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CONTENTS

GENERAL STUDIES - I

| SAGOL KANGJEI | *GS-I CULTURE & HERITAGE* |

Context
- Home Minister inaugurated a 122-foot-tall statue of a polo player astride a Manipur Pony in Imphal.

Background
- It is believed that Sagol Kangjei, the modern-day Polo game originated in Manipur.
- **Modern polo is said to have originated from Sagol Kangjei, a sport indigenous to Manipur, in which players ride horses, specifically the Manipur Ponies, which are referenced in records dating back to the 14th century**.

Manipur Pony
- **The Manipur Pony is one of five recognised equine breeds of India, and has a powerful cultural significance for Manipuri society.**
- The Marjing Polo Complex has been developed as a way to conserve the Manipur Pony.
- The state government's Manipur Pony Conservation and Development Policy 2016 refers to the mythology around the Manipur Pony
- The Manipuri pony has been indispensable with Manipuri society for its socio-cultural association for centuries. Its antecedents, however, are not clear, as one source stated Tibetan ponies as its ancestors while another source stated its origin to be a cross between Mongolian wild horse & Arabian.
- In some manuscripts, it is referred to as Mangal-sa or Mongolian animal. In Manipuri mythology, the Manipuri pony was regarded to have descended from "Samadon Ayangba" the winged steed of Lord Margjing, one of the guardian deities of Manipur.
- It was created by Sanamahi, also known as Marjing, who is the older of two brothers in an archetypal sibling mythology. He feels that his birthright is stolen by his younger brother Pakhangba and creates the winged beast Samadon Ayangba to try kill his brother. The horse turns out to be really destructive and begins to get out of control. Sanamahi's father orders him to control it, as a result of which Sanamahi cuts off its wings.

Conserving the breed
- However, the small and dwindling numbers of the Manipur Pony has been a cause for concern.
- The 17th Quinquennial Livestock Census 2003 had recorded 1,898 Manipur Ponies; the number fell to 1,101 in the 19th Quinquennial Livestock Census in 2012.
- However, when the Manipuri Pony Society tried to conduct a random survey in the state in 2014, they said they found it difficult to count even 500 of the animals.
- The need of the hour is to restore the natural habitat of the Manipur Pony, which is part of the greater biodiversity of the region.
- They are driven out of their natural habitat by encroachment, development, and the massive destruction of wetland areas.

| OTTANTHULLAL ART | *GS-I CULTURE & HERITAGE* |

Context
- Masters lament that students drop learning the art form after school days

About
- A solo dance exposition, the Thullal is of three types.
- **Its origin is attributed to Kunchan Nambiar,** a veritable genius and one of the foremost poets of Kerala.
- Though based on classic principles of Natya Shastra **the technique of this art is not rigid.**
- The songs, written in simple Malayalam, frank to outspoken wit and humour, the simplicity of presentation and the direct appeal to every day life made Thullal very popular.
- **The instruments used in Thullal are the maddalam and the cymbals**.
- The cymbal player who tunes the rhythm, also assists the actor dancer (Thullakaran) in singing.

Performance
- In actual performance the cymbal player first sings the invocation song when the dancer faces the orchestra and does obeisance.

- After that, with his back still to the audience the dancer does a slick flourish of step and body movements. Then he turns to the audience and the dance proper is begun.
- He first sings a verse and while the lines are being repeated by his musical assistance, he brings out the meaning through facial expressions, hand gestures and bodily postures.
- The roles of the raconteur and actor are perpetually interchanged with tremendous aesthetic efforts.
- In one moment he is the narrator but in the next he completely identifies himself with the narration. It is to the dance that prime importance is given in Thullal.
- From the beginning to the end there is dance even though it lacks much of variety. To compensate for the monotony, sometimes the dancer executes some vigorous footsteps and rhythmic movements of the body.

Types
- Thullal is classified as Ottan, Seethankan and Parayan based on the difference in costume, dance and also the metre and rhyme of the Thullal songs.

Ottan Thullal
- Of all Thullal dances the Ottan Thullal is the most popular.
- The costume is peculiar and impressive.
- A long tape of cloth of white and red colour is hooked around a waist string to form a knee length skirt. A chest plate adorned with various types of coloured beades, glass and tinsel and ornaments is also used.
- Gaudily painted wooden ornaments are worn at the wrist, and on the shoulders.
- Tinkling bells are tied to the legs just above the calf. The face is painted green, the lips are reddened and the eyes are emphasised with black paint.
- The head -dress is colourfully decorated.
- The metre and rhyme of the Ottam Thullal songs are very fast, and the dance as such has a high tempo.

Sheethankan Thullal
- In Seethankan Thullal the metre and rhyme of the Thullal songs are a bit more- slow than in Ottam Thullal and consequently dance is also slower in tempo.
- The dancer uses similar skirt as in Ottam Thullal.
- But the arms, wrists and head are adorned with ornaments made of fresh tender coconut fronds. There is no facial make up except darkening of the eyes.

Parayan Thullal
- The Parayan Thullal is the slowest in tempo.
- Even the stance of the dancer is different from the other two.
- Here the dancer almost stands erect and explains the meaning of the songs by gestures.
- There is very little of the dance element or of action. The costume is also different.
- A red, flowery clothing is worn around the waist. A crown of black cloth adorns the head. Necklaces are used on the chest. The face is painted with light yellow.

PARSHURAM KUND FESTIVAL   *GS-I CULTURE & HERITAGE*

Context
- The Lohit district administration celebrated it from 12 to 16 January.

About
- **Parshuram Kund is a Hindu pilgrimage sites situated on the Brahmaputra plateau in the lower reaches of the Lohit River in Lohit district of Arunachal Pradesh, India.**
- Dedicated to sage Parshuram, the popular site attracts pilgrims from Nepal, from across India, and from nearby states of Manipur and Assam.
- Over 70,000 devotees and sadhus take a holy dip in its water each year on the occasion of Makar Sankranti, in the month of January.

Religious importance
- It is a shrine of all-India importance located in the lower reaches of the Lohit River.
- It is believed that **Lord Parashuram the sixth incarnation of Lord Vishnu, on the orders of his father Rishi Jamadagni, beheaded his mother Renuka with his axe.**
- Since he had committed one of the worst crimes of killing one's mother, the axe got stuck to his hand.
- His father pleased with his obedience decided to give him a boon to which he asked for his mother to be restored back to life.

- Even after his mother was brought back to life the axe could not be removed from his hand. This was a reminder of the heinous crime he had committed.
- He repented for his crime and on taking the advice of eminent rishis of that time, he arrived at the banks of Lohit River to wash his hands in its pure waters.
- It was a way to cleanse him of all the sins. As soon as he dipped his hands into the waters the axe immediately got detached and since then the site where he washed his hands became a place of worship and came to be known by sadhus as Parashuram Kund.

Who was Parshuram?
- Lord Parshuram is known to be the sixth incarnation of Lord Vishnu.
- **He is the human avatar of Vishnu and called the God of justice.**
- He is said to exist to date as He was **one of the seven Cheeranjivis.**
- He is the one who was present during Mahabharata as well as Ramayana and has met Lord Rama.
- Since Parshurama was a great devotee of Lord Shiva, it is believed that he got the axe from God himself after pleasing Him.
- He is the only avatar of Vishnu who co-existed along with Rama and Krishna (other avatars of Vishnu).

HARVEST FESTIVALS   *GS-I CULTURE & HERITAGE*

Context
- Azadi Ka Amrit Mahotsav celebrates the joyous tradition of Harvest Festivals through "Umang" (Rangoli making) and "Udaan" (Kite Flying)

Details
- Harvest festivals of Indian states occur at the time of the main harvest of the region.
- Different regions of the country celebrate their Harvest festival at various times throughout the year.
- Since India is a land of great biodiversity, different states celebrate a large number of harvest festivals.
- For a country largely dependent on agriculture, harvest becomes one of the most important events across the nation. Lohri, Makar Sankranti, Baisakhi, Onam, Pongal are some of them.
- Harvest festivals are not just about celebrating the ripe crops but also an important astronomical change going on in the solar system.
- They are considered to be auspicious periods and hence are marked with celebrations and prayers.

Lohri
- Lohri is a popular winter Punjabi folk festival celebrated primarily in Northern India.
- **It is believed by many that the festival marks the passing of the winter solstice.**
- A popular folklore links Lohri to the tale of **Dulla Bhatti**.
- The central theme of many Lohri songs is the legend of Dulla Bhatti whose father was a zamidar who lived in Punjab during the reign of Mughal Emperor Akbar. He was regarded as a hero in Punjab, for rescuing Punjabi girls from being forcibly taken to be sold in slave market of the Middle East.
- Amongst those he saved were two girls Sundri & Mundri, who gradually became a theme of Punjab's folklore.
- As a part of Lohri celebrations, children go around homes singing the traditional folk songs of Lohri with "Dulla Bhatti" name included.
- One person sings, while others end each line with a loud "Ho!" sung in unison. After the song ends, the adult of the home is expected to give snacks and money to the singing troupe of youngsters.
- Lohri also marks the beginning of the harvest season and sunny days.[32]

Makar Sankranti
- It is also referred to as Uttarayana, Maghi, or simply Sankranti, is a Hindu observance and a festival.
- **Since the Sun is regarded to have moved from the southern hemisphere to the northern hemisphere on this day in the Hindu calendar, the festival is dedicated to the solar deity, Surya, and is observed to mark a new beginning**
- The festivities associated with Makar Sankranti are known by various names:
  - Magh Bihu in Assam,
  - Maghi in Punjab,
  - Maghi Saaji in Himachal Pradesh,
  - Maghi Sangrand or Uttarain (Uttarayana) in Jammu,
  - Sakrat in Haryana,
  - Sakraat in Rajasthan,
  - Sukarat in central India,
  - Pongal in Tamil Nadu,
  - Uttarayana in Gujarat, and Uttar Pradesh,
  - Ghughuti in Uttarakhand, Dahi Chura in Bihar,
  - Makar Sankranti in Odisha, Karnataka, Maharashtra, Goa, West Bengal,
  - Songkran (Thailand),
  - Thingyan (Myanmar),
  - Mohan Songkran (Cambodia),
  - Til Sakraait in Mithila, Maghe Sankranti Nepal, and Shishur Senkrath (Kashmir).

Pongal
- It is a multi-day Hindu harvest festival celebrated by **Tamils in India and Sri Lanka.**
- It is observed at the start of the month Thai according to the Tamil solar calendar, and this festival is celebrated usually on January 14 or January 15 depending on the Earth's orbit around the sun that particular year.
- **The three days of the Pongal festival are called Bhogi Pongal, Surya Pongal, and Mattu Pongal.**
- **Some Tamils celebrate a fourth day of Pongal known as Kanum Pongal.**

Magh Bihu
- **It is a harvest festival celebrated in Assam, North-East India, which marks the end of harvesting season in the month of Magh (January–February).**
- A bonfire (Meji) is lit for the ceremonial conclusion and prayer to the God of Fire.
- The festival is developed by the Tibeto-Burman and Indo-aryan cultures and festivals Magan of Kachari.

VOTIVE STUPA — *GS-I CULTURE & HERITAGE*

Context
- Patna circle of the Archeological Survey of India (ASI) has **discovered two 1200-year-old miniature votive stupas during landscaping activities near Sarai Tila mound on the premises of 'Nalanda Mahavihara', a world heritage site in Nalanda district.**

Details
- The stupas, carved from stone, depict Buddha figures.
- These two votive stupas (offered in fulfilment of a vow) were discovered by the ASI officials during landscaping near Sarai Tila mound within the premises of 'Nalanda Mahavihara.
- **These, carved from stone depicting Buddha figures, must be around 1200 year old.**

Background
- **Beginning in the 7th century CE in India, small miniature terracotta stupas became popular as votive offerings.**
- **Devout pilgrims visiting various holy sites and temples throughout Asia would either purchase small votive offerings or make their own.**
- The Nalanda Mahavihara site comprises the archaeological remains of a monastic and scholastic institution dating from the 3rd century BCE to the 13th century CE.
- It includes stupas, shrines, viharas (residential and educational buildings) and important art works in stucco, stone and metal.

Votive Stupa
- The Sanskrit word stupa signifies "heap, mound, and pile" and is derived from the root 'stup' "to pile up."
- **The ashes of Buddha collected were divided into eight parts and stupa was erected on them.**
- The legend of relic sharing may has been imagined latter on, after the establishment of relic worship and stupa would have been raised only when the Buddha was considered as a God, a Chakravartin.
- The second, relic sharing was Ashoka's work. During his reign, "Buddhism spread all parts of India. New monuments were built everywhere. In order to sanctify so many stupas, countless relics are required. In order to distribute the relics to everyone, Ashoka emptied old stupas except Ramagrama deposit which remained inviolable (sacred)".
- As his ashes were no longer available, they were replaced by his written law –i.e. factitious body of the Buddha (Niramanakaya), the relic stupas contain the spiritual relics (Dharama Sarira) and the body of law (Dharamakaya) of these represented as Buddha.
- **These stupas erected over relics are called Sariraka Stupas.**
- Other **stupas called Paribhogika** were erected over objects used by the Buddha, such as his bowl, girdle, clothes etc. and **others called Uddesika(votive)** were raised over places which were made famous by the presence of Buddha (Buddha's presence). These are commemorative stupas.
- **Thus, Buddha himself distinguished three kinds of stupa (Chaitya): (i) Sariraka, (ii) Paribhogika and (iii) Uddesika.(according to Mahaparinibbanasutta).**
- Beside all these, there are also **the sculpted, engraved painted stupas** intended to procure merit for the donors. Mostly stupa is containing a relic, that the stupa must have been considered from ancient times as a substitute of the Buddha.
- **Other votive stupas within Sarnath Ruins: -** After the first sermon by Lord Buddha (628 B.C.) and the establishment of Sangha at Sarnath, this place had became very popular, holiest for the Buddhist and after the death of Buddha (483 B.C.) at Kushinagar, District-Deoria, U.P., Sarnath had also developed as an important Buddhist pilgrimage centre.
- As a result of that for to get universal beneficial joy, the devotees had constructed numbers of votive stupas from time to time within the premises of Sarnath Ruins.
- These votive stupas are situated on three sides of ancient Mulgandh Kuti Vihara (Shrine).

Context

- Several parts of Europe witnessed an unprecedented winter heat wave over New Year's weekend. Temperatures increased 10 to 20 degrees Celsius above normal. The continent is experiencing an extreme warm spell because of the formation of a heat dome over the region.

Heat Dome

High-pressure atmospheric conditions combine to **act as a lid** on the atmosphere.

In a process known as **convection**, warm air attempts to escape but the high-pressure dome causes it to sink back down to earth.

As winds move the hot air east, the jet stream traps the air where it sinks, resulting in **heat waves**.

What is a heat dome?

- A heat dome occurs **when an area of high-pressure traps warm air over a region**, just like a lid on a pot, for an extended period of time. The longer that air remains trapped, the more the sun works to heat the air, producing warmer conditions with every passing day.
- Heat domes generally stay for a few days but sometimes they can extend up to weeks, which might cause deadly heat waves.

Relationship between Heat Domes and Jet Streams

- Heat domes are tied to the behaviour of the jet stream- — an area of fast-moving air high in the atmosphere, a band of fast winds high in the atmosphere that generally runs west to east.
- Jet streams form when warm air masses meet cold air masses in the atmosphere.
- When the waves in a Jet Stream get bigger and elongated, they move slowly and sometimes can become stationary. This is when a high-pressure system gets stuck and leads to the occurrence of a heat dome.

The 'heat dome'

Occurs when the atmosphere traps hot ocean air like a lid or cap

1 In summer, the **jet stream** (which moves the air) shifts northward

2 **Hot** and stagnant **air expands** upwards

3 Strong and **high-pressure** atmospheric conditions combine with influences from La Nina act like a dome or cap

4 In a process known as **convection,** hot air attempts to escape but high pressure pushes it back down

5 Under the dome, the air sinks and **compresses,** releasing more heat

6 As winds move the hot air east, the jet stream traps the air where it sinks, resulting in **heat waves**

Temperature forecasts (darker color = hotter)

Heat dome also blocks out clouds, which provide some relief from the sun's heat

The hotter the temperature is, the stronger the heat dome gets, and vice versa

Climate Change and Heat Domes

- Researchers say that **climate change may be making Heat Domes more intense and longer**.
- They suggest with the rising temperatures, it is expected that the **jet stream will become wavier** and **will have larger deviations, causing more frequent extreme heat events.**

Heat Domes and their impact on Human Beings

- A heat dome can have serious impacts on people, because the stagnant weather pattern that allows it to exist **usually results in weak winds and an increase in humidity.** Both factors make the heat feel worse – and become more dangerous – because the human body is not cooled as much by sweating.
- The **heat index, a combination of heat and humidity, is often used to convey this danger** by indicating what the temperature will feel like to most people. The high humidity also reduces the amount of cooling at night.
- All these, **increases the risk of heat illnesses and deaths**. With global warming, temperatures are already higher, too.
- One of the worst recent examples of the impacts from a heat dome with high temperatures and humidity in the U.S. occurred in the summer of 1995 when an estimated 739 people died in the Chicago area over five days.

Closing Thoughts

- A 2022 study found that this heat dome was amplified by climate change and it could become a once-in-10-year event if global temperatures aren't kept under two degree Celsius above pre-industrialization levels.

GANGA RIVERBANK EROSION

GS-I GEOGRAPHY

Context

- Massive erosion along the banks of the river has left hundreds of people homeless in West Bengal's Murshidabad district.

Ganga Riverbank Erosion

- The River Ganges and its numerous tributaries cover the states of Uttarakhand, Uttar Pradesh, Jharkhand, Bihar, South and Central parts of West Bengal, parts of Haryana, Himachal Pradesh, Rajasthan, Madhya Pradesh and Delhi.
- Even though the Ganges is a long river, the **erosion problems are confined to relatively few places.** The flood and erosion problems are **serious in the lower Ganges region, particularly in West Bengal.**

The course of Ganga in West Bengal

- The River Ganges **enters West Bengal near Rajmahal in Jharkhand** state and then it flows in a South-easterly direction within West Bengal. After flowing through Malda district it divides into two branches near North of Dhulian in the Murshidabad district.
- **One branch enters Bangladesh as the Padma, while the other flows through West Bengal as the Bhagirathi River and Hooghly River in Southern direction**. The Bhagirathi is the main river in West Bengal, which flows past the Murshidabad, Nadia, Burdwan and Hooghly districts and contributes to a dominant irreparable loss of land each year.

State of Erosion

- The Ganges in Malda district in the upstream of Farakka Barrage has been undergoing extensive erosion along the left bank even though it has been strongly protected.
- However, the erosion problem is not only restricted to the upstream section, it is also widespread throughout its course in West Bengal.

Cause of Erosion

- **One of the major reasons is Farakka Barrage**. Farakka Barrage is a **dam on the Bhagirathi River** located in West Bengal.
- It is located about 10 km from the border to Bangladesh. The dam was **built to divert the Ganges River water into the Hooghly River during the dry season** in order to flush out the accumulating silt, which was a `problem for the navigation of ships at the Kolkata Port on the Hooghly River. But it was found that **the diverted water flow from the Farakka barrage was not adequate to flush the sediment from the river satisfactorily**.

- In addition, there are regular land/bank collapses into the Ganga River due to the high-level backwaters of the Farakka barrage. Thus, **the intensity of the Ganges-bank erosion in West Bengal has increased after the construction of Farakka Barrage.**

Implications

- The barrage has converted the river into a stagnant pool holding 87,000 million cubic metres of water and **the river has deposited sediment upstream in Malda, particularly between Farakka and Manikchak.**
- This sediment deposition is **leading to the emergence of chars (river islands) in Malda.** Here, the **river is eroding on the left bank, and the relatively sediment-free water downstream Farakka is eroding the right bank in Murshidabad;** in both these cases, West Bengal is losing land. [An urgent exercise is needed to designate the boundary between West Bengal and Jharkhand and identify the chars in the river as West Bengal territory.]
- In many areas, the river bank looks like it has been hit by a tropical storm. Everything seems to be broken, houses, cattle sheds, even trees.
- There is not enough land to settle the people displaced by erosion.
- The river erosion is not only limited to Malda and Murshidabad, but is felt in Kolkata and up to the mouth of the river. Recently, parts of Acharya Jagadish Chandra Bose Indian Botanic Garden set up in 1787 on the western bank of the river in Howrah have also suffered erosion.

- According to experts, Farakka barrage is **also responsible for reducing flow, causing salinity ingression, and drying up of the Sundarbans delta.**

The barrage stands as a classic example of the <u>*Reductionist Engineering Paradigm*</u> *(promoted by the British colonial legacy) that looked at short-term economic benefits, ignored long-term sustainability concerns, and created the 'metabolic rift' between humans and Nature.*

Removing the Farakka Barrage: Is it a solution?

- No. Removing the Farakka barrage is not going to solve the problem either. The unintended benefit of the barrage is the **amelioration of the water problem downstream in the densely populated areas of West Bengal**.
- The increasing **urban water demand of the burgeoning Kolkata metropolis is met because of the Farakka**, which has not only **enhanced the surface water flow in the channel, but has also ensured groundwater recharge.**
- Removal of the Farakka will negatively affect the ecosystem services in this part of the State. Therefore, **the basic problem is the flawed design of the barrage,** which did not consider the sediment variable.

Way Ahead

- **International Example:** China has developed its own rules of ecologically informed engineering while designing its dam on river Yangtze. The design helps in flood control, and also uses the peak flow to use the sediments effectively for downstream floodplain cultivation. Such **ecologically informed engineering is the need of the hour**. While pursuing integrated basin management, such ideas can be executed.
- **Restructuring of Farakka Barrage:** **Outmoded engineering paradigms should be dispensed with**. A new technological and institutional arrangement in managing our rivers is called for. The **restructuring of Farakka barrage** will solve much of the problem in the Gangetic basin.

ARAVALLI RANGE   *GS-I GEOGRAPHY*

Context

- Aravalli Range acts as a natural barrier between it and the Thar to the West, preventing the relentless march of the desert, a process termed desertification.

Aravalli Range

- The **Aravalli Range, often called Aravali Range**, is a hill chain in northern India that runs 350 miles **northeast across Rajasthan state.** Isolated rocky outcroppings can still be seen to the south of Delhi.
- The system is split into **two sections: the larger Sambhar-Sirohi ranges, which include Guru Peak on Mount Abu, the highest peak in the Aravalli Range, and the shorter Sambhar-Khetri ranges, which are made up of three discontinuous ridges.**
- The Aravalli Range is abundant in natural resources (including minerals) and acts as a **barrier to the western desert's expansion.**
- Several rivers flow from it, including the **Banas, Luni, Sakhi, and Sabarmati.**
- Though highly wooded in the south, it is mostly desolate and sparsely inhabited in the north, consisting mostly of **sand and stone and masses of rose-colored quartzite.**

The Aravallis are the oldest plateau range in India

HARYANA · DELHI
RAJASTHAN
GUJARAT   I N D I A

What is the significance of the Aravalli Range?

- **Acts as a barrier to prevent additional desertification in Rajasthan's east, and afterwards in the Gangetic plains.**
- If the erosion of the natural barrier known as 'The Aravali' continues unchecked, **dust storms may become more powerful and frequent.**
- **Responsible for ensuring enough monsoon rainfall**, which in turn supports a diversified flora and fauna, rich biodiversity, livelihood, and agriculture in the member states.
- The Aravalli serves as a **barrier for clouds to move eastwards to the lower Himalayas, influencing the climate of north India.**
- **The plains are protected from the effects of westerly winds from Central Asia.**
- Despite its diminishing forest resources, the Aravalli **serves as a buffer for the urban landscape, absorbing the strain and shock of increased anthropogenic activity and pollution.**
- **An Aravalli that is greener serves as a groundwater recharge for a region that is experiencing severe water scarcity.**

Challenges and Issues

- **Left-over mines, artificial pit-lakes, falling groundwater levels, loss of biodiversity and disease incidence, insect assaults (Termite), and man-animal conflict** in the regions have painted a bleak image throughout the years.
- It fundamentally embodies the **ills of unthinking exploitation, plunging the Aravalli and its constituent parts into protracted periods of irrevocable ruin.**
- **According to a research published by the Wildlife Institute of India, Aravalli has the most degraded forests in India, necessitating conservation efforts on par with priority conservation regions.**
- The laws governing the use of natural resources in different states, such as Rajasthan and Haryana, are incompatible with the aims of sustainable development, which are urgently needed. The **importance of a greener Aravalli should be emphasised more.**
- **Desertification is a real issue growing east of the Aravalli. In a paper issued by the Wildlife Institute of India, groundwater levels are being depleted and the Aravalli range is being breached owing to anthropogenic topographical change in Haryana, at least in 12 places.**
- **Encroachment of forest land, coupled with dwindling wildlife habitat and dried-up water sources, has driven wildlife to wander into human settlements. Leopards rescued from concrete jungles in Gurugram and other cities attest to this.**

Conclusion

- The **Aravalli is a key mountain range in our nation, and it is extremely important to the member states**, defining their culture, tradition, and history, as well as influencing their environment, climate, and geography, and ensuring the economy and food security of millions of people.
- Citizens, civic society, and state organisations must band together to achieve a **shared objective of safeguarding and restoring the Aravalli through a variety of approaches.**
- **For this generation and beyond, protecting and preventing future damage of the Aravalli is critical.**

HOLOCENE EPOCH
GS-I GEOGRAPHY

Context

- By analyzing Antarctic ice cores, scientists have revealed Earth's recent climactic history in detail.
- It includes summer and winter temperatures, dating back 11,000 years to the beginning of what is known as the Holocene.

Background: Geologic Time Scale

- The geologic time scale, or geological time scale, (GTS) is a **representation of time-based on the rock record of Earth.**
- The geologic time scale is divided into (from longest to shortest): **eons, eras, periods, epochs and ages.**
- To make geologic time easier to comprehend, geologists divided the 4.6 billion years of Earth's history into units of time called eons. Then they further divided the eons into two or more eras, eras into two or more periods, periods into two or more epochs, and epochs into two or more ages. These units are called **geochronologic units.**
- The geologic time scale is arranged so the oldest time divisions are at the bottom and the youngest are at the top.
- In the twentieth century that absolute ages could be assigned to the geologic time scale **using radiometric dating techniques.**

About Holocene

- The **Holocene is** the current geological epoch. It **began approximately 11,650 cal years Before the Present (c. 9701 BCE),** after the Last Glacial Period, which concluded with the Holocene glacial retreat.
- The Holocene and the preceding Pleistocene together form the Quaternary. The Holocene has been identified with the current warm period, known as MIS 1.
- The Holocene corresponds with the **rapid proliferation, growth and impacts of the human species worldwide,** including all of its written history, technological revolutions, development of major civilizations, and overall significant transition towards urban living in the present.

