprehensive ecosystem catalysing AI innovation through strategic programmes and partnerships across the public and private sectors.
- Under this scheme, the government will allocate funds towards subsidising private companies looking to set up AI computing capacity in the country.
- **To be implemented by:** IndiaAI independent business division under **Digital India Corporation**.

Key Features:

- **IndiaAI Compute Capacity:** Aims to build a high-end scalable AI computing ecosystem to cater to the demands of India's AI start-ups.

- The ecosystem will comprise AI compute infrastructure of **10,000 or more Graphics Processing Units (GPUs)**, built through public-private partnerships.
- Further, an AI marketplace will be designed to offer AI as a service and pre-trained models to AI innovators.
- It will act as a one-stop solution for resources critical for AI innovation.

- **IndiaAI Innovation Centre:** The IndiaAI Innovation Centre will undertake the development and deployment of indigenous **Large Multimodal Models (LMMs)** and domain-specific foundational models in critical sectors.
- **IndiaAI Datasets Platform:** The IndiaAI Datasets Platform will streamline access to quality non-personal datasets for AI Innovation.
- **IndiaAI Application Development Initiative:** It will promote AI applications in critical sectors for the problem statements sourced from Central Ministries, State Departments, and other institutions.
 - It aims at the adoption of impactful AI solutions with the potential for catalysing large-scale socio-economic transformation.
- **IndiaAI FutureSkills:** It is conceptualised to mitigate barriers to entry into AI programmes and will increase AI courses in undergraduate, Masters level, and Ph.D. programmes.
 - **Data and AI Labs** will also be set up.
- **IndiaAI Startup Financing:** The IndiaAI Startup Financing pillar is conceptualised to support and accelerate deep-tech AI startups and provide them with streamlined access to funding to enable futuristic AI projects.
- **Safe & Trusted AI:** For responsible development, deployment, and adoption of AI, the Safe & Trusted AI pillar will enable implementation of responsible AI projects

including the development of indigenous tools and frameworks, self-assessment checklists for innovators, and other guidelines and governance frameworks.

ANTI MICROBIAL RESISTANCE

Context: Concerns regarding AMR is growing day by day

About AMR

- Antimicrobial resistance is the resistance **acquired by any microorganism** (bacteria, viruses, fungi, parasites, etc.) **against antimicrobial drugs** (such as antibiotics, antifungals, antivirals, antimalarials, and anthelmintics) that are used to treat infections.
- As a result, **standard treatments become ineffective**, infections persist, and may spread to others.
- It is a natural phenomenon as bacteria evolve, making drugs used to treat infections less effective.
- Microorganisms that develop antimicrobial resistance are sometimes referred to as **“superbugs”**.
- The World Health Organization (WHO) has identified AMR as one of the top ten threats to global health.

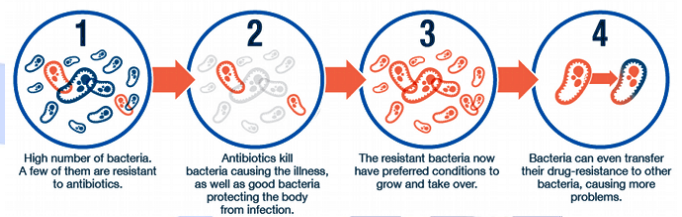
Reasons

- High burden of communicable diseases, such as tuberculosis, diarrhoea, respiratory infections, etc. that require antimicrobial treatment
- Hygiene lapses in hospitals and clinics facilitate the spread of resistant bacteria.
- Unregulated over-the-counter availability and affordability of antibiotics fuel self-medication and inappropriate use
- Low public understanding of AMR and proper antibiotic use encourages misuse.

Implications

- AMR can render previously effective antibiotics ineffective against bacterial infections.
- Treating resistant infections often requires more expensive and prolonged therapies
- Surgeries, cancer chemotherapy, and organ transplants become more hazardous due to the increased risk of infections that are resistant to standard antibiotics.

How does antibiotic resistance occur?



SMART INSULIN

Context: Recently, an international team of scientists from Denmark, the UK, Czechia, and the University of Bristol has engineered a “smart” insulin called NNC2215 that responds automatically to blood sugar changes.

About Smart Insulin

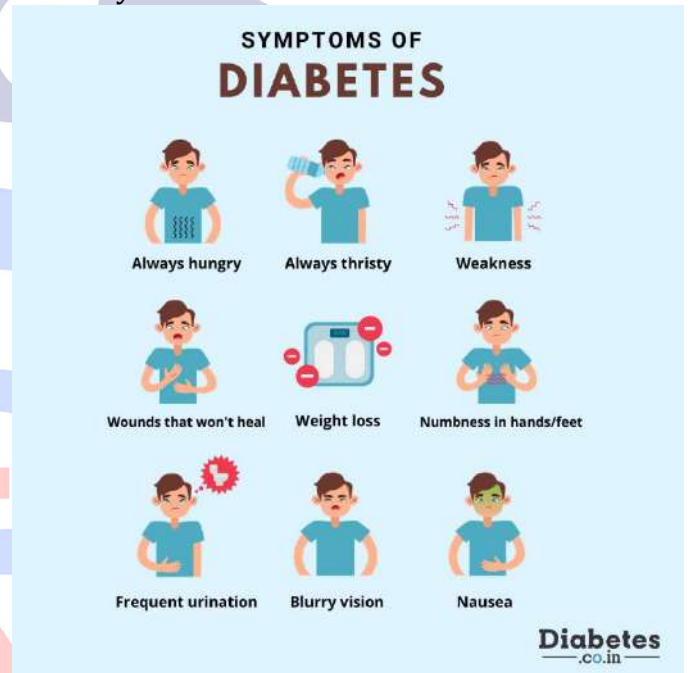
- NNC2215 consists of a **ring-shaped structure and a glucoside molecule**.
- The glucoside binds to the ring when low blood glucose, keeping the insulin inactive.
- As glucose levels rise, glucose replaces the glucoside, **activating the insulin to lower blood sugar**.
- This smart insulin could **simplify blood sugar management, reducing the need for constant monitoring** and improving the quality of life for millions of people dependent on insulin therapy.
- NNC2215 has shown to be as effective as human insulin in controlling blood glucose in animal tests (rats and pigs), and human trials are expected soon.

- Patients with diabetes need to continuously monitor their blood sugar levels and adjust insulin doses, as blood glucose levels fluctuate throughout the day.
- Overdosing on insulin can cause blood glucose levels to drop dangerously low, which can be life-threatening.
- One limitation of NNC2215 is that it activates only after a significant spike in glucose, leading to a sudden insulin release.
- Scientists are working to improve the insulin molecule so that it activates more gradually, allowing insulin levels to rise slowly for better glucose control.

About Diabetes

- Diabetes is a **Non-Communicable Disease (NCD)** that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood sugar, or glucose), or when the body cannot effectively use the insulin it produces.
- **Type 1 Diabetes:** It is also known as juvenile diabetes (as it mostly affects children of age 14-16 years), this type occurs when the pancreas makes little or no insulin.
- **Type 2 Diabetes:** It affects the way the body uses insulin. While the body still makes insulin.
- Type 2 diabetes can occur at any age, even during childhood. However, this type of diabetes occurs most often in middle-aged and older people.
- India has the **second-highest number** of diabetes patients in the world, after China.
- It affects the five major organs namely, Kidney, Heart, Blood vessels, Nervous System, and Eyes (retina).
- Factors that lead to increase in diabetes are **an unhealthy diet, lack of physical activity, harmful use of alcohol, overweight/obesity, tobacco use, etc.**

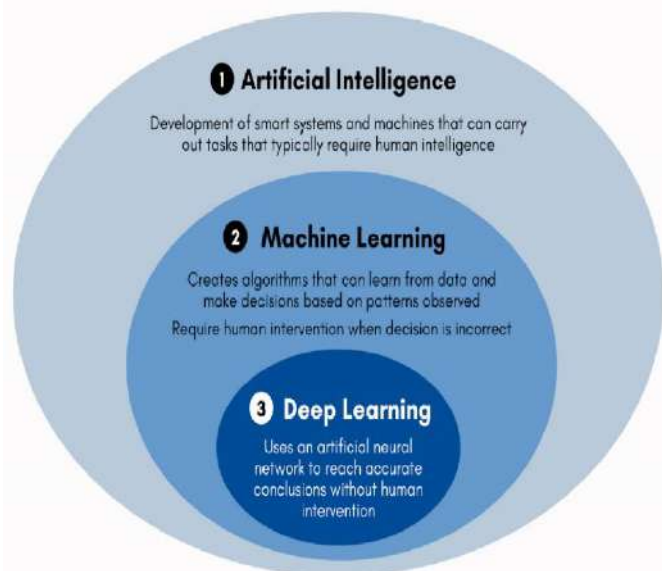
- There are an estimated **100 million** people above the age of 18 years suffering from this disease in India.
- Nearly **135 million are prediabetics**, which means they are at a high risk of developing this disease shortly.
- More than 60% of people with prediabetes can end up converting to diabetes in the next five years.



MACHINE LEARNING

Context: Machine learning pioneers win Nobel Prize in Physics

ARTIFICIAL INTELLIGENCE VS MACHINE LEARNING VS DEEP LEARNING



About Machine Learning

- Machine learning is a subset of artificial intelligence that involves training algorithms to learn patterns from data and make predictions or decisions without being explicitly programmed.
- It allows computers to improve their performance on tasks through experience.

How Does Machine Learning Work?

- Data Collection:** Gather large datasets relevant to the problem.
- Training:** Use these datasets to train algorithms, adjusting parameters to minimize errors.
- Evaluation:** Test the trained model on new data to assess its accuracy and performance.
- Deployment:** Implement the model in real-world applications to make predictions or automate tasks.

Common Types of Machine Learning

- Supervised Learning:** Models are trained on labeled data, meaning the input comes with the correct output.
- Unsupervised Learning:** Models find patterns in data without labeled responses.

- Reinforcement Learning:** Models learn by receiving rewards or penalties based on their actions.

Popular Applications of Machine Learning

- Image and Speech Recognition:** Identifying objects in images or understanding spoken language.
- Recommendation Systems:** Suggesting products or content based on user behavior.
- Fraud Detection:** Identifying fraudulent activities in financial transactions.
- Predictive Analytics:** Forecasting future trends based on historical data.
- Autonomous Vehicles:** Enabling self-driving cars to navigate and make decisions

NOBEL PRIZE IN CHEMISTRY

Context : The 2024 Nobel Prize in Chemistry is awarded to David Baker, Demis Hassabis, and John M. Jumper for their groundbreaking contributions to protein science.

About

AlphaFold is AI-based protein structure prediction tool. It has been recognised as a solution to predict the 3-dimensional structures of more than 200 million proteins.

Google DeepMind

IMPLICATIONS OF ALPHAFOLD PREDICTION

Predicted with high accuracy. Fastened procedures. AlphaFold's prediction of proteins' three-dimensional shapes, we now have 3-D structures for virtually all (98.5%).

WORKING OF ALPHA-FOLD

It uses processes based on "training, learning, retraining and re-learning in a systematic manner."

LIMITATIONS

Doubtful revelations
Ignores interactions
Only learning based results

- One-half of the prize is given to David Baker 'for computational protein design' and the other half jointly to Demis Hassabis and John M. Jumper 'for protein structure prediction.'
- David Baker has achieved the extraordinary feat of designing entirely

new proteins. Demis Hassabis and John Jumper developed an artificial intelligence (AI) model to address a 50-year-old challenge- predicting the complex 3-D structures of proteins.

- Hassabis and Jumper developed an AI-based model in 2020 named **AlphaFold2**. This can predict the structure of nearly all 200 million proteins identified to date.
- AlphaFold2 has been used extensively by millions of scientists around the globe to address issues like antibiotic resistance and plastic degradation.

SPACE BASED SURVEILLANCE MISSION

Context: The Cabinet Committee on Security recently approved phase 3 of the Space Based Surveillance (SBS) mission.

About the Space Based Surveillance Mission:



- The mission aims at the launch of **52 spy satellites** intended to enhance the country's surveillance capabilities from space amidst the security concerns with Pakistan and China
- It will help in better **land and maritime domain awareness** for civilian and military applications.
- The 52 satellites will be in **low earth orbit** and **geostationary orbit** for surveillance.

- **21 satellites** will be built by **ISRO** and the remaining **31 by private companies**.
- The SBS mission is being handled by the **National Security Council Secretariat** and **Defence Space Agency** under the Ministry of Defence.
- The three-armed forces will have dedicated satellites for their land, sea or air-based missions.
- SBS 1 was launched in 2001, and involved the launch of four satellites e.g., Risat 2 while SBS 2 came in 2013 with the launch of six satellites e.g., Risat 2A.
- The SBS 3 mission will be supported by India's acquisition of **31 Predator drones from the US**, joint construction of military satellites with France and anti-satellite missile capabilities.
- India aims to acquire **capabilities to detect enemy submarines** in the Indo-Pacific and monitor infrastructure construction by adversaries along its land and sea borders.

EUROPA CLIPPER MISSION

Context: NASA spacecraft Europa Clipper is ready to set sail for Jupiter and its moon Europa with the hope of finding life beyond Earth.

About Europa Clipper:

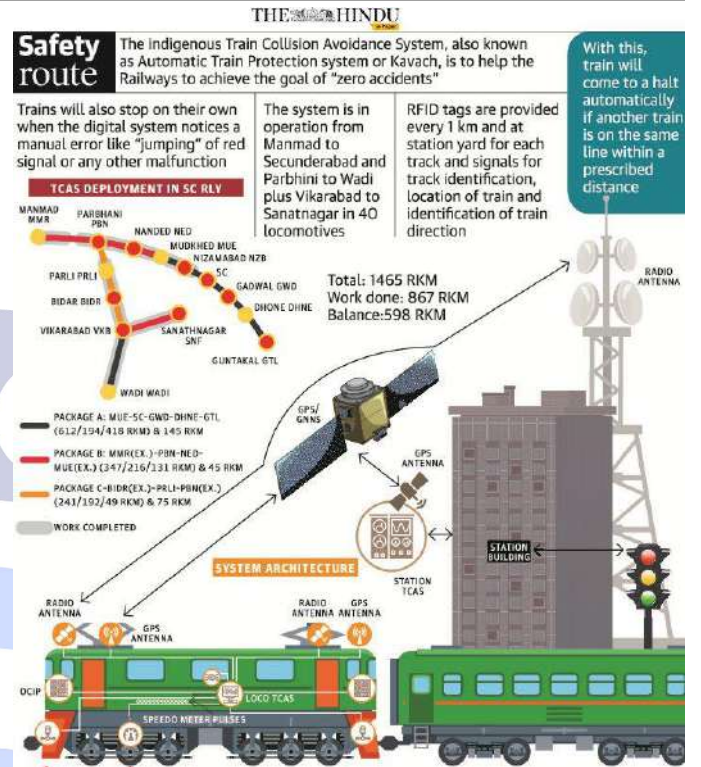
- It is a NASA mission to study **Jupiter's icy moon Europa**.
- The mission will place a spacecraft in orbit around Jupiter in order to perform a detailed investigation of Europa.
- It is the first NASA spacecraft dedicated to studying an **ocean world** beyond Earth.
- It aims to find out if the ice-encased moon Europa could be habitable.
 - Europa shows strong evidence for an **ocean of liquid water** beneath its icy crust.

- The spacecraft extends 100 feet (30.5 meters) from one end to the other and about 58 feet (17.6 meters) across.
- It is the **largest spacecraft** NASA has ever developed for a planetary mission.
- Europa Clipper will orbit Jupiter and conduct 49 close flybys of the moon to gather data needed to determine whether there are places below its thick frozen crust that could support life.
- The spacecraft carries nine science instruments and a gravity experiment that uses the telecommunications system.
- In order to obtain the best information during each flyby, all the science instruments will operate simultaneously on every pass.
- Scientists will then layer the data together to paint a full picture of the moon.
- The spacecraft has **large solar arrays** to collect enough light for its power needs as it operates in the Jupiter system.



KAVACH

Context: Need for Kavach is being discussed in the context of the train collision near Chennai.



About Kavach:

- Kavach is an **indigenously developed train control system** with anti-collision features developed by the **Research Design and Standards Organisation (RDSO)** in association with three Indian vendors.
- It has been adopted as our **National Automatic Train Protection (ATP) System**.
- It adheres to **Safety Integrity Level-4 (SIL-4)** standards and acts as a vigilant watchdog over the existing signaling system, alerting the loco pilot when approaching a 'red signal' and applying automatic brakes if necessary to prevent overshooting the signal.
- The system also relays **SoS messages** during emergency situations.
- It features **centralized live monitoring** of train movements through the Network Monitor System.
- The **Indian Railways Institute of Signal Engineering & Telecommunications (IRISET)** in Secunderabad, Telangana hosts the 'Centre of Excellence' for Kavach.

Components of Kavach:

- Within the Kavach setup, designated railway stations along the intended route for deployment consist of **three essential components**:

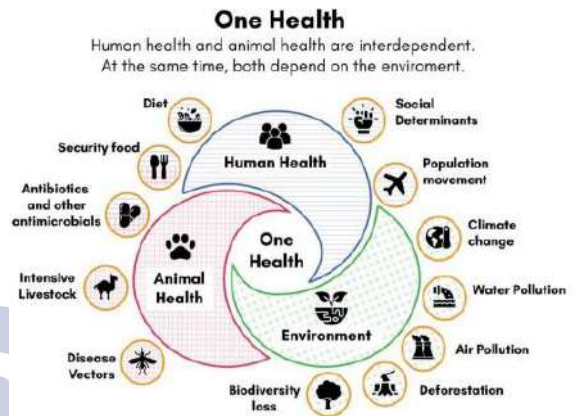
- **First Component:** The first component involves the incorporation of **Radio Frequency Identification (RFID)** technology into the tracks.
 - RFID employs radio waves to **identify objects or individuals** and utilizes electromagnetic fields to automatically read wireless device information from a distance **without physical contact or line of sight**.
- **Second Component:** The locomotive, serving as the driver's cabin, is equipped with **RFID readers**, a computer, and brake interface equipment, comprising the second component.
- **Third Component:** It encompasses **radio infrastructure**, such as towers and modems, strategically installed at railway stations to support the system's functionality.

Challenges in Deployment:

Its deployment cost is **₹50 lakh per kilometer**, with limited coverage of approximately **1,500 km** currently, posing a challenge in comprehensive implementation across the 68,000 km rail network.

ONE HEALTH

Context: Union Ministry of Fisheries, Animal Husbandry and Dairying launched a Pandemic Fund Project on "Animal Health Security in India" as part of India's One Health Approach.



About One Health:

- It is an approach that recognises that the **health of people is closely connected to health of animals and our shared environment**.
- Aims to **encourage collaborations in research and sharing of knowledge at multiple levels across various disciplines** like human health, animal health, plants, soil, & environmental health in ways that improve, protect and defend the health of all species.

About National One Health Mission:

- It is implemented by the **Prime Minister's Science, Technology and Innovation Advisory Council (PM-STIAC)**, which is headed by the **Principal Scientific Advisor (PSA)** to the Union Govt.
- PM-STIAC has formulated an Action Plan with the following focus areas:
 - **Enhance capacities** to strengthen health system.
 - **Reduce risk from zoonotic epidemics and pandemics**.
 - Control and **eliminate zoonotic, neglected tropical and vector-borne diseases**.
 - **Assess, manage, and communicate effectively about food safety risks**.
 - **Curb Anti Microbial Resistance** (termed as 'silent pandemic').

- Environment and health policies must be integrated.

Other Components of India's One Health approach:

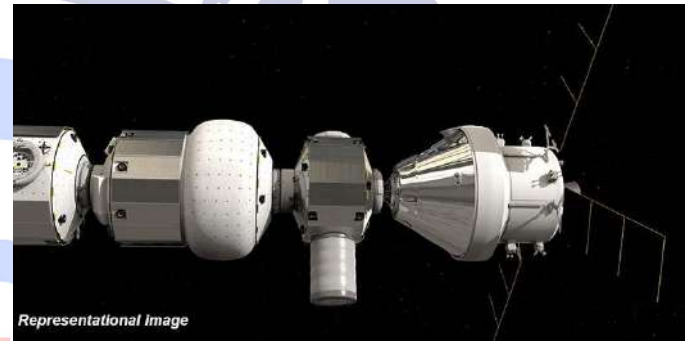
- **PM Ayushman Bharat Health Infrastructure Mission (PM-ABHIM) and Ayushman Bharat Digital Health Mission (AB-DHM):** Placing data from public & private hospitals in public domain to augment surveillance of diseases in vulnerable areas.
- **National Institute for One Health:** The foundation for the institute was laid in Nagpur in 2022.
- Creation of a network of institutions for **genomic surveillance during the COVID-19 pandemic**
- **National Mission on Biodiversity and Human Well Being:** Ministries of Health, Science & Tech, and Animal Husbandry have been brought under PSA to address overlapping mandates and improve coordination.
- **One Health Support Units** have been launched by the Ministry of Animal Husbandry for early detection and analysis of zoonotic diseases.
- **Expansion of research laboratories** which primarily focused on influenza, to cover all respiratory viruses of unknown origin.
- **Clinical trial network set up under the National Biopharma Mission** to improve access to affordable new vaccines and drugs.

SPADEX

Context: Recently, Hyderabad-based Ananth Technologies (ATL) handed over two 400-kg class satellites to ISRO. These satellites are part of ISRO's upcoming Space Docking Experiment.

About SPADEX

- SPADEX stands for **Space Docking Experiment of ISRO**.
- It involves the docking of two free-flying spacecraft in space, allowing them to join and operate as a single unit.
- This mission is part of India's broader ambition to be a key player in space exploration and satellite technology, aiming for both autonomous space docking and eventual space station development.



Objective of SPADEX

1. Demonstrating **autonomous docking of spacecraft** in low Earth orbit.
 2. Validating technology for flying two spacecraft in formation.
 3. Testing remote **robotic arm** operations for docking.
 4. Developing technology for controlling one spacecraft using another's attitude control system.
- **Components:** ISRO will launch a satellite that splits into two components: a chaser and a target.
 - These components will separate in space, rendezvous, and dock, forming a unified satellite.
 - The chaser will use cameras, sensors, and a robotic arm for docking with the target.
 - This technology could revolutionize **satellite constellations**, providing enhanced coverage and performance.

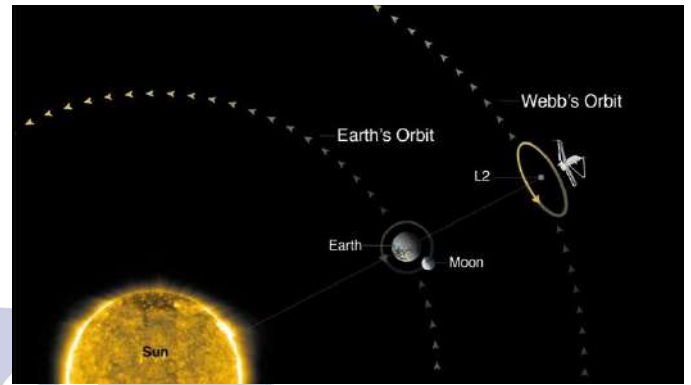
- It could also enable the creation of **customizable satellites for specific missions**.
- SPADEX will be a foundational step for India's space station, **Bhartiya Antariksha Station**.
- The first module of the station is planned for **2028**, with complete construction by **2035**.
- SPADEX technology will be crucial for docking modules together in space to build the station.
- **Chandrayaan-4** will utilize SPADEX for lunar sample collection and return.
- It involves docking between a spacecraft on the lunar surface and the sample return module orbiting above.
- **Gaganyaan 2** will involve docking with India's space station and NASA's Artemis moon base.
- The mission aims for human moon landings by 2040 in collaboration with NASA.

Applications of SPADEX in Space Operations:

- It is to be used for Human transfer between spacecraft. It can also be used for cargo transfer between spacecraft.
- It is also used for refueling and replacement of satellite parts spacecraft in orbit.

JAMES WEBB SPACE TELESCOPE

Context: Recent findings on black holes from the JWST once more support the standard theory of cosmology.



About James Webb Space Telescope:

- The telescope is an international collaboration between **NASA**, the **European Space Agency (ESA)** and the **Canadian Space Agency** which was launched in December 2021.
- It is currently at a point in space known as the **Sun-Earth L2 Lagrange point**, approximately 1.5 million km beyond Earth's orbit around the Sun.
- It is the **largest, most powerful infrared space telescope** ever built.
- It is the successor to the **Hubble Telescope**.
- It can see backwards in time to just after the Big Bang by looking for galaxies that are so far away that the light has taken many billions of years to get from those galaxies to our telescopes.



Lagrange Point 2 is one of the five such points in the orbital plane of the Earth-Sun system.