- In July 2018, the International Union of Geological Sciences split the Holocene Epoch into three distinct ages based on the climate-
1. Greenlandian (11,700 years ago to 8,200 years ago),
2. Northgrippian(8,200 years ago to 4,200 years ago) and
3. Meghalayan(4,200 years ago to the present), as proposed by International Commission on Stratigraphy.
- The oldest age, the **Greenlandian was characterized by warming** following the preceding ice age.
- The **Northgrippian Age is known for vast cooling due** to a disruption in ocean circulations that was caused by the melting of glaciers.
- The most recent age of the Holocene is the **present Meghalayan**, which **began with the extreme drought that lasted around 200 years.**

Eon	Era	Period	Epoch	Subepoch	Age	
Phanerozoic (pars)	Cenozoic (pars)	Quaternary (pars)	Holocene	Late	Meghalayan	present
						4250 a b2k
				Middle	Northgrippian	8236 a b2k
				Early	Greenlandian	11,700 a b2k

GENERAL STUDIES - II

UGC's DRAFT REGULATIONS 2023

GS-II POLITY

In News

- The **University Grants Commission (UGC) has released draft guidelines for encouraging foreign universities and educational institutions to set up campuses in India.**
  - They will have the autonomy in determining fees.
  - Time-bound "90 day" approval process.
- The draft is open for public comments, after getting and analyzing feedback from all stakeholders, the final guidelines will be notified at the end of January 2023.

Key Points of the Draft

- A foreign university with a rank among the top 500 global rankings or a foreign educational institution of repute in the home country can apply to the UGC to set up a campus in India.
  - The National Education Policy (NEP), 2020 also allowed top universities in the world to operate in India.
- A legislative framework promoting such entry will be put in place.
- **They will have special power regarding regulatory, governance, and content norms on par with other autonomous institutions of India.**

> **WHAT DRAFT REGULATIONS SAY**
>
> ■ These varsities will have the **freedom to decide on admission criteria** and fee structure
>
> ■ The commission has advised keeping the fees **"reasonable and transparent"**
>
> ■ The foreign institution **shall have the autonomy to recruit faculty/staff from India/abroad**
>
> ■ The varsity to ensure that the foreign faculty stay at the campus for a reasonable period
>
> **WHAT IT ENVISAGES**
> The regulatory framework allowing the entry of higher-ranked foreign varsities will provide an international dimension to higher education, enable Indian students to obtain foreign qualifications at affordable cost, and make India an attractive global study destination
>
> **FUNDS AND FUNDING**
> ■ Cross-border movement of funds and maintenance of foreign currency accounts, **mode of remittance, repatriation, and sale of proceeds shall be as per the Foreign Exchange Management Act (FEMA)**
>
> ■ The operation of foreign HEIs shall not be contrary to the sovereignty and integrity of India, **the security of the state, friendly relations with foreign states, public order, decency, or morality**
>
> ■ **An audit report shall be submitted annually to the commission** certifying that the operations of the FHEIs in India are in compliance with the Act and related rules, the draft said
>
> **WHO ARE ELIGIBLE**
> Two categories can apply. Universities that have secured a position within the top 500 of overall or subject-wise global ranking or a reputed institution in its home jurisdiction
>
> " The new National Education Policy (NEP) has envisioned that top universities in the world will be facilitated to operate in India. For this, a legislative framework facilitating such entry will be put in place, and such universities will be given special dispensation regarding regulatory, governance, and content norms on par with other autonomous institutions of India
> — M Jagadesh Kumar, UGC chairperson

- UGC will appoint a standing committee to decide on the application within 45 days after examining the institution's credibility, programmes offered, potential to strengthen educational opportunities in India, and proposed academic infrastructure.
  - Within 45 days, the UGC may grant inprinciple approval to the foreign institution to set up campuses in India within two years.
  - The initial approval will be for 10 years, which can be extended.
- They can evolve their admission process and criteria to admit domestic and foreign students.
- **They will have the autonomy to decide their fee structure and will face no caps that are imposed on Indian institutions**.
  - The only condition will be that the fee should be "reasonable and transparent".
- They will have the autonomy to recruit faculty and staff from India and abroad.
- The courses to be offered cannot be online and open and in distance learning mode.
- The qualifications awarded to the students on the Indian campus should have equivalence with those awarded by the institutions in their country of origin.

University Grants Commission (UGC)

- University Grants Commission is a **statutory body under the University Grants Commission Act, of 1956.**
- UGC is charged with **the task of coordinating and maintaining standards of higher education in India.**
- It provides recognition to universities and also allocates funds to universities and colleges.
- UGC headquarters are in New Delhi, and it also has 6 regional centres.
- All grants to universities and higher learning institutions are handled by the UGC.
- In 2015-16, the Union government initiated a National Institutional Ranking Framework under UGC to rank all educational institutes.
- UGC also **conducts the National Eligibility Test (NET) for the appointments of teachers in colleges and universities.**
- M Jagadesh Kumar is the current chairman of the UGC.

ONLINE GAMING DRAFT RULES

About

- The Union Ministry of Electronics and Information Technology proposed an **amendment to bring online gaming under the regulations of the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021.**
    o The proposal is released for public consultation.
- The proposed model is similar to the rules in place for digital news sites and streaming services under the IT Rules, 2021.
- **The minister highlighted that the proposed framework will;**
    o Boost the legitimate domestic online gaming industry.
    o Ensure greater transparency.
    o Promote Consumer protection and investor confidence.
- The All India Gaming Federation (AIGF) stated that it would reduce the State-wise regulatory fragmentation that was a big challenge for the industry.

Online Gaming Market in India

- A 2019 survey by the U.S.-based Limelight Networks found that **India had the second-largest number of gamers after South Korea.**
- The revenue of the Indian mobile gaming industry is expected to exceed $1.5 billion in 2022 and is estimated to reach $5 billion in 2025.
- The industry in the country grew at a CAGR of 38% between 2017-2020, as opposed to 8% in China and 10% in the US.
- It is expected to grow at a CAGR of 15% to reach Rs 153 billion in revenue by 2024. India's percentage of new paying users (NPUs) in gaming has been the fastest growing in the world for two consecutive years, at 40% in 2020 and reaching 50% in 2021.
- According to a report by the Federation of Indian Chambers of Commerce & Industry (FICCI), transaction-based games' revenues grew 26% in India, with the number of paying gamers increasing by 17% from 80 million in 2020 to 95 million in 2021.

About Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021

- The Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021, was notified **by the Central government on February 25, 2021, relates to digital news publishers, including websites, portals and YouTube news channels, and Over The Top (OTT) platforms, which stream online contents such as web series and films.**
- It is **jointly administered by the Ministry of Electronics and IT, and the Ministry of Information and Broadcasting**.
- The Rules provide for a code of ethics to be followed by digital news publishers and OTT platforms; A three-tier grievance redress mechanism, which includes:
    o Self-regulation by publishers at the first level
    o Self-regulation by Self-regulating bodies of the publishers
    o An oversight mechanism by the Central government

Key Features of the Rules

- **Social media intermediaries, with registered users in India above a notified threshold, have been classified as significant social media intermediaries.**
    o They are required to appoint certain personnel for compliance, identification of the first originator of the information on its platform, and identify certain types of content.
    o They need to appoint a **Nodal Contact Person for 24x7 coordination with law enforcement agencies. Such a person shall be a resident of India**.
    o **Appoint a Resident Grievance Officer who shall perform the functions mentioned under the Grievance Redressal Mechanism. Such a person shall be a resident of India.**
    o Publish a **monthly compliance report** mentioning the details of complaints received and action taken on the complaints.
- The Rules prescribe a framework for the regulation of content by online publishers of news and current affairs content and audio-visual content.
- **A 3-tier Grievance Redressal Mechanism:** Social media intermediaries shall appoint a Grievance Officer to deal with complaints and share the name and contact details of such officers.
    o The grievance officer shall acknowledge the complaint within twenty-four hours and resolve it within 15 days from its receipt.
- **Ensuring Online Safety and Dignity of Users, Especially Women Users:** Intermediaries shall remove or disable access within 24 hours of receipt of complaints of contents that expose the privacy of individuals.

- o Such a complaint can be filed either by the individual or by any other person on his/her behalf.
- **Voluntary User Verification Mechanism:** Users who wish to verify their accounts voluntarily shall be provided with an appropriate mechanism to verify their accounts and provided with a demonstrable and visible mark of verification.
- **Giving Users An Opportunity to Be Heard:** Users must be provided with an adequate and reasonable opportunity to dispute the action taken by the intermediary.
- **Removal of Unlawful Information:** An intermediary upon receiving actual knowledge should not host or publish any information which is prohibited under any law about the interest of the sovereignty and integrity of India, public order, friendly relations with foreign countries etc.
- This Code of Ethics prescribes the guidelines to be followed by OTT platforms and online news and digital media entities.
- **Self-Classification of Content:** The OTT platforms would be required to **self-classify the content into five age-based categories**; U (Universal), U/A 7+, U/A 13+, U/A 16+, and A (Adult).

NATIONAL MEDICAL COMMISSION (NMC) BILL 2022   *GS-II POLITY*

In News
- The Union Health Ministry has introduced the draft National Medical Commission Bill 2022.

Key Point of the Draft
- The Draft proposed to **merge the existing National Board of Examinations in Medical Sciences (NBES) as an autonomous board under the National Medical Commission**.
- Amend the existing Act so that all cases by medical colleges in matters related to the National Medical Commission (NMC) should be under the jurisdiction of the high court of Delhi instead of the current practice of filing pleas in high courts in different states.
- Introduce amendment in the National Medical Commission Act 2019 to include provisions for **setting up a 5th autonomous board; the Board of Examinations in the Medical Sciences under the NMC to conduct the National Exit Test for all post-graduation and super-speciality courses.**
  - o It will also conduct screening tests for foreign medical graduates.

National Medical Commission Act, 2019
- The National Medical Commission act **replaced the Indian Medical Council Act, of 1956**
- **The main objective of the act is to ensure**:
- o Availability of adequate and high-quality medical professionals.
  - o Adoption of the latest medical research by medical professionals.
  - o Periodic assessment of medical institutions.
  - o An effective grievance redressal mechanism.
- **It established the National Medical Commission (NMC).**
  - o The state governments to establish State Medical Councils at the state level.
  - o The NMC consist of 25 members, appointed by the central government.
- **Functions of the NMC:**
  - o Framing policies for regulating medical institutions and medical professionals.
  - o Assessing the requirements of healthcare-related human resources and infrastructure.
  - o Ensuring compliance by the State Medical Councils with the regulations made under the Bill.
  - o Framing guidelines for the determination of fees for up to 50% of the seats in private medical institutions and deemed universities which are regulated under the Bill.
- The act **established 4 autonomous boards under the supervision of the NMC**. Each autonomous board will consist of a President and four members, appointed by the central government. These boards are:
  - o The Undergraduate Medical Education Board (UGMEB): Responsible for formulating standards, curriculum, and guidelines, and granting recognition to medical qualifications at the undergraduate level.
  - o The Post-Graduate Medical Education Board (PGMEB): Responsible for formulating standards, curriculum, and guidelines, and granting recognition to medical qualifications at the post-graduate level.
  - o The Medical Assessment and Rating Board (MARB): Power to grant permission for establishing a new medical college, starting any postgraduate course, or increasing the number of seats.
  - o The Ethics and Medical Registration Board: To maintain a National Register of all licensed medical practitioners, and regulate professional conduct.
    - ✓ Only those included in the Register will be allowed to practice medicine.
- The NMC may grant a limited license to certain mid-level practitioners connected with the modern medical profession to practice medicine.

- o These mid-level practitioners may prescribe specified medicines in primary and preventive healthcare; these practitioners may only prescribe medicines under the supervision of a registered medical practitioner.
- A **uniform National Eligibility-cum-Entrance Test for admission to undergraduate and post-graduate super-speciality medical education in all medical institutions regulated**.
- A **common final year undergraduate examination called the National Exit Test** for the students graduating from medical institutions to obtain a license for the practice.
  - o This test will also serve as the basis for admission into post-graduate courses at medical institutions under this Bill.

HIGH-POWERED COMMITTEE ON LADAKH   *GS-II POLITY*

In News
- The **Ministry of Home Affairs (MHA) has formed a high-powered committee to "ensure the protection of land and employment" for the people of Ladakh.**
  - o The committee is chaired by the Minister of State for Home Affairs.
  - o The 17-member committee also includes Ladakh Lieutenant Governor.
- **The committee will discuss measures;**
  - o To protect the region's unique culture and language taking into consideration its geographical location and its strategic importance.
  - o To promote inclusive development in the region.
  - o To ensure employment generation in the region.
  - o To empower Ladakh Autonomous Hill District Councils of Leh and Kargil.

Details
- On 5th August 2019, **the former State of Jammu & Kashmir was bifurcated into two Union Territories; Jammu & Kashmir, and Ladakh, the latter without a Legislative Assembly.**
  - o Since then several political groups have been demanding that land, employment, and the cultural identity of Ladakh, should be protected under the 6th Schedule.
- The **6th Schedule under Article 244 of the Indian Constitution protects tribal populations, providing autonomy through the creation of Autonomous Development Councils,** which can frame laws on land, public health and agriculture.
  - o **At present, 10 autonomous councils exist in Assam, Meghalaya, Tripura and Mizoram.**
- According to the 2011 Census, the tribal population in the Union Territory of Ladakh is 79.61% of the total population.
  - o The Parliamentary Standing Committee on Home Affairs recommended granting special status to the Union Territory of Ladakh considering the developmental requirements of the tribal population.

Autonomous District Councils
- **The 6th Schedule of the Indian Constitution deals with the administration of the tribal areas** in the 4 northeastern states of Assam, Meghalaya, Tripura and Mizoram as per Article 244.
- **The 6th Schedule of the Indian Constitution allows for the formation of autonomous administrative divisions** which have been given autonomy within their respective states.
  - o Each autonomous district has a district council **consisting of 30 members, of whom 4 are nominated by the Governor** and the remaining 26 are elected based on adult franchise.
  - o There shall be a separate Regional Council for each area constituted as an autonomous region.
- The **State Governor is authorized to increase or decrease the areas or change the names of the autonomous districts.**
- Executive powers of the State extend to 6th Scheduled areas concerning their administration.
- The **acts of the Parliament or the state legislature do not apply to these autonomous districts and autonomous regions or apply with specified modifications and exceptions**.
- These **Autonomous Councils have been granted wide civil and criminal judicial powers,** such as establishing village courts etc.
  - o The jurisdiction of these councils is under the **jurisdiction of the concerned High Court.**

Tribal Area
- The **Indian Constitution states two types of areas:**
  - o Scheduled Areas in terms of the 5th Schedule of the Constitution.
  - o Tribal Areas in terms of the 6th Schedule.
- "The "Tribal Areas" are also mentioned under Article 244(2) of the Constitution.
- **For the declaration of Scheduled Areas, the criteria followed are:**
  - o The predominance of the tribal population.

o Closeness and reasonable size of the area.
o Presence of a viable administrative unit such as a district, block or taluk.
o Economic backwardness of the area as compared to neighbouring areas.

INDIAN DIASPORA   *GS-II POLITY*

In News

- The Prime Minister of India **inaugurated the 17th Pravasi Bharatiya Divas** convention on 9th January in Indore, Madhya Pradesh.
  o The event **marks the return of Mahatma Gandhi to India from South Africa on January 9, 1915.**
- The Pravasi Bharatiya Divas was first celebrated in 2003, and in 2015 the Ministry of External Affairs turned the event into a biennial affair.
- On the occasion, the Prime Minister said that Indians living abroad are "brand ambassadors" of the country on foreign soil.

Details

- During British rule, many Indians were taken under the 'Girmitiya' arrangement as indentured labourers to the eastern pacific countries and the Caribbean islands to work on plantations in British colonies.
- After Independence, many Indian professionals travelled to western countries and other parts of the world.
  o Many workers went to the Gulf and west Asian countries during the oil boom.

Overseas Indians

- **Overseas Indians are classified into 3 categories:**
  o Non-Resident Indians (NRI)
  o Persons of Indian Origin (PIOs)
  o Overseas Citizens of India (OCIs)
- Non-Resident Indians (NRI) are Indians who are residents of foreign countries.
- A person of Indian Origin (PIO) means a foreign citizen (except a national of Pakistan, Afghanistan Bangladesh, China, Iran, Bhutan, Sri Lanka and Nepal) who;
  o At any time held an Indian passport; or
  o Who or either of their parents/grandparents/ great grandparents were born and permanently resident in India as defined in the Government of India Act, 1935 and other territories that became part of India thereafter provided neither was at any time a citizen of any of the aforesaid countries (as referred above); or
  o Who is a spouse of a citizen of India or a PIO
  o The PIO category was abolished in 2015 and merged with the OCI category. However, existing PIO cards are valid till December 31, 2023.
- **Overseas Citizens of India (OCIs) card was given to a foreign national who;**
  o Was eligible to become a citizen of India on 26.01.1950 or was a citizen of India on or at any time after 26.01.1950 or belonged to a territory that became part of India after 15.08.1947 is eligible for registration as an Overseas Citizen of India (OCI).
    ✓ Minor children of the above persons are also eligible for OCI.
    ✓ However, if the applicant had ever been a citizen of Pakistan or Bangladesh, he/she will not be eligible for OCI.
- **According to the Parliamentary committee on external affairs report, as on 31st December 2021, nearly 4.7 crore Indians were living overseas.**
  o The number includes NRIs, PIOs, OCIs, and students.
  o Excluding students, the number stands at 3.22 crore, including 1.87 crore PIOs and 1.35 crore NRIs.
- Around 8.5 million Indians live and work in the Gulf countries, one of the largest concentrations of migrants in the world.
- **According to the World Migration Report 'India has the largest emigrant population in the world,** making it the top origin country globally, followed by Mexico, Russian and China'.
  o World Migration Report was published by the International Organisation for Migration under the United Nations.

India's policy towards the Diaspora

- India was initially concerned that advocating for overseas Indians might insult host countries, which should have full responsibility for their welfare and security.
- According to J L Nehru, the Diaspora could not expect India to fight for their rights, and hence India's foreign policy in the 1950s was built as a model of non-intervention.
- However, Rajiv **Gandhi was the first Prime Minister to alter the diaspora policy in the 1980s,** by urging Indians living abroad, regardless of their nationality, to join in nation-building efforts, similar to the overseas Chinese communities.

- After 2000, under the Atal Bihari Vajpayee government, a slew of positive measures was introduced, including a separate Ministry of Overseas Indian Affairs, the Person of Indian Origin (PIO) Card, Pravasi Bharatiya Divas, Pravasi Bharatiya Samman Award, Overseas Citizen of India Card, NRI funds, and voting rights for Indian citizens living abroad.
- The present regime has carried forward the work in a positive direction. Additionally, the Ministry of Foreign Affairs launched the e-migrate system in 2015, which requires all foreign employers to register with the database.

Significance of Indian diaspora

- **Freedom struggle:** Mahatma Gandhi's struggle for ending institutionalized discrimination against Indians in South Africa became an inspiring legend for enduring sentimentalism about the diaspora in modern India. As the independence movement gathered momentum at home, it began to influence many Indian communities abroad.
- **Cultural extension:** Sikhs are one of the largest migrants from India to the UK, Canada and many other countries.
- **Indian diaspora's contribution to the world:** Indian diaspora in the world can be divided into two major categories (apart from others who are in myriad occupations and almost in every country in the world):
- **Technological graduates:** They are engineering and management graduates, who are in high-value jobs majorly located in, but not limited to, western countries like US and Europe.
- **Manual Labour:** These comprise the comparatively lower-skilled population, which has been hired for manual labour, majorly in Arab or West Asian countries.

COUNTRIES WITH OVER 1 MILLION OVERSEAS INDIANS

Canada 16.8 LAKH
UK 17.6 LAKH
Kuwait 10.2 LAKH
Myanmar 20 LAKH
United States 44 LAKH
Saudi Arabia 26 LAKH
UAE 34 LAKH
South Africa 15.6 LAKH
Sri Lanka 16 LAKH
Malaysia 29.8 LAKH

Source: MEA, as on Dec 25, 2021

TOP DESTINATIONS FOR INDIANS
- United Arab Emirates
- United States
- Saudi Arabia

Source: World Migration Report, top 20 international migration country-to-country corridors

REMITTANCES (IN 2020)
Country	Amount
India	$83.15 bn
China	$59.51 bn
Mexico	$42.88 bn
Philippines	$34.91 bn
Egypt	$29.60 bn

Source: World Migration Report

- **Remittances:** India received approximately 87 billion dollars in remittances in 2021 with the USA being the biggest source, accounting for over 20% of these funds. Indians contribute 13% of global remittances. The remittance sent by Indians back to India amount to approximately 3.2% of the Indian GDP.
  - According to the World Bank, India is to receive more than $100 billion as remittances in the current financial year.
- **Agents of change:** facilitating and enhancing investment, accelerating industrial development, and boosting international trade and tourism.
- **Technological development and entrepreneurship:** Bengaluru, Gurugram and Hyderabad as thriving IT hubs that not only house MNCs but also multiple Indian start-ups.
- **Enhancing India's global say**: Apart from political pressures and ministerial and diplomatic level lobbying, India can leverage its diaspora to influence various states
- **Diaspora diplomacy:** examples are lobbying for the US-India Civilian Nuclear Agreement Bill in 2008 and their remittance inflow. The engagement of PM Modi in Houston is a continuation of his extraordinary political investment in engaging the Indian diaspora.

● DELEGATED LEGISLATION — *GS-II POLITY*

In News

- The Constitution bench of the Supreme Court in the majority opinion upholds the Union Government's demonetization order of 8th November 2016 to demonetize currency notes of Rs 500 and Rs 1,000.
- **The majority of judges (4:1) accepted all arguments of the Union Government**
- Section 26(2) of the Reserve Bank of India Act, 1934 gives the Union government the power to demonetize currency "on the recommendation of the Central Board" of the RBI.
- The majority view found that the word 'recommendation' would mean a consultative process between the Central Board and the Central Government."
- The judges highlighted that it cannot be expected that the RBI and the Central Government acted in two isolated boxes. An element of interaction/consultation in such important matters cannot be denied.
- The majority verdict states that curbing fake currency, black money and terror funding are legitimate interests of the state and have a rational nexus with demonetization.

- o The court said that the Centre is the best judge since it has all the inputs about fake currency, black money, terror financing & drug trafficking.
- The majority stated that the court cannot determine the effectiveness of the economic policy. It agreed with the Centre's contention that the decision had to be made in secrecy and haste for it to be effective.
- Justice B V Nagarathna disagreed with the reasoning and conclusions in the majority opinion
- The Justice stated that demonetization was a violation of Section 26(2) of the RBI Act as the recommendation for the demonetization originated from the Centre and not the RBI's Central Board.
- One of the critical questions to decide for the Supreme Court was whether Parliament gave excessive powers to the Union Government under the law to demonetize currency. While the court upheld the validity of the delegated legislation, the **verdict** stated that excessive delegation of power is arbitrary.

Delegated legislation

- As every aspect of law cannot be dealt with directly by the lawmakers themselves, therefore **Parliament delegates certain functions to authorities established by law. This delegation of powers is commonly referred to as delegated legislation. It includes**;
  - o Operational details
  - o Giving power to those executing the details
  - o Regulations and by-laws under legislation
- A 1973 Supreme Court mentioned that the practice of empowering the Executive to make subordinate legislation within a prescribed sphere has evolved out of practical necessity and pragmatic needs of a modern welfare State.
- **Delegation of power in the demonetization case;**
  - o Section 26(2) of the Reserve Bank of India Act, 1934 empowers the Union Government to notify that a particular denomination of currency ceases to be legal tender.
  - o Parliament, which enacted the RBI Act, is essentially delegating the power to alter the nature of legal tender to the central government. The Centre exercised that power by issuing a gazette notification, which is essentially the legislative basis for the demonetisation exercise.

DEMAND FOR GREATER TIPRALAND   *GS-II POLITY*

About

- **A political party in Tripura announced that they are ready to ally with any political party that gives a written assurance to support their demand for Greater Tipraland.**
- In Tripura, the demand to create Greater Tipraland includes the region under the Tripura Tribal Areas Autonomous District Council and 36 villages, within the State boundaries.
  - o Many people are demanding that this area should be carved out as a State or a Union Territory.
- The objective is to **secure the rights of indigenous communities in the state.**

India has witnessed a renewed assertion from historically constituted regions for the creation of smaller states

- The regions include;
- Gorkhaland and Kamtapur in West Bengal.
- Coorg in Karnataka.
- Mithilanchal in Bihar.
- Saurashtra in Gujarat.
- Vidarbha in Maharashtra.
- Harit Pradesh, Purvanchal, Braj Pradesh and Awadh Pradesh in Uttar Pradesh.
- Bundelkhand that comprises areas of Uttar Pradesh and Madhya Pradesh.

Factors influencing the demand

- After the end of the one-party dominant system, the Indian Federation is marked by politicisation and mobilisation of masses along territorial-based caste, religion and regional identities and its representation by the regional political parties.
- Centralised Development Planning Process in India has failed to achieve its aim of bringing about equitable development across and within the states. Advent of market economy, forces of privatisation and globalisation have made matters worse by

accentuating regional inequalities in a big way.

- India has been witness to what may be called the 'secession of rich' as regions benefited by attracting huge private investment and showing impressive growth, have started resenting the dependency of relatively underdeveloped regions on the financial allocation made to them.

- **Better democratic governance:** Today, smaller states are being proposed on the grounds of good governance and development rather than merely on the basis of linguistic or cultural principle. At the same time, regional identity and geographical differences are being projected as better valid basis for administrative division and effective political representation.

- **Decentralisation, devolution and democracy:** The democratic polity of India is better served by smaller states where decision-making power is devolved to smaller regions, and funds are devolved to the people.

- **Good governance:** Good governance means lesser government, responsive government, closer government and quicker government.

- **Balanced regional development:** It can be a boon for the smaller region as it does not need to take the load of the complete region. Now a small state can develop based on its own resources.

- **A shift in India's federal ideology:** Regional identity, culture, and geographical differences now appear to be better recognized as valid bases for administrative division and political representation as democracy deepens and widens.

- Smaller states are being proposed on the grounds of good governance and development rather than merely on linguistic or cultural principles.

- Recently, even dialect communities have been asking for their own 'territorial homeland' while underlining the cultural and literary distinctiveness and richness of the dialect.

PROPOSAL FOR MIGRANT VOTING

GS-II POLITY

In News

- The Election Commission of India (ECI) announced a **pilot project to conduct remote voting for domestic migrants so that they can vote without travelling back to their home states**.
  - The main objective is to increase voter turnout and strengthen India's democratic system.
- The commission has developed **a prototype for a Multi-Constituency Remote Electronic Voting Machine (RVM)** that can handle multiple constituencies voting from a single remote polling booth.

Details

- **Domestic migration is one of the major reasons why registered voters do not vote in the election.**
  - According to the Election Commission, there is a large group of the population which is denied its franchise due to the necessity of work or lack of resources to travel. This goes directly against the EC's objective of "No voter left behind".
- According to the 2011 census, **there are more than 45 crore migrants in India (both intra and inter-state), this is approximately 37% of the country's population.**
  - Migration can be driven by various Push factors and Pull Factors
  - Push factors encourage people to leave their points of origin and settle elsewhere, while pull factors attract migrants to new areas.
  - Push factors in migration include limited job opportunities, political oppression, conflict, natural disasters, and corruption. Push factors of migration are economic, political, cultural, or a combination.
  - **Pull Factors** are factors which attract migrants to an area. Opportunities for better employment, higher wages, facilities, better working conditions and attractive amenities are pulled factors of an area.

Proposed Remote Electronic Voting Machine (RVM)

- In 2016, **the Election Commission formed a "Committee of Officers on Domestic Migrants"**, which submitted various possible solutions such as internet voting, proxy voting, early voting and postal ballots for migrant workers.
  - However, most of these ideas were rejected due to reasons such as the lack of secrecy of the vote, the lack of sanctity of one person one vote principle, issues of accessibility for unlettered voters, etc.
  - The committee also proposed a technological solution which depends on the creation of a

REMOTE VOTING TRAJECTORY

2011 Census showed 453m (37%) Indians are domestic migrants due to work, marriage, education - the bulk of these within states. EC voter turnout data shows about 300 m people do not vote

2016: EC formed a 'Committee of Officers on Domestic Migrants'

August 27, 2018: EC held an all-party meeting and on agenda was also 'Alternative Modes of Voting for Domestic Migrants and Absentee Voters'

2020: EC set up an expert panel to submit a 'conceptual framework' for 'remote voting'

2021: EC opts for a non-internet-based remote voting instead of systems based on internet and blockchain

December 2021: Parliamentary panel meets on the 'feasibility of introducing 'remote voting' in India'. MPs raised several questions

2022: Protype of the remote EVM demonstrated at the poll panel's meeting

HOW IT WILL BE DONE

Migrant voters will register for remote voting facilities within pre-notified time of election in their home state. Voter verification will follow at the home constituency

Dedicated voting poll booths will be set up at key centres to enable remote voting

A RVM with a dynamic ballot display and a constituency card reader with presiding officer will work simult-aneously to allow the remote voter to cast ballot for his constituency

robust electoral roll and identification mechanisms (to stop duplicate voting) and allows voters to vote remotely, in a safe and secure environment.

- The **Remote Electronic Voting Machine (RVM) was developed with the assistance of Bharat Electronics Limited (BEL) and the Electronics Corporation of India Limited (ECIL).**
  - o It is based on the currently used EVM system.
- **It allows voters from multiple constituencies to vote using the same machine.**
  - o RVMs are "stand-alone, non-networked systems," effectively providing the voter with the same experience as currently used EVMs.
  - o It will be set up in remote locations outside the state under identical conditions as current polling booths.
- **A single Remote Ballot Unit (RBU) can cater to multiple constituencies (as many as 72)** by using a "dynamic ballot display board" instead of the usual printed paper ballot sheet on EVMs.
  - o The Ballot Unit Overlay Display (BUOD) will display the candidates' names and symbols based on the constituency number mentioned on the voter's identity card. A barcode scanning system will be used to read these cards.
- **The voting process will be as follows:**
  - o After verifying a voter's identity, their Voter Identity card will be scanned with a public display showing the constituency details and candidates.
  - o The voter then votes and each vote will be stored constituency-wise in the control unit of the voting machine.
- The Election Commission of India states that the Multi-Constituency RVM for migrant voting will have the same security system and voting experience as the EVM.

Benefits of the use of remote voting solutions: Remote voting solutions can help facilitate the act of voting for

- Those voters who live in remote areas.
- Those who live abroad.
- Those for whom voting can be difficult given their health condition (e.g. elderly or voters with disabilities).
- Those who cannot leave the place in which they are residing at the time of the election (e.g. residents of a hospital, prison, or retirement home).
- Those who have to/want to travel on the day of the elections (e.g. due to professional duties or leisure activities).
- Those who cannot/do not want to leave their house the day of the election (e.g. due to family duties or plans on the day of the elections).
- **Drawbacks of the use of remote voting solutions: There are also several drawbacks relating to each** remote voting option. This shows that there is **no 'golden solution' to facilitating access to the ballot** and that each option has its advantages and shortcomings.

The main risks related to all remote voting solutions include

- They may require an additional application or registration.
- Observing remote voting solutions may be more complex/difficult to organize than in-person voting.
- There may be information asymmetry between voters who vote in advance and those who vote on Election Day.
- Remote voting solutions which take place in an uncontrolled environment may present a higher risk of fraud, coercion, family voting, impersonation, violation of ballot secrecy, or other compromises to the integrity of the vote.
- They may have financial and

Voting in any polling station in the country

Benefits	Drawbacks
- It lowers voters' **travelling** time, as they can vote close to their Election Day location. - It could facilitate voting of **people with no fixed abode**. - Voting takes place in a **controlled environment**, following the standard process. Secrecy is ensured because voters themselves place the vote in the ballot box and they can vote freely using **polling booths.** - The identity of the voter can be verified in person. - It can be **observed** through standard procedures. - There is no dependency on the **postal services.** - If votes are counted in the polling station where they are cast, there is less risk that they get lost, damaged, or arrive late at the place of counting. - It implies **low costs** for the voter. - It may imply low costs for the public administration compared to other types of remote voting, especially if there is a single constituency and if votes do not need to be transported to the voter's district of residence.	- There is the risk that a single person **votes in more than one location.** - If votes are transported to the voter's constituency, there is some risk that they get lost or damaged during transportation. - It may imply some **costs** and **organisational** efforts if there are multiple constituencies and votes need to be transported to the voter's district of residence.

administrative consequences for Member States or particular hosting institutions (such as hospitals or prisons), depending on whether they are introduced in addition to - or instead of - existing methods.
- There may be political disagreement over the method and extent of voting by a diaspora, particularly if this is seen to be politically advantageous to a particular party.

About Electronic Voting Machine (EVM)

- Electronic Voting Machine (also known as EVM) is voting using electronic means.

- **An EVM is designed with two units:**
  - The Control unit
  - The Balloting unit.
  - These units are joined together by a cable.
- **The control unit of the EVM is kept with the presiding officer or the polling officer.**
  - This ensures that the polling officer verifies voters' identities.
  - The polling officer presses the Ballot Button which enables the voter to cast their vote.
- **The balloting unit is kept within the voting compartment for electors to cast their votes.**
  - A list of candidates' names and/or symbols is available on the machine with a blue button next to it.
  - The voter can press the button next to the candidate's name they wish to vote for.
- Voting by EVMs is much simpler compared to the conventional system, where one has to put the voting mark on or near the symbol of the candidate of his choice on the Ballot Paper, fold it first vertically and then horizontally and thereafter put it into the ballot box.
  - In EVMs, the voter has to simply press the button on the Ballot Unit next to the candidate and symbol of his choice and the vote is recorded.

About Electronic Voting Machine (EVM) in India

- The Indian electronic voting machine (EVM) was developed in 1989 by the Election Commission of India in collaboration with Bharat Electronics Limited and Electronics Corporation of India Limited.
- The EVMs were first used in 1982 in the by-election to North Paravur Assembly Constituency in Kerala for a limited number of polling stations.
- The EVMs were used for the first time in the general election (entire state) to the assembly of Goa in 1999.
- In 2003, all by-elections and state elections were held using EVMs, encouraged by this election commission decided to use only EVMs for Lok Sabha elections in 2004.
- **EVMs do not require electricity**
  - EVMs run on an ordinary battery assembled by Bharat Electronics Limited/Electronics Corporation of India Limited.
- **Maximum Votes**
  - An EVM used by the Election Commission of India **can record a maximum of 2,000 votes.**
- **Maximum Candidates**
  - In the case of M2 EVMs (2006-10), EVMs can cater to a maximum of 64 candidates including NOTA.
  - However, in the case of M3 EVMs (Post 2013), **EVMs can cater to a maximum of 384 candidates including NOTA.**
- **Who designed the EVM?**
  - The EVMs have been designed by the Technical Experts Committee (TEC) of the Election Commission in collaboration with two Public Sector undertakings; Bharat Electronics Ltd, and Bangalore and Electronic Corporation of India Ltd., Hyderabad.
  - The EVMs are manufactured by the above two undertakings.

Voter Verifiable Paper Audit Trail (VVPAT)

- Voter Verifiable Paper Audit Trail (VVPAT) is an independent system attached to Electronic Voting Machines (EVM) that allows the voters to verify that their votes are cast as intended.
- Serial numbers, names of candidates and symbols allotted to them are loaded in the VVPAT unit with the help of the engineers of the manufacturer.
- When a vote is cast, a slip is printed **containing the serial number, name and symbol of the candidate** and remains exposed through a transparent window for 7 seconds.
  - Thereafter, **this printed slip automatically gets cut and falls into the sealed drop box of the VVPAT**.
- **VVPATs with EVMs were used for the first time in a bye-election of the Noksen Assembly Constituency of Nagaland.**
- The VVPATs are stored along with the EVMs in a secure strong room till the completion of the Election Petition period.

Important Reforms Taken in Electoral System

- The right to vote irrespective of Caste, Creed, Religion or Gender.
- **Lowering the voting age from 21 to 18 through the 61st Amendment Act of 1988.**
- Provision was made for voting by Certain Classes of Persons through Postal ballot.
- A facility for voting through Proxy was provided to the Service voters belonging to the Armed forces.
- **Rajya Sabha elections were reformed by removing the domicile of the Contesting Candidate and the Introduction of an open ballot system was introduced**.
- Exemption of travelling expenditure from being included in the election expenses of the Candidate was made.
- Restrictions were imposed on conducting exit Polls and Publishing the results of exit Polls.

- Provision was made for the disqualification of a Person found guilty of Corrupt Practices.
- Appointment of appellate authorities within the district.
- Voting rights for Citizens of India living abroad were provided in 2010.
- The ceiling on election expenditure was increased.
- Those who are deemed unsound of mind and People Convicted of Certain Criminal offences are not allowed to vote.
- Introduced Electoral Photo Identity Card, which also allows certain alternative documents like government I-Cards, Passports, PAN Cards, driving licenses, bank/Post office account Passbook, Property documents, SC/ST/OBC Certificate, Pension documents, Job cards issued under NREGA and Health insurance Scheme Smart Cards to establish the identity of the electors in the Polling Stations.
- **Introduced by the 52nd Amendment Act, for the disqualification of the members of Parliament and the State legislatures on the ground of defection from one Political Party to another.**
  - Disqualification on grounds of defection is not to apply in the case of a Split.
- The Model Code of Conduct evolved by Election Commission based on a consensus among political parties.
- All Recognised National and State Parties have been allowed free access to the State-owned electronic media: AIR and Doordarshan.
- <u>**NOTA Option -**</u> In its efforts of Cleansing the Political System, the Supreme Court upheld the right of voters to reject all candidates contesting the elections.
- VVPAT was introduced as an independent verification system for voting machines designed to allow voters to verify that their vote was cast correctly, to detect possible election fraud or malfunction, and to provide a means to audit the stored electronic results.

ROLE OF STATE GOVERNOR — *GS-II POLITY*

In News
- The State Governor of Tamil Nadu while addressing the state Assembly has skipped certain paragraphs from the text prepared by the State government.
  - After the address, the Chief Minister moved a motion to record only the text distributed to legislators, after that the Governor walk out of the House.
- A delegation of representatives of the Tamil Nadu government asked the President to ensure that the Governor acts as per Article 163 (1) of the Indian Constitution.
  - **Article 163 (1):** There shall be a council of Ministers with the Chief Minister at the head to aid and advise the Governor in the exercise of his functions, except in so far as he is by or under this constitution required to exercise his functions or any of them in his discretion.

Details
- **Article 176(1) of the Indian Constitution stated that the Governor shall Address both the Houses assembled at;**
  - The commencement of the first Session after each general election to the Assembly.
  - The commencement of the first session of each year.
- **The address of the Governor contains an overview of the;**
  - The activities and Achievements of the Government.
  - The policy of the Government.
  - A brief account of the programme of Government Business for the session.
- **After the address of the Governor, a copy of the address of the Governor is laid on the table of the House.**
  - The Speaker, in consultation with the Business Advisory Committee, allots time for discussion of the matters referred to in the Governor's address.
- A motion is moved by a member and supported by another member thanking the Governor for the Address.
  - Members may move Amendments to the Motion of Thanks in such form as may be considered appropriate by the Speaker.
- The Chief Minister or any other Minister has the right to explain the position of the Government at the end of the discussion.

Governor
- **Part VI of the Indian constitution deals with the state executive under Articles 153 to 167.**
  - The Governor, the chief minister, the council of ministers, and the state's attorney general comprise the state executive.
- Article 153 of the **Indian constitution requires that there shall be a Governor for each State.**
  - Normally, each state has its governor, but **the 7th the constitutional Amendment Act of 1956 made it easier to appoint the same individual to serve as governor of two or more states.**
- Article 154 vests the executive power of the State in the Governor.

- Article 155 says that the Governor of a State shall be appointed by the President by warrant under his hand and seal.
- Article 156 provides that —The Governor shall hold office at the pleasure of the President.
- Article 157 lay down two **qualifications for the office of the Governor:**
  o He should be a citizen of India.
  o Must have completed the age of 35 years.
- The term of the Governor is prescribed as 5 years.
  o He can quit at any time by writing the President a letter of resignation.
- Article 158; **Conditions of the Governor's office as the following:**
  o Shall not be a member of either House of Parliament or State Legislature, and if such a member is appointed Governor, he shall be deemed to have vacated his seat in that House on the date on which he enters upon his office as Governor.
  o Shall not hold any other office of profit.
- The Governor has to take oath/affirmation before entering upon his office, in the presence of the Chief Justice of the High Court exercising jurisdiction to the State, or, in his absence, the senior-most Judge of that Court available to faithfully discharge the functions.

Executive Powers of Governors

- The Governor is the chief executive of the state; all executive actions must be conducted in his or her name.
- The executive power of the state is vested in the Governor.
- He exercises it either directly or through officers subordinate to him.
- It has been held that ministers are officers subordinate to them.
- The executive power of the state extends to all matters concerning which the State Legislature has the power to make laws.
- **All executive is expressed to be taken in the name of the Governor.**
- All orders, instruments, etc are authenticated in the manner specified in the rules made by the Governor.
- Appoints the Chief Minister and other ministers are appointed by him on the advice of the Chief Minister.
- Appoints the Council of Ministers, Advocate General, Chairman and the members of the State Public Service Commission.
- He has the power to **nominate 1/12th of the members of the Legislative Council of State**.
- The persons to be nominated are required to have special knowledge and practical experience in respect of Literature, Science and Arts etc.

Legislative Powers of Governors

- The Governor is **a part of the state legislature** (Art. 168). He undertakes the following legislative tasks in this capacity:
  o The legislative Assembly is summoned, prorogued, and then dissolved.
  o Right to speak to and send messages to the legislature.
- No Bill can become law unless it receives the Governor's approval.
- He has the option of giving his consent, withholding his assent, or exercising his pocket veto over a state bill.
- He has the power of causing to be laid the legislature, the Annual Financial Statement (Budget) and reports of the State Finance Commission.
- Without his recommendation, no demand for a grant can be made by the legislature.
- May reserve Bills for the assent of the President made by the Legislature.

Financial Power of Governors

- The annual financial statement is put before the legislature (Art-202).
- **Without the Governor's permission, a money bill cannot be introduced in the State Legislative Assembly.**
- In the name of the Governor, the annual and supplemental budgets are introduced in the Assembly.
- No grant request can be made unless he recommends it.
- The State Contingency Fund is under the jurisdiction of the Governor, and it cannot be used without his approval.

Judicial Power

- When the president appoints judges to the State High Court, he consults him.
- According to Article 161, the Governor has the authority to suspend, remit, or commute the sentence of anyone guilty of violating the law that the state's executive power extends.
- **Pardon:** the accused is fully free of any consequences.
- **Reprieves** are temporary halts in the execution of the punishment.
- **Respite** is a reduction of the severity of a penalty for a specific reason.
- **Remission:** a reduction in the length of a sentence without changing its nature.
- **Commutation** is the process of substituting one form of punishment for a less severe one.

Concern

- **Misuse of discretionary powers**: States allege that the Governor acts on behalf of the Union government for political gains.
- **Appointment by Centre:** The post has become a retirement package for politicians.
- **Arbitrary removal before the expiration of their tenure:** Even after the Supreme Court Judgement in B.P. Singhal v/s Union of India, a fixed tenure for Governors to encourage neutrality and fairness in the discharge of their duties, is not being implemented on the ground.

Way Forward

- **Punchhi Commission** elaborated that the governor should follow "Constitutional Conventions" in a case of a hung Assembly.
- **Bommai Case** mentioned that the discretion of the Governor does not apply to hung assembly but it emphasized floor tests in the house within 48 hours.
- **Sarkaria Commission recommended that;**
  - The governor must be an important figure.
  - He must be a distant person who has no strong political ties or has not recently participated in politics.
  - He must not be a member of the ruling party.
  - If possible, the governor's term should be five years.
  - He should only be dismissed before his term for reasons stated in the constitution, or for reasons such as his morality, dignity, or constitutional order.
- The constitution does not allow the governor to run a parallel government and does not hold him personally responsible for his actions as governor.
- The governor must be a high constitutional authority, function within the terms of the constitution, and be a friend, philosopher, and leader of his government.

COLLEGIUM SYSTEM v/s GOVERNMENT   *GS-II POLITY*

In News

- The **Supreme Court of India has linked the Court verdict on National Judicial Appointments Commission (NJAC) with the delaying Collegium recommendations from the government's side.**
  - In 2015, The Supreme Court struck down the NJAC, which was supposed to give the government an equal say in judicial appointments to the constitutional courts.
- The Supreme Court bench stated that "There appears to be an unhappiness in the government of the fact that NJAC did not muster the constitutional mandate… That cannot be the reason to not comply with the law of the land,".
- The statement marked a new high in the increasing tensions between the judiciary and the government over appointments.
- **The Union Law minister has been criticising the Collegium system in several public forums.**
  - The Supreme Court responded by accusing the government of using silence and inaction to delay appointments to the constitutional courts.
- The court accused the government of picking and choosing names from the Collegium list, this destroys the seniority. The Collegium while sending names keeps many factors in mind.
- The court said 20% of the judicial posts in High Courts were vacant.

National Judicial Appointments Commission (NJAC)

- The **National Judicial Appointments Commission (NJAC) was established by the 99th constitutional amendment Act, of 2014.**
  - The Commission was supposed to be responsible for the recruitment, appointment and transfer of judicial officers, legal officers and legal employees under the Union government and all state governments.
- The NJAC was supposed to replace the collegium system for the appointment of judges.
- **The Commission would have consisted of the following 6 persons:**
  - Chief Justice of India (Chairperson).
  - Two other senior judges of the Supreme Court.
  - The Union Minister of Law and Justice.
  - Two eminent persons: These 2 eminent persons would have been nominated by a committee consisting of the;
    - ✓ Chief Justice of India
    - ✓ Prime Minister of India
    - ✓ Leader of Opposition in the Lok Sabha (or where there is no such Leader of Opposition, then, the Leader of the single largest Opposition Party in Lok Sabha).
- **Appointment of Chief Justice of India:** The NJAC shall recommend the senior most judge of the Supreme Court for appointment as Chief Justice of India.

- o **Appointment of Supreme Court judges**: The NJAC shall recommend names of persons based on their ability, merit and other criteria specified in the regulations.
- **The veto power of members:** The NJAC shall not recommend a person for appointment if any two of its members do not agree to such recommendation.
- The President has the power to ask NJAC to reconsider their recommendations. However, if the NJAC makes a unanimous decision while reconsidering, then the President has to make the appointment as per the NJAC's recommendations.
- **In October 2015, the Constitution Bench of the Supreme Court by a 4:1 majority struck down the NJAC as unconstitutional and upheld the collegium system.**

Collegium System

- **Under the Collegium System, appointments/elevation of judges/lawyers to the Supreme Court and transfers of judges of High Courts and Apex Court are decided by a panel of the Chief Justice of India and the four senior-most judges of the Supreme Court.'**
- **The word 'Collegium' is nowhere mentioned in the Indian Constitution**, it has come into force as per Judicial Pronouncement.

Evolution of Collegium System

- **Under the Constitution, The Judges of the Supreme Court are appointed by the president**. The chief justice is appointed by the president after consultation with such judges of the Supreme Court and high courts as he deems necessary.
  - o The other judges are appointed by the president after consultation with the chief justice and other judges of the Supreme Court and the high court as he deems necessary.
  - o Consultation with the chief justice is obligatory in the case of the appointment of a judge other than the Chief justice

NJAC VS COLLEGIUM SYSTEM

WHAT'S COLLEGIUM SYSTEM

- Collegium system based on Three Judges Cases
- Under it, appointment of judges are made by Chief Justice of India and four most senior Supreme Court judges.
- Has no constitutional backing.
- Constitution of India's Article 124 says appointments to be made by President in consultation with judges as President may deem necessary.
- Critics say it is a closed-door system which lacks transparency

WHAT'S NJAC

- NJAC was a body created to end the two-decade-old Supreme Court Collegium system of judges appointing judges.
- Was passed by Lok Sabha on August 13, 2014. Was passed by Rajya Sabha a day later.
- Will consist of six people – CJI, two senior-most Supreme Court judges, Law Minister and two 'eminent' persons.
- Critics say judges in NJAC will need support of others to push a name through. They fear judicial independence being compromised.

- **First judges case (1982):** The Supreme court held that consultation does not mean agreement and it only means an exchange of views.
- **Second judges case (1993):** The court changed its earlier ruling and changed the meaning of the word consultation to consensus.
  - o It ruled that the advice tendered by the CJI is binding on the President in matters of appointment of SC judges. But any such advice would be tendered after CJI consults with two of his most senior judges.
- **Third judges case (1998):** The consultation process should be based on the plurality of judges.
  - o **CJI should consult a Collegium of four senior-most judges before making a recommendation to the President and even if two judges give an unfavourable opinion, he should not send the proposal to the President.**

Way Forward

- The Collegium System **is Criticised mainly due to the lack of transparency**, Lack of Consensus among members, and Delay in Judicial appointments.
- The **Court has taken several steps in promoting transparency in judicial appointments**, such as recently the Court's collegium decide to publish a resolution promising to make public, on the court's website, its various decisions, including its verdicts on persons nominated for elevation as judges to the high courts, its choices of candidates for elevation to the SC, and its decisions on transfer of judges between different High Court.
- Judicial reform is the need of the hour as the limited supply of judges to cater for the vast demand for the attention of the courts by accumulating the cases has led to rising in the figurative price of justice.

WOMEN IN COMMAND ROLES

About

- About **108 women officers in the Army were cleared for the rank of Colonel by a special selection board**, this will make them eligible to command units and troops in their respective arms and services.
  - o It will grant women officers parity with their male counterparts.
- Now with a long career in the Army, women officers will be considered for promotions, including to the rank of Colonel and beyond.
- Earlier only two branches; the Judge Advocate General (JAG) branch and the Army Education Corps granted permanent commissions to women in 2008.
  - o In 2020, the Supreme Court's order to grant permanent commissions to women Army officers opened the doors for promotion to women officers across all streams of the Army, except pure combat arms.

Women in command

It's an order

Here are some of the salient features of the order:

- Accepts government policy to grant PC to short service commission (SSC) women officers in 10 streams of the Combat Support Arms and Services wings
- SSC women officers are eligible for command assignments and not just staff appointments
- SSC women officers granted PC will be entitled to all consequential benefits, including promotion and financial gains

For the women in uniform, career progression is now becoming a reality with the Supreme Court directing the Centre to grant permanent commission (PC) within three months. Here is a snapshot of the long years of the fight women officers have conducted against discrimination:

1992: Centre notifies women eligible for appointment as officers for five years in the Army Postal Service, Judge Advocate General Department, Army Education Corps, Signal Corps, Intelligence Corps, Corps of Engineers, Corps of Electrical and Mechanical Engineering and Regiment of Artillery, among other Corps

Dec. 1996: Ministry of Defence deletes the five-year clause for enrollment

Nov. 2005: The initial process of induction of women officers under the WSES was replaced by SSCs with an outer period of 14 years. The first batch of women officers under the new scheme entered the Army in 2008.