- Named after Italian-French mathematician **Joseph-Louis Lagrange**.
- At these points in any revolving two-body system like Earth and Sun, the gravitational forces of the two large bodies cancel each other out.
- Objects placed at these positions are relatively stable and require minimal external energy or fuel to keep

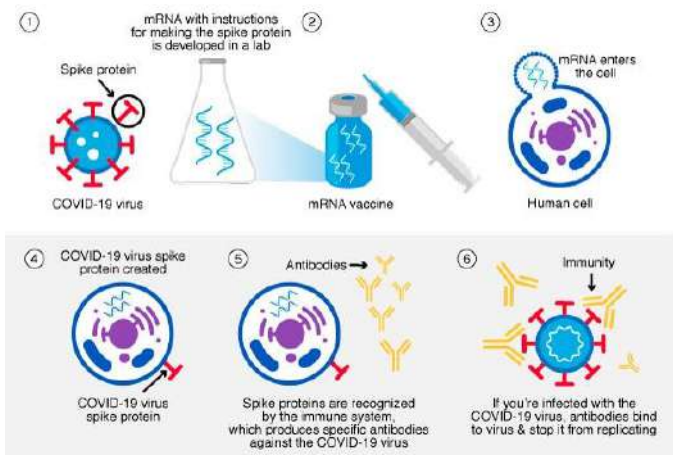
themselves there, and so many instruments are positioned here.

Objectives:

- It will examine every phase of cosmic history: from the Big Bang to the formation of galaxies, stars, and planets to the evolution of our own Solar System.
- The goals for the Webb can be grouped into four themes.
 - The first is to **look back around 13.5 billion years** to see the first stars and galaxies forming out of the darkness of the early universe.
 - Second, to compare the faintest, earliest galaxies to today’s grand spirals and understand how galaxies assemble over billions of years.
 - Third, to see where stars and planetary systems are being born.
 - Fourth, to observe the atmospheres of extrasolar planets (beyond our solar system), and perhaps find the building blocks of life elsewhere in the universe.

MRNA VACCINE

Context: The question of why mRNA vaccines for COVID 19 fail to generate long lasting plasma cells in the bone marrow is being examined by scientists.



About mRNA vaccines:

- mRNA vaccines work by **introducing a piece of mRNA** that corresponds to a viral protein, usually a small piece of a protein found on the virus’s outer membrane.
- By using this mRNA, cells can produce the **viral protein**.
- As part of a normal immune response, the immune system recognizes that the protein is foreign and produces specialized proteins called **antibodies**.
- Once produced, antibodies remain in the body, even after the body has rid itself of the pathogen, so that the immune system can quickly respond if exposed again.
- **Antibodies help protect the body against infection by recognizing individual viruses or other pathogens**, attaching to them, and marking the pathogens for destruction.
- If a person is exposed to a virus after receiving mRNA vaccination for it, antibodies can quickly recognize it, attach to it, and mark it for destruction before it can cause serious illness.
- Individuals who get an mRNA vaccine are **not exposed to the virus, nor can they become infected with the virus by the vaccine**.

Making of mRNA vaccines:

- To make an mRNA vaccine, scientists must first identify a protein on the outside of the virus that the body’s immune response will respond to (**the target protein**).
- The protein they choose must be sufficiently different from proteins on the outside of the body’s own cells, so the immune system only attacks the virus.
- They then identify the DNA that has the information for making the target protein.
- Scientists use the DNA to produce the mRNA for the target protein.

- Once enough mRNA has been made, the DNA is broken down to ensure that only the mRNA is packaged in the vaccine.
- The **speed and efficiency** of this process can **make large amounts of mRNA in a short period of time**.

coded in DNA, to be read by the cellular machinery.

Advantages of mRNA vaccines:

- mRNA vaccines are considered safe as mRNA is non-infectious, non-integrating in nature, and degraded by standard cellular mechanisms.
- They are **highly efficacious** because of their inherent capability of being translatable into the protein structure inside the cell cytoplasm.
- Additionally, mRNA vaccines are **fully synthetic** and do not require a host for growth, e.g., eggs or bacteria. Therefore, they can be **quickly manufactured inexpensively** to ensure their "availability" and "accessibility" for mass vaccination on a sustainable basis.

mRNA

- Messenger RNA (a mRNA) is a type of single-stranded RNA involved in protein synthesis.
- mRNA is made from a DNA template during the process of transcription.
- The role of mRNA is to carry protein information from the DNA in a cell's nucleus to the cell's cytoplasm (watery interior), where the protein-making machinery reads the mRNA sequence and translates each three-base codon into its corresponding amino acid in a growing protein chain.
- So mRNA really is a form of nucleic acid which helps the human genome, which is

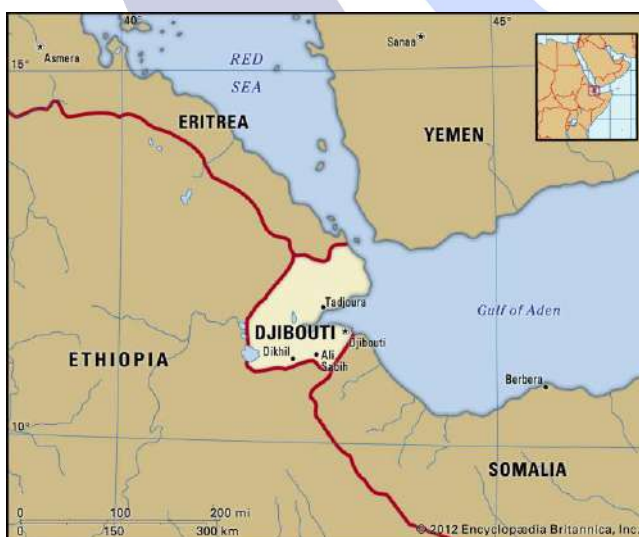
Places in News and Geography

RWANDA



- Rwanda recently confirmed a series of **deaths due to the Marburg virus disease**, which has symptoms similar to the Ebola virus.
- Rwanda is a **landlocked country in Great Rift Valley of Central Africa**, where African Great Lakes region and Southeast Africa converge.
- Located a few degrees south of the Equator, Rwanda is **bordered by Uganda, Tanzania, Burundi, and the Democratic Republic of Congo**.
- 80% of Rwanda drains into Lake Victoria via a series of small ricers while remaining 20% drains into the Congo via the **Rusizi River**.

DJIBOUTI



- Djibouti is a country in the **Horn of Africa region**, bordered by **Somalia to the south, Ethiopia to the southwest, Eritrea in the north, and the Red Sea and the Gulf of Aden to the east**.

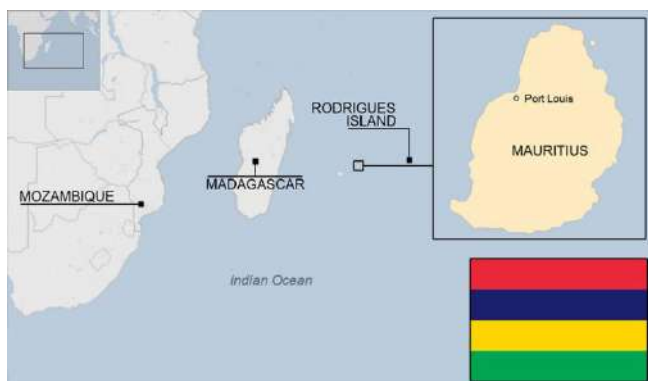
- Djibouti is a **multi-ethnic nation with a population of just over 1 million** as of 2024. French and Arabic are its two official languages.
- About 94% of Djiboutians adhere to Islam, which is the official religion and has been predominant in the region for more than 1,000 years.
- Djibouti is **near some of the world's busiest shipping lanes**, controlling access to the Red Sea and Indian Ocean. It serves as a **key refueling and transshipment center**, and the principal maritime port for imports from and exports to neighboring Ethiopia.
- A burgeoning commercial hub, the nation is the **site of various foreign military bases**.

ARUN RIVER



- The Arun River **originates in the Tibet Autonomous Region** of China, where it is known as Phung Chu or Bum-chu.
- It flows into Nepal and confluences with the Sun Koshi and Tamur River at **Trivenighat, forming the Sapta Kosi** (also called Kosi) River.
- The river significantly contributes to the Sapta Kosi River system in Nepal. It provides around **37% of the total water in the Sapta Kosi system**.
- It is the **largest trans-Himalayan River in Nepal**, playing a crucial role in supporting the region's hydrology and ecosystems.
- The Sapta Kosi **crosses into Bihar, where it branches into distributaries** before joining the Ganga. The Kosi is the **third-largest tributary of the Ganges by water discharge**, after the Yamuna and the Ghaghara.
- India is currently helping Nepal construct a 900 MW run-of-the-river hydropower project on the Arun river (**Arun-III Hydro Power Project**).

MAURITIUS



- Mauritius is about to hold its legislative assembly elections.
- Mauritius is an **island country in the Indian Ocean**, about 2,000 km off the coast of Africa, east of Madagascar.
- It comprises a main island, **Agaléga, Rodrigues, and St. Brandon**, forming **part of the Mascarene Islands**.

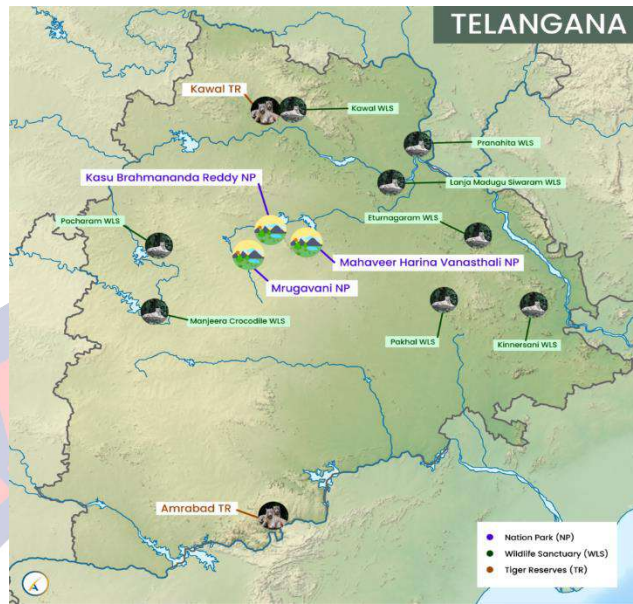
- Mauritius was a British colony until its independence in 1968.
- The capital is Port Louis.
- Mauritius is **ethnically diverse**, with Hinduism being a predominant religion. It follows a **Westminster parliamentary system**, boasts high economic and political freedom, and is a **high-income economy**.
- Known for its biodiversity, Mauritius is **home to many endemic species** and, historically, the dodo.

HIRAKUD DAM



- The six-decade-old **canal system of Odisha's Hirakud Dam is undergoing renovation**. This aims to modernise irrigation infra, reduce water wastage, and enhance agricultural productivity.
- It is a multipurpose scheme **conceived by Er. M. Visveswaraya in 1937**, after a recurrence of devastating floods in the Mahanadi River.
- Built around 1952-53, the Hirakud Dam is one of **India's first major multipurpose river valley projects** post-independence.
- It holds the title for the **longest major earthen dam globally**, stretching 25.8 km across the **Mahanadi River**.
- It was inaugurated by the then Prime Minister Jawaharlal Nehru in 1957.
- Hirakud Dam forms **Hirakud Reservoir**, one of the largest artificial lakes in Asia. Hirakud Reservoir was declared a **Ramsar site in 2021**.
- The dam has an installed capacity of 359.8 MW for hydroelectric power, contributing to the region's energy supply. The reservoir irrigates 436,000 hectares of land, benefiting farmers in the region.

ETURNAGARAM WILDLIFE SANCTUARY



- **Large rains recently flattened over 50,000 trees** in Eturnagaram Wildlife Sanctuary, Telangana, devastating the landscape.
- It is **located in Telangana**, around 100 kilometers east of Warangal.
- The sanctuary is located near the **border of Maharashtra, Chhattisgarh and Telangana**.
- A **perennial water source called Dayyam Vagu** flows through the sanctuary. It separates the wildlife sanctuary into two parts.
- The sanctuary is also famous for the **Sammakkka Sarakka Jathra**, one of Asia's largest tribal festivals, which takes place here every two years.
- The **Godavari also passes through** the sanctuary.
- The region falls in the **tropical dry deciduous** type of vegetation.

HEATWAVES IN INDIA

Context: Heatwaves and heat strokes have been in the news after the death of five people during the airshow at Marina Beach, Chennai.



About Heat Waves:

- Heatwaves occur over India **between March and June**.
- Indian Meteorological Dept. (IMD) under the Ministry of Earth Sciences declares a heatwave event when the **maximum (day) temperature for a location in the plains crosses 40° Celsius (C). Over the hills, the threshold temperature is 30° C.**
- A heatwave generally lasts for a **minimum of 5 days**. On occasion, it **can extend up to 7-10 days**

Following criteria are used to declare heatwave:

- Below criteria should be met at least in 2 weather stations for at least two consecutive days:
 - Based on **Departure from Normal**
 - Heat Wave: Departure from normal is 4.5°C to 6.4°C
 - Severe Heat Wave: Departure from normal is >6.4°C
 - Based on **Actual Maximum Temperature (for plains only)**
 - Heat Wave: Actual max. temperature is $\geq 45^{\circ}\text{C}$
 - Severe Heat Wave: Actual max. temperature is $\geq 47^{\circ}\text{C}$.

India's Vulnerability to Heat Waves

- **Only 8% of Indian households own AC units**, according to an analysis of the India Cooling Action Plan (ICAP).
- By 2030, India may account for **34 out of 80 million global job losses** from heat associated productivity decline.
- As per a World Bank Report, lost labour from rising heat and humidity could **reduce up to 4.5% of GDP**.
- According to IMD - **24% increase in heat waves during 2010-19 when compared to 2000-09**.
- From **2000 to 2019, mortality rate** for tropical cyclones decreased by 94% & it **increased by 62% for heat waves**.
- Heat waves is **not notified as a natural disaster at national level**.

IMD Colour Codes for Heat Index

- It is represented with **different colour codes to signify varying levels of heat impact and discomfort**:
 - Green: Below 35°C
 - Yellow: Range of 36-45°C
 - Orange: Range of 46-55°C
 - Red: Above 55°C
- The index is based on four factors: **Relative humidity, Wind speed, Max temperature, Cloud cover**.
- It warns against heat waves and lists the precautions people must take.

AMANGARH TIGER RESERVE



- The body of an eight-year-old tiger was found on the border of Amangarh Tiger Reserve of Bijnor and Jim Corbett National Park.
- The Amangarh Tiger Reserve was opened in 2012 and is located in north western **Uttar Pradesh, close to the border with Uttarakhand.**
- It lies close to the **vicinity of Jim Corbett National Park** a wildlife corridor connects these two protected areas.
- It is one **among 4 Tiger Reserves in Uttar Pradesh**, the other three being Dudhwa Tiger Reserve, Pilibhit Tiger Reserve and Ranipur Tiger Reserve.
- **Major species** found here: Tigers, leopards, elephants, deer, and several species of birds

RANTHAMBORE TIGER RESERVE



- The Rajasthan govt. recently stopped the illegal construction of a buildings in the buffer zone of the Ranthambore Tiger Reserve.
- It lies at the **junction of the Aravali and Vindhya** hill ranges.
- It comprises of the Ranthambore National Park as well as **Sawai Mansingh and Keladevi Sanctuaries.**
- The **Ranthambore fort**, from which the forests derive their name, is strategically located atop hill within the park and is believed to have been built in 944 AD by a Chauhan ruler.

- As per the 2023 Census by National Tiger Conservation Authority (NTCA), it is **home to 71 tigers**.
- It is mostly covered with **tropical dry deciduous forests**.

ROOPKUND LAKE



- Roopkund Lake is situated at an altitude of **5,029 meters in the Chamoli district of Uttarakhand**.
- The lake is commonly **referred to as the “Skeleton Lake”** due to the hundreds of ancient human skeletons found around its edges. These skeletons date back to the 9th century AD, believed to be from a group of travelers or pilgrims. Studies suggest they died due to a sudden hailstorm.
- Roopkund is a **shallow, high-altitude lake, typically around 2 meters deep**, although its size fluctuates with seasonal melting and freezing.
- Roopkund is a **glacial lake**, meaning it was formed by glacial activities, with water revealing the bones during the summer months when the ice melts.
- It holds cultural importance for the local communities, who believe it is **associated with Goddess Nanda Devi**. A Nanda Devi Raj Jat pilgrimage occurs every 12 years, during which devotees travel through this region.

LEBANON



- Lebanon is a country in the **Levant region** of West Asia, bordered by Syria to the north and east, Israel to the south, and the Mediterranean Sea to the west; Cyprus lies a short distance from the country's coastline.
- It is at the crossroads of the Mediterranean Basin and the Arabian Peninsula.
- It's capital is **Beirut**.
- Human civilization in Lebanon dates to 5000 BC. In 64 BC, the region became part of the **Roman Empire**, and later the **Byzantine Christian Empire**.
- After the 7th century, with the birth of Islam, the region witnessed the rise of Islamic empires.
- It came under the rule of different caliphates, including the Rashidun, Umayyad and Abbasid Caliphate.
- The **Ottomans** ruled the region for almost 500 years till its decline after the world war 1.
- After the dissolution of the Ottoman Empire following World War I, Lebanon was administered by **France**, which established Greater Lebanon.
- It went through a stable and peaceful years after independence from France but this was ultimately shattered by the outbreak of the **Lebanese Civil War** in the 1970s.
- It was fought between Lebanese **Christian militias and Palestinian insurgents**.
- In the 1980s, **Hezbollah**, a Shiite Islamist militant group came into existence through the efforts of Shiite clerics who were financially supported and trained by Iran.
- Arising in the aftermath of the 1982 war and drawing inspiration from the Islamic Revolution in Iran, Hezbollah actively engaged in combat as well as suicide attacks, car bombings and assassinations.

- Their objectives encompassed eliminating Israel, fighting for the Shia Islamic cause against the Lebanese Christians and establishing a **Shiite Islamic state in Lebanon**.
- Lebanon's economy went through a meltdown during the civil war and it is still facing serious socio economic and political instability.
- Hezbollah's control over southern Lebanon and its armed conflict with Israel at the borders keeps the country unstable.

CUBA

- Cuba, officially the Republic of Cuba is an island country, comprising the island of Cuba (largest island), Isla de la Juventud, and 4,195 islands, islets and cays surrounding the main island.
- It is located where the northern **Caribbean Sea, Gulf of Mexico, and Atlantic Ocean meet**.
- Cuba is located east of the Yucatán Peninsula (Mexico), south of both Florida and the Bahamas, west of Hispaniola (Haiti/Dominican Republic), and north of Jamaica and the Cayman Islands.
- **Havana** is the largest city and capital.
- From the 15th century, it was a **colony of Spain** until the Spanish–American War of 1898, when Cuba was occupied by the United States and gained nominal independence as a de facto United States protectorate in 1902.
- In 1940, Cuba attempted to strengthen its democratic system, but mounting political radicalization and social strife culminated in a coup and subsequent **dictatorship under Fulgencio Batista in 1952**.
- Open corruption and oppression under Batista's rule led to his ousting in January 1959 by the 26th of July Movement, which afterwards established communist rule under the leadership of Fidel Castro.
- Since 1965, the state has been governed by the **Communist Party of Cuba**.



CHAGOS ARCHIPELAGO



- It is an island group located in the **central Indian Ocean** and is about 1,000 miles (1,600 km) south of the southern tip of the Indian subcontinent.
- It is an **overseas territory of the United Kingdom** that was established on November 8, 1965.
- Its key islands include the **Diego Garcia** atoll, **Danger Island**, **Egmont Islands**, **Eagle Islands**, Nelsons Island, Peros Banhos atoll. (Diego Garcia island houses a strategic **US military base**).
- **Climate:** It experiences a tropical marine climate with high temperatures and elevated humidity levels. The climate is heavily moderated by the trade winds which blow over the islands.

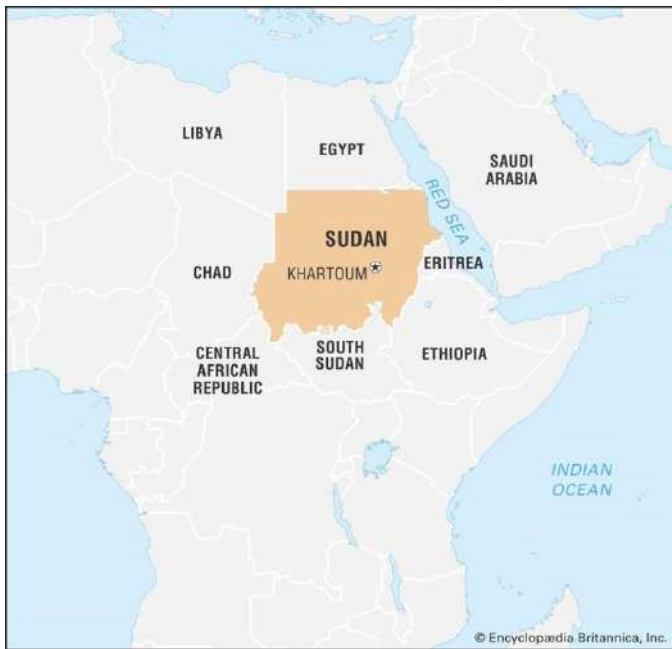
Chagos island dispute

- The Chagos dispute centres around the archipelago in the Indian Ocean, which **Britain claimed along with Mauritius** in 1814.
- In **1966**, Britain **leased Diego Garcia**, the largest of the Chagos Islands, to the **United States**, which was seeking a military base in the region.
- The Chagossians, who are mostly descendants of African slaves brought to the islands in the 18th century, have since been engaged in a prolonged legal battle for the right to return to their homeland.
- Mauritius, which gained independence from Britain in 1968, has consistently maintained its claim over the Chagos Islands.
- In 2019, the **International Court of Justice (ICJ)** dismissed the UK's right to govern the Chagos Islands and called on its government to withdraw from the archipelago.

Recent developments:

- The UK and Mauritius have reached a historic agreement to return sovereignty of the Chagos islands to Mauritius while securing the base at Diego Garcia.
- Mauritius will assume sovereignty over the archipelago with UK authorized to exercise the sovereign rights of Mauritius on Diego Garcia.

SUDAN



- Capital: Khartoum
- **Land Borders:** Egypt (north), Eritrea and Ethiopia (east), South Sudan (south), Central African Republic and Chad (west), and Libya (northwest).
- **Maritime Border:** Red Sea (east).
- **Highest point:** Deriba Caldera (Crater Lake) at Jebel Mara.
- **Major Rivers:** Nile, Tekeze etc.
- **Climate:** Varies from north to south. Northern part is a desert climate, receiving little rainfall, shifting to semi-arid and then tropical savannah towards south.
- The country has been facing a **civil war** for almost 1.5 years now.
- **Darfur** is an important region in Sudan which has been at the centre of the conflict.

ODESSA PORT



- Odessa is the third most populous city in Ukraine and a major seaport and transport hub located in the southwest.
- It opens into the **Black Sea**.
- It is also referred to as “Pearl by the Sea”, the “Southern Capital” as well as “Southern Palmyra”.
- It is a warm water port. The city of Odessa hosts both the Port of Odessa and Port Yuzhny, a significant oil terminal.
- Recently UNESCO has designated Odessa a **World Heritage in Danger** site.

AURORA BOREALIS AND AURORA AUSTRALIS

Context: Recently Auroras were spotted in Germany.



About auroras:

- Auroras can be found in the northern as well as the southern hemisphere, known as **aurora borealis** and **aurora australis** respectively.
- Auroras are essentially natural lights that appear as bright, swirling curtains in the night sky and can be seen in a range of colours, including blue, red, yellow, green, and orange.
- These lights primarily appear near the **north and south poles all year round** but sometimes they expand to lower latitudes.

Why do auroras occur?

- Auroras are the result of activity on the surface of the Sun.
- The sun continuously releases a stream of charged particles, mainly electrons and protons, and magnetic fields called **the solar wind**.
- As the solar wind approaches the Earth, it is deflected by the planet's magnetic field, which acts like a protective shield.
- However, some of the charged particles are trapped in the magnetic field and they travel down the magnetic field lines at the north and south poles into the upper atmosphere of the Earth.
- These particles then interact with different gases present there, resulting in tiny flashes that light up the night sky.
- When solar wind particles collide with **oxygen**, a **green colour** light is produced. Interaction with **nitrogen** produces shades of **blue and purple**.
- When the solar wind is extremely strong auroras expand to midlatitudes, especially during solar flares and coronal mass ejections.
- Extremely intense solar winds result in geomagnetic storms – a temporary disturbance of the Earth's magnetic field. During these storms, auroras are present in the mid latitudes.
- **Geomagnetic storms** can also affect space-dependent operations like Global Positioning Systems (GPS), radio and satellite communications, flight operations, power grids, and space exploration programmes.



A **solar flare** is a tremendous **explosion** on the Sun that happens when energy stored in 'twisted' magnetic fields (usually above sunspots) is suddenly released.

Coronal Mass Ejections (CMEs) are large-scale **eruptions of charged particles** (plasma) and magnetic fields from the solar atmosphere into space. They can disrupt a range of ground- and space-based technologies and satellites on Earth.

TADOBA-ANDHARI TIGER RESERVE

- **Location:** It is located in the **Chandrapur** district in Maharashtra.
- It is the largest and oldest Tiger Reserve of **Maharashtra**.
- The origin of the name "Tadoba" lies with the name of the god "**Tadoba**" or "**Taru**", worshipped by the tribes that live in the dense forests of the Tadoba and Andhari regions.
- "Andhari" refers to the Andhari River that meanders through the forest.
- The total area of the reserve is 625.4 sq. km. This includes Tadoba National Park, covering 116.55 sq. km, and Andhari Wildlife Sanctuary, covering 508.85 sq. km.
- **Corridor:** The reserve has corridor linkages with **Nagzira-Navegaon** and **Pench Tiger Reserves** within the State.

**Habitat:**

- Biogeographically, the reserve falls in the Central Plateau province of the Deccan Peninsula.
- The habitat has undulating topography in the north and is rich in biodiversity.

Vegetation: Southern Tropical Dry Deciduous

- There are two lakes and one waterway in the reserve, Tadoba Lake, Kolsa Lake, and the Tadoba River.

Flora:

- It is blessed with thick forests covered with teak trees and other vegetation such as crocodile bark, salai, tendu, karaya gum, and mahua madhuca.
- The reserve is adorned with patches of grass and bamboo shrubberies.

Fauna:

- The notable faunal species include the tiger, leopard, sloth bear, wild dog, gaur, chital, and sambar.
- As many as 280 species of birds are found, apart from reptiles (54 species), amphibians (11 species), and fishes (84 species).

SOUTH CHINA SEA

- The South China Sea is an arm of **western Pacific Ocean** in Southeast Asia.
- It is **south of China**, east & south of Vietnam, west of the Philippines and north of the island of Borneo.
- **Bordering states & territories** (clockwise from north): the People's Republic of China, the Republic of China (Taiwan), the Philippines, Malaysia, Brunei, Indonesia, Singapore and Vietnam.
- It is **connected by Taiwan Strait** with the **East China Sea** and by **Luzon Strait** with the **Philippine Sea**.
- It contains numerous shoals, reefs, atolls and islands. The Paracel Islands, the Spratly Islands and the Scarborough Shoal are the most important.



Importance:

- This sea holds tremendous strategic importance for its location as it is the connecting link between the Indian Ocean and the Pacific Ocean, through Strait of Malacca.
- According to the United Nations Conference on Trade and Development (UNCTAD) **one-third of the global shipping** passes through it, carrying trillions of trade which makes it a significant geopolitical water body.
- This sea has **one-third of the entire world’s marine biodiversity** and contains lucrative fisheries providing food security to the Southeast Asian nations.
- The SCS is believed to have huge oil and gas reserves beneath its seabed.
- It is one of the world’s most heavily trafficked waterways. An estimated USD 3.4 trillion in ship-borne commerce transits the sea each year, including energy supplies to U.S., Japan and South Korea.

JORDAN VALLEY



- It is a rift valley in the Middle East in southwestern Asia.
- A segment of the East African Rift System, the Jordan Valley is about 105 kilometers long and stretches from the Sea of Galilee in the north to the Dead Sea in the south.
- It is located along the Jordan River and along Jordan’s western border with Israel and the West Bank.
- It forms a natural border between Jordan, Israel, and the West Bank.
- It comprises over a fifth of the territory of the West Bank.
- It drops more than 1,400 feet (430 metres) below sea level at the Dead Sea, the **lowest natural point on Earth’s land surface**.
- Its width extends about 6 miles (10 km), though it becomes narrower in some locations.
- Though the valley is sparsely populated, some communities exist, most notably the city of Jericho in the West Bank.
- The Jordan Valley holds immense religious importance for Christianity, Judaism, and Islam.

Z-MORH TUNNEL



- Seven workers involved in constructing the Z-Morh tunnel, were killed in a militant attack in Jammu and Kashmir.

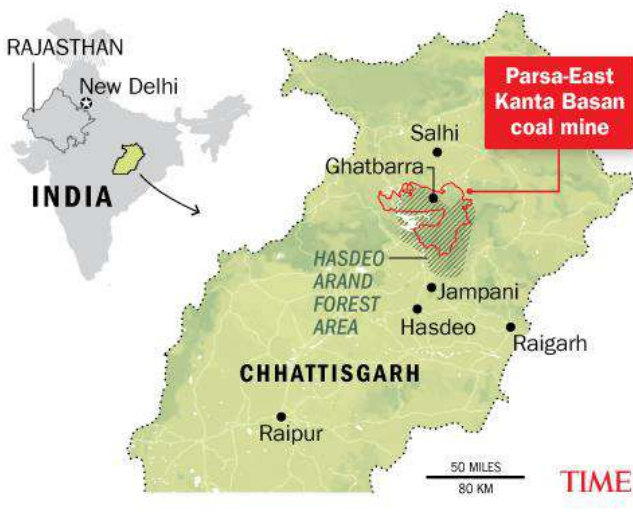
- Z-Morh Tunnel is a 6.4 km tunnel located near Gagangir village, **connecting Sonamarg and Kangan in central Kashmir.**
- It is **part of the larger Zojila tunnel project**, providing all-weather connectivity between **Srinagar and Ladakh**, vital for military access.
- Situated at over 8,500 feet, the tunnel bypasses snow-prone regions, ensuring year-round access.
- It was **semi-opened in February 2024**, with full completion delayed due to the Model Code of Conduct (MCC) for J&K elections.
- It provides crucial connectivity for Indian defence forces to border areas like **Siachen Glacier and Eastern Ladakh**, especially given ongoing tensions with China and Pakistan.

GEORGIA



- Georgia is currently conducting their legislative assembly elections.
- Georgia is a strategically important country situated at the **intersection of Eastern Europe and Western Asia.**
- It is **part of Caucasus region**, bounded by **Black Sea** to the west, **Russia** to the north, **Turkey** to the south-west, **Armenia** to the south, and **Azerbaijan** to the south-east.
- It has a population of 3.7 million, of which over a third live in the **capital and largest city, Tbilisi.**
- It was part of the Russian Empire and later the Soviet Union (USSR). In the 1980s, an independence movement grew quickly, leading to **Georgia's secession from the Soviet Union in April 1991.**
- As part of the **Association Trio along with Ukraine and Moldova**, Georgia is a **candidate for EU membership.**

HASDEO ARAND FOREST



- In Chhattisgarh’s Hasdeo Arand forest, tribals ambushed the police after tree-felling resumed for coal mining in the area.
- Hasdeo Arand Forest is known as the “**lungs of Chhattisgarh**” due to its rich biodiversity.
- It is the **largest unfragmented forest in Central India** with pristine Sal and teak forests.
- It spans 1,879.6 sq km across the Sarguja, Korba, and Surajpur districts in Chhattisgarh.
- The **Hasdeo River** runs through the forest.
- It is home to nine protected species under Schedule I of the Wildlife Protection Act, 1972, including:
 - Elephants, leopards, sloth bears, Indian grey wolves, and Indian pangolins.
 - It supports 92 bird species, 25 mammals, 16 types of snakes, and serves as a corridor for elephants and tigers.
 - It hosts 640 plant species, including 128 medicinal plants and 40 timber-yielding species.

LITHUANIA



- Lithuania is a country in the Baltic region of Northern Europe.
- It is one of three **Baltic states** and lies on the eastern shore of the Baltic Sea.
- Lithuania shares land borders with **Latvia to the north, Belarus to the east and south, Poland to the south, and Kaliningrad Oblast of Russia to the southwest.**
- It has a maritime border with Sweden to the west on the Baltic Sea.
- Its capital and largest city is **Vilnius**.

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TURKIYE



- Turkey, also called Türkiye, lies partly in Asia and partly in Europe.
- It is surrounded on three sides by the **Black Sea**, the **Mediterranean Sea**, and the **Aegean Sea**.
- The main portion of the Turkish state is located on the **Anatolia peninsula**, also known as **Asia Minor**, the westernmost part of Asia.
- There are two narrow straits in northwestern Turkey, the **Bosporus**, which connects the **Black Sea with the Sea of Marmara**, and the **Dardanelles**, which connect the **Aegean arm of the Mediterranean Sea with the Sea of Marmara**.
- **Capital:** Ankara
- **Largest city:** Istanbul
- **Bordering countries:** It is bordered by Bulgaria and Greece to the west; Armenia, Azerbaijan, and Iran to the east; Georgia to the northeast; Syria to the south; and Iraq to the southeast.
- **Religion:** More than **99 percent** of the population is Muslim, mostly Sunni.
- **Spoken Languages:** Turkish (official), Kurdish, and Arabic.

Government Schemes

AYUSHMAN BHARAT - PM JAN AAROGYA YOJANA

Context: There have recently been demands for the inclusion of persons with disabilities under the AB-PMJAY insurance scheme.



About Ayushman Bharat - PM Jan Aarogya Yojana (AB-PMJAY):

- It is the **world's largest health insurance scheme** fully financed by the govt.
- Launched in 2018, it offers a sum insured of **Rs.5 lakh per family** for secondary care and tertiary care.
 - It covers surgery, medical and day care treatments, cost of medicines and diagnostics.
- Covers medical & surgical procedures for almost all health conditions through a **comprehensive list of 1,949 packages**. It features **packaged rates** (each product/service during treatment cannot be charged separately).
- Beneficiary card for AB-PMJAY can be used to **avail benefits for any existing state health insurance schemes**.
- In the 2024 Interim Budget, the union govt. decided to extend health **coverage under**

the scheme to Accredited Social Health Activists (ASHAs) and Anganwadi workers.

- **No restrictions on family size, age or gender** for inclusion and **all pre-existing conditions are covered**.
- It covers up to **3 days of pre-hospitalization and 15 days post-hospitalization** and **benefits of the scheme are portable across India**.
- Scheme has a **dedicated workforce of PM Arogya Mitras (PMAMs)** who guide and assist beneficiaries.
- PMAMs also make **calls to every beneficiary who availed treatment within 48 hrs of discharge** to verify quality of treatment.
- Scheme has a **National Anti-Fraud Unit (NAFU)** to design, implement, and oversee anti-fraud initiatives. There are also **Anti-Fraud Units at the state level**.

Identification of Beneficiaries:

- It targets the beneficiaries as identified by latest **Socio-Economic Caste Census (SECC)** data.
- National Health Authority (NHA) has **provided flexibility to States & UTs to use non-SECC beneficiary databases** with similar socio-economic profiles for tagging leftover families.

Fundings:

- Funding is **shared - 60:40 for all states and UTs with a legislature**, 90:10 in Northeast and Himalayan states, and 100% Central funding for other UTs.

Nodal Agency:

- **National Health Authority (NHA)** has been constituted as an autonomous entity **under**

the Society Registration Act, 1860 for implementation of PM-JAY.

- The **State Health Agency (SHA)** is responsible for the implementation of AB-PMJAY in individual states.



Achievements of AB-PMJAY:

- It has covered over **15.5 crore families (55 crore beneficiaries)**.
- **11 states/UTs have pushed for 100% coverage** of their population.
- Approx. **28.45 Crore Ayushman Cards** have been created since 2018, out of which **9.38 crore were created in 2023**.
- **26,901 hospitals including 11,813 private hospitals** have been empanelled under AB PM-JAY.
- Catered to more than **6.11 crore hospital admission worth Rs 78,188 crore** in since 2019.
 - 1.7 crore hospitals admissions worth over ₹25,000 crores were authorised during 2023.
- It has **reduced out of pocket expenditure (OOPE) of beneficiaries by 60 %** and **increased access to tertiary care by 65 %**.

SWACHH BHARAT ABHIYAN

About Swachh Bharat Mission (SBM):

- It was **launched on Oct 2, 2014**, to fulfil the vision of a clean India. Its objectives were to **eliminate open defecation, eradicate manual scavenging, and promote scientific solid waste management**.
- It consists of two separate sub-missions:
 - **SBM-Grameen (under Ministry of Jal Shakti)**
 - **SBM-Urban (under Ministry of Housing and Urban Affairs)**
- Since its launch, it has helped **construct over 6 lakh community and public toilets** across India.
- It emphasized **behavioural change through mass awareness campaigns**, encouraging citizens to adopt cleaner practices.
- It uses **Swachhta leagues & rankings to create a healthy competition** between states, towns, and cities.

SBM – Grameen (SBM-G):

- It aims to accelerate the efforts to achieve **universal sanitation coverage** and to put **focus on sanitation in policy making**.
- It is being implemented as nation-wide campaign to **eliminate open defecation in rural areas**.
- The rural sanitation coverage at the time its launch was reported as **38.7%**. **This reached 100% by 2019 (ODF Status)**.



Women account for approx. 49% of total Ayushman cards created and approx. 48% of total authorized hospital admissions.

SWACHH BHARAT MISSION

Context: October 2, 2024 marked the 10th anniversary of the launch of the Swachh Bharat Mission.



- Now the subsequent goal is to transition **all villages to ODF Plus by 2024-25**.
 - Currently, **85% of villages have attained ODF Plus** status.
 - According to the National Annual Rural Sanitation Survey (NARSS) Round 3 - **95% of India's rural population had toilet access, with 79% owning their facilities**
 - **SBM(G) Phase-II:** It emphasizes the **sustainability of achievements under Phase I** and aims to provide adequate facilities for **Solid/Liquid & plastic Waste Management (SLWM)**.
 - It will be implemented from **2020-21 to 2024-25** in with an outlay of Rs. 1,40,881 crores.
 - The SLWM component of ODF Plus will be monitored based on **output-outcome indicators for 4 key areas:**
 - Plastic waste management
 - Biodegradable solid waste management
 - Greywater (Household Wastewater) management
 - Faecal sludge management.
 - Top 5 performing states: **Tamil Nadu, Telangana, Odisha, Uttar Pradesh and Himachal Pradesh** (maximum number of ODF Plus villages).
- SBM - Urban (SBM-U):**
- It aims to make cities and towns across India free from open defecation. It focuses on **door-to-door waste collection, waste segregation, and scientific waste processing via bio-methanation plants & material recovery facilities**.
 - It has mobilized over Rs **20,000 crores for investment in solid and liquid waste management systems** to strengthen urban infra across India.
 - **Phase 1 focused on making urban India ODF** by providing access to toilets and promoting behavioural change.
 - SBM-U 1.0 was successful in achieving its targets and **100% of urban India was declared ODF in 2019** - covering **4.715 urban local bodies (ULBs)**.
 - **3,547 ULBs are ODF+** with functional and hygienic community and public toilets.
 - **1,191 ULBs are ODF++**, having complete faecal sludge management.
 - **14 cities are certified Water+**, which entails treatment of wastewater & optimum reuse.
 - **SBM-U 2.0 was announced in Budget 2021-22**, and is the continuation of SBM-U first phase. It will be implemented from 2021 to 2026.
 - **SBM-U 2.0 will go beyond ODF++ and will focus on making urban India garbage-free**. It focuses on sustainable sanitation practices, waste management, and promotion of a circular economy.
 - **Waste Processing in India has gone up by over 4 times from 17% in 2014 to 75% in 2023**, aided through **100% door-to-door waste collection in 97% wards**.
 - **Source segregation of waste** is being practised by citizens across **almost 90% wards in all ULBs**.
 - **Garbage Free Cities (GFC) Star Rating** protocol was launched in Jan 2018. The number of GFC cities has increased from **only 56 cities in 2018 to 445 cities in 2023**, with a target of at least **1,000 GFC cities by 2026**.
 - **2023 Budget has further reinforced India's commitment to building a circular economy** through an enhanced

focus on scientific management of dry and wet waste.

Open Defecation Free (ODF) Status:

- ✓ **ODF:** An area can be declared as ODF if at any point of the day, not even a single person is found defecating in the open.
- ✓ **ODF+:** At any point of the day, not a single person is found defecating in the open, and all public toilets are functional and well maintained.
- ✓ **ODF++:** Area is already ODF+ and faecal sludge/septage and sewage are safely managed & treated, with no dumping of untreated faecal sludge and sewage into open drains or water bodies.

DHARTI AABA JANJATIYA GRAM UTKARSH ABHIYAN

Context: This scheme was recently launched by the Prime Minister to achieve saturation of govt. schemes in tribal majority villages.

About the Scheme:

- It was **originally called the Pradhan Mantri Janjatiya Unnat Gram Abhiyan (PM-JUGA)** & was approved by the Cabinet in September 2024.
- It is **based on the learnings and success of PM-JANMAN** (PM Janjati Adivasi Nyaya Maha Abhiyan).
- Aim: Improving socio-economic condition of tribal communities, by adopting **saturation coverage for tribal families in tribal-majority villages and aspirational districts.**
- India has **Scheduled Tribe population of 10.45 crore** as per 2011 census and there are >700 tribal communities.
- Total outlay for the scheme: Rs.79,156 crore with Central Share of Rs.56,333 crore.

- Coverage: **63,000 villages benefitting more than 5 crore tribal people**, covering 549 districts across 30 States/UTs.
- It comprises **25 interventions to be implemented by 17 ministries** through funds allocated under Development Action Plan for STs (DAPST) in next 5 years.
- Tribal villages covered will be mapped and progress will be **monitored on PM Gati Shakti platform.**

Mission's Four Goals:

- Goal-1: Develop Infra such as Pucca houses and improving Village Infra.
- Goal-2: Promotion of Economic Empowerment through Skilling, Entrepreneurship promotion, and livelihoods (self-employment).
- Goal-3: Universalization of Access to Good Education.
- Goal-4: Healthy lives and Dignified Ageing.

Innovative Schemes under PM-JUGA:

- **Tribal Home Stay:** To tap tribal tourism, 1000 Home stays will be promoted under Swadesh Darshan.
- **Sustainable Livelihood Forest Right Holders (FRA):** Special focus on 22 lakh FRA patta holders residing in forest areas for recognizing and securing forest rights.
- Improving **infrastructure of Government residential Schools and Hostels** on lines of PM-Shri Schools.
- Advance facilities for diagnosis of **sickle cell disease.**
- **Multipurpose Marketing Centre** for marketing of tribal products.

NATIONAL MISSION ON EDIBLE OILS – OIL PALM

Context: Union Cabinet approved the continuation of NMEO-Oilseeds, which aims to boost domestic oil-seed production and

achieving self-reliance - from 2024-25 to 2030-31.



About National Mission on Edible Oils - Oil Palm (NMEO-OP):

- NMEO-OP is a **Centrally Sponsored Scheme** launched in 2021 with the following objectives:
 - Expand oil palm acreage by an **extra 6.5 lakh hectares** by 2025-26
 - Increase palm oil production to **11.2 lakh tonnes by 2025-26 & 28 lakh tonnes by 2029-30.**
 - Increase consumer awareness to maintain a **consumption level of 19 kg per person per annum** till 2025-26.
- Farmers will be provided financial assistance and will get remuneration under a **price and viability formula.**
- The **Viability Formula** is a **Minimum Support Price-type mechanism** and the govt will fix this in relation to the Crude Palm Oil (CPO) price.
- Special assistance of Rs. 250 per plant will be given to **replant old gardens for their rejuvenation.**
- It will have a special **emphasis on India's North-Eastern states and the Andaman and Nicobar Islands** due to conducive weather conditions.

Edible Oil Sector in India:

- ✓ India is the **3rd largest producer, 2nd largest consumer, and the largest importer** of edible oilseeds.
- ✓ India imports vegetable oil **worth more than USD 14 billion** to meet chronic domestic shortages - palm oil (57%), soybean oil (22%), sunflower oil (15%) and small quantity of mustard oil.
- ✓ In 2022-23, **15.53 million tonnes (55.76%) of total edible oil demand** was met through import - likely to reach 15.6 million tonnes in 2023/24 due to falling global prices.
 - **Palm oil** - mainly from Indonesia and Malaysia,
 - **Soyabean oil** - Argentina, Brazil
 - **Sunflower oil** - Ukraine, Russia.
- ✓ Around **half of all imports are from Indonesia.**
- ✓ **Demand in India was 24.6 million tonnes (MT)** in 2020-21 with domestic availability of 11.1 MT (2020-21).
- ✓ Major oil palm-growing states: **Andhra Pradesh, Telangana, Kerala** (together account of 98% of India's production).

AMRUT SCHEME

Context: Ministry of Housing and Urban Affairs approved the Jal Hi AMRIT Scheme under AMRUT 2.0 to improve sewage treatment.



About Atal Mission for Rejuvenation and Urban Transformation (AMRUT):

- AMRUT is a **centrally sponsored scheme** launched in 2015 to provide **basic civic amenities** like water supply, sewerage, urban transport, parks as to improve the quality of life for all especially the poor and the disadvantaged.



- Its focus is on **creation of infra that has a direct link to provision of better services** to the citizens.
- It covers **500 cities that includes all cities and towns with a population more than 1 lakh and having notified Municipalities.**
- Concerned Ministry: **Housing and Urban Affairs (MoHUA)**
- **State Annual Action Plan (SAAP):** States are equal partners in planning and implementation. **Approval of SAAP is done once a year by MoHUA and states must give project sanctions and approval at their end.**
- **Supervision will be done by an Apex Committee chaired by Secretary, MoHUA** and with representatives of related Ministries.
- **Aims of the Mission:**
 - Ensure that every household has access to a tap with assured water and a sewage connection.
 - Increase amenity value of cities by developing greenery and well-maintained open spaces.
 - Reduce pollution by switching to public transport or constructing facilities for non-motorized transport.

About Jal Hi AMRIT Scheme:

- It is being **launched under AMRUT 2.0** reforms. It incentivises states and UTs to **manage sewage treatment plants (STPs) efficiently**, ensuring production of good-quality, recyclable treated water.
- **Clean Water Credits will be awarded** in terms of Star-rating between 3 stars to 5 stars certificate valid for six months. STPs with Clean Water Credits of 3-star and above in different groups as below will be **given financial incentives.**
- As per Central Pollution Control Board (2021), India's **water treatment capacity**

is 27.3% & sewage treatment capacity is 18.6 % (with another 5.2 % in development).

AMRUT 2.0:

- ✓ Union Govt. launched the AMRUT 2.0 scheme on **1 October 2021**. It aims to:
 - Improve sewage management,
 - Make cities water secure
 - Ensure that no sewage drains anywhere into rivers
- ✓ AMRUT 2.0 aims to **improve sewage management to make all Indian cities water secure**. Goals of AMRUT 2.0:
 - Provide **100% coverage of water supply** to all households via **2.68 crore tap connections.**
 - **100% coverage of sewerage and septage in 500 AMRUT cities** by providing around 2.64 crore sewer or septage connections
 - Amrut 2.0 extends coverage from 500 cities under the first phase to **4,700 cities and towns.**



AMRUT has created 1.1 crore household water tap connections and 85 lakh sewer connections, thus benefiting more than 4 crore people.

E-OFFICE PLATFORM

Context: Across the last week, administrative works in Indian Railways has been hampered due to issues with the e-Office platform.



About e-Office Platform:

- The e-office system in India, **initiated by the National Informatics Centre (NIC)**, is an integral part of the **Digital India Programme**.
- It aims to achieve a **Simplified, Responsive, Effective, Accountable and Transparent (SMART) working** in govt. offices by transitioning them from traditional paper-based processes to a **modern, digitized, & paperless system**.
- Nodal agency for implementation: **Dept. of Administrative Reform and Public Grievances (DARPG)** under the Ministry of Personnel, Public Grievances and Pensions.

It has 4 components:

- **File Management System (eFile):**
 - **Workflow-based system** that extends the features of existing manual handling of files in addition to a more efficient electronic system.
 - It comprises different sub-modules that are interlinked to **manage the official workflow of the entire life cycle of a document** from the moment it is received till the time it is disposed of.
- **Knowledge Management System (KMS):**
 - It aims to create a **central repository of documents** in an organization.
 - It helps users create & manage electronic documents in the workflow, **along with versions (tracking history)** that can be easily viewed, searched, shared, and published.
 - It logically **organizes content & standardizes content creation and presentation** across the entire organization.

- **Work from Anywhere (WAW) Portal:**
 - It is a one stop-portal for office functions and connects officials to securely access their office from anywhere.
- **Smart Performance Appraisal Report Recording Online Window (SPARROW):**
 - It helps in processing of **Annual Performance Appraisal Report (APAR) of employees**.
 - Employees can fill in their APAR, which is further reported and reviewed by the official hierarchy.
 - It helps in **reducing delays** in submission and processing of APARs & **ensures transparency** by tracking its movement.
 - The system **also provides a dashboard facility** that enables the govt. to monitor status such as, pendency at various levels, APARs processed/closed, etc.

Implementation:

- **Nodal officers:** Each ministry and department will coordinate with their respective attached, subordinate offices, and autonomous bodies to appoint nodal officers who will oversee the implementation process.
- **Data centres:** Ministries and departments are tasked with setting up necessary data centres to support the e-office infrastructure.
- **Offices will submit requisitions to NIC detailing the number of users & licenses required**, ensuring a smooth and timely onboarding process.