2003 and 2006: Writ petitions filed in the Delhi High Court by advocate Babita Puniya and several SSC women Army officers for permanent commission and equality of opportunity in the Army

March 2010: Delhi HC holds that women SSC officers of the Air Force and Army who had opted for PC, but not granted that status would be entitled to PC at par with male SSC officers with all consequential benefits. Contempt proceedings were then initiated by the women officers against the Union of India for non-compliance with the HC judgment. Contempt was later stayed

September 2, 2011: The case reaches the Supreme Court in appeal

Supreme Court orders

- Supreme Court held that they are **"based on gender stereotypes premised on assumptions about socially ascribed roles of gender which discriminate against women.**
- It only shows the need "to emphasize the need for change in mindsets to bring about true equality in the Army".
- The SC has done away with all discrimination based on years of service for grant of PC in 10 streams of combat support arms and services, bringing them on a par with male officers.
- It has also removed the restriction of women officers only being allowed to serve in staff appointments, which is the most significant aspect of the judgment.
- Government argument screamed of the age-old patriarchal notion that domestic obligations rested only with women.
- **Impact of Judgment:**
  - o Women officers will be eligible to tenant all the command appointments, at par with male officers.
  - o It would open avenues for further promotions to higher ranks for them.
  - o If women officers had served only as staff, they would not have gone beyond the rank of Colonel.
  - o In junior ranks and career courses, women officers would be attending the same training courses and tenanting critical appointments, which are necessary for higher promotions.
  - o A bigger shift will take place in the culture, norms, and values of the rank and file of the Army.

Short Service Commission (SSC) women officers

- Recently, the Supreme Court ruled that the **Short Service Commission (SSC) women officers who meet the minimum eligibility criteria are eligible for permanent commission posts in the Army irrespective of their years of service.**
  - o A Permanent Commission means a career in the Army till you retire.
- **Under the Short Service Commission (SSC) scheme, women were commissioned into the Army for a period of 10 years, which can be extendable up to 14 years.**
  - o However, Women were restricted to being part of selected streams such as the Army Education Corps, Corps of Signals, Intelligence Corps, and Corps of Engineers.
  - o Women were excluded from combat arms such as infantry and armoured corps.
- At the end of 10 years of service, while male SSC officers could opt for permanent commission, this option was not available to women officers.

Women in Indian Armed Forces

- All wings of the Indian Armed Forces allow women in combat roles and combat supervisory roles, except the Indian Army

(support roles only) and Special Forces of India (trainer role only).

- Indian Air Force had 13.09% and 8.5%, Indian Navy 6% and 2.8% women, and Indian Army 3.80% and 3% in December 2018 and December 2014 respectively.
- Under the Army Act of 1950, women were ineligible for regular commissions except in "such corps, departments or branches which the central government may specify by way of notifications."
- In November 1958, the Army Medical Corps became the first unit of the Indian Army to grant regular commissions to women.
- Since 1992, women were first inducted into various branches of the Indian Army only in short service commissions.
- In 2008, women were first inducted as permanent commissioned officers in the Legal and Education corps; in 2020 they were first inducted in 8 more corps as permanent commissioned officers.
- As of 2020, women are not yet allowed as combatants in the Parachute Regiment of the Indian Army or other special forces, but they can join paratrooper wings of their respective arms like para EME, para signals, para ASC, etc.

PRISON REFORMS   GS-II POLITY

In News
- The Prime Minister of India attended the 57th All-India Conference of Director Generals/ Inspectors General of Police in New Delhi.
- The Conference covered various aspects of policing and national security, including Counter Terrorism, Counter Insurgency and Cyber Security.
- **Key points of the Prime Minister's speech;**
  o He suggested making the police forces more sensitive and training them in emerging technologies.
  o He highlighted the importance of the National Data Governance Framework for smoothening data exchange across agencies.
  o He suggested leveraging technological solutions like biometrics etc.
  o Need to strengthen traditional policing mechanisms like foot patrols further etc.
  o He recommended repealing obsolete criminal laws and building standards for police organizations across states.
  o He discussed the need for strengthening the border as well as coastal security by organizing frequent visits of officials.
  o Improving cooperation between state police and central agencies to leverage capabilities and share best practices.
  - During the conference, **the Prime Minister discussed the need for prison reforms to improve overall jail management.**

Prison in pre-Independent India
- **In 1935, Macaulay's Minute laid down the foundations of the Prison system in India.**
  o In 1938, a Prison Discipline Committee rejected the humanitarian needs of the prisoners.
- The Prison Acts of 1861 and 1894 formed the basis for the present jail management and administration.
- In 1919-1920, for the first time in India's colonial history, the Indian Jail Committee declared reform and rehabilitation as the objectives of the Prison administration.
- **The Government of India Act of 1935 transferred the subject matter of "prisons" from the Central list to the State list. After-Independence, Indian Constitution also kept the prison under the "State list".**
  o It resulted in non-uniformity in Prison laws and management across the various States of India.
- Modern Prisons in India are a legacy of British rule.

Prison in Independent India
- **In 1960, All-India Jail Manual Committee prepared a Jail Manual. This forms the bedrock of Prison management in modern India.**
- In 1972, the Group appointed by the Union Home Minister recommended designing a National Policy on Prisons.
- **In 1983, Justice Mulla's committee reviewed the laws, rules, and regulations for protecting society and reforming offenders. The Committee suggested several reforms;**
  o Government to provide dignified living Conditions for Prisoners and focus more on security aspects.
- In 1987, The Justice Krishna Iyer Committee highlighted the difficulty of women prisoners and emphasized the need to induct more women into the Police Services and management to inculcate a gender-sensitive approach in prison management.
- **Supreme Court from time to time has taken a reformative approach in many significant judgments giving a boost to the discourse on prison reforms. Important directives by the Supreme court:**
  o Prisoners have some human rights, but inside the jail, only the right to liberty is curtailed. However, they are entitled to other fundamental rights.
  o The state is duty-bound to ensure that the right to free legal aid under Article 39A is made available to the prisoner.
  o Handcuffing is prima facie an inhumane practice.
  o Prisoners are entitled to minimum wages for the work done inside the prison.

Challenges in the Indian Prison System

- Existing prison infrastructure is inadequate resulting in overcrowding.
- The unsatisfactory living conditions affect every aspect of inmates' daily existence such as food, cleanliness, etc.
- Abuse of authority by the staff sometimes takes unfair advantage of the prisoner's dependency.
- Custodial deaths
- According to the latest available data released by the National Crime Records Bureau (NCRB) for 2020, **about 76% of all prisoners in India are under trials.**
- Availability of drugs, and access to mobile phones.
- Overcrowding, Unhygienic Conditions.
- Lack of infrastructure, inadequate facilities.
- Inadequacy of female Staff
- **Understaffing and Underfunding:**
  - 33% of the total requirement of Prison officials Still lies vacant.
  - In the absence of adequate Prison Staff, overcrowding of Prisons leads to violence and other Criminal activities inside the Jails.
- Judicial Pending in various Courts.
- Unnecessary arrests.
- The majority of Prisoners are Under Trials
- Restricted access to legal representatives
- Lack of Proper Medical Care, Constant danger of exploitation and torture
- Lack of legal aid, Sanitation, unhygienic food and Health Problems.

Way forward

- The most important challenge that arises from both the human rights perspective and the internal security point of view is the upgradation of infrastructure. This can be done through improvement in budgetary allocations to the prison establishments.
- Prisons are a state subject; this creates difficulty in having uniform prison management. The Union can only frame models for the states to incorporate and help in coordinating between states, encouraging them to adopt best practices.
- Need to enhance accountability in the administration system.
- Strengthen Surveillance and Grievance Redressal mechanisms.
- The Supreme Court advised the centre that criminals sentenced to imprisonment for 6 months or a year should be allocated social service duties rather than be sent to further choke the already overflowing prisons.
- Ensure adequate availability of medical assistance, Psychological Counseling.
- **Allowing under trials on Personal bonds to leave jails.**
- The need of the hour is to design a National Policy on Prisons and ensure Proper implementation of the model jail manual,
- Conduct training and Sensitization Programmes for Senior Police officers of all Prisons.
- **Alternative methods should be used for dealing with non-criminal offenders and petty criminals.**
- **Adopt Semi-open Prisons or open Prisons** (allow convicts to work outside the jail and earn a livelihood and return in the evening) system to reduce overcrowding.
- **Many important Committees have been set up to review the situation of prisons in India and suggest reforms**. However, the implementation of the reforms has been lax and the **necessary political will are required to bring change to the present system of prison management in India.**

E-COURTS   GS-II POLITY

About

- The Department of Justice under the Ministry of Law and Justice organized an award ceremony to honour the award winners of the e-Courts Project.
- During the ceremony, the Union Law Minister highlighted that nearly 4.90 crore cases are pending in various courts across India.
- The **Minister stated that several initiatives are being undertaken for the welfare of citizens under its DISHA (Designing Innovative Solutions for Holistic Access to Justice) programme.**

About Designing Innovative Solutions for Holistic Access to Justice (DISHA)

- DISHA aims to design and consolidate various initiatives to provide citizen-centric delivery of legal services.
- **Under DISHA, Tele-Law reaches the unreached area, Nyaya Bandhu (Pro Bono Legal Services) and Legal Literacy and Legal Awareness programmes are being implemented across India.**
  - The Tele-Law Service connects the citizen with the Panel lawyers through the use of video /Tele conferencing facilities

available at the Common Service Centres (CSCs) and via Tele-Law Mobile App to strengthen pre-litigation legal advice and consultation.

o   The Nyaya Bandhu (Pro Bono Legal Services) programme aims to provide free legal assistance and counsel to the marginalized sections.

o   This service is free of cost and is currently operational in 1,000,00 Gram Panchayats across 755 Districts (including 112 Aspirational districts) in 36 States /UTs.

- To ensure its broadened reach, dedicated Information Education and Communication (IEC) including (Technology) component has been added to the DISHA.

Why is there high pendency in courts?

- **Lack of sufficient number of judges** and high vacancies in the judiciary and long leave to judges deteriorate the already grim situation.
- Frequent adjournment of the cases even on frivolous issues.
- India has very few courts compared to its huge population.
- Excessive litigation from the government side, the government is the largest litigant, responsible for nearly half the pending cases and most of them are on petty issues such as interdepartmental conflict.
- **The lack of quality judges in the lower judiciary** leads to appeals to the higher judiciary in most cases.
- Archaic laws or vague laws present another challenge as it takes time to interpret the law and most of the time matters go to higher courts through appeal.
- Poor police investigation leads to poor collection of evidence and hostile witness thus adjourning the hearing for the next date.
- **Increasing the number of use of Public interest litigation (PIL).**
- Increasing awareness among citizens about their rights and law courts.

What are the consequences of the pendency of cases?

- Common people's faith in the judiciary declines.
- It denies true justice to under-trial prisoners, many of whom get acquitted after spending many years which is a violation of their fundamental rights and also spoil their whole life.
- **The economic cost of pendency is also very huge**. Projects worth billions get delayed amid delays in judgement. It is estimated that delay in justice costs 1.5% of GDP annually which also deters future investment in India.
- Delay in justice also fails to create deterrence in the mind of criminals thus crime goes on perpetuating.
- **Overcrowding of jails is also a result of a delay in judgment.**
- The criminalization of politics keeps on rising as culprits are not punished timely.

Concerns

- Case pendency Hurts investors' confidence.
- Economic activity is getting affected by high pendency and delays across the legal system.
- It adds a burden on Courts and collaterally harms other litigants.
- It increases project costs and delays projects.
- Slows down administrative processes, delaying decision-making.
- Diversion of precious resources.
- Effects ease of doing business.

Steps taken to reduce Pendency

- Infrastructure has been improved from the Supreme Court to the lower court.
- The Central government increased the number of Judges in the Supreme Court from 31 to 34.
- The government is also emphasizing the **increasing use of lok adalats and other alternate dispute settlement mechanisms.**
- Special courts deal with technical matters so that judgment can be pronounced on time.
- Adoption of "National Litigation Policy 2010" to transform the government into an Efficient and Responsible litigant.
- All states formulated state litigation policies after National Litigation Policy 2010.
- **Legal Information Management and Briefing System (LIMBS)**, was created in 2015 to track cases to which the government is a party.
- The Supreme Court advised the centre that criminals sentenced to imprisonment for 6 months or a year should be allocated social service duties rather than be sent to further choke the already overflowing prisons.

Important steps taken to ensure justice for citizens

- **Improving the infrastructure for Judicial Officers of District and Subordinate Courts.**
o   It is a Centrally Sponsored Scheme (CSS) for the Development of Infrastructure Facilities for the Judiciary.

- o Besides, the construction of court halls and residential units, it also covers the construction of lawyer's halls, toilet complexes, and digital computer rooms.
- **Leveraging Information and Communication Technology (ICT) for improved justice delivery.**
  - o The Government has been implementing the e-Courts Mission Mode Project throughout the country for information and communication technology enablement of the district and subordinate courts.
  - o The number of computerized district & subordinate courts has increased and. broadband connectivity has been provided to 99.3% of court complexes.
  - o A new and user-friendly version of Case Information Software has been developed and deployed at all the computerized district and subordinate courts.
  - o All stakeholders, including judicial officers, can access information relating to judicial proceedings/decisions of computerized district & subordinate courts and high courts on the National Judicial Data Grid (NJDG).
- 21 virtual courts have been set up in 17 States/UTs.
- Video conferencing emerged as the main instrument of the courts during the Covid lockdown period as physical hearings and normal court proceedings in the congregational mode were not possible.
- **Filling up vacant positions in Supreme Court, High Courts and District and Subordinate Courts.**
  - o Sanctioned and working strength of judicial officers in district and subordinate courts has increased. The filling up of vacancies in subordinate judiciary falls within the domain of the State Governments and high courts concerned.
- **Reduction in Pendency through / follow-up by Arrears Committees.**
  - o Arrears Committees have been set up in all 25 High Courts to clear cases pending for more than five years.
  - o Arrears Committees have been set up under District courts as well.
  - o Arrears Committee has been constituted in the Supreme Court to formulate steps to reduce the pendency of cases in high courts and district courts.
- **Emphasis on Alternate Dispute Resolution (ADR).**
  - o Commercial Courts Act, 2015 prescribes mandatory Pre-institution Mediation and Settlement (PIMS) of commercial disputes.
- **Initiatives to Fast Track Special Types of Cases.**
  - o Established Fast Track Courts for cases of heinous crimes; cases involving senior citizens, women, children etc.
- The Central government increased the number of Judges in the Supreme Court from 31 to 34.
- The government is also emphasizing the increasing use of lok adalats and other alternate dispute settlement mechanisms.
- Special courts deal with technical matters so that judgment can be pronounced on time.
- Adoption of "National Litigation Policy 2010" to transform the government into an Efficient and Responsible litigant.
- All states formulated state litigation policies after National Litigation Policy 2010.
- Legal Information Management and Briefing System (LIMBS), was created in 2015 to track cases to which the government is a party.
- The Supreme Court advised the centre that criminals sentenced to imprisonment for 6 months or a year should be allocated social service duties rather than be sent to further choke the already overflowing prisons.

The National Mission for Justice Delivery and Legal Reforms

- **The Mission was initiated in 2011 with twin objectives;**
  - o Increasing access by reducing delays in the system.
  - o Enhancing accountability through structural changes and setting performance standards and capacities.
- **The Mission has been following a cooperative approach for phased liquidation of pendency in judicial administration, which, involves;**
  - o Better infrastructure for courts, including computerization.
  - o An increase in the strength of subordinate judiciary, policy and legislative measures in the areas prone to excessive litigation.
  - o Re-engineering of court procedure for quick disposal of cases.
  - o Emphasis on human resource development.

Steps need to be taken

- National Litigation Policy should be revised.
- **Address all 3 stages of dispute:**
  - o Pre-litigation
  - o Litigation
  - o Post litigation stage.
- Establish Fair accountability mechanisms, Consequences for violation must be provided.
- Appointment of a Nodal Officer to regularly monitor the status of the cases in every department.

- Promotion of alternative dispute resolution mechanisms to encourage mediation.
- Coordinated action between government and judiciary.
- Judicial capacity should be strengthened in the lower courts to reduce the burden on higher courts.
- Increase expenditure on the judiciary.
- Improve court case management and court automation system.
- **Create subject-specific benches**.
- Robust internal dispute resolution mechanisms
- Step-by-step online dispute resolution must be adopted as done by the Ministry of Consumer Affairs.
- Judges should write Shorter and more Pointed judgments.

Way Forward

- Courts need to monitor the progress of Cases based on urgency and type of Case.
- Courts must set a time limit to dispose of certain types of Cases.
- Understand why Some Courts perform well despite a Shortage of judges and adopt Such Courts as role models.
- Use of information and communication technology to improve the efficiency of the courts.
- **Increase the number of judges and fill the vacancy as soon as possible**.
- Increase the number of courts in India to tackle the huge population.
- Improving the police investigation and scientific way of collecting evidence.
- Reduce the leave of judges and increase the number of days of working in courts.
- Only genuine PIL must be entertained by Courts and courts must inflict heavy costs on frivolous PIL.
- **Analytics tools can be developed in a manner that helps the judges monitor Cases** based on parameters Such as how long an accused has been in judicial custody, Cases that Can affect the General public, and Cases that have been long pending.
- Alternative methods should be used for dealing with non-criminal offenders and petty criminals.

EMERGENCY PROVISIONS OF IT RULES 2021   *GS-II POLITY*

About

- Recently, the Union Ministry of Information and Broadcasting (MIB) under the **emergency provisions of the Information Technology Rules**, 2021 has directed **YouTube and Twitter to take down links sharing the BBC documentary 'India: The Modi Question.'**
- Indian Government argued that **the order was passed to take down the BBC documentary link due to several reasons, including;**
  o Undermining aspersions on the authority and credibility of the Supreme Court of India.
  o Sowing divisions among various communities.
  o Making unsubstantiated allegations regarding actions of foreign governments in India.

Details

- Under the Information Technology Rules, 2021 (IT Rules, 2021), the Ministry of Information and Broadcasting (MIB) has the authority to issue content takedown notices to social media intermediaries like YouTube, Instagram, Twitter, Facebook, etc in emergency situations "for which no delay is acceptable".
- **The emergency notices can be issued if the ministry believes that the content can impact;**
  o Sovereignty or Integrity of India
  o Defence or security of India.
  o Friendly relations with foreign states.
  o Public order, or to prevent incitement to any cognisable offence.

About Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021

- The Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021, was notified **by the Central government on February 25, 2021, relates to digital news publishers, including websites, portals and YouTube news channels, and Over The Top (OTT) platforms, which stream online contents such as web series and films.**
- It is **jointly administered by the Ministry of Electronics and IT, and the Ministry of Information and Broadcasting**.
- The Rules provide for a code of ethics to be followed by digital news publishers and OTT platforms; A three-tier grievance redress mechanism, which includes:
  o Self-regulation by publishers at the first level
  o Self-regulation by Self-regulating bodies of the publishers
  o An oversight mechanism by the Central government

Key Features of the Rules

- **Social media intermediaries, with registered users in India above a notified threshold, have been classified as significant social media intermediaries.**
  - They are required to appoint certain personnel for compliance, identification of the first originator of the information on its platform, and identify certain types of content.
  - They need to appoint a **Nodal Contact Person for 24x7 coordination with law enforcement agencies. Such a person shall be a resident in India**.
  - **Appoint a Resident Grievance Officer who shall perform the functions mentioned under the Grievance Redressal Mechanism. Such a person shall be a resident in India.**
  - Publish a **monthly compliance report** mentioning the details of complaints received and action taken on the complaints.
- The Rules prescribe a framework for the regulation of content by online publishers of news and current affairs content and audio-visual content.
- **A 3-tier Grievance Redressal Mechanism:** Social media intermediaries shall appoint a Grievance Officer to deal with complaints and share the name and contact details of such officers.
  - The grievance officer shall acknowledge the complaint within twenty-four hours and resolve it within 15 days from its receipt.
- **Ensuring Online Safety and Dignity of Users, Especially Women Users:** Intermediaries shall remove or disable access within 24 hours of receipt of complaints of contents that expose the privacy of individuals.
  - Such a complaint can be filed either by the individual or by any other person on his/her behalf.
- **Voluntary User Verification Mechanism:** Users who wish to verify their accounts voluntarily shall be provided with an appropriate mechanism to verify their accounts and provided with a demonstrable and visible mark of verification.
- **Giving Users An Opportunity to Be Heard:** Users must be provided with an adequate and reasonable opportunity to dispute the action taken by the intermediary.
- **Removal of Unlawful Information:** An intermediary upon receiving actual knowledge should not host or publish any information which is prohibited under any law in relation to the interest of the sovereignty and integrity of India, public order, friendly relations with foreign countries etc.
- This Code of Ethics prescribes the guidelines to be followed by OTT platforms and online news and digital media entities.
- **Self-Classification of Content:** The OTT platforms would be required to **self-classify the content into five age-based categories**; U (Universal), U/A 7+, U/A 13+, U/A 16+, and A (Adult).

Concerns

- Intermediaries include telecom service providers, internet service providers, search engines, online marketplaces, payment sites, cyber cafes, messaging services, and social media sites. While many intermediaries are mere storage providers, where they are unaware of the content being transmitted or stored on their platform, other intermediaries may be aware of the user-generated content on their platform. This raises the question that **to what extent intermediaries should be held liable for the user-generated content on their platform.**
- There are growing concerns around the misuse of these platforms for the proliferation of illegal or harmful content such as child sex abuse material, content provoking terrorism, misinformation, hate speech, and voter manipulation.
  - The only option users have is to approach courts. However, the blocking orders are confidential, which means that users do not know the provisions under which their content was flagged.
- **Some platforms have been self-regulating the publication of such content.** However, this has raised concerns about arbitrary actions taken by these platforms which could affect freedom of speech and expression.
- Certain grounds for restricting content may affect freedom of speech, some of these restrictions are subjective and overbroad, and may adversely affect the freedom of speech and expression of users of intermediary platforms.
- **The 2021 Rules do not restrict the extent or type of information that may be sought.** For example, the information sought may be personal data of individuals such as details about their interactions with others. Such powers, without adequate safeguards, may adversely affect the privacy of individuals.
- The Rules require significant social media intermediaries, to enable the identification of the first originator of information within India.
  - Identifying the first originator of information on a messaging platform will require the service provider to permanently store certain additional information:
  - The Rules also do not specify any timeline in terms of how far back in time the messaging service will be required to check for determining the first originator.
- **Overall, this requirement will lead to the retention of more personal data by messaging services which goes against the principle of Privacy and Data minimization.**

Conclusion

- Need to balance our security concerns with Privacy concerns and citizens' liberty.

JALLIKATTU: CULTURAL PRACTICE OR CRUELTY

GS-II GOVERNANCE

About Jallikattu

- Jallikattu is a **bull-taming sport** that has traditionally been **part of the festival of Pongal in Tamil Nadu.**
- The sport involves releasing a running bull into a crowd of people.
- Participants attempt to grab the bull's hump and ride it for as long as possible, in an attempt to stop it.
- The elite Jallikattu breeds test the strength and guile of farm hands in especially-constructed arenas.
- It is a violent sport, and there is only one winner, a man or a bull.

History

- Jallikattu has been known to be **practised during the Tamil classical period (400-100 BC).**
- It was **common among the Ayar people** who lived in the 'Mullai' geographical division of the ancient Tamil country.
- Later, it became a platform for the display of bravery and prize money was introduced for participation encouragement.
- A seal from the Indus Valley Civilization depicting the practice is preserved in the National Museum, New Delhi.
- A **cave painting in white kaolin** discovered near Madurai depicting a lone man trying to control a bull is estimated to be about 1,500 years old.

The controversy over Jallikattu

- In recent times, Jallikattu has attracted protests from animal rights organizations like People for the Ethical Treatment of Animals (PETA) and the Federation of India Animal Protection Agencies (FIAPA).
- Over 200 people - both tamers and spectators - have lost their lives in the last two decades.

BULL RUN IN COURT

2006 Bench of Madurai HC gives directions to regulate conduct of jallikattu

2009 State govt enacts Tamil Nadu Regulation of Jallikattu Act, 2009 to regulate sport by imposing relevant conditions to protect the animal

Nov 2010 SC lets TN govt permit jallikattu for five months in a year. Tells collectors to ensure bulls are registered with Animal Welfare Board of India

July 2011 Centre issues notification banning use of bull a performing animal

May 2014 SC strikes down TN law and bans jallikattu altogether

Jan 2016 Centre issues notification to lift ban. Says "bulls may be continued to be exhibited or trained as a performing animal at events such as jallikattu in Tamil Nadu". SC upholds ban

Arguments against such games

- **SC Verdict:** In 2014, the Supreme Court ruled that the Prevention of Cruelty to Animals Act, 1960, **"over-shadows or overrides the so-called tradition and culture".**
- **Not sanctioned by scriptures:** The court drew upon Upanishadic wisdom and advised Parliament to "elevate rights of animals to that of constitutional rights to protect their dignity and honour".
- **Case of torture:** Documentation done by the Animal Welfare Board of India, a statutory body under the Centre and animal rights groups like PETA, served as evidence that in many such animal games like Jallikattu animals were physically and mentally tortured.
- **Loss of lives:** Hundreds of people have lost their lives in the last two decades.

The case for culture and tradition

- **Cultural Representation:** There exists tangible evidence to show that this battle between man and beast is a cultural representation.
- **Agrarian Economy:** The political economy of such games is about showcasing the quality of cattle, the breeding skills of cattle rearers, the centrality of cattle in an agrarian economy, and the power and pride they bring to farmers.
- **Agrarian Culture:** Such games are a cultural manifestation of this political economy. As a tradition, it links agrarian people to the elemental aspect of their vocation.
- **Symbol of Tamil Culture:** Jallikattu's linkages with Pongal have lifted it above its regional and community origins and transformed it into a symbol of Tamil culture and pride.
- **Shapes Political Discourse:** Pride in Tamil culture is central to Dravidian nationalism, which continues to shape the political discourse in Tamil Nadu.

Way Forward

- Although there are systems in place to check the treatment of the bulls and ensure the safety of participants and spectators,

animal cruelty continues and people continue to lose their lives.

- There needs to be a comprehensive regulatory framework in place with zero implementation gaps to check the treatment of animals and ensure the safety of participants and spectators.

GOOD GOVERNANCE   *GS-II GOVERNANCE*

In News
- 18 District Magistrates were awarded for innovative and good governance at *The Indian Express* Excellence in Governance Awards by the Union Home Minister.
- **The Minister stated that the Governance models should;**
  o Build trust between the government and the people.
  o Take into account local conditions and situations.
  o It should not be imported from outside.
  o Reaches the last person in the queue.
  o Inclusive, corruption-free, transparent, accountable, sensitive, innovative and stable.
  o Strike at the root of problems.
  o Based on people-centric development policy.