ADITI SCHEME

Context: Union Defence Minister launched Phase 2 of the ADITI Scheme, aiming to improve private participation in India's defence production industry.



About Acing Development of Innovative Technologies with iDEX (ADITI) Scheme:

- It was launched in March 2024 and is aimed at **fostering indigenous innovations in critical and strategic defence technologies.**
- The scheme targets **development of approximately 30 deep-tech critical and strategic technologies** within the proposed timeframe.
- **Start-ups can avail grant-in-aid of up to 50% of project development budget (maximum Rs 25 crore)** for their research, development, and innovation efforts in defence tech.
- ADITI is backed by a budget of **Rs 1150 crore spanning from 2023-24 to 2025-26.**
- It **operates within iDEX** (Innovations for Defence Excellence) framework under the Ministry of Defence.

Features of the Scheme

- **Bridge-building Initiative:** ADITI aims to establish a ‘Technology Watch Tool’ to bridge the gap between the modern Armed Forces’ expectations and requirements and the capabilities of the defence innovation ecosystem.
- **Incentives for Innovators:** iDEX has been expanded to iDEX Prime, offering increased assistance from Rs 1.5 crore to Rs 10 crore, motivating young innovators to participate.
- **Empower Youth:** Aims to nurture youth innovation, propelling India forward in defence technology.

Innovations for Defence Excellence (iDEX) Initiative

- ✓ iDEX is an initiative to contribute towards modernization of the defence industry. It was launched in April 2018.
- ✓ iDEX aims to promote innovation and technology development in defence and aerospace by engaging industries (including MSMEs, R&D institutes start-ups, academia, and individual innovators).
- ✓ iDEX will provide the industry with funding and other support to carry out Research & Development.
- ✓ iDEX will be funded and managed by Defence Innovation Organization (DIO), and will function as the executive arm of DIO.

PRIME MINISTER’S INTERNSHIP SCHEME

Context: The government has launched the pilot phase of the Prime Minister’s Internship Scheme, which aims to provide 1.25 lakh internship opportunities during the fiscal year 2024-25.

About PM’s Internship Scheme:

- First announced in the **Budget 2024-25**, the scheme envisions creating **one crore internship opportunities** for young people in top companies over the **next five years.**


- **Managed through:** an online portal developed by the **Ministry of Corporate Affairs (MCA)**.
- The pilot project has already generated significant interest, with over 1,000 internship offers from leading companies like **Mahindra & Mahindra, Max Life, and Alembic Pharma**.
- The companies participating in the scheme were selected based on their **average Corporate Social Responsibility (CSR) expenditure over the last three years**.
- Involvement in the scheme is **voluntary**.
- Additionally, other companies, banks, and financial institutions can apply to participate with MCA approval.
- In cases where partner companies cannot offer internships in-house, they are allowed to collaborate with suppliers, customers, or other entities in their value chain.
- Duration of internship: **12 months**, with at least half of the internship period dedicated to hands-on work experience.
- **Stipend structure:**
 - **Monthly stipend:** ₹5,000, with ₹4,500 provided by the government and ₹500 (10%) contributed by the company from its CSR funds.
 - A **one-time grant** of ₹6,000 for incidental expenses will also be provided by MCA when interns join their workplace.
- Interns will be insured under government schemes like **PM Jeevan Jyoti Bima Yojana** and **PM Suraksha Bima Yojana**, with the government covering the premium costs.
- A grievance redressal mechanism and a multilingual helpline (1800-116-090) have been established to support applicants and ensure a smooth internship process.

NATIONAL INSTITUTIONAL RANKING FRAMEWORK (NIRF)

Context: The Hindu editorial points to the use of quantitative metrics such as NIRF in education as harming the teaching aspect of the system.

About National Institutional Ranking Framework:

- It is a ranking system for higher education institutions in India.
- Introduced by: **Ministry of Education**
- It aims to provide a fair and transparent assessment of higher education institutions across India based on various parameters.
- **Parameters for ranking:** the NIRF evaluates institutions based on **five** broad parameters.

 The **National Assessment and Accreditation Council (NAAC)** also evaluates educational institutions. NAAC evaluates and accredits higher education institutions based on a comprehensive assessment of their **overall quality**, encompassing various dimensions.

NAAC's accreditation process is **qualitative**, focusing on an institution's ability to provide a well-rounded education. The accreditation system categorizes institutions into **grades** ranging from **A++ to D**, indicating their overall quality status.

In contrast, NIRF ranks institutions annually based on specific quantitative parameters, helping prospective students gauge the relative performance of institutions across the country.



Fig. 1: NIRF Parameters for Ranking of Institutions

PM GATI SHAKTI

Context: Recently, PM Narendra Modi said that PM Gati Shakti National Master Plan has emerged as a transformative initiative aimed at revolutionizing Indian infrastructure.

About PM Gati Shakti Master Plan:

- It is a **comprehensive infra development plan announced in Nov 2021** to improve economic growth and sustainable dvpt. by focusing on infra such as **roads, railways, airports, ports, mass transport, waterways, and logistics.**
- It is a **National Master Plan for multi-modal connectivity** that aims to incorporate infra schemes of various union govt Ministries such as **Bharatmala, Sagarmala, inland waterways, land ports, UDAN etc.**
- Under it, **100 critical infrastructure gap projects have been prioritized in FY24** for development with an **allocation of Rs. 75,000 crores.**

- It **subsumes the Rs 110 lakh crore National Infrastructure Pipeline** that was launched in 2019.
- Besides **cutting logistics costs**, the scheme is also aimed at **increasing cargo handling capacity and reducing the turnaround time at ports** to boost trade.
- It also aims to have **eleven industrial corridors and two defence corridors** - in Tamil Nadu and Uttar Pradesh.
- **Extending 4G connectivity to all villages** is another aim of the project.
- **Adding 17,000 kms to the gas pipeline network** is being planned under PM Gati Shakti.
- It will help in fulfilling the ambitious targets set by the govt for 2024-25, including **expanding length of national highway network to 2 lakh kms, creation of more than 200 new airports, heliports and water aerodromes.**
- The overall co-ordination of the scheme will be handled by the **Ministry of Commerce and Industry.**

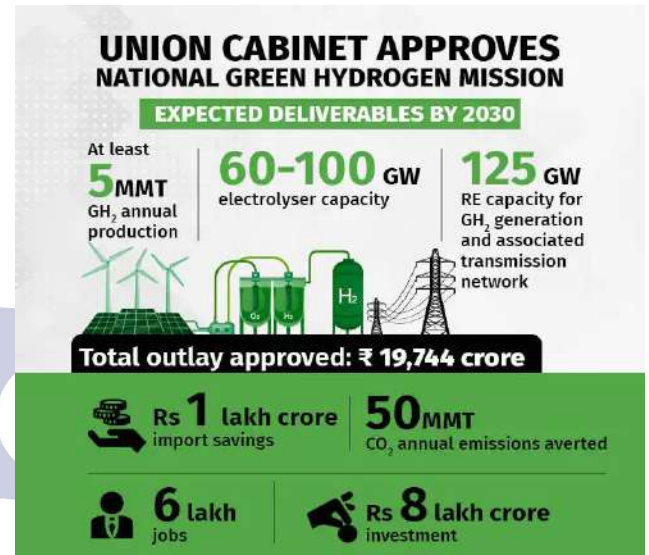
Plan includes the development of **five main corridors:**

- **East-West Corridor:** Stretching from Silchar to Porbandar.
- **North-South Corridor:** Stretching from Srinagar to Kanyakumari.
- **North-East Corridor:** Stretching from Imphal to Kohima.
- **South-West Corridor:** Stretching from Ratnagiri to Kanyakumari.
- **East Coast Corridor:** Stretching from Kolkata to Kanyakumari.

Aims of PM Gati Shakti Master Plan:


- **Integrated planning and coordinated implementation** of infrastructure connectivity projects.

- For example: Centralized portal to include all updates regarding existing & planned initiatives.
- **Multi-modal connectivity** for the movement of people, goods, services, etc. - facilitate **last mile connectivity**.
 - For example: **400 Vande Bharat trains** are to be manufactured and **200 PM Gati Shakti Cargo Terminals** are to be built.
- **Reducing logistics costs** by filling critical infrastructure gaps, thus improving supply chains.
 - Government aims to bring down **logistics costs from 13% to 8% of GDP**.
- **Making India the Business capital of the world** by providing proper linkages between local industry & consumers.
 - For example: Economic Zones like pharma clusters, defence corridors, electronic parks, agri zones, industrial corridors, etc.



About NGHM:

- It was launched in January 2023 by the **Ministry of New & Renewable Energy**. It commits an outlay of ₹ 19,744 crore from 2023 to 2030.
- Union govt. to set up manufacturing zones, connectivity to grid, and **free transmission for 25 years if facility commissioned before Jun 2025**.
- Producers allowed to set up **bunkers near ports** for storage for later export.
- Production target raised from 1 million metric tonnes (MMT) per year in 2021 to **5 MMT per year by 2030**. This target would create a **demand for 100-125 GW of renewable energy & 60-100 GW of electrolyzers**.
- Aims for an investment opportunity of ₹8 lakh crore, while **reducing annual emissions by 50 MMT**.
- Manufacturers allowed to **purchase renewable energy from power exchange or set it up themselves** or through any other developer.
- Facility for producers to **bank any surplus renewable energy generated** with discoms up to 30 days.

 The Gati Shakti Vishwavidyalaya (GSV) is a Central University established through an Act of Parliament in 2022. It replaces the National Rail and Transportation Institute (NRTI) and is sponsored by the Ministry of Railways. The Chancellor of GSV is the Union Minister of Railways. GSV aims to create high-quality talent for the transportation and logistics sector.

NATIONAL GREEN HYDROGEN MISSION (NGHM)

Context: A recent World Bank report was released about the potential of green hydrogen to accelerate the shift to clean energy and the challenges faced in this regard.

- Discoms procuring renewable energy to supply green hydrogen producers will do so at concessional rates. Such procurement by discoms will **count towards the state's Renewable Purchase Obligations (RPO)**.
- Aims for cumulative **reduction in fossil fuel imports by Rs 1 lakh crore**.

Sub Schemes:


- **Strategic Interventions for Green Hydrogen Transition Programme (SIGHT):** It will fund the domestic manufacturing of electrolyzers and produce green hydrogen.
- **Green Hydrogen Hubs:** States and regions capable of supporting large scale production and/or utilization of hydrogen will be identified and developed as Green Hydrogen Hubs.

About SIGHT Programme:

- It is an integral component of NGHM to foster domestic electrolyser manufacturing and production.
- An investment of Rs 17,490 crore was allocated to SIGHT **until 2029-30**.
- **Dual Incentive Mechanisms:** SIGHT introduces two distinct financial incentive mechanisms:
 - Incentive for Electrolyser Manufacturing: To boost the production of essential electrolysis equipment.
 - Incentive for Green Hydrogen Production: Encouraging the generation of clean and sustainable green hydrogen.
- Incentive programs will evolve in **response to market dynamics and technological advancements**, ensuring the Mission's adaptability.
- Solar Energy Corporation of India (SECI) is entrusted with executing the scheme, driving its effective implementation.

Current status of Hydrogen Production in India:

- India produces **6.5 MMT per annum** of hydrogen, predominantly for use in **oil refineries & fertilizer production**.
- Most of India's current hydrogen supply is **Grey Hydrogen**, which is produced using fossil fuels.
- Green Hydrogen production requires ample supply of renewable energy for the electrolysis process.

 When electricity is passed through water, it splits it into oxygen and hydrogen via electrolysis. And if the electricity used for this comes from a renewable source, then the hydrogen thus produced is called green hydrogen.

DIGITAL INDIA LAND RECORD MODERNIZATION PROGRAMME (DILRMP)

Context: Recently, the Ministry of Rural Development organized a workshop on the use of Modern Technologies in Survey for Urban Land Records under the DILRMP.



About DILRMP:

- DILRMP was **approved by the Cabinet on 21st August, 2008**.
- Two Centrally sponsored schemes of Computerization of Land Records (CLR) and Strengthening of Revenue Administration and updating of Land Records (SRA&ULR) were merged.

- It aims to **usher in a system of updated land records, automated and automatic integration between textual and spatial records**, inter-connectivity between revenue and registration, to replace the present registration and title system.
- It attempts to **build upon the commonalities that exist in the arena of land records in various States to develop an appropriate Integrated Land Info Management System (ILIMS)** across the country, on which different States can also add State-specific needs as they may deem relevant and appropriate.
 - ILIMS: The system contains info on parcel ownership, land use, taxation, location, land value, encumbrances, etc.
- It is being implemented by the Department of Land Resources (**Ministry of Rural Development**).

Components of DILRMP:

- Computerization of land records.
- Survey/re-survey.
- Computerization of Registration.
- Modern record rooms/land records management centres at tehsil/taluk/circle/block level.
- Training & capacity building.

Benefits of DILRMP:

- **Real-time land ownership records** will be available to the citizen.
- Free accessibility to the records will **reduce interface between citizen and govt functionaries**, thereby reducing any bribery and harassment.
- **Public-Private Partnership (PPP)** mode of service delivery will add to the convenience.
- **Single-window service** will save the citizen time and effort in obtaining RoRs (Record of Rights), etc.

- Tracking of records will **reduce the scope of fraudulent property deals**.
- Conclusive titling will also significantly **reduce litigation**.
- **Certificates based on land** data (e.g., domicile, caste, income, etc.) will be available to the citizen.
- This method will permit **e-linkages to credit facilities**.
- Information on **eligibility for govt programs** can be calculated.

Initiatives under DILRMP:

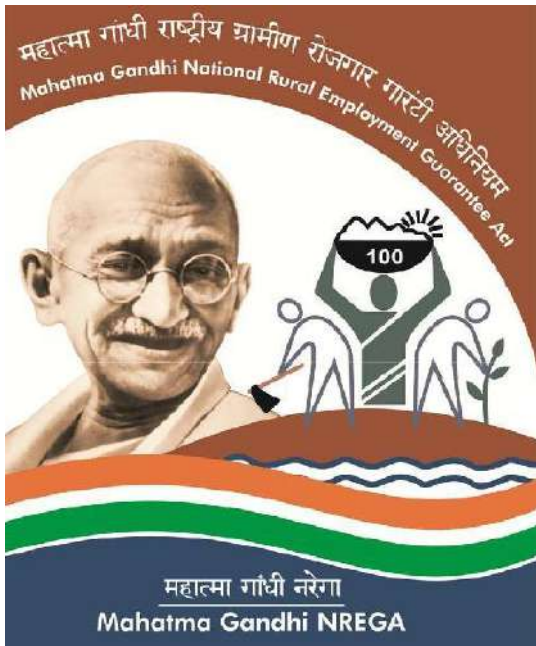
- **Unique Land Parcel Identification Number (ULPIN) or Bhu-Aadhar** (14 digit Alpha-numeric unique ID for each land parcel based on Geo-coordinates)
- **National Generic Document Registration System (NGDRS)** or E-Registration (to have a uniform process for registration for deeds/documents).



Kerala has become the first state in India to launch an ILIMS – under the Ente Bhoomi Project.

MGNREGA

Context: There has been opposition to use of Aadhaar-based payment systems for distribution of wages under the MGNREGA.



About the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA):

- MGNREGA is one of the **largest work guarantee programmes** in the world launched in 2005 by the **Ministry of Rural development**.
- It provides a legal guarantee for one hundred days of employment in every financial year to adult members of any rural household willing to do public work-related unskilled manual work at the statutory minimum wage.
- **Active workers:** 14.32 Crore (2023-24)

Major Features:

- The cornerstone of MGNREGA's design is its **legal guarantee**, ensuring that any rural adult can request work and **must receive it within 15 days**. If this commitment is not met, an **"unemployment allowance"** must be provided.
- It requires that priority shall be given to women in such a way that **at least one-third of the beneficiaries shall be women** who have registered and requested for work.
- Section 17 of the MGNREGA has mandated **social audit** of all Works executed under the MGNREGA.
- **Implementation Agency:** Ministry of Rural Development

Objective:

- This act was introduced with an aim of improving the Purchasing Power of the rural people, primarily semi or unskilled work to people living below poverty line in rural India.
- It attempts to bridge the gap between the rich and poor in the country.

Achievements of 2022-23:

- 11.37 crore households availed employment.
- 289.24 crore person-days employment has been generated out of which:
 - 56.19% were for women
 - 19.75% were for Scheduled Castes (SCs)
 - 17.47% were for Scheduled Tribes (STs).

Initiatives under MGNREGS:

- ✓ **Amrit Sarovar:** Construction/ renovation of at least 75 Amrit Sarovars (ponds) in each district of the country; they will help in increasing the availability of water, both on surface and under-ground.
- ✓ **Jaldoot App:** It was launched in Sept 2022 for measuring the water level in a Gram Panchayat through 2-3 selected open wells twice a year.
- ✓ **Ombudsperson for MGNREGS:** Ombudsperson App was launched in Feb 2022 for smooth reporting and categorization of grievances received from various sources related to the implementation of the MGNREGS.

MUDRA YOJANA

Context: The government has doubled the loan limit under the Pradhan Mantri Mudra Yojana to 20 lakh rupees to promote entrepreneurship in the country.



About MUDRA Yojana:

- PMMY was launched by Union Govt in 2015.
- It provides **collateral-free loans up to Rs. 20 lakhs** for small business enterprises. Loans are provided by **Scheduled Commercial Banks, Regional Rural Banks, NBFCs, and Micro Finance Institutions.**
- Loan can be used for income-generating activities in **trading, manufacturing, services sector, and agriculture/allied activities.**
- 3 loan products under PMMY:
 - **Shishu** (loans up to Rs. 50,000)
 - **Kishor** (Rs. 50,000 to Rs. 5 lakh)
 - **Tarun** (Rs. 5 lakh to Rs. 10 lakh)
 - Individuals who had already availed loans under Tarun category & have **fully repaid them will now be eligible for loans up to Rs. 20 lakh.**

Steps Taken under PMMY:

- Provision for online applications through udyamimitra portal.
- Some Public Sector Banks (PSBs) have put end-to-end digital lending for automated sanctions under PMMY.

- Intensive publicity campaigns by PSBs for increased visibility of the scheme.
- Mudra Nodal Officers in PSBs.

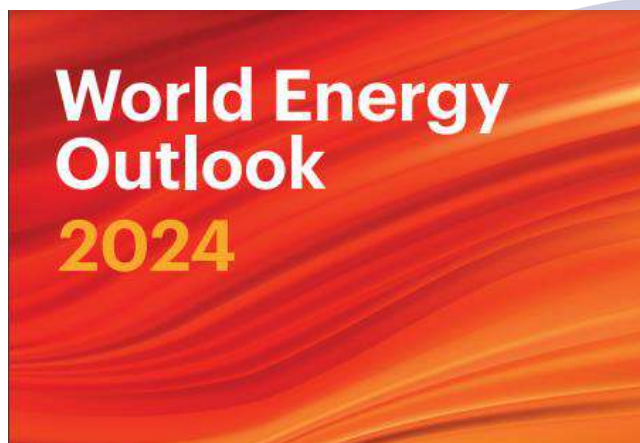
Achievements of PM Mudra Yojana:

- **Loan sanctioned:** About ₹23 lakh crore has been sanctioned in nearly 41 crore loan accounts.
- **Inclusive growth:** 69% accounts under the scheme belong to women entrepreneurs and 51% of accounts belong to SC/ST/OBC entrepreneurs.
- **Credit to budding entrepreneurs:** Approx. 21% of total loans have been sanctioned to New Entrepreneurs.
- **Employment Generation:** As per a survey by Ministry of Labour and Employment, PMMY helped generate >1 crore net additional employment from 2015 to 2018, out of which women accounted for 69 lakh (62%).

Reports and Indices

WORLD ENERGY OUTLOOK

Context: The World Energy Outlook 2024 was recently released by the International Energy Agency (IEA).



About World Energy Outlook 2024:

- It presents a **detailed analysis of global energy trends**, focusing on clean energy transitions, rising energy demand, and the impacts of geopolitical conflicts.
- **Ongoing conflicts**, such as the Russia-Ukraine war and tensions in the Middle East, continue to **threaten global energy security**.
- Clean energy investments have reached record highs, particularly in solar and wind power.
- In 2023, over **560 GW of renewable energy capacity was added globally**, marking a significant leap towards reducing reliance on fossil fuels.
- **By 2030, renewable energy will become the dominant source of electricity** across the world.
- Solar photovoltaic (PV) and wind energy are driving this shift, and low-emission energy sources, including nuclear power, are projected to generate over 50% of the world's electricity by the end of the decade.

Findings regarding India:

- India is set to experience the **highest increase in energy demand globally over the next decade**, driven by rapid economic growth and urbanisation.
- By 2035, total **energy demand is expected to rise by nearly 35%**, with sectors such as transportation, construction, and manufacturing contributing significantly.
- Despite its ambitious renewable energy targets, **coal remains a critical part of India's energy mix**.
- By 2030, India will add nearly 60 GW of coal-fired capacity, with coal continuing to generate more than 30% of India's electricity, even as solar PV installations expand rapidly.
- India's industrial sector is poised for major growth by 2035. **Iron and steel production is expected to rise by 70%**, while cement production is projected to increase by 55%.
- The stock of **air conditioners in India is projected to grow more than 4.5 times by 2035**, causing electricity demand from cooling to surge.

- India is making major progress in expanding renewable energy. India is on track to nearly **triple its renewable electricity generation capacity to 1,400 GW by 2035**.
- By 2030, India is set to have the world's **3rd-largest installed battery storage capacity**, which is crucial for integrating variable renewables like solar and wind.

About International Energy Agency (IEA)

- ✓ IEA was **created in 1974 by member countries of the OECD** (Organisation for Economic Co-operation and Development) to help nations respond to the major 1973-1974 oil crisis.
- ✓ Since then, its work has expanded to cover energy security, economic development, and clean energy.
- ✓ The IEA is an **autonomous forum** that provides analysis, data, and policy recommendations to help countries provide secure and sustainable energy.
- ✓ **Headquartered in Paris, France.**
- ✓ The IEA family is made up of 31 full member countries, **13 association countries including India**, and 4 accession countries.
- ✓ A candidate country to the IEA must be a member country of the OECD.

WORLD ECONOMIC OUTLOOK

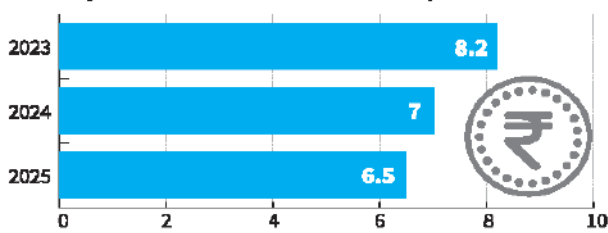
Context: The International Monetary Fund has released its World Economic Outlook 2024 titled Policy Pivot, Rising Threats.

About World Economic Outlook:

- The World Economic Outlook is a report published by the **International Monetary Fund** twice a year.

Growth decelerates

The chart shows India's growth rate in 2023 and its projected growth rates in 2024 and 2025, as per the International Monetary Fund's World Economic Outlook report



Key Highlights:

Global Growth Prospects:

- The IMF expects global GDP growth to be **3.2%** in 2024 and 2025, which is the same as its July 2024 forecast.
- The **United States'** growth forecast has been updated upwards while other advanced economies have seen downgrades keeping the overall projection the same.

Inflation and Monetary Policy:

- Easing of cyclical imbalances have contributed to **lower global inflation**.
- Global headline inflation is expected to fall from an annual average of **6.7%** in 2023 to **5.8%** in 2024 and **4.3%** in 2025, with advanced economies returning to their inflation targets sooner than emerging market and developing economies.

Continuing risks and concerns:

- **Financial market volatility**, disruptions to disinflation process due to **price spikes and geopolitical tensions** could challenge financial stability.
- **Longer-than-expected contraction in China's property sector** could generate negative global spill overs given China's large footprint in global trade.
- An intensification of **protectionist policies** would exacerbate trade tensions, reduce market efficiency, and further disrupt supply chains.
- **Rising social tensions** could delay **structural reforms**.

India based findings:

- **Projected growth:**
 - **FY 2024-25:** 7%
 - **FY 2025-26:** 6.5%
- Decline from 8.2% in 2023 attributed to the normalization of **pent-up demand** after the pandemic.

IMF Recommendations

Triple policy pivot:

- **Monetary policy neutrality:** Gradually shift to neutral stances in monetary policies.
- **Build fiscal buffers:** Reinforce fiscal policies after years of expansive measures.
- **Structural reforms:** Focus on productivity growth, coping with demographic changes, climate transition, and increasing resilience.

LIVING PLANET REPORT

Context: According to the World-Wide Fund for Nature (WWF)'s Living Planet Report 2024, there has been a catastrophic 73% decline in the average size of monitored wildlife populations in just 50 years (1970-2020).