Governance
- According to the United Nations (UN), **governance refers to the activities of all political and administrative authorities to govern their country**. Meanwhile, as stated by the International Monetary Fund (IMF), governance is a concept in which a country is managed, including economic, policy, and legal aspects.
- In general, Governance has the meaning: of the decision-making process and the process of determining which policies will be implemented and which not be implemented.

Defining Good Governance
- In the 1990s, the **World Bank became the first international institution to adopt the concept of good governance** into lending arrangements for developing countries and introduce the idea to the general public. In its 1992 report entitled "Governance and Development", the notion of good governance was written as how power is used to regulate the economic and social resources of a country for development.
- Now, the term good governance has often been used by national and international organisations. **Good governance aims to minimize corruption, take into account the opinions of minorities, listen to the voices of the oppressed people in the decision-making process, and respond actively to the needs of the community now and in the future.**
- Good governance is the **process of measuring how public institutions conduct public affairs and manage public resources** and guarantee the realization of human rights in a manner essentially free of abuse and corruption and with due regard for the rule of law.
- According to the World Bank (1992), "good governance is central to creating and sustaining an environment which fosters strong and equitable development and it is an essential complement to sound economic policies".
- The International Monetary Fund (IMF) has defined the concept "as a broad concept covering all aspects of how a country is governed, including its economic policies, regulatory framework, and adherence to rule of law". The IMF very much emphasized promoting the concept of mainly two areas:
  o The management of public resources through reforms covering public sector institutions and
  o The development and maintenance of a transparent and stable economic and regulatory environment conducive to private sector activities.

Eight principles of Good Governance
- **Participation:** Participation by both men and women is a key cornerstone of good governance. Participation could be either direct or through legitimate intermediate institutions or representatives.
  o It is important to point out that representative democracy does not necessarily mean that the concerns of the most vulnerable in society would be taken into consideration in decision-making.
  o Participation needs to be informed and organized. This means freedom of association and expression on the one hand and an organized civil society on the other hand.
- **Rule of law:** Good governance requires fair legal frameworks that are enforced impartially. It also requires full protection of human rights, particularly those of minorities.
  o Impartial enforcement of laws requires an independent judiciary and an impartial and incorruptible police force.
- **Transparency:** Transparency means that decisions taken and their enforcement are done in a manner that follows rules and regulations. It also means that information is freely available and directly accessible to those who will be affected by such

decisions and their enforcement.

- o It also means that enough information is provided and that it is provided in easily understandable forms and media.
- **Responsiveness:** Good governance requires that institutions and processes try to serve all stakeholders within a reasonable timeframe.
- **Consensus-oriented:** There are several actors and as many viewpoints in a given society. Good governance requires mediation of the different interests in society to reach a broad consensus in society on what is in the best interest of the whole community and how this can be achieved.
  - o It also requires a broad and long-term perspective on what is needed for sustainable human development and how to achieve the goals of such development. This can only result from an understanding of the historical, cultural and social contexts of a given society or community.
- **Equity and inclusiveness:** A society's well-being depends on ensuring that all its members feel that they have a stake in it and do not feel excluded from the mainstream of society. This requires all groups, but particularly the most vulnerable, to have opportunities to improve or maintain their well-being.
- **Effectiveness and efficiency**: Good governance means that processes and institutions produce results that meet the needs of society while making the best use of resources at their disposal.
  - o The concept of efficiency in the context of good governance also covers the sustainable use of natural resources and the protection of the environment.
- **Accountability:** Accountability is a key requirement of good governance. Not only governmental institutions but also the private sector and civil society organizations must be accountable to the public and their institutional stakeholders.
  - o Who is accountable to who varies depending on whether decisions or actions taken are internal or external to an organization or institution.
  - o In general, an organization or an institution is accountable to those who will be affected by its decisions or actions. Accountability cannot be enforced without transparency and the rule of law.

Initiatives for Good Governance in India

- Right to Information: The enactment of the Right to Information Act 2005 marks a significant shift for Indian democracy, because the **greater the access of citizens to information, the greater will be the responsiveness of the government to community needs**.
  - o The right to Information is **derived from our fundamental right of freedom of speech and expression under Article 19 of the Constitution.** If we do not have information on how our Government and Public Institutions function, we cannot express any informed opinion on it. Democracy revolves around the basic idea of Citizens being at the centre of governance.
  - o As a **party to the International Covenant on Civil and Political Rights (ICCPR),** India is under an international obligation to effectively guarantee the Right to Information as per Article 19 of the ICCPR.

- e-Governance: E-governance, meaning 'electronic governance' is **using information and communication technologies (ICTs)** (such as Wide Area Networks, the Internet, and mobile computing) **at various levels of the government and the public sector and beyond**, to enhance governance.
  - o **e-Governance** in India is a recently developed concept. The launch of the **National Satellite-Based Computer Network (NICENET) in 1987** and the subsequent launch of the **District Information System of the National Informatics Centre (DISNIC) program** to computerize all district offices in the country for which free hardware and software was offered to the State Governments provided the requisite impetus for e-governance.
- **Digital India was launched in 2015 to empower the country digitally.** Its main components are:
  - ✓ Developing a secure and stable digital infrastructure
  - ✓ Delivering government services digitally
  - ✓ Achieving universal digital literacy
- **Aadhaar** is a unique identification number issued by UIDAI that serves as proof of identity and address based on biometric data. It is being used to provide many benefits to the members of society. One can e-sign documents using Aadhar.
- **Mygov.in** is a national citizen engagement platform where people can share ideas and be involved with matters of policy and governance.
- **UMANG is a Unified Mobile Application** which provides access to central and state government services including Aadhar, Digital Locker, PAN, Employee Provident Fund services, etc.

- **Digital Locker helps** citizens digitally store important documents like mark sheets, PAN, Aadhar, and degree certificates. This reduces the need for physical documents and facilitates easy sharing of documents.
- **PayGov facilitates** online payments to all public and private banks.
- Mobile Seva aims at providing government services through mobile phones and tablets. The m-App store has over 200 live applications which can be used to access various government services.
- Computerization of Land Records ensures that landowners get digital and updated copies of documents relating to their property.
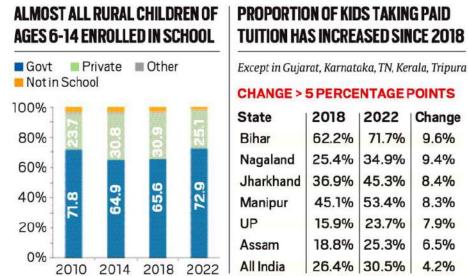
ANNUAL STATUS OF EDUCATION REPORT (ASER) 2022   *GS-II GOVERNANCE*

About

- Annual Status of Education Reports **(ASER) survey records trends in school enrollment, attendance, and reading and arithmetic abilities.**
  - o This year, nearly 7 lakh children in the age group of 6 to 14 across 616 districts were surveyed.

ALMOST ALL RURAL CHILDREN OF AGES 6-14 ENROLLED IN SCHOOL

Legend: ■ Govt ■ Private ■ Other ■ Not in School

Year	Govt	Private/Other
2010	71.8	23.7
2014	64.9	30.8
2018	65.6	30.9
2022	72.9	25.1

PROPORTION OF KIDS TAKING PAID TUITION HAS INCREASED SINCE 2018

Except in Gujarat, Karnataka, TN, Kerala, Tripura

CHANGE > 5 PERCENTAGE POINTS

State	2018	2022	Change
Bihar	62.2%	71.7%	9.6%
Nagaland	25.4%	34.9%	9.4%
Jharkhand	36.9%	45.3%	8.4%
Manipur	45.1%	53.4%	8.3%
UP	15.9%	23.7%	7.9%
Assam	18.8%	25.3%	6.5%
All India	26.4%	30.5%	4.2%

Key Points of the Report

- Despite school closures during the pandemic, **the overall enrolment rate for the 6 to14 age group, increased from 97.2% in 2018 to 98.4% in 2022.**
  - o Attendance patterns haven't changed very much and there is a huge variation in attendance across the country.
- **Government schools have seen a sharp increase in children enrolled from 65.6% in 2018 to 72.9% in 2022.**
  - o During Covid, the rural private schools couldn't do much because of their financial issues, but at the same time government schools distributed textbooks, and they often distributed midday meals, this worked as a pull factor in increasing enrolment in government schools.
- At the National level, **the proportion of children in classes 1 to 8 taking paid private tuition classes increased from 26.4% in 2018 to 30.5% in 2022.**
  - o Bihar and Jharkhand are high-tuition states; 70% of children in Bihar and 45% in Jharkhand are taking tuition in 2022 as compared to only 10% of children in Himachal Pradesh and 15% in Maharashtra.
- **The percentage of children in Class 3 in government or private schools who were able to read at the level of Class 2 dropped from 27.3% in 2018 to 20.5% in 2022.**
  - o This decline is visible in every State, and for children in both government and private schools.
- Almost 80% of the schools reported that they have received guidelines and teachers have been trained.
- There is a decline in learning levels since 2018, but again it varies across the country.
  - o Drop in reading is more than in math.
- The report suggested integration between the Anganwadi system and the school system is urgently needed to ensure overall learning development.

Annual Status of Education Report (ASER)

- ASER is an annual survey that aims to provide district-level information on children's enrolment and basic learning.
- The Survey has been conducted every year since 2005 in all rural districts of India.
- **It is a household-based survey rather than a school-based survey.**
  - o This enables all children to be included; those who have never been to school or have dropped out, as well as those who are in government schools, private schools, religious schools or anywhere else.
- **Information on learning is collected from children in the age group 3-16.**
  - o Basic household information is also collected.
  - o Recently, this has included household size, parental education, and some information on household assets.
- Children in the age group 5-16 are tested in basic reading and basic arithmetic.
- ASER standards have been adopted in several countries: Kenya, Uganda, Tanzania, Pakistan, Mali and Senegal.

CASTE CENSUS IN BIHAR

In News

- The **Supreme Court of India refused to consider pleas challenging the State Government's notification to conduct a caste-based census in Bihar**.
- The petitioner argued that caste survey came under the Union List of the Indian Constitution and that a State Government has no authority to do it.
- The first phase of the Bihar Caste Census began on 7th January 2023 and would continue till 21st January 21.
  - o The second phase will start in April.

About Census in India

- **Census in India was started in 1872 under British Viceroy Lord Mayo, but the first complete census was taken in 1881 under Lord Ripon.**
- **Since 1881, the Census has been undertaken every 10 years; in 2011 the Census of India was conducted for the 15th time.**
- **The Census of India was conducted by the Registrar General and Census Commissioner of India under the Ministry of Home Affairs**.
- All the censuses since 1951 were conducted under the 1948 Census of India Act. The last census was held in 2011.

About Caste Census

- **The Socio-Economic and Caste Census 2011 (SECC) was conducted for the 2011 Census of India.**
- The SECC 2011 was conducted in all states and union territories of India.
- SECC 2011 was also the first paperless census in India conducted on hand-held electronic devices by the government in 640 districts.
- The Rural development ministry has used the SECC data in its programmes such as MGNREGA, National Food Security Act, and the Deen Dayal Upadhyaya Grameen Kaushalya Yojana. SECC 2011 data will also be used to identify beneficiaries.
- **SECC 2011 was the first caste-based census since the 1931 Census of India.**
- **SECC 2011 was not conducted under the 1948 Census of India Act, which made information disclosure voluntary for citizens, and not a mandatory disclosure.**
- SECC 2011 has three census components which were conducted by three separate authorities, but under **the overall coordination of the Department of Rural Development** in the Government of India:

  - o Census in Rural Areas has been conducted by the Department of Rural Development.
  - o Census in Urban areas is under the administrative jurisdiction of the Ministry of Housing and Urban Poverty Alleviation.
  - o The caste Census is under the administrative control of the Ministry of Home Affairs: Registrar General and Census Commissioner of India.

Arguments in favour of Conducting Caste Census

- Those at the lower levels of the Social System are not just disadvantaged socially but also economically, therefore it is important to identify them to ensure their welfare.
- Caste data will promote independent research into the question of who does and does not need affirmative action.
- The faith of our citizens cannot be restored until credible exercises of data collection are undertaken regarding caste.
- **A caste census, which will generate exhaustive data will allow policymakers to develop better policies, and implementation strategies,** and will also enable a more rational debate on sensitive issues.
- **The Justice Rohini committee was appointed in 2017 to look into the sub-categorization of the OBC communities;** however, in the absence of data, there can be no data bank or any proper sub-categorization.
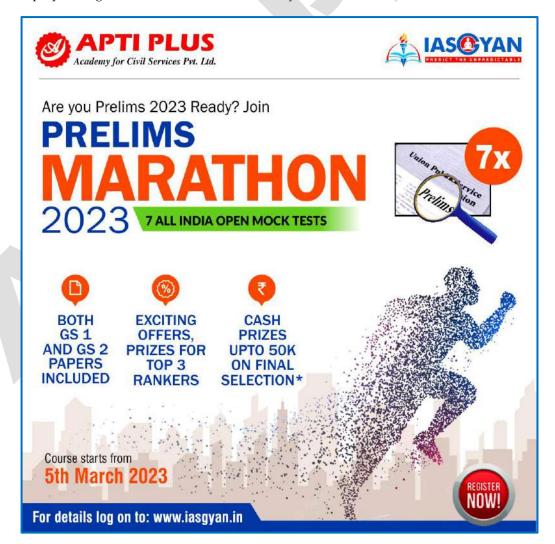
- All commissions have had to depend on data from the last caste census conducted in 1931. Therefore, the data has to be updated.
- **India needs to be bold and decisive in tackling caste questions through data and statistics in the way the US does to tackle race issues,** by collecting data around race, class, language, and inter-race marriages, among other metrics.

Argument against conducting caste census

- **The data will suffer in respect of "completeness and accuracy", as Caste data collected in the Socio-Economic and Caste Census (SECC) of 2011 is "unusable" for official purposes as they are far from accurate and also misleading**.
- Many people may not register themselves in the census to hide their caste identity.
- It is too late now to add caste to the Census 2021, as the Planning and preparations for the census exercise started almost four years earlier and the preparations for Census 2021 are almost done.
- **This could further divide Indian society. The government had said that the total number of castes surveyed in 1931 was 4,147, while the SECC 2021 figures show that there are more than 46 lakh castes in India.**
- Earlier attempts failed as the entire exercise was corrupted because the enumerators had used different spellings for the same castes. **In many cases, the respondents refused to reveal their castes.**

Way forward

- **In democratic Societies there is nothing to legally stop a Person from the most deprived Class and Caste from reaching the highest Position, but these legal rights also need socioeconomic support from the government as affirmative action**.
- **People also need to understand that our Sources of knowledge about the past and especially the ancient Past are inadequate.** It is difficult to be very certain about what things were like at that time, or the reasons why some institutions and Practices came to be established. But even if we knew all this, just because something happened in the Past or is Part of our tradition, it is not necessarily right or wrong forever.
- **Every age has to think afresh about such questions and Come to its own Collective decision about its Social institutions.**
- Governments need to take effective affirmative action based on strong data to ensure the socio-economic development of marginalized people living at the bottom of the social hierarchy.

PURPLE FEST

About
- The state of **Goa is hosting the Purple Fest, the first-ever inclusive festival in the state for persons with disabilities (PwDs).**
  o The festival started in Panjim on 6th January 2023 and will end on 8th January.
- The festival aims to show how to bring inclusivity in our society, and how to support one another.
- Thousands of entries have attended the festival, and delegates from all over the country participated in the festival.
- Recently the **Ministry of Social Justice and Empowerment Ministry has released a new draft of national policy on Persons with disabilities (PwD).**
- The draft stated that the current national programme on the prevention of disabilities focused only on "traditional causes", and was silent on other factors like malnourishment, medical negligence, socio-cultural factors and impairment caused by disasters.

Persons with Disabilities in India
- **About 2.2% of India's population lives with some kind of physical or mental disability,** as per the National Statistics Office (NSO) report.
  o Rural men had the highest prevalence of disability in India, according to the NSO report.
  o A higher proportion of men were disabled in India compared with women, and disability was more prevalent in rural areas than in urban areas.
  o The inability to move without assistance was the most common disability. More men experienced locomotors disability than women.
- The 2011 census estimated that the number of people with disabilities in India is close to 2.68 crores (or 2.2% of the population) — that is more than the entire population of Australia.
  o This number was based on the older definition of disability, yet the proportion of disabled people in the population is not different from the 2019 NSO report, which used the expanded definition of disability.
- However, **the 2019 edition of disability statistics reported a slightly higher prevalence than those reported in earlier editions of the survey**.
  o A 2019 study by the Public Health Foundation of India found that the use of the Annual Health Survey's metrics results in a lower prevalence.
- Like other disadvantaged groups, the disabled in India are entitled to some benefits, ranging from reservations in educational institutes to concessions on railway tickets.
  o To claim these benefits, they have to furnish certificates as proof of disability.
- At the macro level, data on the prevalence and type of disability is useful while making allocations for welfare schemes.
- This list of disabilities was expanded to 21 when the Rights of People with Disabilities were introduced in 2016.

PRAJJWALA CHALLENGE

About
- The Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM) has launched the Prajjwala Challenge intending to invite ideas, solutions and actions to transform the rural economy.
  o Ideas are invited from individuals, Social Enterprises, startups, the Private Sector, Civil Society, Community Based organizations, Academic institutions, startups, Incubation centres, Investors etc having the potential to transform the rural economy.
- The **Prajjwala Challenge was launched under the Union Ministry of Rural Development to search for ideas and solutions around**;
  o Innovative Technology Solutions
  o Inclusive Growth
  o Value Chain Interventions
  o Enhanced Women Entrepreneurship
  o Cost-effective Solutions
  o Sustainability
  o Place-based employment
  o Localised models etc.
- Shortlisted ideas will be provided mentorship support from an expert panel and incubation support to scale up.
  o The top 5 ideas will be rewarded with Rs. 2 Lakh each.

Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM)
- **It was launched by the Ministry of Rural Development (MoRD), Government of India in June 2011 as a restructured version of Swarna Jayanti Gram SwarozgarYojna (SGSY).**
  o In November 2015, the program was renamed Deendayal Antayodaya Yojana (DAY-NRLM).

- DAY-NRLM aims to cover at least one woman member from each rural poor household (about 9-10 crore) under the fold of Self-Help Groups (SHGs).
- **Under the DAY-NRLM interest, subvention is already being provided on loans taken by women Self Help Groups from Banks.**
  - In 250 backward districts, referred to as Category-I districts, all women SHGs are eligible to get bank loans up to Rs. 3.00 lakh at an interest rate of 7% per annum. An additional Interest Subvention of 3% per annum is provided to women SHGs maintaining prompt repayment and reducing the effective rate of interest to 4%.
  - In the remaining districts of the country referred to as Category-II districts, women SHGs under DAY-NRLM availing loans up to Rs. 3.00 lakh from Banks, Interest Subvention is given to the extent of the difference between the Bank's lending rate and 7% subject to the maximum ceiling of 5.50% per annum.
- DAY-NRLM has a provision for providing a Revolving Fund (RF) at the rate of Rs.10,000-15,000 per SHG and a Community Investment Support Fund (CISF) to the extent of Rs. 2,50,000 per SHG.
- The Government is taking regular steps to strengthen the SHGs by promoting SHG federations such as Village Organisations (VOs) and Cluster Level Federations (CLFs) which provide handholding support.
- **Regular training programmes have been conducted for the SHG members on SHG management, financial literacy, livelihoods-related technologies etc.**
  - The Mission so far has mobilised more than 87 Million women into the Self Help Groups and their federations.
- It has promoted financial inclusion, deepening, enhancing and expanding Livelihood intervention ensuring sustainable income.

The following major programmes are being operated by the Ministry of Rural Development for rural development
- **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)** for providing wage employment,
- **National Rural Livelihoods Mission (NRLM)** for self-employment and skill development.
- **Housing for All: Pradhan Mantri Awaas Yojana (PMAYG)** for providing housing to BPL households,
- **Pradhan Mantri Gram Sadak Yojana (PMGSY)** for the construction of quality roads.
- **National Social Assistance Programme (NSAP)** for social pension.
- **Shyama Prasad Mukherjee RURBAN Mission (SPMRM)** for the development of a cluster of villages that preserve and nurture the essence of rural community life with a focus on equity and inclusiveness without compromising with the facilities perceived to be essentially urban.
- **DeenDayal Upadhyaya Grameen Kaushalya Yojana (DDUGKY)** to transform rural poor youth into an economically independent and globally relevant workforce.
- **Mission Antyodaya** to bring optimum use and management of resources allocated by several Ministries/ Departments.
- S**ansad Adarsh Gram Yojana (SAGY)** for holistic development of the identified Gram Panchayats, leading to sustainable improvement in Standard of Living.
- **Swachchh Bharat Mission** to provide access to every person to sanitation facilities including toilets, solid and liquid waste disposal systems, village cleanliness and safe and adequate drinking water supply.
- **National Rural Health Mission** to provide accessible, affordable and accountable quality health services even to the poorest households in the remotest rural regions.

SEXUAL HARASSMENT   *GS-II SOCIAL JUSTICE*

About
- The **Union Sports Minister has announced a five-member Oversight Committee to investigate the charges made by some well-known wrestlers against the president of the Wrestling Federation of India (WFI).**
  - The committee will **be headed by M.C. Mary Kom**; a 6-time World champion and Olympic medalist boxer.
- The committee will probe the allegations of sexual misconduct, harassment and intimidation, financial irregularities and administrative lapses, said a release.

Violence against women and girls
- The UN General Assembly defines violence against women as "any act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life."
- **In general terms, it displays itself in physical, sexual and psychological forms, encompassing:**
  - Partner violence (battering, psychological abuse, marital rape, feticide).
  - Sexual violence and harassment (rape, forced sexual acts, unwanted sexual advances, child sexual abuse, forced marriage, street harassment, stalking, cyber-harassment).
  - Human trafficking (slavery, sexual exploitation).

- o Female genital mutilation.
- o Child marriage.

Challenges in addressing women's Safety

- **Lack of Reporting.**
- **Slow Criminal Justice System**.
- Inadequate Implementation of the law.
- Poor Gender Sensitization of law enforcement agencies like Police, Judiciary etc.
- **Various Social factors like level of education/illiteracy, Poverty, Social Customs and values, religious beliefs, and mindset of the Society.**
- Exclusion by Technology.
- **The lack of infrastructure Such as Safe Spaces for women, Safe transport Systems, and Proper toilets makes it a dangerous place for women and girls.**
- Hostile Environment of investigation for victims of sexual violence.
- Social Conceptions of Shame and victim-blaming.
- **Much Sexual violence happens within a marriage, and marital rape is not a Crime.**

Steps taken by the Government

- **Beti Bachao Beti Padhao,** to address the declining Child Sex Ratio.
- **Scheme for Adolescent Girls** aims at girls in the age group 11-18, to empower and improve their social status through nutrition, life skills, home skills and vocational training.
- **Pradhan Mantri Mahila Shakti Kendra scheme**, to promote community participation through the involvement of Student Volunteers for the empowerment of rural women.
- **RashtriyaMahilaKosh (RMK)** to provide micro-credit to poor women for various livelihood support and income-generating activities at concessional terms.
- **SwadharGreh** provides relief and rehabilitation to destitute women and women in distress.
- **Ujjawala** is a Comprehensive Scheme for the prevention of trafficking and rescue, rehabilitation, reintegration and repatriation of victims of trafficking for commercial sexual exploitation.
- **Working Women Hostels** for ensuring safe accommodation for women working away from their place of residence.
- **One-Stop Center and Women Helpline** are being implemented to facilitate access to an integrated range of services including medical aid, police assistance, legal aid/ case management, psychosocial counselling and temporary support services to women affected by violence.
- **Panic Button** on Mobile Phones, **Emergency Response Support System** Set up under Nirbhaya Fund.
- **Inclusion of Acid Attack as a disability.**
- **The dowry Prohibition Act**, of 1961, Penalizes Giving & taking.
- **SABLA Scheme**, Providing life Skills and Supplementary nutrition to School girls - Working Women Hostel.
- **Sexual Harassment electronic-Box (SHe-Box).**
- **The national database on Sexual offenders** includes names, addresses, photographs and fingerprint details of those Convicted in Sexual assault Cases.
- The Hindu Succession Amendment Act 2005. According to the law, sons, daughters and their mothers can get an equal share of family property.
- The Protection of Women from Domestic Violence Act 2005 extends the understanding of the term 'domestic' to include all women who 'live or have lived together in a shared household' with the male member who is perpetrating the violence.
  - o Domestic violence refers to the injury or harm or threat of injury or harm caused by an adult male, usually the husband, against his wife. Injury may be caused by physically beating up the woman or by emotionally abusing her. Abuse of the woman can also include verbal, sexual and economic abuse.

Steps needed to ensure women's Safety

- Strengthening Criminal Justice machinery
- **Strict implementation and monitoring of the laws and Schemes and Strengthened enforcement**.
- Strengthening of Alternate Dispute resolution mechanisms like Lok Adalat.
- Provide Self-defense Training
- **Gender Sensitization of the law enforcement agencies, especially Police and Judiciary.**
- **Adopting zero tolerance Policy, Moral education through awareness and education.**
- Promoting Social and economic empowerment of women through Policies and Programmes.
- Economic empowerment of women through Property rights, Create awareness about their Rights.
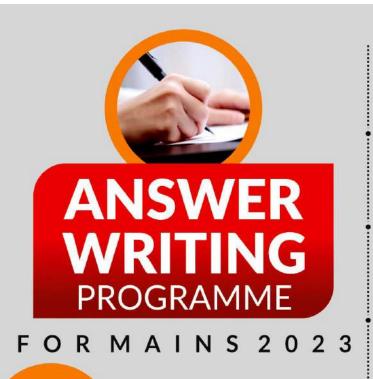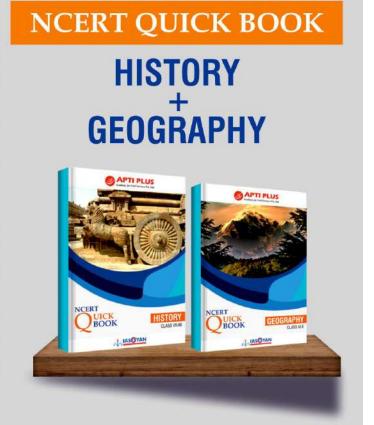- **Ensuring gender-friendly Public Spaces**

- Equal access to Nutrition, Health, and education
- Adopt a life cycle approach to the empowerment of girls and women.
- **Gender equality and violence Prevention Programmes can be introduced in Schools and Colleges.**
- Strictly regulate the Sale and distribution of acid.
- Marital rape Should be made an offence irrespective of the age of the wife
- Khap panchayat's decisions, and all those involved in them, that led to honour killings or violent Crimes must be Criminally Punished.
- **Increase the representation of women in the Judiciary, both at higher and lower levels.**
- **All Police Stations must have women and a Child Protection des**k.
- The number of women in Police Should be increased
- Installation of CCTV, Mapping of dark Spots & Crime-prone areas

Summary

- Violence affects women at all stages of their life, gender-based violence can happen to anyone, anywhere, some women and girls are particularly vulnerable; young girls and older women, women who identify as lesbian, bisexual, transgender or intersex, migrants and refugees, indigenous women and ethnic minorities, or women and girls living with HIV and disabilities, and those living through humanitarian crises.
- Violence against women continues to be an obstacle to achieving equality, development, and peace as well as the Sustainable Development Goals (SDGs).

Context

- Croatia switched to the euro and entered Europe's passport-free zone -- two major milestones for the country after joining the European Union nearly a decade ago.

Details

- Croatia switched to the euro and entered Europe's passport-free zone -- two major milestones for the country after joining the European Union nearly a decade ago.
- **The Balkan nation bid farewell to its kuna currency and became the 20th member of the eurozone.**
- It is now the 27th nation in the passport-free Schengen zone, the world's largest, which enables more than 400 million people to move freely around its members.
- The union of 27 member states located in Europe is called the European Union. Out of these **only 20 countries have adopted Euro as their authorised currency**. These countries are collectively known as the Eurozone.
- The remaining countries of the European Union have not adopted the Euro, these countries have their own separate currency.

Countries
- EU - Yes/Schengen - Yes
- EU - No/Schengen - Yes
- EU - Yes/Schengen - No

Maastricht Treaty

- In December 1991, important decisions related to political, monetary and economic integration of the Europe were taken by the heads of the states of 12 members' countries. This comes to be known as the **Maastricht Treaty (Netherlands).**
- **"Maastricht Treaty" came into effect since November 1, 1993** and gave birth to a new organisation known as "European Union".
- The "Maastricht Treaty" and documents of the European Union, singed in the February, 1992 state that all countries of the European Union will do efforts to make a common monetary and economic policy. Due to the intense efforts in this direction, the common currency of the **Eurozone came into existence since January 1, 1999.**
- To be able to join the Eurozone the EU member states are required to fulfil the so-called 'Convergence Criteria'. These are economic and legal conditions agreed in the Maastricht Treaty in 1992 and are also known as the 'Maastricht criteria'.
- According to the Maastricht treaty, if a EU country wants to join the Eurozone, then it will **have to meet these 4 following conditions:**
  - **Low Inflation**: If a country wants to be in the Eurozone, its **inflation should not exceed 1.5% of the top three lowest inflation having countries** of Eurozone.
  - **Low Interest Rate:** Interest rates should not exceed 2% as compared to the first three lowest interest rate having countries.
  - The annual budget deficit of the aspirant country should not exceed **3% of the Gross Domestic Product of its economy.**
  - The debt of the aspirant country should not exceed **60% of the Gross Domestic Product of its economy.**

Schengen Area

- **Schengen Area** signifies a zone where 27 European countries, abolished their internal borders, for the free and unrestricted movement of people, in harmony with common rules for controlling external borders and fighting criminality by strengthening the common judicial system and police cooperation.
- Schengen Area covers most of the EU countries, except Ireland, and the countries that are soon to be part of the Schengen Area: Romania, Bulgaria, and Cyprus. Although not members of the EU, countries like Norway, Iceland, Switzerland and Lichtenstein are also part of the Schengen zone.
- 23 members fully implement the Schengen acquis,

- Four of them – members of the EFTA, implement Schengen acquis through specific agreements related to the <u>Schengen agreement</u>.
- Iceland, Norway, Switzerland and Lichtenstein are associate members of the Schengen Area but are not members of the EU. They are part of the EFTA and implement the Schengen acquis through specific agreements related to the Schengen agreement.
- <u>Monaco</u>, San Marino, and Vatican City have opened their borders with, but are not members of the visa-free zone.
- The Azores, Madeira, and the Canary Islands are special members of the EU and part of the Schengen Zone even though they are located outside the European continent.
- There are four more **EU members**, that have not joined the Schengen zone: Ireland – which still maintains opt-outs and Romania, Bulgaria, and Cyprus – that are seeking to join soon.**Schengen Area Countries**

About EU

- European Union is an **international organisation consisting of European Countries, which was formed in 1993.**
- It came into force after the signing of the **Maastricht Treaty** by 28 countries.
- The Maastricht Treaty is also known as the Treaty of the European Union (TEU).
- **Members of the EU: 27. UK made an exit from the EU on 31st January 2020**
- **European Union has 24 official languages**
- **Euro is the official currency for 19 of the 27 EU member countries**
- The **objectives** of forming the European Union are:
  o To increase political cooperation
  o To enhance economic integration by creating a single currency the EURO.
  o Unified security and foreign policy
  o Common citizenship Rights
- Enhanced cooperation in the areas of judiciary, immigration and asylum.
- European Union was awarded the Nobel Prize for Peace in 2012.

| MMPA | *GS-II INTERNATIONAL RELATIONS* |

Context

- Close on the heels of similar mobility agreements with France, the United Kingdom, Germany and Finland, India will sign a "Comprehensive Migration and Mobility Partnership Agreement" (MMPA) with Austria during External Affairs Minister S. Jaishankar's visit to Vienna.

Details

- While India has been keen to finalise these agreements with European countries as a stepping stone to resolving issues over the long-pending India-European Union (EU) Free Trade Agreement and facilitating Indian professionals working in these countries, the European countries also see them as a way to curb illegal immigration from India.
- This is a much-needed agreement, especially in view of the sharp increase in illegal migration Austria was confronted with last year, including over 15,000 illegal migrants from India with practically no chance of asylum.
- The agreement is now a useful tool to combat illegal migration together, as it enables the swift return of illegal migrants.
- In addition, the agreement will regulate multiple entry visas for professionals and student exchange programmes, and will be reviewed regularly by a Joint Working Group.
- This is the first trip to Austria by an Indian Foreign Minister in 27 years.

Background of relations
Political relations

- Diplomatic relations between India and Austria were established in 1949.
- Traditionally India Austria relations have been warm and friendly.
- There has been a regular exchange of high level visits between the two countries
- A number of Bilateral Agreements exist

Institutional Mechanisms

- The main institutional mechanism at governmental level between India and Austria are the Foreign Office Consultations (FOC) and the Joint Economic Commission (JEC).
- Economic relations Austria, a member of the European Union since 1995 is an important link for India in its relationship with Europe, especially with countries of central and Eastern Europe.
- The Indo-Austrian Joint Economic Commission (JEC) established in 1983 is active and on-going
- There have been more than 200 collaborations, including 100 technical collaboration and 60 joint ventures between Indian and

Austrian firms

Bilateral Trade and Investment

- India's bilateral trade with Austria is continuing a positive trend and has grown at much more speed than Austria's overall foreign trade in both imports and exports.
- The results for the January-December 2018 mark the fifth consecutive year in which India-Austria trade has grown significantly after having slowed down in the years following the economic crisis until 2014.
- India's exports to Austria in Jan-Dec 2018 were Euro 945.92 mn (y-o-y growth of 14.55%) and India's imports from Austria during Jan-Dec 2018 amounted to Euro 923.54 mn (y-o-y growth of 22.32%).
- Total bilateral trade for this period was Euro 1.869 bn (y-o-y growth of 18.35%).

Space:

- Austria's first two satellites TUGSAT-1/BRITE and UniBRITE were launched by India's PSLV–C20 in 2013.

Culture:

- Given the vibrant cultural traditions of both India and Austria, the cultural exchanges between India and Austria are quite intense.
- Artistes of both countries have been performing regularly in each other's country.
- An MoU on Cultural Exchange was signed in February 2016
- In 1845, Sanskrit began to be taught at the University of Vienna. A chair for Sanskrit studies was established which was later converted into a chair for Indology. In 1955 it transformed itself into a separate Institute for South Asian, Tibetan and Buddhist Studies whose main focus is Indology.

Indian community:

- There are an estimated over 31,000 Indians (majority from Kerala and Punjab) living in Austria – working primarily in the Health Care business and self-employed sectors.

INDO-FRENCH STRATEGIC DIALOGUE	GS-II INTERNATIONAL RELATIONS

Context

- National Security Adviser (NSA) Ajit Doval held the 36th round of the Indo-French Strategic Dialogue with his French counterpart, Emmanuel Bonne.

Details

- Mr. Bonne's visit was the first major diplomatic visit of the New Year, and according to a statement from the Embassy of France in India, both participants agreed to intensify efforts "towards strategic autonomy".
- **The two sides held discussions on a variety of issues, including the current global security situation in the context of the conflict in Ukraine, regional security in the context of Afghanistan, counter-terrorism, cybersecurity, defence cooperation in the Indo-Pacific, besides other issues of mutual concern.**
- The agenda covered all aspects of the Indo-French strategic partnership: defence and security cooperation. India is close to taking a decision on a fighter jet to fly off the Navy's aircraft carriers, for which Boeing's F-18 Super Hornet and Dassault Aviation's Rafael-M are in the race.
- A decision is expected shortly for procuring 26 jets, in which Rafale has an edge.
- In addition, Safran of France is competing with other global engine manufacturers to co-develop a fighter jet engine with the Defence Research and Development Organisation.

Background

- 1998: established a Strategic Partnership.
- The areas of defence& security cooperation, space cooperation and civil nuclear cooperation constitute the principal pillars of Strategic Partnership.
- India and France are increasingly engaged in new areas of cooperation such as:
  o In the Indian Ocean region,
  o Climate change.
- India and France have had regular exchange of visits at the highest level. Vice-President Venkaiah Naidu represented India at the commemorative ceremony of World War-I Armistice centenary. French President paid a State Visit to India in 2018. Prime Minister Narendra Modi had visited France in 2017. The previous French President Hollande had visited India in 2016 as the chief guest of India's Republic Day celebrations.
- India and France share a range of regular official & institutional dialogue mechanisms encompassing areas such as security &defence, economy & trade as well as people to people-to-people, scientific and cultural domains.
- Defence Cooperation:
  o An annual defence dialogue at the Ministerial level.

- o The three services also have regular defence exercises; viz. Exercise Shakti (Army), Exercise Varuna (Navy) and Exercise Garuda (Air Force).
- o The major on-going defense-related projects are the following:
1. Purchase of Rafale aircraft.
2. P-75 Scorpene Project: The contract for six Scorpene submarines from M/s DCNS (now Naval Group) was signed in October 2006. All six vessels are to be built under technology transfer at the Mazagaon Docks Ltd. Project implementation is underway. The first submarine INS Kalvari was commissioned in December 2017 while two others are in the stages prior to their operationalization.

- Space Cooperation:
  - o India and France have a rich history of cooperation in the field of space for over fifty years carrying on various joint research programmes and launch of satellites.
  - o A joint stamp was released to commemorate fifty years of bilateral space cooperation during the visit of PM Modi to France in April 2015.
  - o Building on the historical linkages in the arena of civilian space, a "Joint Vision for Space Cooperation" was issued.
  - o France continues to be a major supplier of components and equipment for the Indian space programme.
- Nuclear cooperation:
  - o An agreement on civil nuclear cooperation was signed between India and France I 2008.
  - o Construction of six EPR units at Jaitapur of 1650 MWe each.
- Trade and economic relations:
  - o France is the 11th largest foreign investor in India.
  - o In the period April 2020-March 2021, India-France bilateral trade stood at USD 7.86 billion. India's exports to France were valued at USD 5.6 billion, down by 22.9%.
  - o Meanwhile, French exports to India decreased by 20.95% during the same period to USD 5.1 billion. Trade with France constitutes only 1.41% of India's total international trade.
  - o A Joint Economic Committee exists at the level of Ministers of Commerce from both sides.
- Cultural Cooperation:Indian culture enjoys wide following amongst the people of France.
- Environment and Renewable Energy
  - o France is a founding member of the International Solar Alliance (ISA), announced by PM Modi in 2015 at UN Climate Change CoP21.
  - o The 3rd ISA Assembly held in October 2020 re-elected India and France as President and Co-President of the ISA.
  - o The countries signed an MoU on renewable energy in January 2021. The objective of the MoU is to promote bilateral cooperation in the field of new and renewable energy on the basis of mutual benefit, equality and reciprocity. It covers technologies relating to solar, wind, hydrogen and biomass energy.
  - o India and France also work together on climate and biodiversity. In this context, India joined the French-led initiative called the High Ambition Coalition for Nature and People, on 7 October 2021. The HAC has an objective of protecting at least 30% of the world's lands and oceans by 2030.
  - o At the One Ocean Summit on 11 February 2022, Prime Minister announced India's support to the French initiative of the High Ambition Coalition on Biodiversity Beyond National Jurisdiction (BBNJ) that calls for a legally binding BBNJ Treaty by the end of 2022. PM also expressed India's readiness to work with France on a global initiative on combatting single-use plastic pollution.
- S&T/Education Cooperation:
  - o In the field of S&T, the Indo-French Centre for the Promotion of Advance Research based in New Delhi was established in 1987.
  - o It is estimated that there are about 7000 Indian students in France.
- Indian community in France: It is estimated that the Indian community in mainland France number around 109,000.
- COVID-19 Cooperation
- India and France closely cooperated at the peak of the pandemic in both countries. India supplied France with nearly 2 million hydroxychloroquine tablets and 36 MT of paracetamol (API) after having lifted export restrictions on these lifesaving drugs. France expressed its gratitude by sending 120 ventilators, 50 thousand serological tests and 50 thousand nose/throat swabs as aid. France also announced a 200 million euro loan to India to help the vulnerable sections most severely affected by the pandemic. Over 2500 Indians had been repatriated from France and a similar number of French citizens were repatriated from India to their home countries through special flights.
- In the second wave, France provided 18 oxygen plants till date to hospitals across India which will fulfill oxygen requirements for 10 years. France also supplied over 100 tonnes of Liquid Medical Oxygen to the state of Maharashtra through the French industrial gas producer Air Liquide. Besides this, P2G assistance also came in from several French companies, including Airbus.

Rafale aircraft:

- The Rafale is a four plus or fifth generation, twin-engine, canard delta wing, multirole fighter aircraft designed and built by French Dassault Aviation.
- Equipped with a wide range of weapons, the Rafale is intended to perform air supremacy, interdiction, aerial reconnaissance, ground support, in-depth strike, anti-ship strike and nuclear deterrence missions.
- The Rafale is referred to as an "omnirole" aircraft by Dassault.
- The Inter-governmental agreement for purchase of 36 Rafale jets by India in flyaway condition was signed in New Delhi on 23 September 2016.
- *Need:*
  - o Rafale has niche stealth technology and enhanced electronic warfare capabilities.
  - o Sukhoi 30 is a 3.5 generation aircraft and India doesn't have 4th or 5th generation.
  - o The total number of fighter aircraft squadrons in the Indian Air Force is down to 32 33. The IAF's authorised strength is 42 squadrons, a figure it has never touched.
  - o The sanctioned strength for a possible two way fight - Pakistan and China combined is 45.

VOICE OF THE GLOBAL SOUTH SUMMIT

GS-II INTERNATIONAL RELATIONS

Context
- **Underlining that the "world is in a state of crisis", Prime Minister Narendra Modi told leaders of developing countries that "your voice is India's voice" and "your priorities are India's priorities".**

Details
- Addressing leaders at the Voice of Global South Summit, the Prime Minister spelt out the challenges: "We have turned the page on another difficult year that saw war, conflict, terrorism and geopolitical tensions; rising food, fertiliser and fuel prices; climate change-driven natural disasters; and, lasting economic impact of the Covid pandemic."
- Making a pitch for the Global South to play a role in shaping the world order, the Prime Minister said, "We, the Global South, have the largest stakes in the future. Three-fourths of humanity lives in our countries. We should also have an equivalent voice. Hence, as the eight-decade-old model of global governance slowly changes, we should try to shape the emerging order."
- Leaders of several countries including Bangladesh, Thailand, Uzbekistan, Vietnam, Cambodia, Guyana, Mozambique, Mongolia and Senegal were among those who attended the leaders' session.
- Stating that most of the global challenges have not been created by the Global South, Modi said, "But they affect us more. We have seen this in the impacts of Covid pandemic, climate change, terrorism and even the Ukraine conflict. The search for solutions also does not factor in our role or our voice."
- **In this context, he gave the mantra of 'Respond, Recognize, Respect and Reform'.**
- **According to the Prime Minister, the agenda should be:**
- Respond to the priorities of the Global South by framing an inclusive and balanced international agenda.
- Recognize that the principle of 'Common but Differentiated Responsibilities' applies to all global challenges.
- Respect sovereignty of all nations, rule of law and peaceful resolution of differences and disputes; and,
- Reform international institutions, including the United Nations, to make them more relevant.

About
- **The Global South includes the developing and the less developed countries of the world, and India invited more than 120 countries to the summit.**
- The idea behind the summit is that India will work to ensure that inputs generated from partner countries in the Voice of Global South Summit deliberations will be pushed forward at the G20 summit which will be hosted by India later this year.
- India's ongoing Presidency of the G20 provides a special and strong opportunity for countries whose voice often goes unheard.

Global North and Global South
- The concept of Global North and Global South (or North–South divide in a global context) is **used to describe a grouping of countries along socio-economic and political characteristics.**
- The Global South is a term often **used to identify the regions of Latin America, Asia, Africa, and Oceania. It is one of a family of terms, including "Third World" and "Periphery", that denote regions outside Europe and North America, mostly (though not all) low-income and often politically or culturally marginalized countries on one side of the so-called divide, the other side being the countries of the Global North (often equated with developed countries).**
- As such, the term does not inherently refer to a geographical south; for example, most of the Global South is geographically within the Northern Hemisphere.
- The term as used by governmental and developmental organizations was first introduced as a more open and value-free

alternative to "Third World" and similarly potentially "valuing" terms like developing countries. Countries of the Global South have been described as newly industrialized or in the process of industrializing, and are frequently current or former subjects of colonialism.

INDIA US TRADE POLICY FORUM (TPF)   GS-II INTERNATIONAL RELATIONS

Context
- Union Minister of Commerce and Industry Shri Piyush Goyal visited Washington D.C. to participate in the 13th Ministerial Meeting of the India-U.S. Trade Policy Forum.

Details:
Highlights of the 13th India – USA TPF 2023 discussions are as follows:
- Ministers appreciated that **bilateral trade in goods and services continued to rise rapidly and reached about $160 billion in 2021** while recognizing that significant potential remains unfulfilled and expressed their mutual desire to further enhance engagement with the goal of continuing to increase and diversify bilateral trade.
- The Ministers welcomed the intensified negotiations so far and further **engagement on outstanding WTO disputes** between the two countries to arrive at satisfactory outcomes in the coming months.
- India appreciated the resumption of inspections by U.S. Food and Drug Administration (FDA) and asked the U.S. side to also resume inspections of new facilities and non-priority areas at the earliest.
- The Ministers welcomed the **finalization of the Turtle Excluder Device (TED) design**. export of wild caught shrimp.
- India **highlighted its interest in restoration of its beneficiary status under the U.S. Generalized System of Preferences program**. The United States noted that this could be considered, as warranted, in relation to the eligibility criteria determined by the U.S. Congress.
- The Ministers acknowledged the constructive engagement of the Services Working Group under the Trade Policy Forum.
- The Ministers acknowledged the ongoing discussions on a Social Security totalization agreement and supported intensifying the work to achieve early outcomes in the matter.
- They encouraged their regulatory bodies to engage in discussions on exchanges of knowledge, capacity building, and recognition of qualifications to further enhance trade in professional services.
- The Ministers **launched a new working group on "Resilient Trade"** to deepen bilateral dialogue on a range of issues.
- Both Ministers also looked forward to working together to strengthen resilience in global supply chains.

Recent developments:
- As vibrant democracies, both India and USA are natural partners and have trade complementarities, long standing strategic and economic relationship, and people to people contact.
- The two countries are also collaborating under the QUAD, I2U2 (India-Israel/ UAE-USA) and IPEF (Indo-Pacific Economic Framework).
- Regular exchanges at the leadership-level have been an integral element of the expanding bilateral engagement.
- The outcomes emerging from these visits have been instrumental in further strengthening the multifaceted ties between the two countries.

Bilateral engagement between India and the U.S.:
High-level dialogue mechanisms between India-U.S.:
India and the U.S. have **more than 50 bilateral inter-governmental dialogue mechanisms** for exchange of views on issues of mutual interest. A number of such dialogue mechanisms are held at the Ministerial level including:
- **India-U.S. 2+2 Ministerial Dialogue:** India-U.S. 2+2 Ministerial Dialogue is led by the heads of foreign and defence ministries of India and the U.S. Two rounds of this Dialogue have been held so far.
- **India-U.S. Commercial Dialogue:** The India-U.S. Commercial Dialogue is led by the Minister of Commerce and Industry (CIM) and the U.S. Secretary of Commerce.
- **India – U.S. Economic and Financial Partnership:** The India – U.S. Economic and Financial Partnership is led by the Finance Minister (FM) and the U.S. Secretary of the Treasury.
- **India-U.S. Trade Policy Forum:** The India-U.S. Trade Policy Forum is led by CIM and the U.S. Trade Representative (USTR).
- **India-U.S. Strategic Energy Partnership:** The India-U.S. Strategic Energy Partnership is led by the Minister of Petroleum and Natural Gas and the U.S. Secretary of Energy.
- **India-U.S. Homeland Security Dialogue (HSD):** The India-U.S. Homeland Security Dialogue is led by the Minister of Home Affairs and the Secretary, U.S. Department of Homeland Security

Defence:
- Defence relationship has emerged as a major pillar of India- U.S. strategic partnership with intensification in defence trade, joint exercises, personnel exchanges, and cooperation in maritime security and counter-piracy.

- India conducts more bilateral exercises with the U.S. than with any other country. Some important bilateral exercises are: **YudhAbhyas, Vajra Prahar, Tarkash, Tiger Triumph, and Cope India.**
- **Aggregate worth of defence-related acquisitions from the U.S. is more than US$ 15 billion.**
- The **India-U.S. Defence Technology and Trade Initiative** (DTTI) is aimed at promoting co-development and co-production efforts.
- In June 2016, the U.S. recognized India as a **"Major Defence Partner",** which commits the U.S. to facilitate technology sharing with India to a level commensurate with that of its closest allies and partners.
- The announcement of India's elevation to **Tier I of the Strategic Trade Authorization (STA)**license exception will further contribute towards facilitating interaction in advanced and sensitive technologies.
- Apart from the 2+2 Ministerial Dialogue, some other important dialogue mechanisms on defence cooperation are: Defence Policy Group, Military Cooperation Group, Defense Technology and Trade Initiative etc.

Counter-terrorism and internal security:
- The bilateral **Joint Working Group on Counter-Terrorism** is an important mechanism in this regard.
- Both sides have also been working together in law-enforcement and security cooperation through the **six subgroups under the HSD.**
- Apart from the above, both sides also cooperate with each other on counter-terrorism and security issues in various multilateral bodies.
- Cyber security cooperation between India and the U.S. is carried out under the India-U.S. Cyber Framework.
- The two important dialogue mechanisms in this domain are – **India-U.S. Cyber Security Dialogue and the India-U.S. Joint Working Group on ICT.**

Trade and Economic:
- The U.S. is **India's largest trading partner, goods and services combined**.
- **Bilateral trade in goods and services grew by more than 10% per annum over the past two years to reach US$ 142 billion in 2018.**
- India's goods exports to the U.S. were valued at US$ 54 billion and India's goods imports from the U.S. were valued at US$ 33 billion.
- India's services exports to the U.S. were valued at US$ 28.7 billion and India's imports of services from U.S. were valued at US $ 25.8 billion.
- direct investments in India are estimated at about US$ 44.5 billion whereas Indian FDI in U.S. is estimated at US$ 18 billion.

Energy:
- The U.S. has emerged as a key partner for India in the field of energy.
- The **bilateral Strategic Energy Partnership launched** in 2018 is robust and witnessing increasing diversification across both conventional and renewable energy sources.
- An India-U.S. Natural Gas Task Force was also created.
- **India has started importing crude and LNG from the U.S.** from 2017 and 2018 respectively.

Civil Nuclear Cooperation:
- The **bilateral civil nuclear cooperation agreement** was signed in October 2008.
- India and the U.S. have a **Civil Nuclear Energy Working group on R&D activities**.
- A U.S. company - **Westinghouse is in discussions with Nuclear Power Corporation of India Limited (NPCIL)**for implementation of a project that envisages six AP 1000 reactors at Kovvada (A.P.).

S&T/Space:
- The multi-faceted cooperation between India and the U.S. in the field of Science and Technology has been growing steadily under the framework of the **India-U.S. Science and Technology Cooperation Agreement signed in 2005, renewed in 2019.**
- The **Indo-U.S. Science & Technology Forum** was established to promote cooperation in Science, Technology and Innovation.
- Both countries also have a long history of cooperation in civil space arena that includes cooperation in earth observation, satellite navigation, and space science and exploration.
- The **India-U.S Joint Working Group on Civil Space Cooperation** regularly reviews the status of cooperation and identifies new areas for furthering space cooperation.
- **ISRO and NASA** are also working towards intensifying cooperation in Mars exploration, heliophysics, and human spaceflight through relevant working groups between both sides.

Indian Diaspora
- The number of Indians and Indian Americans in the U.S. is estimated at around **4 million, which accounts for almost 1% of the total U.S. population.**
- It includes a large number of professionals, entrepreneurs and educationists with considerable and increasing influence in U.S. polity, economy and the society.
- US is one of the most favored destinations by Indian students for higher education. **More than 200,000 Indian students are**

currently pursuing various courses in the U.S.