- The Living Planet Report is a comprehensive study conducted by the **World Wildlife Fund for Nature (WWF)**.
- This report is released every **two years**.
- The **WWF** utilizes the **Living Planet Index of (LPI) Zoological Society of London (ZSL)** as a data source to track average trends in wildlife populations.

The Living Planet Index (LPI) is a measure of the state of the world's biological diversity based on population trends of vertebrate species from terrestrial, freshwater and marine habitats. The LPI was adopted by the Convention of Biological Diversity (CBD) as an indicator of progress towards its 2011-2020 targets and it is now an indicator in the post-2020 Kunming-Montreal Global Biodiversity Framework.

Key data points of the Report

- Wildlife population decline: 73% decline in the average size of monitored wildlife populations from 1970-2020, up from 69% reported in 2022.
- Ecosystem-specific declines:
- Freshwater ecosystems: 85% decline
- Terrestrial ecosystems: 69% decline
- Marine ecosystems: 56% decline
- Main threats to wildlife: Habitat loss, degradation, over-exploitation, invasive species, and diseases.

Findings on India

- Adopting India's consumption patterns worldwide would need less than one Earth by 2050.
- Andhra Pradesh Community-Managed Natural Farming (APCNF) is a good example of the positive socio-economic impacts of nature-positive food production.
- Praised India's millet mission.

World Wildlife Fund for Nature

- It is the world's leading conservation organization and works in more than 100 countries.
- It is an international non-governmental organization, established in 1961 and is headquartered at Gland, Switzerland.
- Its mission is to conserve nature and reduce the most pressing threats to the diversity of life on Earth.
- WWF collaborates at every level with people around the world to develop and deliver innovative solutions that protect communities, wildlife, and the places in which they live.

Terms in News

SILVER DIVIDEND



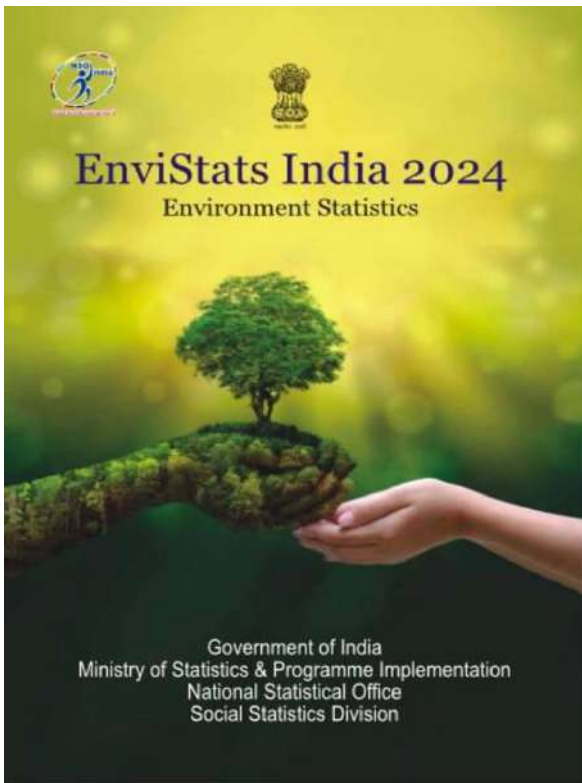
- Silver Dividend refers to the **economic and social benefits that arise from having a large, aging population.**
- As people live longer, healthier lives, many older individuals remain active, contributing to society in various ways, such as working, volunteering, or providing wisdom and experience to younger generations.
- It highlights that older adults are not just a financial burden but can be **valuable to the economy and the community if supported by proper policies.** Countries that invest in healthcare, social services, and opportunities for older adults can unlock this "silver dividend."
- Instead of seeing aging as a problem, the silver dividend emphasizes the **positive opportunities that come with longer, healthier lives.**

DADASAHEB PHALKE AWARD



- Ministry of Information and Broadcasting announced that the **Dadasaheb Phalke Award for 2022 will be accorded to legendary actor Mithun Chakraborty.** The award will be presented at the 70th National Film Award ceremony in New Delhi.
- Dadasaheb Phalke Award is **part of the National Film Awards**, a highly coveted collection of honours in the film industry.
- The Award is **named after Dhundiraj Govind Phalke**, the pioneering filmmaker who gave India its first film- 'Raja Harishchandra', in 1913. The award is considered the highest honour in the Indian film fraternity.
- It is awarded for **outstanding contribution to the growth and development of Indian cinema.** It was instituted in 1969, and consists of a 'Swarna Kamal', a cash prize of INR 10 lakh, a certificate, a silk roll, and a shawl.
- It is **presented by President of India** in the presence of the Union Minister of Information and Broadcasting.

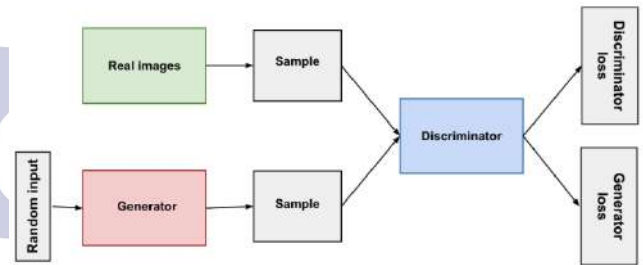
ENVIStats INDIA 2024



- Ministry of Statistics and Programme Implementation (MoSPI) has released the “EnviStats India 2024: Environment Accounts” Report.
- It compiles **environmental-economic accounts** based on the **System of Environmental-Economic Accounting (SEEA) Framework**.
 - SEEA is a UN-supervised method to compile data linking environmental statistics to economic statistics.
- This helps **integrate environmental data with economic statistics**, offering insights into the country’s natural resources, ecosystems, and environmental sustainability efforts.
- There has been a **72% increase in the number of Protected Areas (2000-2023)**, whilst there has been a **16% increase in the area of Protected Areas** in the same time period.
- The report highlighted an **8% increase in mangrove cover (2013-2021)**,

highlighting positive growth in coastal ecosystem protection.

GENERATIVE ADVERSARIAL NETWORKS



- Generative Adversarial Networks (GANs) are a powerful class of artificial neural networks that are **used for an unsupervised learning**.
- GANs are made up of **two neural networks, a discriminator and a generator**. They use adversarial training to produce artificial data that is identical to actual data.
- The **Generator attempts to fool the Discriminator**, which is tasked with **accurately distinguishing between produced and genuine data**, by producing random noise samples.
- Realistic, high-quality samples are produced as a result of this competitive interaction, which **drives both networks toward advancement**.
- As the generator endeavors to produce realistic samples, the discriminator simultaneously refines its discriminatory prowess.
- This adversarial process resembles a cat-and-mouse game, where **each network strives to outperform the other**. Via **continuous feedback & adjustment**, both networks improve, ultimately converging at a state where the generated samples are virtually indistinguishable from real data.

- GANs have been applied to many applications, including **image generation, video generation, and 3D object generation**

MIDDLE INCOME TRAP



- The middle-income trap is a theoretical economic development situation, in which a **country that attains a certain income (due to given advantages) gets stuck at that middle-income level and is unable to transition to high-income level.**
- The World Bank defines 'middle-income' countries as having gross national product per capita that has remained **between US\$ 1,000 to US\$ 12,000 at constant (2011) prices.**
- Typically, the economy of a country grows due to certain inherent factors like export competitiveness (e.g., due to low wages in a country), rich natural resource base etc.
- With growing economy, per capita income also rises. However, **with time, the competitive advantage aiding growth gets eroded** (e.g., wage levels rise). So, if the economy does not undergo structural changes, the **growth may slow down (or stop or even reverse)** & income may stagnate.
- **Population stabilization is also a factor here** - if population continues to grow, the per capita income may grow very slowly to make any significant impact on income level.
- Many countries in South East Asia (**Thailand, Vietnam, and Malaysia** etc.),

Africa (**South Africa**) and Latin America (**Brazil**) currently face this phenomenon. This has impeded their transition to high income status.

- From **1960 to 2010, 15 out of 101 middle-income countries** escaped the middle-income trap, including Japan, Singapore, and South Korea.

NATIONAL MARITIME HERITAGE COMPLEX (NMHC)



- The Union Cabinet recently approved funding for the NMHC.
- The NMHC will be located at **Lothal, Gujarat**. The **Ministry of Ports, Shipping and Waterways** is spearheading this initiative.
- The NMHC aligns with the PM's vision of **showcasing India's 4,500-year-old maritime heritage.**
- The project is **expected to generate approx. 22,000 jobs**, comprising 15,000 direct and 7,000 indirect employment opportunities.
- The **Governing Council of the NMHC, which is chaired by the Minister of Ports, Shipping & Waterways**, will oversee the project's implementation, management, and operation.
- NMHC will benefit local communities, tourists, researchers, govt. bodies, educational institutions, cultural groups, conservation groups, and businesses.



TRACHOMA



- The World Health Organization (WHO) has declared that **India has successfully eliminated Trachoma as a public health problem.**
- India is the 3rd country in South-east Asia Region to achieve this milestone.
- WHO has classified Trachoma as a **neglected tropical disease (NTD).**
- WHO estimates that around **150 million people worldwide are affected by Trachoma**, and 6 million of them are either blind or at risk of severe visual problems.
- Trachoma is a **bacterial infection that affects the eyes.** It is caused by the bacterium *Chlamydia Trachomatis*.
- It is **contagious, spreading through contact with the eyes, eyelids, or secretions** from the nose or throat of an infected person.
- If untreated, it **can lead to irreversible blindness.** It is commonly found in underprivileged communities living in poor conditions

EAST ASIA SUMMIT (EAS)



EAST ASIA SUMMIT

PROMOTING PEACE,
STABILITY AND PROSPERITY

- PM Modi is currently in Laos to take part in the East Asia Summit 2024.
- The EAS was **established in 2005** as an Association of Southeast Asian Nations (ASEAN)-led initiative.
- The EAS is the **only leader-led forum in the Indo-Pacific that brings together all key partners** to discuss political, security and economic issues of strategic importance.
- The EAS operates on the principles of **openness, inclusiveness, respect for international law, ASEAN centrality, and ASEAN's role as the driving force.**
- The idea of an East Asia Grouping was first proposed by then Malaysian PM Mahathir Mohamad in 1991.
- 1st EAS summit was held in **Kuala Lumpur, Malaysia on 14 Dec, 2005.**
- EAS comprises 18 members: the **10 ASEAN countries** (Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam) and **8 dialogue partners** (Australia, China, India, Japan, New Zealand, South Korea, Russia & USA).

EAS Meetings and Processes:

- The EAS is **usually held alongside ASEAN Leaders' meetings** in the fourth quarter of every year.
- EAS Leaders' Summit is supported by various ministerial and senior officials' meetings, such as the Foreign Ministers',

Finance Ministers', Defence Ministers' Meetings, etc.

- The EAS has 6 **priority areas** of cooperation: **environment & energy; education; finance; global health issues and pandemics; disaster management & ASEAN connectivity.**
- The EAS also covers other topics of common interest and concern, such as trade and investment, maritime security, non-proliferation, counter-terrorism, and cyber security.

India and East Asia Summit:

- India has been a **founding member of the EAS since 2005** and has actively participated in all its meetings.
- India views the EAS as a key platform for **enhancing its Act East Policy** and strengthening its **partnership with ASEAN** and other regional countries.
- At the **EAS in Bangkok in 2019**, India unveiled its **Indo-Pacific Oceans Initiative (IPOI)**, which is aimed at forging partnerships to create a secure and stable maritime domain.

- Unlike waves caused by local winds (wind waves), swells are known for their **smoother, more regular appearance and longer wavelengths.**
- They are **generated by distant weather systems** and can travel thousands of miles from their origin, retaining energy over vast distances.
- The **Swell Surge Forecast System was launched by the Indian National Centre for Ocean Information Services (INCOIS) in 2020** — it gives a warning seven days in advance.

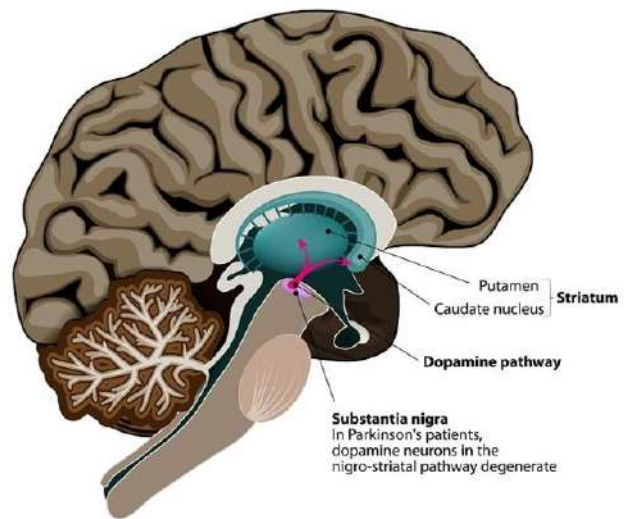
SWELL WAVES



- A **swell is the formation of long wavelength waves** on the surface of the seas. Swell waves organize themselves into groups of similar heights, and then travel long distances without much change. **They are not caused by local winds.**

PARKINSON'S DISEASE

PARKINSON'S DISEASE



- Parkinson's disease is a **progressive neurodegenerative disorder** that impairs movement and **can lead to immobility and dementia** over time.
- It usually occurs in older people. **Men are affected more often** than women.
- Its prevalence has doubled in the past 25 years. **India shares around 10% of the global burden** of the disease.
- The **exact cause of Parkinson's disease is not fully known** yet, but it is believed to involve a combination of genetic and environmental factors.

- It is primarily characterized by the **loss of dopamine-producing neurons** in the brain, leading to **motor and non-motor symptoms**.
 - Motor symptoms include slow movement, tremors, & rigidity.
 - Non-motor symptoms include cognitive issues, mental health disorders, sleep disturbances, pain, and sensory problems.
- **There is no cure** for the disease, but medicines, surgery and rehabilitation can reduce symptoms.

MUSANED PLATFORM

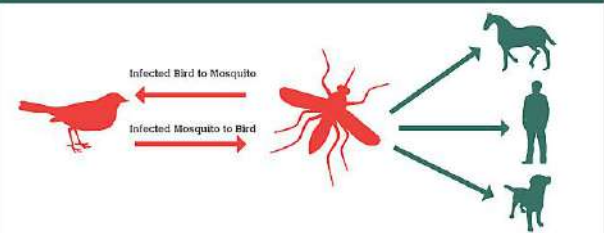


- Musaned is a **digital platform created by Saudi Arabia** to ensure **wage protection and improve working conditions for foreign workers**.
- It benefits workers from **10 African countries** (e.g., Sudan, Ethiopia, Kenya) and **9 Asian countries** (e.g., India, Bangladesh, Pakistan).
- Aims to safeguard workers' rights, minimize illegal immigration, and provide a safe working environment.
- Features:
 - Enables workers to **check employment contracts**.
 - **Tracks financial transactions** between employers & workers.
 - Can be linked to contract insurance and health benefits.

WEST NILE FEVER

- Ukraine is currently facing a serious outbreak of West Nile Fever.
- **West Nile Virus (WNV) is a flavivirus** related to the viruses that are also responsible for causing St. Louis encephalitis, Japanese encephalitis, and yellow fever.
- It is a **mosquito-borne, single-stranded RNA virus**. It is commonly found in Africa, Europe, the Middle East, North America and West Asia.
- **Culex species of mosquitoes** act as principal vectors for transmission.
- To date, no human-to-human transmission of WNV through casual contact has been documented.
- 80% of infected individuals show no symptoms. 20% develop symptoms like fever, headache, fatigue, body aches, nausea, and vomiting.
- **There is no vaccine** for the disease.

How West Nile Virus Is Transmitted



DRUGS TECHNICAL ADVISORY BOARD



- It is the **highest statutory decision-making body on technical matters related to drugs** in India.
- It is established as per the **Drugs and Cosmetics Act, 1940**. It is part of the Central Drugs Standard Control Organization (CDSCO).
- It **advises the Union Govt and the State Govts** on technical matters arising out of the administration of the Drugs and Cosmetics Act, of 1940 and to carry out the other functions assigned to it by this Act.
- Nodal Ministry: **Ministry of Health and Family Welfare**.

NON-KINETIC WARFARE

- It refers to strategies and tactics that aim to weaken, influence, or disrupt an adversary **without the use of physical force or direct combat**.
- Unlike kinetic warfare involving conventional weapons and military attacks, non-kinetic warfare employs tools such as **cyberattacks, economic sanctions, psychological operations, and information manipulation**.
- The goal is often to destabilize, demoralize, or **impair the enemy's decision-making capabilities** without causing physical destruction.

- It **targets communication networks, critical infra, public perception, etc.** This is very effective in asymmetric conflicts where one side may not have conventional military superiority.
- Examples include cyberattacks, such as the **Stuxnet virus, which targeted Iran's nuclear program** by damaging centrifuges without a physical strike.
- Another example is **Russia's use of disinformation campaigns** during the 2016 U.S. elections to influence public opinion and sow discord.
- **Economic sanctions imposed by the United States** on North Korea are another form of non-kinetic warfare,

JAISH-E-MOHAMMAD



- Jaish-e-Mohammad (JEM), meaning Army of Mohammad is a **Pakistan-based Deobandi jihadist terrorist group active in Kashmir**.
- The group's primary motive is to separate Kashmir from India and merge it into Pakistan.
- The group fought with the Taliban against US and coalition forces in Afghanistan from 2001 until the Taliban came to power in 2021.
- JEM uses suicide bombers, car bombs, small arms, light and heavy machineguns, IEDs, and rocket-propelled grenades in attacks primarily against Indian security

personnel, bases, camps, convoys, and government buildings.

- Jaish-e-Mohammed is viewed as the "deadliest" and "the principal Islamic terrorist organisation in Jammu and Kashmir".
- The group was responsible for several terror attacks: the 2001 attack on Jammu and Kashmir legislative assembly, the 2001 Indian Parliament attack, the 2016 Pathankot airbase attack, the 2016 attack on the Indian Mission in Mazar-i-Sharif, the 2016 Uri attack, and the 2019 Pulwama attack, each of which has had strategic consequences for India–Pakistan relations.

HOUTHIS



- The Houthis, officially known as Ansar Allah (Partisans of God), are an **Iranian-backed Shiite Muslim terror group in Yemen**.
- The group emerged in the 1990s and takes its name from the movement's late founder, Hussein al-Houthi.
- The Houthi movement began as an effort to maintain tribal autonomy in northern Yemen,
- The Houthis took over the Yemeni capital Sanaa in September 2014 and seized control over much of north Yemen by 2016. Currently, Houthis controls approximately one-third of Yemen's territory.

- The Yemen civil war reflects long-standing regional rivalries, with Iran backing the Houthis on one side and Saudi Arabia supporting the Yemeni government.
- The Houthis' involvement in the Israel-Hamas war is also seen as part of these broader regional dynamics.
- The conflict has raised concerns about the **safety of shipping routes in the Red Sea**.
- Houthi-controlled areas in Yemen are strategically located along the **Bab el-Mandeb Strait**, a crucial maritime chokepoint.
- Houthi rebels have targeted shipping in the Red Sea through attacks on vessels, including both commercial and military ships.
- These actions raise concerns about the security of maritime traffic in the region.

HEZBOLLAH



- Hezbollah was formed in 1982 as a **Shia resistance group** inspired by the formation of a theocratic Islamic government in Iran in 1979.
- It has huge support from Iran's Islamic Revolutionary Guard Corps (IRGC)
- It is the **world's most heavily armed non-state actor**, with a large and diverse stockpile of unguided artillery rockets, as well as ballistic, antiair, antitank, and antiship missiles.

- It is also designated as a **terrorist organization** by several countries across the globe.
- It opposes Israel and Western influence in the Middle East.
- Hezbollah's positioning also reflects West Asia's two major powers and their rivalry – the Sunni Muslim-dominated Saudi Arabia and the majority Shia Muslim-dominated Iran.
- The US, which is a staunch ally of Israel and Saudi Arabia, estimates that Iran supplies hundreds of millions of dollars in funding to Hezbollah and that it has thousands of fighters.

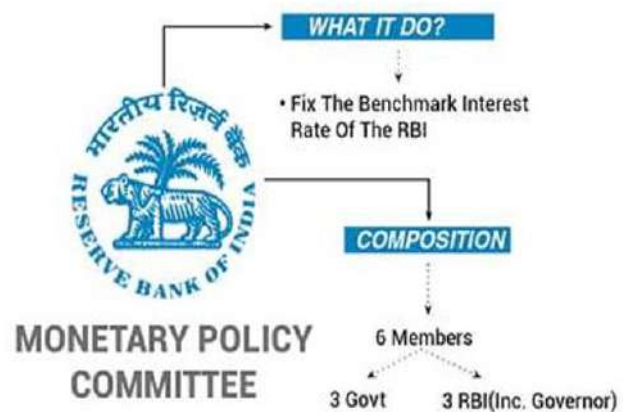


AN-32 AIRCRAFT

- The AN-32 (Antonov AN-32) is a **Soviet military transport aircraft**.
- It is designed and manufactured by the Antonov Design Bureau of Ukraine for the Indian Air Force (IAF).
- It was purchased by India from the erstwhile Soviet Union in 1984. The IAF has a fleet of around 100 AN-32 planes.
- It can take off and land on rough airfields and dirt runways.
- The aircraft can transport either 7.5 tons of cargo, 50 passengers, 42 paratroopers, or 24 patients and three medical crews over domestic and international air routes.
- It also has a limited bombing role and is used for para-trooping operations.
- The Indian Air Force is planning to procure a new transport aircraft to replace the **aging An-32 fleet**

MONETARY POLICY COMMITTEE

- Monetary policy refers to the policy of the central bank with regard to the **use of monetary instruments** under its control to achieve the goals specified in the RBI Act of 1934.
- The primary objective of the RBI's monetary policy is **to maintain price stability while keeping in mind the objective of growth**.
- Price stability is a necessary precondition to sustainable growth.
- The amended RBI Act, 1934 also provides for the inflation target **(4% +/-2%) to be set by the Government** of India, in consultation with the Reserve Bank, **once in every five years**.



- Under Section 45ZB of the amended (in 2016) RBI Act, 1934, the **central government is empowered to constitute**

a six-member Monetary Policy Committee (MPC).

- The MPC is entrusted with the task of **fixing the benchmark policy rate (repo rate)** required to contain inflation within the specified target level.
- MPC shall consist of **6 members**:
 - RBI Governor as its ex officio chairperson
 - Deputy Governor in charge of monetary policy
 - An officer of the Bank to be nominated by the Central Board
 - Three persons to be appointed by the central government.
- The quorum for a meeting shall be four Members, at least one of whom shall be the Governor and, in his absence, the Deputy Governor, who is the Member of the MPC.
- The MPC takes decisions based on a **majority vote**. In case of a tie, the RBI governor will have the second or casting vote.
- The decision of the MPC would be **binding on the RBI**

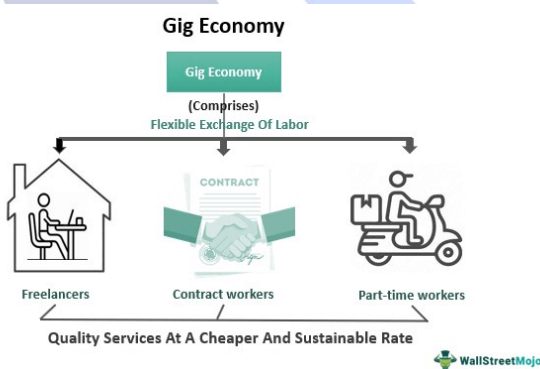
as software, shared services and professional services.

- An estimated 56% of new employment in India is being generated by the gig economy companies across both the blue-collar and white-collar workforce.
- While the gig economy is prevalent among blue-collar jobs in India, the demand for gig workers in white-collar jobs such as project-specific consultants, salespeople, web designers, content writers and software developers is also emerging.

TUBERCULOSIS

- Tuberculosis is a bacterial infection caused by **Mycobacterium tuberculosis**.
- It can practically affect any organ of the body. The most common ones are the lungs, pleura (lining around the lungs), lymph nodes, intestines, spine, and brain.
- It is an **airborne infection** that spreads through close contact with the infected, especially in densely populated spaces with poor ventilation.
- Common symptoms of active lung TB are cough with sputum and blood at times, chest pains, weakness, weight loss, fever and night sweats.
- Every year, 10 million people fall ill with TB. Despite being a **preventable and curable disease**, 1.5 million people die from TB each year – making it the world’s top infectious killer.
- TB is the leading cause of death of people with HIV and also a major contributor to antimicrobial resistance.
- Most of the people who fall ill with TB live in low- and middle-income countries, but TB is present all over the world.
- About half of all people with TB can be found in 8 countries: Bangladesh, China,

GIG ECONOMY



- A gig economy is a **free market system in which temporary positions are common and organisations contract with independent workers for short-term engagements**.
- India’s gig workforce comprises 15 million workers employed across industries such

India, Indonesia, Nigeria, Pakistan, Philippines and South Africa.