Four foundational agreements

1. **GSOMIA (General Security of Military Information Agreement):** It **guaranteed that the two countries would protect any classified information or technology that they shared.** It was aimed at promoting interoperability and laid the foundation for future US arms sales to the country.
2. **LEMOA (Logistics Exchange Memorandum of Agreement):** LEMOA **allows the militaries of the US and India to replenish from each other's bases, and access supplies, spare parts and services from each other's land facilities, air bases, and ports, which can then be reimbursed.**
3. **COMCASA (Communications Compatibility and Security Agreement):** The pact **allows the US to provide India with its encrypted communications equipment and systems so that Indian and US military commanders, aircraft and ships, can communicate through secure networks during both peace and war.**
4. **BECA (Basic Exchange and Cooperation Agreement):** facilitates the provision of targeting and navigation information from US systems.

INDIA-CHINA TRADE RELATIONSHIP
GS-II INTERNATIONAL RELATIONS

Context

- **India's bilateral trade with China reached a record $135.98 billion in 2022, Chinese Customs data showed driven by surging Indian imports of Chinese goods that were up by more than 21% last year.**

Details:

Bilateral Trade Stats:

- India's exports to China, however, fell in 2022, driving an already significant trade deficit beyond the $100 billion-mark for the first time.
- Figures released by the General Administration of Customs (GAC) in Beijing showed two-way trade was up by 8.4% last year to $135.98 billion, with India's imports accounting for $118.5 billion, up from $97.5 billion.
- India's exports to China fell from $28.1 billion to $17.48 billion. The trade deficit reached $101.02 billion, up by 45%, from $69.4 billion in 2021.

Total Trade Stats:

- China's total foreign trade in 2022 hit a record high, up 7.7% to $6.25 trillion. Exports were up 10.5%. Trade with ASEAN, China's biggest trading partner, increased 11.2% to $975.34 billion. The EU ranked second among China's trading partners, with trade up 2.4% to $847.32 billion, followed by the U.S., with trade up 0.6% to $759.42 billion.
- For India, trade last year has surpassed what was a record year in 2021, on account of a recovery in demand in India, increasing imports of intermediate goods, and imports of new categories of goods such as medical supplies.

Background

Commercial and Economic Relations:

- The rapid expansion of India-China bilateral trade since the beginning of this century propelled China to emerge as our largest goods trading partner by 2008, a position which China continues to hold today.
- Since beginning of the current decade, bilateral trade between the two countries recorded exponential growth. In 2017 and 2018, the bilateral trade has registered robust two digit growth.
- In the year 2019, India was the 12th largest trade partner of China.
- The total bilateral trade registered a reduction of 2.93% year on year to reach US $ 92.89 billion.
- India's exports to China decreased by 4.55% y-o-y to US $17.97 billion, and India's imports from China also witnessed a drop by 2.54% to US $ 74.92 billion.
- Our trade deficit concerns are two pronged.
  - One is the actual size of the deficit.
  - Two is the fact that the imbalance has continuously been widening year after year to reach US $58.04 billion in 2018. In 2019, India's trade deficit with China stood at US $ 56.95 billion, a minor y-o-y decline of 1.88%, with trade deficit declining for the first time since 2005.
  - The growth of trade deficit with China could be attributed to two factors:
    1. Narrow basket of commodities, mostly primary, that we export to China and
    2. Market access impediments for most of our agricultural products and the sectors where we are competitive in, such as pharmaceuticals, IT/IteS, etc
- While both countries have emerged as top investment destinations for the rest of the world, mutual investment flows are yet to catch up.

- The India-China Economic and Commercial Relations are shaped through various dialogue mechanism such as Joint Economic Group (JEG) led by the Commerce Ministers of both sides, Strategic Economic Dialogue (SED) led by the Vice Chairman of NITI Aayog and the Chairman of National Development and Reform Commission (NDRC) of China, the NITI Aayog - Development Research Center (DRC) Dialogue and the Financial Dialogue

CHINA'S FOREIGN POLICY
GS-II INTERNATIONAL RELATIONS

Context
- Recently, **China launched a personnel reshuffle on the foreign policy front**. Beijing appointed Qin Gang, former Chinese ambassador to the US, as the new foreign minister while former foreign ministry spokesperson Zhao Lijian was transferred to the department of boundary and ocean affairs.

Details
- Some political analysts view these changes as possible signs that **China may be pivoting from the hardline "wolf-warrior" diplomacy" that has characterized China's foreign policy over the last few years**.

What is wolf warrior diplomacy?
- A term that gained popularity, especially after Xi became President, "wolf warrior diplomacy" is a tactic for the Chinese government to extend its ideology beyond China and counter the West and defend itself.
- **It is an unofficial term for the more aggressive and confrontational style of communication that Chinese diplomats have taken to in the last decade.**
- A 2015 Chinese action film, titled 'Wolf Warrior', and its sequel have served as the inspiration for the term. The films, with their nationalist themes and dialogues, focus on Chinese fighters who frequently face off against Western mercenaries.
- **The change in strategy has been attributed to many reasons, such as Xi's more authoritarian tendencies as compared to earlier leaders, deteriorating US-China relations under former US President Donald Trump, the corona virus pandemic-related accusations on China, etc.**
- Some examples can be seen in the form of messaging on social media too, where Chinese officials are quick to counter any allegations by the West and proactively launch attacks.

Change now: A 'more tactful' diplomacy?
- Tensions between China and the US remain high.
- Since former US House Speaker Nancy Pelosi's visit to Taiwan last August, **China has increased its military activities around the island. The US, meanwhile, is also seeking to strengthen security and military ties with countries like Japan and the Philippines**.
- Qin Gang is seen in some foreign policy circles as someone who is a wolf warrior but a much more tactful one.
- He speaks the language that will be endearing to the western audience, but at the same time, he is not afraid of showing teeth as we've seen in some of his past speeches.
- Over the last three years, China has largely isolated itself from the rest of the world, as its top officials, including Xi, were consistently absent from major international events.
- However, since last September, Beijing has re-emerged on the international stage, with Xi going on several important trips to Central Asia and the Middle East and conducting one-on-one meetings with several world leaders during the G20 Summit last November.

What will be the focus of China's foreign policy in 2023?
- As China tries to recalibrate its foreign policy approach under Xi's third term, the personnel reshuffling seems to suggest **that western European countries, Australia and Canada are going to be the major focus of Beijing's foreign policy efforts in the coming years.**
- Analysts say they don't think China and the US are going to make any fundamental changes to their positions on key foreign policy issues.

INDIA-MALDIVES RELATIONSHIP
GS-II INTERNATIONAL RELATIONS

Context
- External Affairs Minister S Jaishankar visited Maldives, at a fraught time for the country's president, Ibrahim Solih.
- The presidential election in Maldives is to be held on September 9 this year, with a runoff, if necessary, on September 30.
- Solih has announced he will run for a second term, but his candidature has been opposed within his party by former president and leader of the Maldivian Democratic Party (MDP) Mohamed Nasheed, who has thrown his hat in the ring. The two will

face off in the party primary on January 28.

Details
India-Maldives bilateral Relations:
- India and Maldives are neighbors as they share a maritime border. Relations have been friendly and close in strategic, economic and military cooperation. India continues to contribute to maintaining security on the island nation.

Historical relations:
- Both nations' were Britain colonies.
- India was among the **first to recognise Maldives after its independence in 1965**and to establish diplomatic relations with the country. India established its mission at Malé in 1972.
- India and Maldives share ethnic, linguistic, cultural, religious and commercial links steeped in antiquity and enjoy cordial and multi-dimensional relations.

Political relations:
- India and Maldives have consistently supported each other in multilateral fora such as the **UN, the Commonwealth, the NAM and the SAARC.**
- **High connectivity:** High People-to-People contacts, as Air India operates daily flights to Malé from Thiruvananthapuram, Bangalore and Chennai.
- **Tourism:** The proximity of location and improvements in air connectivity in recent years has led to a very substantial increase in the number of Indians visiting Maldives for **tourism** (around 33,000) and business.
- **Soft diplomacy**: India is a preferred destination for Maldivian for **education, medical treatment, recreation and business.**
- **Diaspora:** Indians are the **second largest expatriate community in the Maldives.**

Why Maldives matters to India?
- **Strategic location:**Maldives holds strategic importance for India under the Modi government's **'Neighborhood First' policy** due to its location in the Indian Ocean.
- The **Eight Degree Channel** is one of the major maritime lanes of the world.
- **Stability, maturity and democratic system s**in the Maldives can ensure peace and security in the Indian Ocean.

Major challenges
Chinese influence:
- India has been quite apprehensive of the growing Chinese influence in Maldives even as it continues to give utmost priority to the island nation.
- There have been growing concerns regarding China's role in the Maldivian economy through so-called **"debt-trap diplomacy."**
- Maldives incurred a debt of about **$1.4 billion owing** to loans from China to finance several of its infrastructure projects.
- Maldives and China had also entered into a **free trade agreement.**

India's position in Male crisis:
- During the pro-Beijing regime of their former President Abdulla Yameen, ties between the nations got strained. In fact, there came a point in 2018 when **India even contemplated a military intervention.**

Dhruv controversy:
- India gave **two Dhruv Advanced Light Helicopters (ALF) to the Maldives in 2010 and 2015**both of which were to be used for ocean search-and-rescue operations, maritime weather surveillance and for airlifting patients between islands.
- However, some people in the PPM stirred up a controversy by saying that the **helicopters marked the start of military presence in the country.**
- The Maldives government requested India to take back the helicopters in 2016, but **India refused to do**

Lack of transparency
- Another issue is the lack of transparency when it comes to the **signing of agreements between India and the Solih government.**
- The Maldives government has refused to share details of agreements signed with India citing **security reasons**

The Naval Base controversy
- The UthuruThilafalhuis a **strategically located atoll** near the capital Malé and was called the **UTF Harbour project.**
- Also, in 2016, an action plan was signed by both the governments for defence cooperation to enhance "shared strategic and security interests of the two countries in the Indian Ocean region".
- However, after the Solih government took over, there was speculation that the UTF project would be turned into an Indian naval base.

Measures taken so far

- After coming to power for the second time in May last year, Prime Minister Modi's first international destination was Maldives. He was also the **only head of state to attend Maldives President** Ibrahim Mohamed Solih's swearing-in ceremony in November 2018, when he came to power ousting Yameen.
- India has also **offered a $1.4-billion development assistance package to Maldives**, which is being utilised in several projects.
- 30 years ago, in 1988, an intervention by the Indian armed forces - codenamed **'Operation Cactus'** - trounced an attempted coup on the island nation. On November 3, 1988, when mercenaries attacked the Maldives, India was the first to respond.
- In 2004, when the tsunami hit Maldives, Indian naval ships were dispatched to assist rescue operation.
- During the **Male water crisis**. Within four hours Indian Navy and Air Force vessels delivered water.

Way forward

- <u>**Past learning:**</u> Despite repeated calls for intervention, India firmly avoided military action against the Yameen regime. New Delhi thoughtfully coordinated its diplomatic response with other stakeholders, and put enormous pressure on Yameen to hold the presidential elections in a fair and transparent manner. This patience seems to have yielded a positive outcome as India finds itself in an advantageous situation now.
- <u>**Cautious approach:**</u> India needs to remain careful if it wants to avoid a Nepal-like situation, where New Delhi's perceived interference in Nepal's internal affairs had turned the Nepali people against India. Having a lighter diplomatic footprint is the only way forward in the Maldives.'

CHINA'S DAM DIPLOMACY   *GS-II INTERNATIONAL RELATIONS*

Context

- **In a development that is a matter of concern to both India and Nepal, China is constructing a new dam on the MabjaZangbo river in Tibet, close to the tri-junction, satellite imagery has revealed**.

Details

- The new dam is located around 16 km north of the tri-junction and is opposite the Kalapani area of Uttarakhand, according to sources in the security establishment.
- MabjaZangbo originates in Nagari county of Tibet, flows through Nepal into the Ghaghara river before joining the Ganga in India.
- In addition to using water as leverage, the possibility of a military establishment by China near the tri-junction cannot be ruled out as the country had developed the same in the Yarlung Zangbo river near Arunachal Pradesh.
- **China could use this dam to not only divert but also store water which could lead to a scarcity in the regions dependent on the MabjaZangbo river as also lead to lower water levels in rivers such as the Ghaghara and the Karnali in Nepal. Dams close to the border could be used by China to strengthen its claim on the disputed areas in the region**.
- The YarlungZangbo, as the Brahmaputra is known in Tibet, originates in the Himalayas in Tibet, enters India in Arunachal Pradesh, passes through Assam and then Bangladesh before emptying into the Bay of Bengal.

Background

- In 2021, China announced that it would construct a massive dam on the lower reaches of Yarlung Zangbo to generate up to 70 GW of power, three times that of the country's Three Gorges dam, which is the world's largest hydropower plant in terms of installed capacity.
- This was among several other hydropower projects announced by China to generate clean energy and achieve carbon neutrality by 2060.

Indian context

- India's relations with China are complicated and strained.
- Chinese hostility against India has been worse in recent years. India and China are competing to create new projects to address their water shortages as both countries experience growing consumption among their citizens and demographic and economic growth.
- This situation is aggravated further by water disputes between India and its neighbors and inter-state river water disputes inside India.
- Despite signing many Memorandums of Understanding on improving communication and strategic trust, China's dam-building and water-division plans along the Brahmaputra (known as the YarlungZangbo in China) are a source of conflict between the two neighbors.

<u>**Nexus of Hydropolitics**</u>

- China has often played against India's best interests.

- India seeks hydrological information from China.
- In basic terms, it refers to water movement/flow, distribution, and quality.
- India requires hydrological data to develop its diverse infrastructure, including dams, bridges, lakes, etc.
- For Early Food Warning, i.e., for relocation of cattle, humans, and other resources, data is required. India still needs to build these capacities, which has led to periodic disasters in the North East and Kashmir regions.
- China is an upper riparian state. In other words, the water flows from China, emerging from the Tibetan plateau to India, Bangladesh, and South East Asian countries.
- Therefore, China indirectly controls water flow.
- China has manipulated the flow of water in accordance with its whims by constructing a variety of dams, artificial lakes, etc. Consequently, India and Bangladesh experience droughts during the summer due to a shortage of water flow in the Brahmaputra and its tributaries, but they experience major flooding when China releases water during the rainy season.

The Game of Dams

- Dam construction near border areas has become a huge concern for all the parties involved.
- The dam construction activities have quite accelerated recently in the backdrop of deteriorating relations between India and China and these dams not only have geopolitical implications for India but also for Nepal, Bangladesh as well as other countries. For instance,
- **In November 2020, Beijing revealed plans to build a "super hydropower dam" near the Brahmaputra River in India on the lower reaches of the YarlungTsangpo river in the foothills of the Himalayas.**
- For both India and China, Brahmaputra plays a significant role in their socio-economic development.
- China's decision to build a super dam will directly affect the quantity of water available downstream for India and might accelerate the deterioration of relations between both countries.
- **China's stance can be understood by its adherence theory of Absolute Territory Sovereignty which says that the riparian State has the absolute freedom to utilize the water flowing in its territories regardless of any effects upon other riparian States. This doctrine has been rejected by international customary law on the basis that it is too extreme.**
- China has already obstructed the flow of the Xiabuqu river, one of Brahmaputra's Tibetan tributaries, for the Lalho hydel project. Post Galwan Valley clash, China also blocked the flow of the Galwan river, a major tributary to the Indus river originating from China's occupied Aksai-Chin area thus controlling the flow of the river, preventing it from entering India.

Way Forward

- India needs to have a cohesive and more inclusive engagement with its neighboring states sharing its water sharing problem who might be able to understand the situation.
- It depends on India to present a situation in a way to convert a reluctant China attitude to ready-to-talk.
- Also, diplomatic persuasion and discussion about the long-term implications of this continuous dam-building process by China including environmental concerns such as frequent earthquakes, floods, glacial bursts, and damage to the natural course of water might bring China to the table.
- Also, a unified voice by all the South Asian neighbors might also impact China's decision to stop building excessive dams.
- India can also seek to reduce its dependence on river water in the North Eastern region and enhance its developmental footprint to ensure economic growth and build water harvesting, storing, and recycling techniques.
- This will not only help to move towards sustainable development but also reduce dependence on the unstable supply of river water.

THE 13TH AMENDMENT (SRI LANKA)   GS-II INTERNATIONAL RELATIONS

Context
- External Affairs Minister S. Jaishankar, who was in Colombo, said he shared India's "considered view" with President Ranil Wickremesinghe that the **full implementation of the 13th Amendment was "critical" for power devolution.**

Details
Background:
- Sri Lanka's current Constitution, adopted in 1978, has had 21 amendments to date, but arguably, none as controversial as this.
- Passed in November 1987, months after Prime Minister Rajiv Gandhi and Sri Lankan President J.R. Jayewardene signed the Indo-Lanka Accord, the 13th Amendment is the only legislative guarantee of a measure of power devolution to the island's provinces.
- **It provided for setting up provincial governments across the country — there are nine provincial councils — and made Tamil, too, an official language, and English, a link language.**

Need:

- It was, in some measure, an antidote to the 'Sinhala Only Act' of 1956, one of the most discriminatory laws passed targeting the island's Tamil minorities, after the Ceylon Citizenship Act of 1948 that rendered Sri Lanka's Malaiyaha Tamils of Indian origin stateless.
- It also sought to address the Tamils' right to self-determination which, by the 1980s, had become a raging political call.
- With the 1983 anti-Tamil pogrom laying bare violent Sinhala majoritarianism and racism, it was hard for the world and India not to appreciate a legitimate demand.

Working:

- For successive governments, devolving power to the provinces as per the 13th Amendment, including in the Tamil-majority north and east, was hardly on their 'must do' list.
- Despite public promises, leaders from the Sinhala-majority south failed to implement in letter and spirit what was already in the Constitution.
- **Detractors construe the 13th Amendment as an "Indian imposition", despite it being an outcome of a bilateral Accord signed by J. R. Jayewardene, one of the island's most powerful Presidents.**
- **The provincial councils function, but nominally.**
- The rule book gave provinces legislative power over agriculture, education, health, housing, local government, planning, road transport and social services. **But an ambiguous concurrent list and overriding clauses in the Constitution allow the Centre to remain all-powerful.**
- The executive President still wields enormous power and the provincial Governors, representing the country's highest office, possess similar power at the regional level.
- The last three decades are rife with attempts by the Centre to take back power.

Concerns for Sri Lankan government and Tamils

- Colombo is especially wary of sharing land and police powers, and resolutely controls the subjects.
- The island's southern leaders are reluctant to share power with the Tamil minorities, as well as their own people governing the provinces
- For the Tamils, on the other hand, the 13th Amendment is too little. The LTTE rejected it. Among the current Tamil polity, almost all see it as inadequate. The problem, though, is not just to do with the Amendment, but Sri Lanka's unitary Constitution
- Tamils have rejected it on the grounds that for as long as the structure of the State remains Unitary, no meaningful autonomy and self-government can be achieved.

Why is the 13th Amendment significant?

- Till date, the 13th Amendment represents the only constitutional provision on the settlement of the long-pending Tamil question.
- In addition to assuring a measure of devolution, it is considered part of the few significant gains since the 1980s, in the face of growing Sinhala-Buddhist majoritarianism from the time Sri Lanka became independent in 1948.

INDIA-EGYPT RELATIONS

GS-II INTERNATIONAL RELATIONS

Context

- Egypt's President Abdel Fattah El-Sisi, **the chief guest for the Republic Day celebrations** this year, landed in India. This is the first time that an Egyptian President has been invited as chief guest for the event.

Details

- India and Egypt **agreed to elevate their bilateral ties to a 'strategic partnership'** that covers political, security, defence, energy and economic linkages.
- Welcoming Egyptian President Abdel Fattah El-Sisi, Prime Minister Narendra Modi said the **abuse of cyberspace by extremist forces was a "growing threat", and that both sides agreed to intensify cooperation in this regard.**
- The two sides also **discussed "platforms and equipment" to enhance defence partnership**.
- India has invited Egypt as a special guest for the G-20 summit.
- The scope for cooperation in Indo-Egypt relations, especially in the fields of defence and security, was "unlimited".
- External Affairs Minister S. Jaishankar, who visited Cairo in October 2022, called on the visiting Egyptian leader and said the exchange "adds a new vigour" to the bilateral friendship.
- President El Sisi said the relations between the two civilisations date back to antiquity, and said that Egypt wishes to welcome more Indian tourists.
- **The two teams signed five memorandums of understanding (MoU) covering culture, cooperation on youth matters,**

cybersecurity, information and technology, and public broadcasting. The two delegations launched a commemorative stamp to mark the 75th anniversary of bilateral diplomatic relations.

- A military contingent from Egypt will participate in the Republic Day parade.
- An invitation to the Egyptian President this year is considered significant, especially when India's ties with Muslim-majority countries were tested following controversial remarks made by then BJP spokesperson Nupur Sharma in June last year.
- **That Egypt was one of the few countries from the Arab world which did not react officially to the controversial remarks was not lost in New Delhi.**

Previous meetings

- This was their **first meeting since 2017**, India and Egypt are working overtime to deepen cooperation in areas as diverse as agriculture, cybersecurity, defence, trade, tourism, and education.
- **Sisi had earlier visited India in October 2015** to participate in the third India-Africa Forum Summit, and in **September 2016 on a state visit**.

What is the significance of a Republic Day invite?

- An invitation to be the Republic Day chief guest is highly symbolic from the Indian government's perspective
- **The choice of chief guest every year is dictated by a number of reasons — strategic and diplomatic, business interests, and international geo-politics.**

What is the history of India-Egypt relations?

- India and Egypt share close political understanding based on a long history of cooperation in bilateral, regional and global issues.
- **The joint announcement of establishment of diplomatic relations at the Ambassadorial level was made on August 18, 1947.**
- **India's first Prime Minister Jawaharlal Nehru and Egypt's President Gamal Abdel Nasser signed the Friendship Treaty between the two countries, and they were key to forming the Non-Aligned Movement (NAM) along with Yugoslav President Josip Broz Tito**.
- Since the 1980s, there have been four Prime Ministerial visits from India to Egypt: Rajiv Gandhi (1985); P V Narasimha Rao (1995); IK Gujral (1997); and Dr. Manmohan Singh (2009, NAM Summit).
- From the Egyptian side, President Hosni Mubarak visited India in 1982, in 1983 (NAM Summit), and again in 2008.
- High-level exchanges with Egypt continued after the 2011 Egyptian Revolution and then President Mohamed Morsi visited India in March 2013

What's the state of bilateral trade relations?

- Egypt has traditionally been one of India's most important trading partners in the African continent.
- The India-Egypt bilateral trade agreement has been in operation since March 1978 and is based on the most-favoured nation clause.
- Bilateral trade between India and Egypt achieved a record high of $7.26 billion in FY 2021-22.
- The trade was fairly balanced, with $3.74 billion Indian exports to Egypt and $3.52 billion worth of imports by India.
- More than 50 Indian companies have invested around $3.15 billion in diverse sectors of the Egyptian economy, including chemicals, energy, textile, garment, agri-business, retail.

What are the other areas of cooperation?

- **Egypt, which is facing a shortage of food grains as its major sources were the warring Ukraine and Russia, wants to buy wheat from India.** In May last year, India — which had put a ban on sale of wheat — allowed export of 61,000 tonnes to Egypt. But the country wants more grains, in view of the shortages.
- **Egypt's President is also coming at a time when the country is facing a massive economic crisis due to depleted forex reserves.** While there has been no request for budgetary support, India is looking at increasing investments in the country, especially in major infrastructure projects in and around the Suez Canal, in terms of special economic zones in Alexandria and Cairo.
- **Egypt is also keen to push for more tourism from India, and ease movement of people so that there is more forex inflow into their tourism-dependent economy.**
- **With Sisi being a former Army chief, Egypt is interested in procuring defence equipment from India**, which includes LCA Tejas, missiles like Akash, DRDO's Smart Anti-Airfield Weapon, and radars.
- **The two countries will also look at the education sector**, where Indian higher educational institutions can set up campuses in Egypt: a proposal for establishing an IIT in Egypt is in the works.

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INDUS WATER TREATY

GS-II INTERNATIONAL RELATIONS

Context
- **India announced that it wants to modify the 62-year-old Indus Waters Treaty (IWT) with Pakistan, citing what it called Pakistan's "intransigence" in resolving disputes over the Kishenganga and Ratle hydropower projects, both in Jammu and Kashmir.**

Details
- India also protested Pakistan's "unilateral" decision to approach a court of arbitration at The Hague.
- **The decision to issue notice to Pakistan, with a request for a response within 90 days, is a major step and could lead to the unravelling and renegotiation of the water-sharing treaty.**
- The treaty is often seen as a rare example of India-Pakistan consensus, at a time when the two nations have snapped trade and cultural exchanges, and most bilateral talks.
- **Pakistan's move to push the World Bank for a Court of Arbitration ran counter to the pre-existing channel of dispute resolution through a "neutral expert" appointed by the World Bank.**
- Indian officials said the "parallel processes" instead of a "graded mechanism" **had led to a stalemate, adding that India was left with no choice but to demand that Pakistan come to the table to negotiate amendments to the treaty**.

About the treaty
- The Indus Water Treaty (IWT) is a **water-distribution treaty between India and Pakistan, arranged and negotiated by the World Bank, to use the water available in the Indus River and its tributaries. It was signed in Karachi on 19 September 1960 by Indian Prime Minister Jawaharlal Nehru and Pakistani President Ayub Khan.**
- The Treaty contains a Preamble, twelve articles and eight detailed annexures.
- Under the Indus Water Treaty (IWT) signed between India and Pakistan in 1960, **all the waters of the eastern rivers -- Sutlej, Beas, and Ravi -- amounting to around 33 million acre feet (MAF) annually is allocated to India for unrestricted use.**
- **The waters of western rivers – Indus, Jhelum, and Chenab – amounting to around 135 MAF annually have been assigned largely to Pakistan.**
- **India is permitted to construct the run of the river plants on western rivers with limited storage as per criteria specified in the treaty.**
- India is permitted to use the waters of Western rivers for
  o Domestic use
  o Non consumptive use
  o Agricultural Use
  o Generation of hydro-electric power
- India is also permitted to construct storage of water on Western Rivers upto 3.6 million acre feet (MAF) for various purposes
- Under the provisions of Article VIII(5) of the Indus Waters Treaty, the Permanent Indus Commission is required to meet at least once a year, alternately in India and Pakistan.