- The **MTBVAC** is the first vaccine against TB derived from a human source to begin clinical trials in adults in India.
- MTBVAC is a **unique TB vaccine** based on a genetically modified form of Mycobacterium tuberculosis, containing all antigens present in human-infecting strains, unlike the BCG vaccine.
- MTBVAC is being developed for two purposes as a **more effective and potentially long-lasting vaccine than BCG (Bacillus Calmette and Guérin)** for newborn children, and for the prevention of TB in adults and adolescents, for whom there is currently no effective vaccine.

UN PEACEKEEPING FORCE



- The UN Charter gives the Security Council primary responsibility for the maintenance of international peace and security.
- In fulfilling this responsibility, the Council can establish a UN peace operation.
- UN peace operations are deployed on the basis of mandates from the **United Nations Security Council**.
- Peace operations may be required to:
 - Deploy to prevent the outbreak of conflict or the spill-over of conflict across borders;
 - Stabilize conflict situations after a ceasefire;
 - Assist in implementing comprehensive peace agreements;

- Lead states or territories through a transition to stable government, based on democratic principles, good governance and economic development.

- There are three basic principles that continue to set UN peacekeeping operations apart as a tool for maintaining international peace and security. These are:

- **Consent of the parties:** In the absence of such consent, a peacekeeping operation risks becoming a party to the conflict; and being drawn towards enforcement action.
- **Impartiality:** Peacekeepers should be impartial in their dealings with the parties to the conflict, but not neutral in the execution of their mandate.
- Non-use of force except in **self-defence** and defence of the mandate

- Since 1948, the UN has helped end conflicts and foster reconciliation by conducting successful peacekeeping operations in dozens of countries, including Cambodia, El Salvador, Guatemala, Mozambique, Namibia and Tajikistan.

- **India is one of the largest troops contributing nation to UNPK.**
- Currently, India has around 5,900 troops deployed in 12 U.N. Missions.
- India has deployed **Female Engagement Teams** in United Nations Organization Stabilization Mission in the Democratic Republic of the Congo and United Nations Interim Security Force for Abyei.
- United Nations (UN) peacekeeping task forces are often called **Blue Helmets or Blue Berets** because of the light blue helmets or berets they wear.

United Nations Interim Force in Lebanon (UNIFIL)

- The UNIFIL is an international peacekeeping mission with over 10,000 civilian and military personnel from 50 countries, tasked with preventing violations along the 121-km "**Blue Line**" border between Lebanon and Israel.
- Though armed, the peacekeepers can only use force when their safety or civilians are in immediate danger, and they report violations to the UN Security Council.
- The U.S. and Israel have criticized UNIFIL for being ineffective in preventing Hezbollah from stockpiling and firing rockets.

HABER-BOSCH PROCESS

- The Haber-Bosch process is a **chemical reaction that converts atmospheric nitrogen into ammonia**, and is the main industrial method for producing ammonia
- It synthesizes ammonia by reacting nitrogen (N₂) with hydrogen (H₂) under high pressure (200 atm) and moderate temperature (200°C), using a catalyst (typically iron oxides).
- The process was developed by Fritz Haber, who found that high pressure and a suitable catalyst were key to converting nitrogen to ammonia efficiently.
- The setup was scaled up by Carl Bosch, leading to the first ammonia production plant in 1913.



X-BAND RADAR

- Radar, short for "radio detection and ranging," is a device that uses radio waves to measure the distance, speed, and other characteristics of objects.
- It emits a signal toward a target, such as a cloud, and analyses the reflected signals to gather data.
- X-band radar is a radar that operates within a specific range of frequencies in the electromagnetic spectrum, typically from 8.0 to 12.0 GHz.
- **X-band operates in the microwave segment of the spectrum**, with wavelengths between 2.5 to 3.75 cm.
- Its short wavelength allows for precise imaging and higher resolution, which is ideal for **detecting small targets and providing detailed information**.
- **Applications**
 - **Weather Radar:** X-band radars are used in meteorology for short-range observations.
 - **Maritime Navigation:** The high resolution makes it ideal for identifying small objects at sea, such as buoys, ships, etc.
 - **Military and Surveillance:** Due to their ability to detect small and fast-moving targets, X-band radars are employed in missile guidance systems, air defense, & border surveillance.
 - **Air Traffic Control:** Help manage aircraft movements, especially at airports, by detecting and tracking planes.



PRADHAN MANTRI DIVYASHA KENDRA



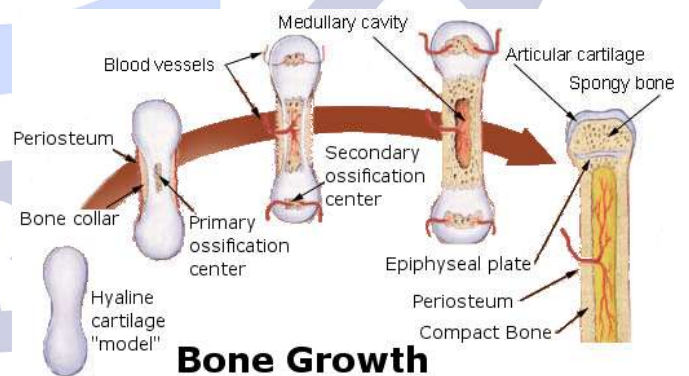
- Depat. of Empowerment of Persons with Disabilities (DEPwD) started a new 'Pradhan Mantri Divyasha Kendra (PMDK)' of the Artificial Limbs Manufacturing Corporation of India (ALIMCO), at the National Institute for the Empowerment of Persons with Visual Disabilities, Dehradun.
- It is a dedicated initiative aimed at **empowering persons with disabilities, particularly those with visual impairments.**
- It focuses on providing comprehensive rehabilitation services to visually impaired individuals, enabling them to **gain independence and self-sufficiency.**
- The center is equipped with advanced technologies, including **prosthetics, orthotics, and Braille appliances,** to

assist individuals in their daily lives and enhance their mobility.

- It emphasizes on **skill development** through various training programs, ensuring that beneficiaries acquire vocational skills that can lead to employment and self-employment.

BONE OSSIFICATION TEST

- Ossification is the **natural process of bone formation** that starts in early fetal development and continues into late adolescence.
- It differs among individuals.
- The test **approximates a person's age** based on bone development.
- X-rays of specific bones, like those in the hands and wrists, are taken to assess skeletal development. These images are compared to standard references to determine the individual's biological age.
- Experts analyze specific bones and their growth against standardized maturation charts for the relevant population.
- Due to differences in individual maturation, ossification tests are not foolproof. They provide an age range, e.g., 17-19 years.



GREENWASHING

- Greenwashing is a **deceptive practice** where companies or even governments

exaggerate their actions and their impact on mitigating climate change, often providing misleading information or making unverifiable claims.

- It is an attempt to capitalize on the growing demand for environmentally sound products.
- It is fairly widespread, and entities often label various activities as climate-friendly without verifiable evidence, undermining genuine efforts against climate change.
- The **Volkswagen scandal**, in which the German car company was found to have been cheating in emissions testing of its supposedly green diesel vehicles, was a case of greenwashing.
- Several other multinational corporations, including oil giants like Shell and BP, and Coca Cola have faced accusations of greenwashing.
- It creates a risk of diluting the authenticity of climate goals by presenting misleading or exaggerated information about environmental initiatives.
- Entities engaged in greenwashing may receive unwarranted recognition or benefits, rewarding irresponsible behavior.
- At the **27th Conference of Parties (COP27)**, the United Nations Secretary-General has declared **zero tolerance** for greenwashing, urging private corporations to rectify their practices.
- **The European Union** approved the world's first green bond standards to combat greenwashing in October 2023.
- Greenwashing is designated as an unfair trade practice under the **Consumer Protection Act, 2019** in India.

THE BATTLE OF WALONG

- The Battle of Walong was the only **counterattack India could manage in the 1962 war against China**.

- The war was fought between 14 and 16 November **1962**.
- The 6 Kumaon infantry battalion, although outnumbered and with little ammunition and resources, held the Chinese back at Walong for over 20 days.
- However, the Army was asked to pull back after it could not sustain in the final leg of the battle.
- Walong is also the easternmost town in mainland India, **located on banks of Lohit River**.



COPPER ZINC TIN SULFIDE NANOPARTICLES

- Scientists from the Institute of Advanced Study in Science and Technology (IASST), Guwahati, have developed a **new photocatalyst that can effectively break down sulfamethoxazole into less harmful byproducts, marking a significant step toward solving this environmental issue**.
- Antibiotic contamination in the environment has become a pressing concern due to the increasing levels of broad-spectrum antibiotics like sulfamethoxazole (SMX) being released, leading to antibiotic resistance, ecological damage, and health risks.
- Finding efficient ways to degrade such **antibiotics into less hazardous**

chemicals is essential for mitigating these effects.

- The composite is made from earth-abundant, inexpensive, and non-toxic components using a hydrothermal reaction involving zinc chloride, copper chloride, tin chloride, and tungsten disulfide.
- The composite acts as an efficient **photocatalyst**, which degrades sulfamethoxazole under light exposure.
- This photocatalyst helps reduce the harmful effects of antibiotics like sulfamethoxazole in the environment.
- The CZTS-WS₂ composite exhibited over 80% radical scavenging efficiency and antibacterial capabilities.
- The catalyst can be recovered and reused multiple times without losing its effectiveness, making it economically viable.
- The composite demonstrates excellent photostability, which makes it valuable for long-term applications in light-harvesting and photocatalysis.

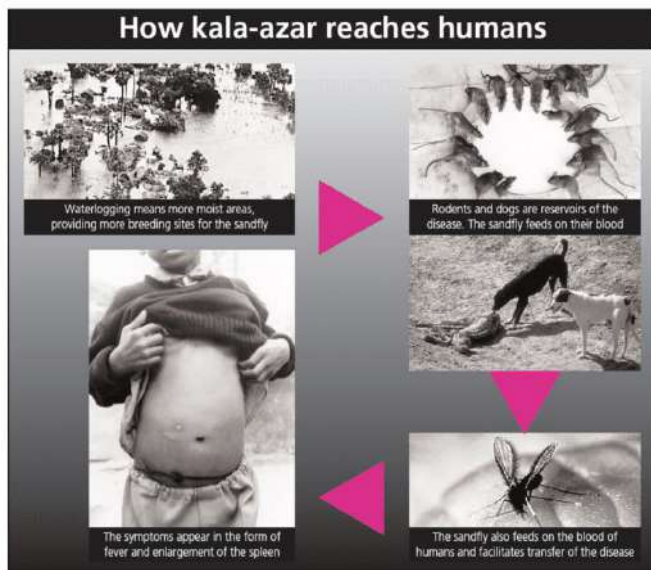


RESPIRATORY SYNCYTIAL VIRUS



- **Respiratory Syncytial Virus** is a common respiratory virus.
- It is characterized by its highly contagious nature i.e., it has a high potential to infect people.
- It exacerbated the seasonal lung infection.
- It commonly infects children especially under 2 to 6 years of age.
- In most of the cases it has symptoms like the common cold but in advanced stages it converts into **pneumonia and bronchiolitis**.
- RSV has joined flu and COVID as a triumvirate of dangerous and **common respiratory infections** that can become serious, even life-threatening.
- A global real-world study of the **vaccine** for respiratory syncytial virus (RSV) finds it offers folks aged 60 and over 80% protection against severe illness and/or hospitalization.

KALA AZAR



- It is a deadly parasitic disease caused by the **protozoa parasite Leishmania** and mainly affects the people living in Africa, Asia and Latin America.
- It is also known as Visceral Leishmaniasis or Black Fever or Dumdum Fever.
- It is transmitted to humans by the bite of an infected female phlebotomine **sandfly**.
- **Symptoms** include fever, weight loss, anemia, and enlargement of the liver and spleen.
- According to the World Health Organization (WHO), Kala-azar is the **second deadliest parasitic disease** in the world, and as of November, 2022, about 89% of global cases are reported from eight countries: Brazil, Eritrea, Ethiopia, India, Kenya, Somalia, South Sudan, and Sudan.
- **WHO has set a target of 2030 to eliminate Kala-azar.**
- The WHO's Neglected Tropical Diseases Road map also includes this target.
- Government of India launched a centrally sponsored Kala-azar control Programme in 1990-91. The National Health Policy (2002) envisaged kala-azar Elimination by 2010 which was revised later to 2015.

- India could be at the threshold of eliminating Kala-azar as a public health problem with the country having managed to keep the number of cases under one in **10,000 as per the** World Health Organization (WHO) parameters for elimination certification for two consecutive years now.
- If it can maintain the figures for another year India will become eligible to seek the elimination certificate from WHO making it the **second country** in the world after Bangladesh which in October became the only country to have eliminated Kala-azar.

PLANKTON

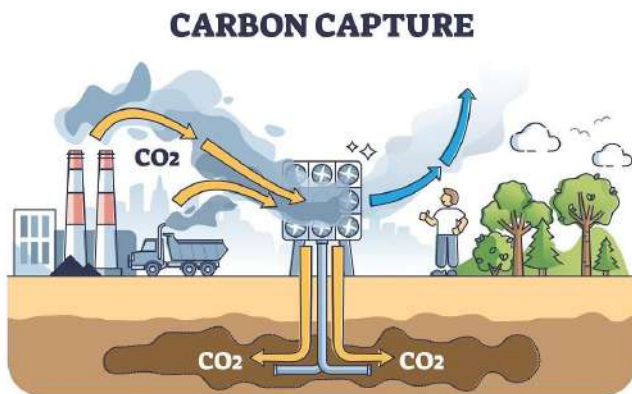


- The word "plankton" comes from the Greek for "**drifter**" or "**wanderer**."
- An organism is considered plankton if it is carried by **tides and currents**, and **cannot swim well enough to move against these forces**.
- The most basic categories divide plankton into two groups: phytoplankton (plants) and zooplankton (animals).
- **Phytoplankton are microscopic plants**, but they play a huge role in the marine food web.
- Like plants on land, **phytoplankton perform photosynthesis** to convert the sun's rays into energy to support them, and

they take in carbon dioxide and produce oxygen.

- **Zooplankton include microscopic animals** (krill, sea snails, pelagic worms, etc.), the young of larger invertebrates and fish, and weak swimmers like jellyfish. Most **zooplankton eat phytoplankton**.

CARBON CAPTURE AND STORAGE (CCS)



- It is a **process designed to mitigate the emissions of carbon dioxide (CO₂)** generated from industrial processes and the burning of fossil fuels, particularly in power plants.
- The goal of CCS is to prevent a significant amount of CO₂ from entering the atmosphere and contributing to global warming and climate change.
- Carbon capture and storage (CCS) encompasses two primary approaches:
 - The **first method** is known as point-source CCS, which involves capturing CO₂ directly at the site of its production, such as industrial smokestacks.
 - **The second method**, direct air capture (DAC), focuses on removing CO₂ that has already been emitted into the atmosphere.
- The process of carbon capture and storage encompasses several distinct steps, each

contributing to the effective containment of CO₂ emissions:

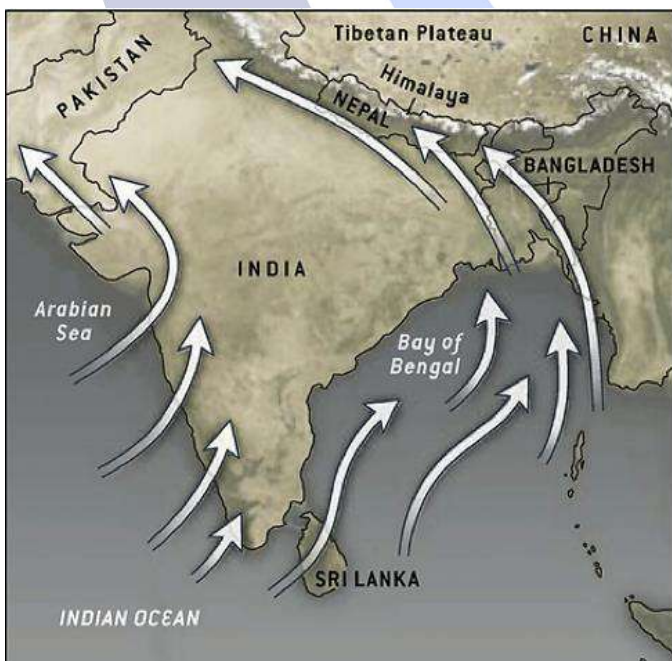
- **Capture:** CO₂ is isolated from other gases generated during industrial processes or power generation.
- **Compression & Transportation:** Once captured, CO₂ is compressed and transported to designated storage sites, frequently through pipelines.
- **Injection:** The CO₂ is then injected into subterranean rock formations, often situated at depths of one kilometer or more, where it remains stored for extended periods, sometimes lasting decades.

Some carbon capture and storage (CCS) technologies:

- **Carbon sinks:** Natural spaces like forests, oceans, grasslands, and wetlands that capture CO₂ from the atmosphere.
- **Saline aquifers:** Underground geological formations filled with salt water where CO₂ can be injected and stored.
- **Enhanced Rock Weathering (ERW):** Uses crushed silicate minerals and rocks to speed up the natural weathering process.
- **Membrane Gas Separation:** Uses permeable materials to separate CO₂ and other gases.
- **Cryogenic Carbon Capture (CCC):** Uses cryogenic cooling to capture and remove CO₂ from gas streams.
- **Cryocap:** A proprietary technology that uses a cryogenic process to capture CO₂.
- **Pre-combustion:** A technology that partially oxidizes fossil fuels, such as in a gasifier, to capture CO₂.

MISSION MAUSAM

- India is experiencing severe monsoon seasons with recurrent flooding affecting many states.
- According to a 2021 study by the Council on Energy, Environment, and Water (CEEW), about 40% of Indian districts face alternating climate hazards.
- Nearly two-thirds of India's population are exposed to flood risks, but only one-third of the flood-prone areas are covered by early warning systems.
- Mission Mausam was approved in September 2024 to improve India's weather forecasting capabilities.
- The mission has a budget of ₹2,000 crore and aims to strengthen India's weather observation network.
- It will be implemented by three key institutes under the Ministry of Earth Sciences: the India Meteorological Department (IMD), the National Centre for Medium Range Weather Forecasting (NCMRWF), and the Indian Institute of Tropical Meteorology (IITM).

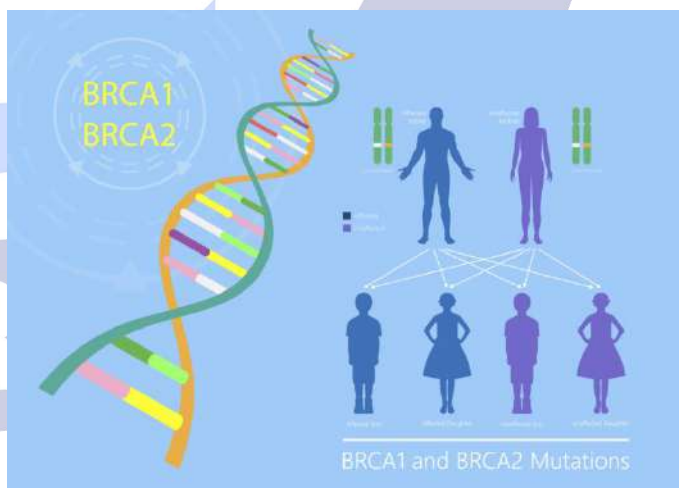


BLUE BRICKS



- Sasthra Vedhi, an organization in Kerala, has proposed using concrete blocks called "blue bricks" to bury hazardous waste.
- The idea is to bury hazardous waste like nickel-cadmium batteries and CFL lamps in the concrete blocks used for construction.
- The organization claims that this decentralized method of processing waste will significantly reduce the amount of carbon dioxide emissions associated with waste disposal.

BRCA TESTING



- The BRCA gene test is a blood test that uses DNA analysis to identify harmful changes (mutations) in either one of the two breast

cancer susceptibility genes — **BRCA1 and BRCA2**

- People who inherit mutations in these genes are at an increased risk of developing **breast cancer and ovarian cancer** compared with the general population.
- They are associated with breast tissues that help repair damaged DNA or destroy cells if the damaged DNA cannot be repaired
- They are **tumour suppressor genes**.
- When they work normally, these genes help keep breast, ovarian, and other types of cells from growing and dividing too rapidly or in an uncontrolled way
- Everyone has two copies of each of these genes—one copy inherited from each parent.

SARCO POD

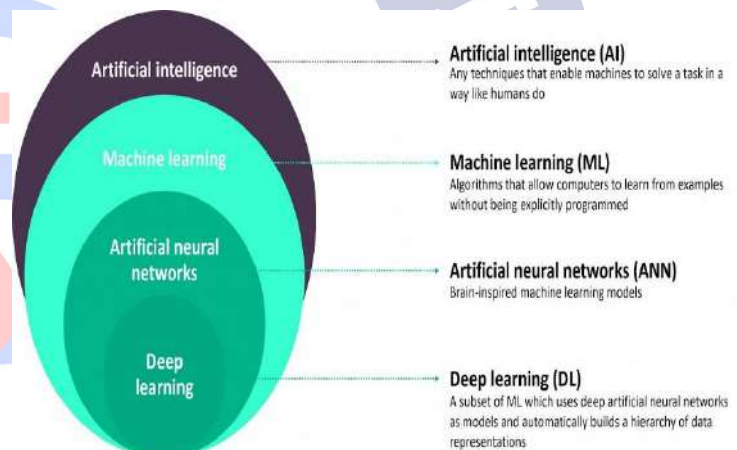


- The Sarco Pod is a **euthanasia device** designed to facilitate assisted suicide in a peaceful and controlled manner.
- It is a **3D-printed**, capsule-shaped pod that can be activated by the user from inside.
- The device works by filling the pod with **nitrogen**, which reduces the oxygen levels rapidly.
- This leads to loss of consciousness within a few seconds, followed by a peaceful **death due to hypoxia** (lack of oxygen) within minutes.
- A central aspect of the Sarco Pod is that the individual can activate the process

independently, making it a self-administered method of euthanasia.

- The Sarco Pod aligns with the concept of “**death with dignity**,” although its legal status varies depending on the country or region.
- The pod is designed to be transportable, allowing individuals to end their lives autonomously and in a dignified manner without needing medical assistance.
- The Sarco Pod has sparked considerable debate worldwide, with questions about the ethical implications of euthanasia, the legal status of such devices, and concerns about misuse.

ARTIFICIAL NEURAL NETWORKS



- It is a vital subset of machine learning that helps computer scientists in their work on complex tasks, such as, strategizing, making predictions, and recognizing trends.
- **It is a computational model that mimics the way nerve cells work in the human brain.**
- It is designed to simulate the way the human brain analyzes and processes information.
- It is not like other machine learning algorithms that crunch numbers or organise data, it is an algorithm that learns from experience and repeated tasks performed by its users.

- It is also known as a Neural Network (NN). ANN is a computational model based on the functions and structure of biological neural networks.
- Information that runs through the network affects the structure of the artificial neural network due to the fact that a neural network learns or changes based on the input and output.
- NNs are fed massive volumes of data in the beginning phases.
- In most cases, training is done by providing input and informing the network about what should be the output.

- The average MVD case fatality rate is around 50%. Case fatality rates have varied from 24% to 88% in past outbreaks depending on virus strain and case management.
- There is no treatment or vaccine for Marburg disease.
- Supportive therapy, such as intravenous fluids, electrolyte replacement, supplemental oxygen, as well as blood and blood products replacement, improves survival.

MARBURG VIRUS



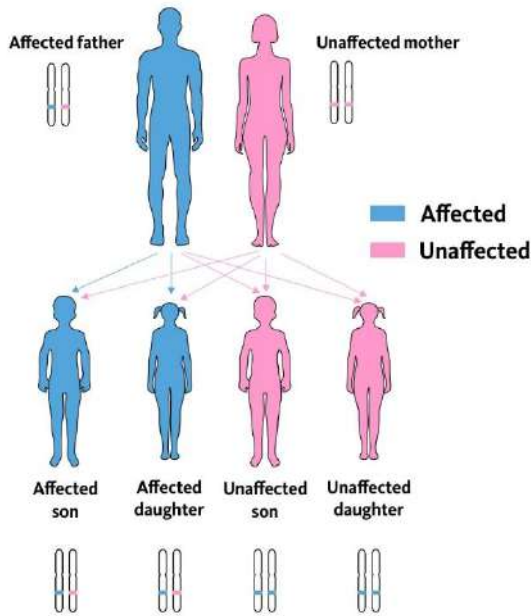
- Marburg hemorrhagic fever is a rare but severe hemorrhagic fever that affects both people and non-human primates.
- It is caused by the Marburg virus, a genetically unique zoonotic (animal-borne) RNA virus. Marburg and Ebola viruses are both members of the Filoviridae family (filovirus).
- The reservoir host of the Marburg virus is the African fruit bat
- The virus can be transmitted from bats to primates, including humans, and then spread through direct contact with blood or other body fluids from infected individuals.

HEREDITARY CANCERS

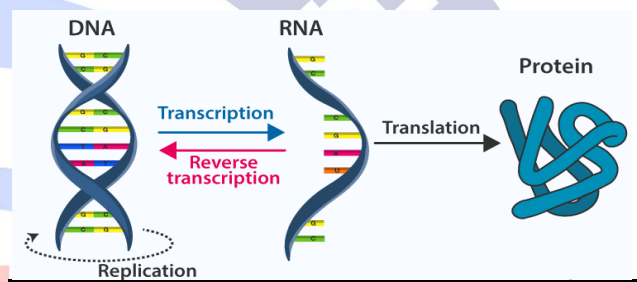
- Hereditary cancers are those caused by inherited genetic mutations passed from parent to child.
- These mutations increase an individual's predisposition to developing certain types of cancer.
- Hereditary cancer syndromes are most often inherited in an autosomal dominant manner, meaning that an individual only needs one copy of the mutated gene from either parent to have an increased risk of cancer.
- Around **10% of all cancer cases** are believed to result from inherited mutations. The prevalence is higher for certain cancers, such as ovarian (20%) and breast, colorectal, lung, and prostate cancers (10%).
- Mutations in **BRCA1 and BRCA2** are linked to a higher risk of breast and ovarian cancers.
- In men, BRCA mutations increase the risk of prostate and male breast cancer.
- They can also lead to other cancers like pancreatic, colorectal, and uterine cancers.
- Therapies such as **PARP inhibitors** are specifically designed for cancers with BRCA mutations, as they disrupt DNA

repair mechanisms that these cancers rely on.

- New therapies continue to emerge based on further genetic research.
- **CRISPR screens** allow researchers to create specific mutations in genes like BRCA to study their effects on DNA repair and cancer progression. These tools also help identify resistance to therapies.



- The first step of gene expression is known as transcription.
- In the **transcription process, the sequence of DNA of a gene is copied into RNA.**
- It uses one of the two exposed DNA strands like a template, and this strand is known as the template strand.
- The product of RNA is complementary to the template strand, and it is fully similar to other DNA strands, known as a nontemplate strand.



THE GLOBAL DIGITAL COMPACT

- The Global Digital Compact is a comprehensive framework for global governance of digital technology and artificial intelligence
- Adopted during the UN’s ‘Summit of the Future,’ focuses on harnessing digital technologies for the common good while promoting sustainable development and responsible data governance.
- It aims to address challenges like the digital divide, data privacy, and ethical AI use.
- It is a non-binding diplomatic instrument aiming to guide governments, institutions, and stakeholders in digital technology use and governance.
- Over time, its guidelines could evolve into soft laws.

TRANSCRIPTION

- Genes do not directly produce protein, but they provide information to build proteins.
- Protein production is completed in two ways: transcription and translation.
- Both the transcription and translation keep the information in DNA and then use it for protein production
- The process following which DNA is copied to RNA is known as transcription, and the process by which RNA is used for producing protein is known as translation



GLOBAL FRAMEWORK ON CHEMICALS

- The Global Framework on Chemicals (GFC) is an international initiative designed to address the **safe management of chemicals and hazardous substances on a global scale**.
- It was adopted in September 2023 during the fifth International Conference on Chemicals Management (ICCM5), the Framework provides a roadmap to address the environmental and health impacts of chemicals and waste.
- The framework aims to mitigate the risks associated with chemicals throughout their lifecycle, from production to disposal, to protect human health and the environment.
- The GFC outlines five strategic objectives and sets 28 targets to help countries and stakeholders manage chemicals throughout their entire lifecycle, including products and waste management.
 - **The Rotterdam Convention** is a global treaty that aims to protect

human health and the environment by helping countries make informed decisions about trading hazardous chemicals

- **The Stockholm Convention** on Persistent Organic Pollutants (POPs) is a global treaty that aims to protect human health and the environment from the harmful effects of POPs
- **The Minamata Convention** on Mercury is a global agreement that aims to protect the environment and human health from mercury pollution.

INITIAL PUBLIC OFFERING



- It is the process by which a privately held company like Hyundai, or a company owned by the government such as LIC, **raises funds by offering shares to the public or to new investors**.
- Following the IPO, the company is listed on the stock exchange. Stock exchange is an organized market for the sale and purchase of securities such as shares, stocks, and bonds.
- A listed company can raise share capital for growth and expansion in the future through a **follow-on public offering or FPO**.

- While coming up with an IPO, the company has to file its offer document with the market regulator Securities and Exchange Board of India (SEBI).
- The offer document contains all relevant information about the company, its promoters, its projects, financial details, the object of raising the money, terms of the issue, etc.

MQ-9B DRONES



- It is a **high-altitude, long-endurance armed Unmanned Aerial Vehicle (UAV), capable of remotely controlled or autonomous flight operations.**
- The MQ-9B drones are also known as "**Predators**". They can fly for over 40 hours using a satellite.
- They can be used for offensive missions, reconnaissance, surveillance, and intelligence operations.
- It is armed with strike missiles, allowing it to engage and eliminate enemy targets with high precision.
- This feature enhances its effectiveness in various roles, including land and maritime surveillance, anti-submarine warfare, anti-surface warfare, electronic warfare, and expeditionary missions.
- It is capable of automatic take-offs and landings, providing operational flexibility.

- It can safely integrate into civil airspace, enabling joint forces and civil authorities to obtain real-time situational awareness in the maritime domain, day or night.

LITHIFIED SLAG



- Human activity has drastically transformed the Earth's landscape, leading to the creation of new geological formations, such as **sedimentary rocks formed from slag**, a by-product of the steelmaking industry.
- Slag is a composite material from steel production, containing metal oxides and silicon dioxide.
- It becomes a significant component of artificial ground, contributing to sedimentary material in the environment.
- **Slag undergoes lithification, turning into sedimentary rock through natural weathering.**
- This process can sequester greenhouse gases like carbon dioxide through mineral carbonation, mimicking natural processes.
- This process **can potentially reduce the carbon footprint** of the steel industry by reusing slag deposits.
- Repurposing slag deposits for carbon capture could eliminate the need for additional processing facilities.

UNIFIED GENOMIC CHIP



- The Unified Genomic Chip is an initiative aimed at improving **livestock breeding** in India, specifically targeting cattle and buffalo.
- It aims to help farmers identify high-quality cattle early and improve dairy farming efficiency in India.
- The chip comes in two versions: the '**Gau Chip**' for cattle and the '**Mahish Chip**' for buffalo.
- Both versions are tailored specifically for Indian cattle breeds.
- The chip was developed by the **Department of Animal Husbandry and Dairying (DAHD)** under the Ministry of Fisheries, Animal Husbandry, and Dairying.
- It helps farmers make informed decisions regarding animal selection **by identifying high-quality bulls at an early age**.
- It aims to improve cattle quality and enhance dairy productivity, contributing to farmers' economic growth.
- The use of this genomic chip is expected to boost the quality and productivity of the dairy farming sector in India, benefiting the overall agricultural landscape.

HUMSAFAR POLICY

- The Humsafar Policy **aims to improve infrastructure on India's national**

highways, focusing on comfort, convenience, and inclusivity for travellers.

- It aligns with the Ministry of Road Transport and Highways' goals to bring national highways to international standards.
- It's objective is to enhance the travel experience by providing essential services and making highways more user-friendly.

Key Features

- Installation of clean and well-maintained toilets at regular intervals for travellers.
- Adequate parking facilities at fuel stations and rest stops to manage traffic flow.
- Installation of EV charging stations along highways to promote eco-friendly transportation.
- Establishment of restaurants and food courts at regular intervals to offer quality meals and refreshments.



MAJOR ATMOSPHERIC CHERENKOV EXPERIMENT (MACE) OBSERVATORY

- MACE is an **Imaging Atmospheric Cerenkov Telescope (IACT)** located in Hanle Dark Sky Reserve (HDSR), Ladakh, India.

- An imaging Cherenkov telescope (IACT) is a large-aperture telescope that **detects gamma rays** by indirectly interacting with the atmosphere.
- The observatory features the largest imaging Cherenkov telescope in Asia, located at an altitude of approximately 4,300 meters, making it the highest observatory of its kind globally.
- Built indigenously by Bhabha Atomic Research Centre (BARC) with support from Electronics Corporation of India Limited
- Aims to advance **cosmic-ray research and observe high-energy gamma rays**, aiding the understanding of universe phenomena like supernovae, black holes, and gamma-ray bursts.



Mission Aspides

- It is a European Union (EU) naval mission to protect cargo ships in the Red Sea from attacks from Yemen’s Houthi rebels.
- It will send European warships and airborne early warning systems to the Red Sea, Gulf of Aden and surrounding waters.
- France, Germany, Italy and Belgium have contributed troops towards this mission.
- Aspides vessels, whose operational command centre will be in the Greek city of Larissa, will have orders to fire on the Houthis only if they attack first and will not be authorised to shoot pre-emptively.

Red Sea

- It is a **semi-enclosed inlet** (or extension) of the **Indian Ocean** between the continents of Africa and Asia. It is one of the world’s **warmest seas**.
- It is connected to the Arabian Sea and the Indian Ocean to the south through the **Gulf of Aden** and the narrow **strait of Bab El-Mandeb**.
- The northern portion of the Red Sea is bifurcated by the **Sinai Peninsula** into the **Gulf of Aqaba** and the **Gulf of Suez**, where it is connected to the **Mediterranean Sea** via the famous **Suez Canal**.
- **Bordering Countries:**
 - **Yemen and Saudi Arabia** border the Red Sea to the east.
 - It is bordered by **Egypt** to the north and west and by **Sudan, Eritrea, and Djibouti** to the west.

Islands: Some well-known islands include **Tiran Island**, which is located near the mouth of the Gulf of Aqaba, and **Shadwan Island**, which is located at the entrance of the Gulf of Suez.

ISRAEL'S WAR ON GAZA

Attacks in the Red Sea

Houthi fighters have attacked Israel-linked ships in the Red Sea, disrupting maritime trade, in retaliation to Israel's war on Gaza. The map shows attacks from November 19 to January 11.



©OpenStreetMap Source: Ambrey Analytics | January 23, 2024



ST. FRANCIS XAVIER



- Saint Francis Xavier was a **Catholic missionary** and saint who was a **co-founder of the Society of Jesus**.
- He was born in Javier, Kingdom of Navarre (in present-day Spain), and was a companion of **Ignatius of Loyola** and one of the **first seven Jesuits**.
- He led an extensive mission into Asia, mainly in the Portuguese Empire of the time and was influential in evangelization work, most notably in India.
- He was the first Christian missionary to venture into Japan, Borneo, the Maluku Islands, and other areas.
 - In those areas, struggling to learn the local languages and in the face of opposition, he had less success than he had enjoyed in India.
- Xavier was about to extend his missionary preaching to China when he **died on Shangchuan Island**.
- Known as the **“Apostle of the Indies”** and **“Apostle of Japan”**, he is considered to be one of the greatest missionaries since Paul the Apostle.
- **The Feast of St. Francis Xavier** is observed on December 3rd every year in Goa.

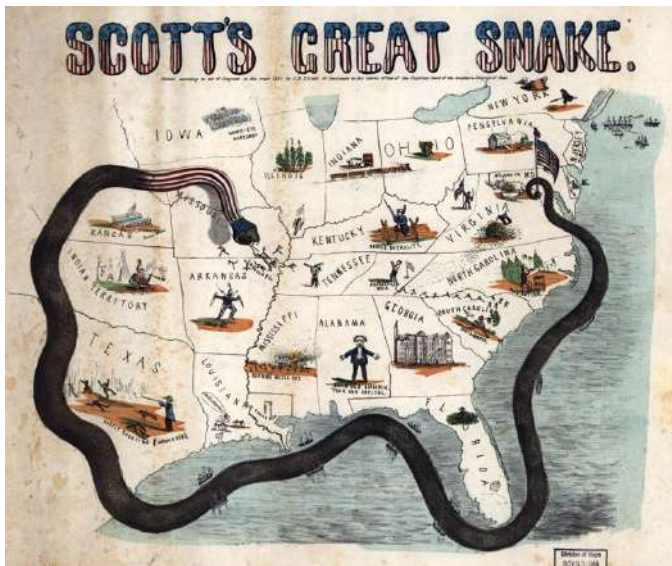
- It is a regional public holiday in the northern Spanish community of Navarra and the Indian state of Goa.

EXERCISE KAZIND



- The 8th edition of the **India-Kazakhstan Joint Military Exercise KAZIND-2024**, commenced in Uttarakhand and is being held from 30th September to 13th October 2024.
- The Exercise between India and Kazakhstan was **initiated as ‘Exercise PRABAL DOSTYK’** in 2016.
- After the second edition, it was upgraded to a company-level exercise and renamed **‘Exercise KAZIND’**.
- The exercise aims to **enhance joint military capabilities** for **counter-terrorism operations** in semi-urban and mountainous terrain, focusing on physical fitness, tactical drills, and sharing of best practices under **Chapter VII of the UN Charter**.
 - Chapter VII includes action with respect to **threats to the Peace, Breaches of the Peace, and Acts of Aggression**.

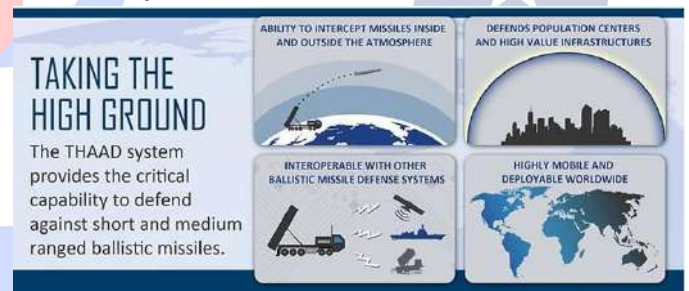
ANACONDA STRATEGY



- It refers to a military strategy with the primary objective to **suffocate the Confederacy economically and militarily**, similar to how an anaconda coils around and asphyxiates its prey.
- It was proposed by **Union General Winfield Scott** during the early stages of the **American Civil War**.
- China's 'anaconda strategy' against Taiwan reportedly involves a mix of military maneuvers, psychological tactics, and cyber warfare to eventually weaken Taiwan's defenses.
- The ultimate goal appears to be to **force Taiwan into submission** without engaging in a full-scale invasion.
- China is encircling Taiwan by both sea and air, increasing the number of air incursions to Taiwan Strait, and employing its ships to operate around the country in what appears to be an effort to tire out Taiwan's navy and air force.
- It could be the prelude to a more violent showdown in the future.

THAAD

- It is an acronym for **Terminal High Altitude Area Defense**, a transportable, ground-based anti-ballistic **missile defence system**.
- First proposed in 1987 and then finally deployed in 2008, the THAAD **cannot be used as a form of attack** against an enemy.
- It is designed to **intercept and destroy short and medium-range ballistic missiles** in their final flight phase.
- THAAD is coupled with **space-based and ground-based surveillance** stations, which transfer data about the incoming missile and inform the THAAD interceptor missile of the threat type classification.
- This system has been designed and manufactured by the USA company **Lockheed Martin**.
- It has been previously deployed in the United Arab Emirates (UAE), Guam, Israel, Romania as well.
- Presently, the US is planning on supplying such systems for the defence of Israel.



DOPPLER WEATHER RADAR

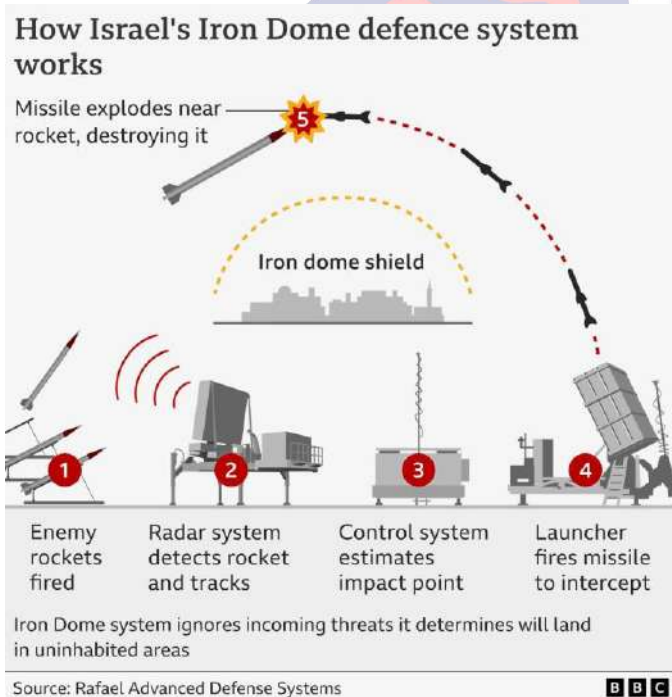
- A Doppler radar is a **specialized radar** that uses the Doppler effect to **produce velocity data** about objects at a distance.
- These radar systems can provide information regarding the movement of targets as well as their position.
- Doppler radars **help forecasters** to observe rainfall, and the advance of cloud formations over a region and subsequently monitor thunderstorms and lightning in real time.

Doppler Effect:

- It was first described (1842) by Austrian physicist **Christian Doppler**.
- It is the apparent difference between the frequency at which sound or light waves leave a source and that at which they reach an observer, caused by the relative motion of the observer and the wave source.

- It is capable of being used in **all weather conditions**, including during the day and night.
- It claims a **success rate of over 90%**.
- It can protect deployed and maneuvering forces, as well as the forward operating base (FOB) and urban areas, against a wide range of indirect and aerial threats.

IRON DOME



- It is a **short-range, ground-to-air, air defence system** of Israel.
- The Iron Dome has **three main systems** that work together to provide a shield over the area where it is deployed.
 - **Radar:** It has a detection and tracking radar to spot any incoming threats.
 - **Weapon Control:** It has a battle management and weapon control system (BMC).
 - **Missile Fire:** It also has a missile firing unit. The BMC basically liaises between the radar and the interceptor missile.
- It is used for countering rockets, artillery & mortars as well as aircraft, helicopters and Unmanned Aerial Vehicles (UAV).

BIOPOLYMERS



- These are polymer materials that have been **manufactured from biological sources** such as fats, vegetable oils, sugars, resins, and proteins.
- The biopolymers have more complex structures than synthetic polymers.
- Biopolymers are **biodegradable** and decomposition is easily done by bacteria in soil environment, as compared to synthetic polymers which causes environmental pollution due to incineration.

Characteristics:

- They are environmentally friendly.
- They are decomposed by the processes of oxidation (mainly reaction with oxygen), hydrolysis (decomposition by water) etc.
- Some of them are **compostable** and can show some chemical properties in their surface.
- Bio polymers like **polylactic acid, polyglycolate, poly 3-hydroxy butyrate** etc. may show plastic properties.

Benefits:

- These polymers can reduce carbon dioxide levels in the atmosphere and also decrease carbon emissions.
- This happens because bio-degradation of these chemical compounds can release carbon dioxide that can be reabsorbed by crops grown as a substitute in their place.

BUSINESS 20

- The B20 is the **official G20 dialogue forum** involving the **global business community**.
- B20 plays a leading role in mobilizing global business leaders' perspectives on global economic and trade governance.
- It represents the unified voice of the entire G20 business community.
- Each year, a B20 Chair is appointed by the G20 Presidency, supported by a B20 Sherpa and secretariat.
- B20's goal is to provide actionable policy recommendations aligned with rotating presidency priorities to foster economic growth.
- B20 operates through Task Forces (TFs) and Action Councils (ACs) responsible for consensus-based policy recommendations.
- These recommendations are directed towards the G20 and international organizations.
- **2024 Theme:** Inclusive Growth for a Sustainable Future.

CYCLONE DANA

- A low-pressure system has developed over the East-central Bay of Bengal. It is expected to intensify into a cyclone in the coming days.
- Once it intensifies, the cyclone will be identified as **Dana**, a name proposed by **Qatar**.
 - It means beautiful, precious pearl in Arabic.

Naming of cyclones:

- In 2000, a group of nations under WMO/ESCAP (World Meteorological Organisation/United Nations Economic and Social Commission for Asia and the Pacific), comprising of **Bangladesh, India, the Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand**, decided to start naming cyclones in the region.
- After each country sent in suggestions, the WMO/ESCAP Panel on Tropical Cyclones (PTC) finalised the list.
- The WMO/ESCAP **expanded** to include **five more countries** in 2018 — **Iran, Qatar, Saudi Arabia, United Arab Emirates and Yemen**.
- While picking names for cyclones, countries need to follow some **rules**:
 - The proposed name should be neutral to
 - (a) politics and political figures
 - (b) religious beliefs,
 - (c) cultures and
 - (d) gender.
 - Name should be chosen in such a way that it does not hurt the sentiments of any group of population over the globe.
 - It should not be very rude and cruel in nature.
 - It should be short, easy to pronounce and should not be offensive to any member.
 - The maximum length of the name will be eight letters.
 - The proposed name should be provided with its pronunciation and voice over.
 - The names of tropical cyclones over the north Indian Ocean will not be repeated. Once used, it will cease to be used again.

EXERCISE MALABAR



- It was **started in 1992** as a **bilateral naval exercise** between **India and US navy**.
- The first Malabar Exercise in the Bay of Bengal took place in 2007.
- It was expanded into a trilateral format with the **inclusion of Japan in 2015**.
- In **2020**, the **Australian Navy** joined the Malabar Exercise, making it a quadrilateral naval exercise.
- It takes place annually in the Indian Ocean and Pacific Oceans alternatively.
- The exercise aims to strengthen cooperation and security in the Indo-Pacific region.
- Malabar 2024 will focus on a broad range of activities designed to enhance cooperation and operational capabilities, including discussions on special operations, surface, air, and anti-submarine warfare through a Subject Matter Expert Exchange (SMEE).
- Complex maritime operations such as anti-submarine warfare, surface warfare, and air defense exercises will be conducted at sea, with an emphasis on improving situational awareness in the maritime domain.
- The exercise will feature participation of various Indian naval platforms, including guided missile destroyers, multi-purpose frigates, submarines, fighter aircraft and helicopters.

EXERCISE KAKADU

- Exercise Kakadu is a joint-enabled, biennial exercise hosted by the **Royal Australian Navy**

and supported by the Royal Australian Air Force.

- Kakadu is the Navy's premier maritime exercise, developing interoperability between nations in the maritime and air domains, and providing training opportunities for maritime security and surveillance.
- It started in **1993**.

NEW COLLECTIVE QUANTIFIED GOAL

- The NCQG is a **forthcoming international climate finance target**.
- It is being developed to replace and build upon the current commitment of mobilizing **\$100 billion per year** by developed countries to support climate action in developing countries.
- The NCQG aims to establish a new, more ambitious financial target that reflects the evolving needs and challenges associated with addressing climate change, particularly in developing nations.
- **Key aspects:**
 - **Increased Financial Commitment** - The NCQG is expected to surpass the existing \$100 billion annual target, recognizing that the financial needs for climate mitigation, adaptation, and resilience have grown significantly.
 - **Expanded Scope** - The goal will address not only the quantum of financial resources but also associated issues such as sources of funding, types of projects to be funded, and effective mechanisms for financial disbursement and utilization.
 - **Inclusivity and Fairness** - The NCQG discussions involve ensuring that the contributions are equitable, with clear criteria on who should contribute based on capabilities and responsibilities.

- **Monitoring and Accountability** - Establishing robust systems for tracking the flow and impact of the climate finance to ensure transparency and effectiveness.
- The goal is expected to be finalized and adopted at upcoming climate conferences, such as COP29.

INTERNATIONAL ABHIDHAMMA DIVAS

- Abhidhamma Divas commemorates the day when **Lord Buddha descended from the celestial realm**, Tāvatiṃsa-devaloka, to Sankassiya (now Sankisa Basantapur) in Uttar Pradesh.
- The **Asokan Elephant Pillar**, a historical marker at the site, marks this significant event.
- According to **Theravāda Buddhist texts**, Lord Buddha spent three months teaching the Abhidhamma to the deities in **Tāvatiṃsa**, including his mother.
- The celebration of Abhidhamma Divas coincides with the end of the first Rainy Retreat (Vassa) and the Pavāraṇā festival, a time when monks and nuns conclude their retreat period with a ceremony.
- This year International Abhidhamma Divas was hosted by the **Ministry of Culture** in collaboration with the **International Buddhist Confederation (IBC)**.

HIGH-PERFORMANCE BUILDINGS (HPBs)



- HPBs are designed to **reduce energy use, greenhouse gas emissions, and operational costs** while improving occupant well-being and comfort.
- These buildings minimize energy and water consumption through climate-adaptive designs, contributing to climate mitigation and adaptation.
- HPBs address urban and climate challenges as the **construction industry contributes 39% of energy-related CO2 emissions** globally.

How are govts supporting HPBs ?

- The **European Union's Green Deal** mandates energy-efficient building designs and retrofits, aiming for climate neutrality by 2050.
- The **U.S. "Energy Star" and "LEED" Programmes** promote energy-efficient buildings and offer tax credits for green building initiatives.

How is India adopting HPBs ?

- **India promotes HPBs through its NAPCC** (National Action Plan on Climate Change), focusing on energy-efficient construction.
- The **Energy Conservation Building Code (ECBC)** aims to reduce energy demands by up to 30% in buildings.

- India's **Green Rating for Integrated Habitat Assessment (GRIHA)** has registered over 3,000 projects that prioritize sustainable practices and reducing carbon emissions.
- The **Indian Green Building Council (IGBC)** has certified more than 14,000 projects, covering 12.5 billion square feet of green building space.

MOONLIGHT PROGRAMME



- The **European Space Agency (ESA)** launched its **Moonlight Lunar Communications and Navigation Services (LCNS) Programme**.
- The Moonlight programme aims to **create a constellation of lunar satellites** to support autonomous landings, mobility and high-speed communication on the lunar surface.
- Around five lunar satellites will enable **long-distance data transfer between Earth and Moon**, covering a distance of about 400,000 km.
- Timeline for the Mission:
 - The programme begins with the launch of Lunar Pathfinder, a communications relay satellite, planned for 2026.
 - Initial services will begin by 2028, with full operational capabilities by 2030.

- **Moon's South Pole will be a focus** due to the potential presence of water ice in permanently shadowed craters.
- ESA will work alongside global space agencies, including **NASA's Artemis programme**, and the Artemis Gateway project, to foster cooperation and build shared lunar infrastructure.
- Moonlight's communications infra is **expected to reduce the need for standalone communication systems**, allowing mission teams to focus more on mission operations.

S4* NUCLEAR SUBMARINE



- India's fourth nuclear-powered ballistic missile submarine (SSBN), codenamed **S4***, is currently undergoing trials. This is part of the **Arihant class**, which consists of indigenous SSBNs.
- It boasts nearly **75% indigenous content and is equipped with K-4 nuclear ballistic missiles**, which have a range of 3,500 km and are fired through vertical launching systems.
- While the **first of its class, INS Arihant** carries 750 km range K-15 nuclear missiles, its **successors, INS Arighaat and INS Aridhaman**, are all upgrades of the previous ones and carry only K-4 ballistic missiles.
- The launch of S4* follows the **commissioning of INS Arighaat in**

August 2024, and the INS Aridhaman is set for commissioning next year.

- INS Arihant has been in service since 2018.
- Since India's first leased nuclear attack submarine (INS Chakra) was named as S1, INS Arihant was named S2, INS Arighaat S3, INS Aridhaman S4 - thus the **new one is currently named S4*** - with the formal name yet to be given.

H5N1 BIRD FLU



- It originated from a **virus outbreak in China in 1996** and has since evolved into a highly transmissible strain.
- It quickly spread from Europe to Africa, Asia, North America, and South America, and recently, it reached Antarctica.
- H5N1 is a **subtype of the influenza A virus** that causes **severe respiratory disease in birds**, known as **avian influenza** or "bird flu".
- The virus has **affected birds in over 80 countries**, resulting in mass culling of poultry and wild birds.
- In India, it was **first reported in 2006 in Maharashtra** and since then, it has frequently resurfaced.

SRIJAN – CENTER FOR GENERATIVE AI



- IndiaAI and Meta launched a **Center for Generative AI, called Srijan, at IIT Jodhpur**, with the goal of driving open-source AI innovations in India.
- This initiative, supported by a **partnership with the All India Council for Technical Education (AICTE)**, aims to encourage young developers to leverage open-source AI models to solve real-world challenges.
- Srijan seeks to empower young AI talent by providing **resources to work with Large Language Models (LLMs)** and focus on essential areas like healthcare, mobility, and education.
- Meta has committed **INR 750 Lakhs** over three years, supporting training, research, and workshops.
- The center will host **Hackathons, Master Training workshops, and a GenAI Resource Hub** to foster collaboration and skill development.
- IIT Jodhpur will **collaborate with national & global stakeholders**, including Meta, MeitY, AICTE, and academic institutions, to expand Generative AI research & innovation.

WEGOVY



- A recent study has shown that weight loss drugs such as Wegovy can help in the **treatment of neuro-degenerative diseases such as Alzheimers.**
- Wegovy is a **medication that contains semaglutide**, a hormone that **mimics glucagon-like peptide-1 (GLP-1)**. It is primarily used for **chronic weight management** in adults who are either obese or overweight with at least one weight-related condition, such as type 2 diabetes or hypertension.
 - Semaglutide, mimics the action of GLP-1, a hormone that is produced in the intestines and plays a key role in regulating appetite and metabolism. GLP-1 **binds to receptors in the brain, in areas involved in appetite control.** This action increases the feeling of fullness (satiety) and reduces hunger.
- **GLP-1 also slows down gastric emptying, meaning food stays in the stomach longer,** which further contributes to prolonged satiety and reduced food intake.
- It is administered as a **once-weekly injection** and is designed to support long-term weight loss when combined with a reduced-calorie diet and increased physical activity.

- By activating GLP-1 receptors in the brain, Wegovy makes it easier for individuals to stick to their dietary plans and achieve sustainable weight loss over time.
- Wegovy has **not yet been approved for use in India.**

COBENFY

- Cobenfy is a newly **FDA-approved medication for treating schizophrenia in adults.** It is a combination of two drugs, xanomeline and trospium chloride.
- The medication has shown promising results in clinical trials, with significant improvements in schizophrenia symptoms.
- **Schizophrenia is a chronic and severe mental health disorder** that affects how a person thinks, feels, and behaves. It is characterized by episodes of psychosis, where an individual experiences distorted perceptions of reality.
- It typically appears **in late adolescence and early adulthood.** The disorder results in a 13–15-year reduction in life expectancy due to lifestyle factors and comorbidities, with a 5% suicide rate.
- Genetics play a crucial role with polygenic risk involving hundreds of genetic variants.
- Environmental factors such as prenatal complications can interact with genetic predispositions to significantly increase the risk.
- Neurodevelopmental origins also contribute to the disorder's complexity.

STEVIA

- The sweet leaf, also known as the honey herb, is nowadays being used as an **alternative for sugar.**
- It is also used to treat a gamut of problems from **diabetes** obesity, hypertension, physical fatigue, and heart burn to even

dental decay as the leaves are endowed with significant medicinal properties.

- Stevia (*Stevia rebaudiana*) which is commonly known for its non-caloric sweetening qualities, also possesses therapeutic properties, according to new research.
- It has potential benefits for managing endocrine, metabolic, immune, and cardiovascular diseases by influencing cellular signaling pathways.



E. COLI

- Recently, an E. coli outbreak in the U.S. has caused the death of one individual and led to the hospitalization of 10 others after consuming McDonald’s burgers.
- The incident has sparked concerns over **food safety** and the spread of such infections.
- Coli is a type of **bacteria that normally resides in the intestines of humans and animals**. While most strains are harmless, some can cause serious illness.
- The dangerous strains produce Shiga toxins, damaging the lining of the small intestine and causing diarrhea. Infections can result in diarrhea (often bloody), stomach cramps, fever, and nausea. Spread through contaminated food, water,

and contact with fecal matter from infected humans or animals.

- Most infections resolve on their own, but hydration is key. In severe cases, medical intervention may be needed.

PM E-DRIVE

PM E-DRIVE Scheme: Eligible Categories





- e-2 Wheelers (e-2Ws)
- e-3 Wheelers (e-3Ws) including registered e-rickshaws & e-carts and L5
- e-Ambulances
- e-Trucks
- e-Buses
- Charging infra
- Upgradation of Testing Agencies



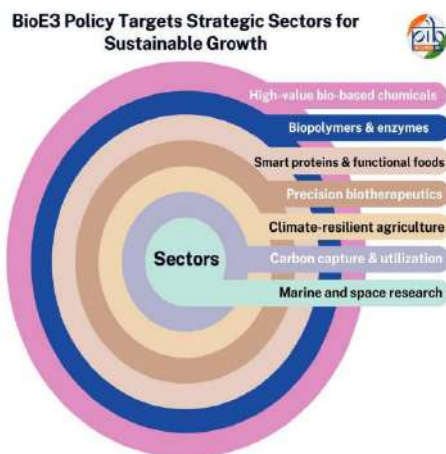


- PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) launched to promote **EV adoption**.
- It replaces the Faster Adoption and Manufacturing of Electric Vehicles in India Phase II (**FAME India Phase II**).
- The primary goal of PM E-DRIVE is to **accelerate the transition to electric vehicles** by offering upfront incentives and building a robust **charging ecosystem**.
- It prioritizes **public transportation** through incentives for electric buses and trucks.
- Subsidies will be provided to promote electric two-wheelers (e-2Ws), three-wheelers (e-3Ws), e-ambulances, e-trucks, and other emerging EVs.
- The scheme **excludes electric cars** from any direct subsidies.
- Aadhaar-authenticated **e-vouchers** will be introduced for EV buyers, signed by the buyer and dealer, and uploaded on the PM E-DRIVE portal to facilitate demand incentives.

- It is expected to reduce air pollution and fuel dependency.
- It will create employment in EV manufacturing, supply chains, and charging infrastructure installation.
- It is being Implemented by Ministry of Heavy Industries (MHI)

BIOE3 POLICY

The policy's scope is broad and ambitious, encompassing several strategic sectors:



- The BioE3 (Biotechnology for Economy, Environment and Employment) Policy was launched recently with the aim of fostering **high-performance biomanufacturing**, which involves the production of bio-based products across various sectors.
- The policy aligns with broader national goals such as achieving a **'Net Zero' carbon economy** and promoting sustainable growth through a circular bioeconomy.
- The BioE3 policy emphasizes innovation in research and development (R&D) and entrepreneurship, establishes **Biomanufacturing & Bio-AI hubs and Bio foundries**.
- It aims to expand India's skilled biotechnology workforce, aligns with **'Lifestyle for Environment'** programs, and targets the development of regenerative bioeconomy models.

- It aims to generate significant **employment**, especially in tier-II and tier-III cities through the establishment of biomanufacturing hubs.
- These hubs will **utilise local biomass**, fostering regional economic growth and equitable development.]
- The policy also emphasizes ethical biosafety and global **regulatory alignment** to boost India's global competitiveness while ensuring responsible biotechnology development.
- It is being Implemented by **Department of Biotechnology (DBT)**.

BATTERY-AS-A-SERVICE (BAAS)



- With adoption of EVs, focus will shift towards development of infrastructure such as charging points and adopting battery swapping or the battery-as-a-service (BaaS) model.
- **Battery swapping** or Battery or Energy as a Service (BaaS) allows EV owners to replace the discharged batteries with charged ones at the swap stations.
- When the battery is discharged, the owner can change it with a fully charged.
- It will help address the problem of setting up charging stations and also **reduce range anxiety of drivers**.
- It can help EV owners **save the cost of purchasing a battery**.

- Manufacturers can sell EVs in two forms: Vehicles with fixed or removable batteries and vehicles with batteries on lease.
- If you buy an electric scooter with battery leasing, you do not pay for the cost of the battery—that makes the initial acquisition almost **40% cheaper**.
- The service is less time consuming and takes only a few minutes compared to charging at a battery station which could take hours.

C-295 AIRCRAFTS

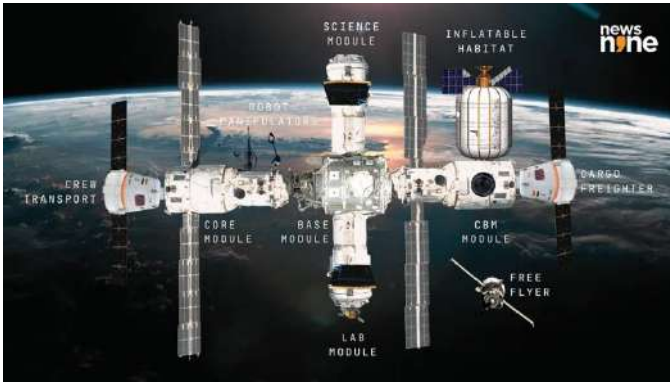


- It is a **new-generation tactical airlifter in the light and medium segment**.
- It was designed and built by **Airbus**, a European multinational aerospace corporation.
- It is a reliable and highly versatile tactical transport that is tailored for missions that range from carrying troops and cargo, maritime patrol, airborne warning, surveillance and reconnaissance to signals intelligence, armed close air support, medical evacuation, Air-to-Air refuelling, VIP transport, and airborne firefighting.
- It has **short take-off and landing (STOL)** characteristics and the ability to use unprepared airstrips.
- India formalized the acquisition of 56 C295 aircraft to replace the legacy Avro fleet of the IAF at a cost of Rs 21,935 crore.

CARBON CREDIT

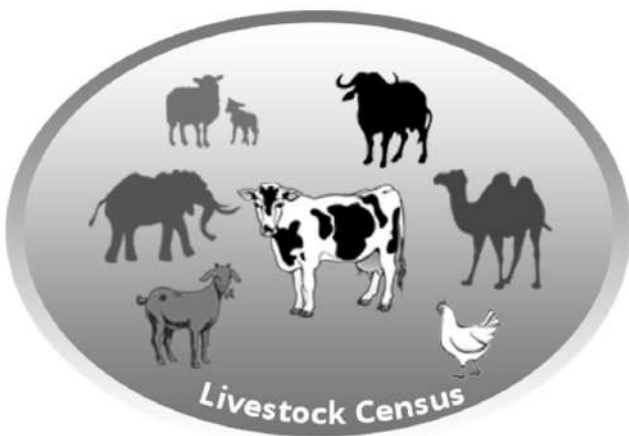
- A carbon credit (also known as carbon offset) is a **credit for greenhouse emissions reduced or removed** from the atmosphere by an emission reduction project, which can be used by governments, industry, or private individuals to compensate for the emissions they generate elsewhere.
- Those that cannot easily reduce emissions can still operate, at a higher financial cost.
- Carbon credits are based on the "**cap-and-trade**" model that was used to reduce sulfur pollution in the 1990s.
- One carbon credit is equal to **one metric ton of carbon dioxide**, or in some markets, carbon dioxide equivalent gases (CO₂-eq).
- A **carbon market** is a financial market that facilitates the buying and selling of carbon credits, which are permits that allow an entity to emit a certain amount of greenhouse gases.
- The goal of carbon markets is to limit emissions and mitigate climate change.
- Carbon markets can help accelerate the transformation needed to address climate change by **putting a price on pollution**.
- However, some critics contend that carbon trading enables high income countries to avoid reducing their greenhouse gas emissions.

BHARTIYA ANTARIKSH STATION



- The ISRO and the Department of Biotechnology have inked an agreement to design and conduct experiments, which will then be integrated into the forthcoming Bhartiya Antariksh Station.
- Bhartiya Antariksh Station will be **India's own space station** for scientific research.
- India will launch its own space station by **2028**.
- ISRO plans to **operationalize it by 2035** and achieve a **crewed lunar mission by 2040**.
- Currently, the only two functioning space stations are the **International Space Station** and **China's Tiangong**.

LIVESTOCK CENSUS



- The Livestock Census has been conducted in the country periodically **since 1919-20**. Since then, it has been conducted once **every 5 years**.

- It covers **all domesticated animals** and their headcounts.
- So far 20 such censuses have been conducted by the **Ministry of Fisheries, Animal Husbandry and Dairying**, in participation with State Governments and UT Administrations.
- The **household-level data** through **online transmission** from the field has been used for the first time in 20th Livestock Census.
- The census is beneficial not just for policymakers but also for agriculturists, traders, entrepreneurs, dairying industry and masses in general.
- The 21st livestock census has begun recently.

ARTICLE 6 OF PARIS CLIMATE AGREEMENT

- Article 6 of the Paris Agreement assists governments in implementing their Nationally Determined Contributions (NDCs) through voluntary cooperation.
- Under this mechanism, **countries with low emissions would be allowed to sell their exceeding allowance** to larger emitters.
- However, there will be an **overall cap of greenhouse gas (GHG) emissions**, ensuring their net reduction.
- Thus, Article 6 of the Paris Agreement introduces provisions for using **international carbon markets** to facilitate fulfilment of **Nationally Determined Contributions (NDCs)** by countries.
- **Article 6.2** provides an accounting framework for international cooperation, such as linking the emissions-trading schemes of two or more countries.
- **Article 6.4** establishes a **central UN mechanism to trade credits** from emissions reductions generated through specific projects.
 - For example, country A could pay for country B to build a wind farm instead

of a coal plant. Emissions are reduced, country B benefits from the clean energy and country A gets credit for the reductions.

- **Article 6.8** establishes a work program for **non-market approaches**, such as applying taxes to discourage emissions.

BEAR AND BULL MARKETS



- A **bull market** refers to a period when **stock prices are rising** or are expected to rise.
- The term “bull” is used because a bull typically strikes upwards with its horns, representing the market’s upward movement.
- A **bear market** is the opposite of a bull market. It refers to a time when stock **prices are falling** or are expected to fall.
- The term “bear” is used because a bear swipes downward with its paws, symbolizing the market’s downward trend.

OPERATION SEARCHLIGHT

- Operation Searchlight, launched on March 25, 1971, was a military crackdown by the Pakistani Army aimed at quelling the growing Bengali nationalist movement in East Pakistan.
- The operation was initiated to suppress political unrest following the landslide victory of the Awami League in the 1970 general elections, which called for greater autonomy for East Pakistan.

- It led to a humanitarian crisis, with millions of refugees fleeing to India, putting immense pressure on Indian resources.

SHADOW FLEETS

- A fleet of tanker ships that **obscure the ownership and origin of cargo**, often to bypass international sanctions.
- These ships operate by frequently changing flags, names, and ownership to mask their activities and avoid sanctions or regulatory oversight.
- The use of complex ownership structures, shell companies, and registration under **Flags of Convenience (FoC)** makes enforcement of sanctions difficult, allowing sanctioned countries, like Russia, to export goods.



A **Flag of Convenience (FoC)** vessel flies the flag of a country different from the country where the ship’s owner is based.

- This is often done to save costs and avoid stringent regulations on crew welfare and ship maintenance.
- Allows shipowners to benefit from lower taxes, fewer regulations, and easier registration processes in countries with less stringent maritime laws.
- Countries like Panama, Liberia, and the Marshall Islands are known for offering FoCs, making them attractive for owners looking to minimize operational costs and oversight.

REGENERATIVE MEDICINE

- Regenerative Medicine is an interdisciplinary field focused on **repairing, replacing, or regenerating damaged tissues and organs** to restore normal function.
- It combines biotechnology, diagnostics and treatment.

Key Approaches:

- **Stem Cell Therapy:** Use of stem cells to regenerate damaged tissues. These cells can differentiate into various cell types and are crucial for tissue repair.
- **Tissue Engineering:** Creating bioartificial tissues or organs by combining scaffolds, cells, and bioactive molecules.
- **Gene Therapy:** Correcting genetic defects or enhancing regenerative processes by introducing genetic material into cells.
- **Biomaterials:** Developing materials that can support tissue growth or mimic the extracellular matrix to aid in healing.

Applications:

- Treatment of degenerative diseases (e.g., heart disease, diabetes).
- Wound healing and skin regeneration.
- Organ repair or replacement.

ESM FOLD

- **ESMFold** is a protein structure prediction model developed by Meta AI.
- ESMFold uses a **large language model (LLM)** trained on protein sequences to infer structure, offering **faster and computationally efficient predictions** compared to deep learning models like **AlphaFold**.

Key Features:

- **Speed:** ESMFold is significantly faster than other models like AlphaFold, making it useful for large-scale protein structure prediction tasks.
- **Accuracy:** While ESMFold may not always reach the same level of accuracy as AlphaFold, it still produces highly reliable results for a large number of proteins.
- **Scalability:** Capable of predicting protein structures at a larger scale due to its computational efficiency.

Applications:

- Drug discovery.
- Understanding protein functions in biology.
- Research in protein engineering and synthetic biology.

E-SHRAM ONE STOP SOLUTION

- It will provide seamless access of different Social Security Schemes to the unorganised workers registered on eShram portal.
- Purpose: The primary purpose of the eShram One Stop Solution is to simplify the registration process for unorganised workers and facilitate their access to government welfare schemes.
- This platform will act as a bridge, connecting the workers to the numerous benefits offered by the government and making the registration process easier and more transparent,"
- It entails consolidating and integrating data from various Central Ministries/Departments into a single repository.
- Key welfare schemes such as One Nation One Ration Card, Mahatma Gandhi National Rural Employment Guarantee Act, National Social Assistance Programme, National Career Service, Pradhan Mantri Shram Yogi Maandhan etc. have been integrated with eShram.

e-Shram portal

- It was launched by the **Ministry of Labour and Employment** in 2021 for registration and creation of a comprehensive **National Database of Unorganized Workers**.
- The registration in the portal is **fully Aadhaar verified** and Aadhaar seeded.
- Any unorganised worker can register himself or herself on the portal on a self-declaration basis.

security processes under one roof, expediting trade and travel.

- **Security and Surveillance:** The authority ensures that ICPs have up-to-date security and surveillance mechanisms, aiding national security while minimizing illegal trade and unauthorized movement.
- **Trade Facilitation and Infrastructure Development:** The LPAI promotes trade efficiency and cross-border commerce, reducing bottlenecks and enhancing logistical convenience by developing infrastructure such as warehousing, cold storage, and cargo handling facilities.



LAND PORT AUTHORITY OF INDIA (LPAI)

- The Land Port Authority of India (LPAI) is an agency under the **Ministry of Home Affairs**.
 - It is responsible for establishing, managing, and administering Integrated Check Posts (ICPs) along India's land borders.
 - It was established in 2012 through the **Land Ports Authority of India Act, 2010**.
 - The LPAI plays a crucial role in facilitating smooth and efficient trade, travel, and people-to-people connectivity across India's land frontiers with neighbouring countries like Bangladesh, Pakistan, Myanmar, and Nepal.
 - **Objectives:** The LPAI was established to create a unified management structure for cross-border infrastructure, replacing the fragmented and often inefficient arrangements that existed prior.
- Key functions include:**
- **Management of Integrated Check Posts (ICPs):** LPAI operates ICPs, which serve as organized entry and exit points with modern infrastructure for cargo, passengers, and customs. These ICPs streamline immigration, customs, and
- Major Integrated Check Posts: Some of the prominent ICPs managed by the LPAI include:
 - **Attari-Wagah (Punjab):** India's only ICP on the Pakistan border, crucial for trade and movement between the two countries.
 - **Raxaul (Bihar) and Joghani (Bihar):** Key ICPs on the India-Nepal border, facilitating trade and movement with Nepal.
 - **Petrapole-Benapole (West Bengal):** The busiest land port on the India-Bangladesh border.
 - **Moreh (Manipur):** The main ICP with Myanmar, serving as a vital link for the India-Myanmar-Thailand Trilateral Highway.

OPERATION AMRITH

- Kerala has taken a significant step in combating antimicrobial resistance (AMR) by launching Operation Amrith, enforcing the 2011 H1 rule to prohibit the over-the-counter (OTC) sale of antibiotics.
- Aim: To curb the **irrational use of antibiotics** by banning their sale without a prescription, reducing the rise of antimicrobial resistance (AMR).

Features:

- Strict enforcement of the 2011 H1 rule, which bans the OTC sale of all classes of antibiotics (first, second, and third-line) without a doctor's prescription.
- Targeting pharmacies, hospitals, and other medical stores to ensure compliance.
- Kerala remained committed to the 2011 rule, unlike other states which followed a modified 2013 rule allowing OTC sales of first-line antibiotics.
- Focuses on antibiotic stewardship to prevent the misuse of antibiotics, thus mitigating the threat of AMR.

Targets:

- To completely stop the OTC sale of antibiotics without prescriptions by the end of 2024.
- Achieve a sustained reduction in antibiotic misuse, which has already resulted in a ₹1,000 crore decline in sales.

MISSION AMRIT SAROVAR

- It was launched on 24th April, 2022 with the resolve to build **75 Amrit Sarovar's during the 75th year of independence as a part of Azadi ka Amrit Mahotsav.**
- It helps to overcome the **water crisis in rural areas of the country.**
- Every Amrit Sarovar will have a **pondage area of at least 1 acre with a water holding capacity of about 10,000 cubic meter.**
- It focuses on water conservation, people's participation and proper utilization of **soil excavated from the water bodies to boost infrastructure projects.**
- This Mission has been launched with a **whole of Government Approach** which involves 6six Ministries/Department namely:
Dept of Rural Development, Department of land resources, Department of Drinking Water and Sanitation, Department of Water resources, Ministry of Panchayati Raj, Ministry of Forest, Environment and Climate changes.
- There is **no separate financial allocation for Mission Amrit Sarovar.**
- **Bhaskar acharya National Institute** for Space Application and Geo-informatics (BISAG-N) has been engaged as technical partner for the Mission.