Permanent Indus Commission:
- Both India and Pakistan undertook to establish a permanent post of Commissioner for Indus Waters.
- The two Commissioners constitute the Permanent Indus Commission (PIC).
- Unless either Government should decide to take up any particular issue directly with the other Government, each Commissioner will be the representative of his Government for all matters
- The purpose and functions of the Commission inter alia are to:
  o establish and promote cooperative arrangements for the Treaty implementation;
  o furnishing or exchange of information or data provided for in the Treaty; and
  o promote cooperation between the Parties in the development of the waters of the Indus system;
  o examine and resolve by agreement any question that may arise between the Parties concerning interpretation or implementation of the Treaty.
- The Commission is required to meet regularly at least once a year, alternately in India and Pakistan and also when requested by either Commissioner.

KALA AZAR

Context

- Kala-azar cases in India fell to 834 in 2022 from 44,533 in 2007 — a 98.7 percent decline- said the Government.

Prevalence of Kala Azar

- Visceral leishmaniasis or kala-azar is the most serious form of the disease and according to WHO **about 89 percent of the global cases were reported from eight countries: Brazil, Eritrea, Ethiopia, India, Kenya, Somalia, South Sudan and Sudan**.
- India contributes **11.5 percent of total cases reported globally**.
- The disease mainly affects poor people in **Africa, Asia and Latin America**.

WHAT IS KALA-AZAR

- A slow progressing indigenous disease
- Caused by protozoan parasite of genus *Leishmania*
- In India, *Leishmania donovani* is the only parasite causing the disease
- The parasite primarily infects reticuloendothelial system

Signs & Symptoms
➜ Recurrent fever
➜ Loss of appetite
➜ Weakness
➜ Spleen enlargement
➜ Anaemia

Transmission

- Sandfly of genus *Phlebotomus argentipes* only known vector of kala-azar in India

- Indian kala-azar has a unique epidemiological feature of being anthroponotic
- Female snadflies pick up parasite while feeding on infected human host

- Development and multiplication in the gut of sandflies and move to mouthparts

- Parasite undergoes morphological change to become flagellate
- Healthy human hosts get infection when an infective sandfly vector bites them

Vulnerable population

- The disease affects some of the poorest people and is **linked to malnutrition, population displacement, poor housing, a weak immune system** and a lack of financial resources.
- Leishmaniasis is also linked to **environmental changes such as deforestation, and urbanization.** The disease is **endemic in Bihar, Jharkhand, Uttar Pradesh and West Bengal.**

Treatment

- **Anti-leishmanial medicines** are available for treatment.
- **Vector control is also recommended by the WHO,** which means reducing or interrupting the transmission of disease by decreasing the number of sandflies in surroundings through **insecticide spray, use of insecticide-treated nets, etc.**

Steps being taken

- The government aimed to eliminate the disease in India by 2015, but that deadline was missed. However, the number of cases has been brought down significantly through the **National Kala-Azar Elimination Programme.**
- Under this programme, medicines, insecticides and technical support were given by the central government, while state governments provided for costs involved in implementation. The program was **implemented through State/District Malaria Control Offices and the primary health care system.**
- The Centre supports the states in **active case detection, surveillance, treatment** as well as supply of diagnostic kits, medicines, sprays.
- The Government has taken steps such as **building of pucca houses through PM-AWAS yojana, rural electrification, testing, treatment and periodic high-level review, incentivizing through award distribution, among others.**
- India is committed to eliminating Kala-azar or Black Fever from the country by 2023.

DUCHENNE MUSCULAR DYSTROPHY

Context

- Researchers in India are working on developing an affordable treatment for a rare and incurable genetic disorder called Duchenne Muscular Dystrophy.

What is Duchenne muscular dystrophy?

- Duchenne muscular dystrophy (DMD) is a **genetic disorder characterized by progressive muscle degeneration and weakness** due to the alterations of a protein called dystrophin that helps keep muscle cells intact.

Symptoms

- DMD symptom onset is in early childhood, **usually between ages 2 and 3**. The disease <u>primarily affects boys, but in rare cases it can affect girls</u>.
- In the early stages, DMD **affects the shoulder and upper arm muscles** and the muscles of the hips and thighs. Other symptoms include enlargement of the calves, a waddling gait, and lumbar lordosis (an inward curve of the spine). Later on, the heart and respiratory muscles are affected as well. **Progressive weakness and scoliosis** result in impaired pulmonary function, which can eventually cause **acute respiratory failure.**

What causes DMD?

- DMD was first described by the French neurologist Guillaume Benjamin Amand Duchenne in the 1860s.
- In 1986, MDA-supported researchers identified a <u>particular gene on the X chromosome that</u>, when flawed (mutated), leads to DMD.
- In 1987, the protein associated with this gene was identified and **named dystrophin**. Lack of the dystrophin protein in muscle cells causes them to be fragile and easily damaged. DMD has an **X-linked recessive inheritance pattern** and is passed on by the mother, who is referred to as a carrier.

<u>DMD "carriers"</u>

- DMD carriers are females who have a normal dystrophin gene on one X chromosome and an abnormal dystrophin gene on the other X chromosome. Most carriers of DMD do not themselves have signs and symptoms of the disease, but a minority do.

Treatment

- **Currently, there is no cure for DMD**, but improvements in integrative treatment can slow down the disease progression and thereby, extend the life expectancy of DMD patients.

Concern

- Despite its severity in terms of systemic muscle impairment culminating into multi-organ failure and death, **this disease is so far neglected** due to <u>a lack of proper theragnostic tools for in-time diagnosis and treatment.</u>
- The <u>current therapeutic options available to treat DMD are minimal</u> and **highly expensive treatment** with costs shooting up to Rs 2-3 crore per child a year and are mostly imported from abroad, accelerating dosing costs and putting them out of reach for most families.

Silver Lining

- Researchers in India are working on developing an affordable treatment for a rare and incurable genetic disorder called Duchenne Muscular Dystrophy with over 5 lakh cases in the country.

ANTIMICROBIAL-RESISTANT GONORRHOEA   *GS-II HEALTH*

Context

- A strand of antimicrobial-resistant Gonorrhoea outbreak has hit Kenya, according to researchers.

Gonorrhea

- **About:** Gonorrhea is a <u>sexually transmitted infection</u> (STI) caused by the bacterium *Neisseria gonorrhoeae*.
- **Infection:** Infection may involve the genitals, mouth, or rectum.
- **Transmission:** Gonorrhea is spread through sexual contact with an infected person. This includes oral, anal, and vaginal sex. It can also spread from a mother to a child during birth.
- **Symptoms**: Symptoms include painful urination and abnormal discharge from the penis or vagina. Men may experience testicular pain and women may experience pain in the lower stomach. In some cases, gonorrhoea has no symptoms.
- **Prevention:** Gonorrhea can be prevented with the **use of <u>condoms</u>**, having sex with only one person who is uninfected, and by <u>not having sex</u>. **Treatment is usually with <u>ceftriaxone</u>** by injection and **azithromycin** by mouth. <u>Resistance</u> has developed to many previously used <u>antibiotics</u> and higher doses of ceftriaxone are occasionally required.

Antimicrobial-Resistant Gonorrhoea Outbreak in Kenya

- Gonorrhoea is the **second-most common disease** to be sexually transmitted across the world *after chlamydia,* according to the World Health Organization (WHO).
- The outbreak of *Neisseria gonorrhoea* is not just a threat to the citizens of the East African state but the region as a whole.
- WHO blamed the drug resistance of some strands of gonorrhoea on the **overuse of antibiotics, genetic mutations of the bacteria and repeated use of poor-quality drugs.**

- Some of the drugs that **got 100 per cent resistance** included **ciprofloxacin and ceftriaxone**, which are in the current STI treatment algorithm in Kenya.

What is Antimicrobial Resistance?

Antimicrobial Resistance (AMR) occurs when bacteria, viruses, fungi and parasites change over time and no longer respond to medicines making infections harder to treat and increasing the risk of disease spread, severe illness and death.

As a result of drug resistance, antibiotics and other antimicrobial medicines become ineffective and infections become increasingly difficult or impossible to treat.

Factors Responsible:

- Misuse and overuse of antimicrobials;
- Lack of access to clean water,
- Sanitation and hygiene (wash) for both humans and animals;
- Poor infection and disease prevention and control in health-care facilities and farms;
- Poor access to quality, Affordable medicines, Vaccines and diagnostics;
- Lack of awareness and knowledge; and Lack of enforcement of legislation.
- Lack of access to timely and appropriate treatments for infections,
- Self-medication, prescription sharing, over-the counter sale of antimicrobials,
- Non-compliance with the prescribed treatment.
- Genetic mutation of bacteria.

Implications

- The emergence of different strands of resistance in Sexually transmitted Diseases like gonorrhoea often results in the **rapid spread of the ailment**. The effects can be felt in neighbouring countries, but they are more disproportionate in low and middle-income **countries with underdeveloped health systems.**
- Kenya's infertility prevalence is estimated to be 11.9 per cent. The **country's infertility is likely to increase with the outbreak of drug-resistant gonorrhoea** and other eventual STIs. This can have **devastating effects on the country's development agenda.**

Way Ahead

- Drug resistance is a big concern and efforts have to be deployed to **save and boost the country and region's reproductive health.**
- WHO has made calls on countries to **increase funding for STI services** and **focused efforts to scale up STI prevention, testing and treatment** in a bid to boost reproductive health ─ a major pillar in national and regional development agenda.
- To combat AMR lowering of antibiotic consumption is not sufficient because the spread of resistant strains and resistance genes are the dominant contributing factor.
- **Providing sanitation, clean water and good governance, increasing public health expenditure and better regulating the private health sector** are all necessary to reduce antimicrobial resistance.

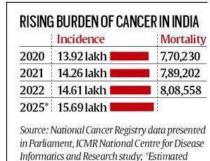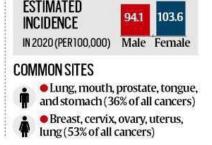## CANCER IN INDIA   *GS-II HEALTH*

Context

- India will face a tsunami of chronic diseases such as cancer due to globalization, growing economy, aging population and changing lifestyle, warns a leading oncologist.

Cancer Statistics in India

Report by National Cancer Registry Programme

- The estimated number of incident cases of cancer in India for the year 2022 was found to be 14,61,427 (crude rate:100.4 per 100,000).
- In India, **one in nine people are likely to develop cancer in his/her lifetime**.
- Lung and breast cancers were the leading sites of cancer in males and females, respectively.
- Among the childhood (0-14 yr) cancers, lymphoid leukaemia (boys: 29.2% and girls: 24.2%) was the leading site.

RISING BURDEN OF CANCER IN INDIA

	Incidence		Mortality
2020	13.92 lakh		7,70,230
2021	14.26 lakh		7,89,202
2022	14.61 lakh		8,08,558
2025*	15.69 lakh		

Source: National Cancer Registry data presented in Parliament, ICMR National Centre for Disease Informatics and Research study; *Estimated

ESTIMATED INCIDENCE IN 2020 (PER 100,000)   94.1 Male   103.6 Female

COMMON SITES

- Lung, mouth, prostate, tongue, and stomach (36% of all cancers)
- Breast, cervix, ovary, uterus, lung (53% of all cancers)

- The incidence of cancer cases is estimated to **increase by 12.8 per cent in 2025 as compared to 2020.**

Concern

- India is faced with a sizable cancer incidence burden, which **continues to grow exponentially**. The **2020 WHO ranking on cancer burden** in terms of new yearly cases being reported had **ranked India at the third position after China and the US, respectively.**
- Cancer disease burden in India is characterized by poor detection with not more than 29 per cent, 15 per cent and 33 per cent of breast lung and cervical cancers being diagnosed in stages 1 and 2, respectively.
- Only 175 districts out of more than 600 districts in the country have a comprehensive cancer centre.
- India has **only 0.4 million radiotherapy (RT) equipments** as compared to the World Health Organization (WHO) norm of one million RT equipments per million.
- The access to specialised care of oncologists is also reported to be severely constrained in India with incidence per clinical oncologist (medical and radiation oncologist) at 315 compared to 120 in China and 137 in the US.

Way Ahead
Diagnosis and Awareness

- For cancer prevention, **early diagnosis and widespread public awareness** will be integral and will serve as a beacon of light to strengthen India's strategy for cancer care and other non-communicable diseases.

Access to Quality Treatment

- While some of the most cutting-edge cancer treatment methods and technology are available in our country, we still have a long way to go before we can ensure that **cancer patients from every socioeconomic background receive the best possible care.**

Screening

- **Screening should be prioritised** as much as infectious diseases. **Population mapping** done during the pandemic should be used to carry out screening extensively.

Hub and Spoke Cancer Care Model

- Adoption of a **distributed hub and spoke cancer care model** in the country with **mandatory inclusion of cancer programme in all government and private medical colleges** and select district hospitals will be a key to providing access in the country.

Insurance

- As the financial burden of cancer care treatment is highest compared to other diseases, insurance can play a key role in mitigating out of pocket expenditure. It becomes critical to ensure that insurance spends are rightly utilised through standardised care plans designed based on uniform treatment protocols that recognise the outcome benefits of modern and advanced treatment options available in the country.

Embrace Technology-Driven Medical Techniques

- **Cancer vaccines** for prevention and treatment, expansion of **Artificial Intelligence & data digital technology**, and cancer diagnosis from **liquid biopsies**, **genomic profiling, evolution of gene editing technologies and next generation of immunotherapies and CAR T cell therapies are the war forward.** [Scientists are using CAR T cell therapy, in which T cells are isolated from a patient's blood and modified in the laboratory to specifically attack cancer cells.]
- Using Artificial Intelligence (AI) can recognize variations in pattern from normal to abnormal in the biopsy, much more accurate than the human eye. These technologies will demand radiologists and pathologists to be more efficient and accurate.

TRANS FAT   *GS-II HEALTH*

Context

- Five billion people globally are exposed to harmful trans fat, increasing their heart disease and death risk, according to a new report by the World Health Organization (WHO).
- **The Report is titled as:** Countdown to 2023 - WHO report on global trans-fat elimination.

Trans Fat

- **Trans fat**, also called **trans-unsaturated fatty acids**, or **trans fatty acids**, is a type of unsaturated fat that occurs in foods.
- Trace concentrations of trans fats occur naturally, but large amounts are found in some processed foods. Since consumption of trans fats is unhealthy.
- Most of the trans-fat in the foods we eat is formed **through a manufacturing process that adds hydrogen to vegetable oil, which converts the liquid into a solid fat at room temperature**. This process is called hydrogenation.
- Hydrogenation, which uses hydrogen gas and metal catalysts to reduce the degree of

unsaturation and provide proper physical characteristics in oils since 1890s, is a major process to generate trans-fat in our daily diet.

- Artificial trans-fat has been banned in many nations, but it is still widely consumed in developing nations, resulting in hundreds of thousands of excess deaths each year.

Background and details of the WHO Report

- WHO had advocated some best-practice policies for the global eradication of industrially generated trans-fat by 2023. Coverage of these policies has expanded about six-fold since its inception.
- At this point, just 43 countries have put best-practice regulations against trans-fat in food, covering 2.8 billion people worldwide.
- Five billion people are still exposed to the devasting health effects of trans fat, making the 2023 target unattainable.
- Industrially produced trans-fat is usually found in packaged foods, baked items, cooking oils and spreads. Trans-fat intake is accountable for up to 500,000 early deaths from coronary heart disease annually.

Concern

- Consumption of trans fats raises the level of bad LDL-cholesterol, an accepted biomarker of cardiovascular diseases.
- It has been seen that diets high in trans-fat can increase the risk of heart disease by 21 per cent and deaths by 28 per cent.
- **Nine countries —** Australia, Azerbaijan, Bhutan, Ecuador, Egypt, Iran, Nepal, Pakistan and the Republic of Korea — of the 16 nations with the highest estimated percentage of coronary heart disease fatalities attributed to trans-fat consumption do not currently have a best-practices strategy.

Way Ahead

- Best practices in trans-fat removal policies minimise industrially generated trans-fat in all contexts and adhere to specified standards put out by the WHO.
- The following are the two best-practice policy options:
  a) Mandatory National Limit of **two grams of industrially produced trans-fat per 100 grams of total fat in all foods**;
  b) Mandatory **National Ban on the production or use of partially hydrogenated oils** (a major source of trans fat) as an ingredient in all foods.
- Although most trans-fat elimination regulations have been implemented in higher-income countries, many middle-income nations — including Argentina, Bangladesh, India, Paraguay, the Philippines and Ukraine — are now adopting these regulations.
- Government and Policy makers need to expedite the process of eliminating Trans-fat by bringing in strict regulations.

MEASLES AND RUBELLA ELIMINATION

GS-II HEALTH

Context

- India had set a target to eliminate **measles and rubella (MR) by 2023,** having missed the earlier deadline of 2020.

Measles

- Measles is a highly contagious **infectious disease caused by measles virus.**
- It mostly affects children. It is one of the leading causes of death and disability among young children.

Symptoms

- Initial symptoms typically include **fever, cough, runny nose, and inflamed eyes.**
- Small white spots known as **Koplik's spots** may form inside the mouth two or three days after the start of symptoms.
- Common complications include **diarrhea, middle ear infection, and pneumonia.**
- Less commonly seizures, blindness, or inflammation of the brain may occur.

Transmission

- Measles is an airborne disease that spreads easily by coughing and sneezing, close personal contact or direct contact with infected nasal or throat secretions.

Prevention

- The measles vaccine is effective at preventing the disease.

Treatment

- There is **no specific treatment for measles** but there is a vaccine to stay protected from the disease, which is both safe as well as cost effective.
- Treatment includes providing comfort measures to relieve symptoms, such as rest, and medications like antibiotics, fever reducers and Vitamin A. **Measles vaccine protects against becoming infected with measles.**

Rubella

- **Rubella**, also known as **German measles** or **three-day measles**, is an infection caused by the rubella virus.

Symptoms

- Mild fever of 102 F (38.9 C) or lower, headache, stuffy or runny nose, red, itchy eyes, enlarged, tender lymph nodes at the base of the skull, the back of the neck and behind the ears, fine, pink rash that begins on the face and quickly spreads to the trunk and then the arms and legs, before disappearing in the same order, Aching joints, especially in young women.

Transmission

- Rubella is caused by a virus that's passed from person to person. It can spread when an infected person coughs or sneezes. It can also spread by direct contact with infected mucus from the nose and throat. It can also be passed on from pregnant women to their unborn children through the bloodstream.

Prevention

- The rubella vaccine is usually given as a combined measles-mumps-rubella (MMR) vaccine.

Target Failed

- Due to a variety of reasons, exacerbated by disruptions due to the pandemic the target of eliminating MR got missed. An earlier target that was set for 2015 was also missed. It was in 2019 that India adopted the goal of measles and rubella elimination by 2023, anticipating that the 2020 goal could not be reached.

Why is this target crucial?

- The measles virus is one of the **world's most contagious human viruses that kills more than 1,00,000 children every year globally**, and rubella is a leading vaccine-preventable cause of birth defects, according to the World Health Organization (WHO).
- Both measles and rubella **can be prevented by just two doses of a safe and effective vaccine.** Over the past two decades, the measles vaccine is estimated to have averted more than 30 million deaths globally, as per the WHO's statistics. In both diseases, the symptoms are a rash and fever.

What happened in 2022?

- From October 2022, an outbreak of measles in Maharashtra, particularly Mumbai, had the authorities worried.
- At least 15 children died among several hundreds who contracted the infection.

What has India done to achieve targets?

- During 2010–2013, India conducted a phased measles **catch-up immunization for children aged 9 months–10 years in 14 State**s, vaccinating approximately 119 million children.
- **Mission Indradhanush** was launched in 2014 to ramp up vaccinating the unvaccinated population.
- During 2017–2021, India adopted a **National Strategic Plan For Measles And Rubella Elimination,** and introduced rubella-containing vaccine (RCV) into the routine immunization programme, besides launching a nationwide measles-rubella supplementary immunisation activity (SIA) catch-up campaign. It also transitioned from **outbreak-based surveillance** to case-based acute fever and rash surveillance, and more than doubled the number of laboratories in the measles-rubella network.

Reaching the Target

- India can reach MR elimination goals in India **if we strengthen surveillance by finding, investigating, and collecting and testing a sample for every suspected case, in each district in every State and UT**. India needs to **strengthen its immunization infrastructure.**

IMMUNE IMPRINTING   GS-II HEALTH

Context

- Scientists suggest that regardless of the type, coronavirus vaccines are crucial in staving off serious illness. But studies have found that 'immune imprinting' might be making bivalent boosters less effective.

What is immune imprinting?

- Immune imprinting is a **tendency of the body to repeat its immune response based on the first variant it encountered** — through infection or vaccination — when it comes across a newer or slightly different variant of the same pathogen.
- The phenomenon was **first observed in 1947**, when scientists noted that "people who had previously had flu, and were then vaccinated against the current circulating strain, produced antibodies against the first strain they had encountered". At the time, it was termed the 'original antigenic sin' but today, it's commonly known as imprinting.
- Over the years, scientists have realized that **imprinting acts as a database for the immune system**, helping it put up a better

response to repeat infections.

Mechanism

- After our body is exposed to a virus for the first time, it **produces memory B cells** that circulate in the bloodstream and quickly produce antibodies whenever the same strain of the virus infects again.
- The problem occurs when a similar, not identical, variant of the virus is encountered by the body. In such cases, the immune system, **rather than generating new B cells, activates memory B cells,** which in turn produce "antibodies that bind to features found in both the old and new strains, known as cross-reactive antibodies.
- Although these cross-reactive antibodies do offer some protection against the new strain, **they aren't as effective as the ones produced by the B cells when the body first came across the original virus.**

Recent study pertaining to Corona Virus Vaccine

- It was observed that the bivalent booster shots "**did not elicit a discernibly superior virus-neutralising peak antibody response** as compared with boosting with the original monovalent vaccines" across all coronavirus strains tested - Columbia University.
- The findings suggested **immune imprinting might be posing a hurdle** in the success of the bivalent or variant-specific vaccines.

How to circumvent immune imprinting?

- Currently, several ongoing studies are trying to find a way to deal with imprinting. Some scientists have said nasal vaccines might be better at preventing infections than injected ones. They believe the mucous membranes would create stronger protection, despite carrying some imprint of past exposure.
- Researchers are also trying to find if spacing out coronavirus vaccine shots on an annual basis, could help with the problem of imprinting.

What are B-cells?

B-cells are the type of cells **that produce antibodies to fight bacteria and viruses**. These antibodies are Y-shaped proteins that are specific to each pathogen and are able to lock onto the surface of an invading cell and mark it for destruction by other immune cells.

T Cells

A type of white blood cell. T cells are part of the immune system and develop from stem cells in the bone marrow. They help protect the body from infection and may help fight cancer. Also called T lymphocyte and thymocyte.

There are two main types of T-cells:

Helper T-cells stimulate B-cells to make antibodies and help killer cells develop.

Killer T-cells directly kill cells that have already been infected by a foreign invader.

GENERAL STUDIES – III

● DEMONETIZATION   *GS-III ECONOMY*

Context
- The Constitution bench of the Supreme Court in the majority opinion (4:1) **upheld the Union Government's demonetization order** of 8th November 2016 **to demonetize currency notes** of Rs 500 and Rs 1,000.

Demonetization
- Demonetization is **the act of stripping a currency unit of its status as legal tender**.
- On 8 November 2016, the Government of India announced demonetization of all ₹500 and ₹1,000 banknotes of the Mahatma Gandhi Series.
- The Government claimed that the action **would curtail the shadow economy, increase cashless transactions and reduce the use of illicit and counterfeit cash to fund illegal activity and terrorism.**

Implications
- The announcement of demonetization created significant disruption throughout the economy.
- The BSE SENSEX and NIFTY 50 stock indices fell over 6 percent on the day after the announcement. The move reduced the country's industrial production and its GDP growth rate. It is estimated that 1.5 million jobs were lost.
- But the move saw a **significant increase in digital and cashless transactions throughout the country.**
- However, according to a 2018 report from the Reserve Bank of India ₹15.3 trillion of the ₹15.41 trillion in demonetised bank notes, or approximately 99.3%, were deposited in banks, leading analysts to state that the effort had failed to remove black money from the economy.

SC's Verdict on 2016 Demonetization step
The majority of judges (4:1) accepted all arguments of the Union Government
- Section 26(2) of the Reserve Bank of India Act, 1934 gives the Union government the power to demonetize currency "on the recommendation of the Central Board" of the RBI.
  - The majority view found that the word 'recommendation' would mean a consultative process between the Central Board and the Central Government."
  - The judges highlighted that **it cannot be expected that the RBI and the Central Government acted in two isolated boxes. An element of interaction/consultation in such important matters cannot be denied.**
- The majority verdict states that **curbing fake currency, black money and terror funding are legitimate interests of the state and have a rational nexus with demonetization.**
- The court said that the Centre is the best judge since it has all the inputs about fake currency, black money, terror financing & drug trafficking.
- The majority stated that the **court cannot determine the effectiveness of the economic policy**. It agreed with the Centre's contention that the **decision had to be made in secrecy and haste for it to be effective.**
Justice B V Nagarathna disagreed with the reasoning and conclusions in the majority opinion
- The Justice stated that demonetization **was a violation of Section 26(2) of the RBI Act** as the recommendation for the demonetization originated from the Centre and not the RBI's Central Board.

● FISCAL DEFICIT   *GS-III ECONOMY*

Context
- Fiscal deficit in the first eight months at 58.9% of the budget target of ₹16.6 trillion set for FY23, against 46.2% reached in the same period a year ago.

Fiscal Deficit
- Fiscal deficit is the **negative balance that arises whenever a government spends more money than it receives in the form of taxes and other revenues.**
- It is an **indication of the total borrowings needed by the government**. While calculating the total revenue, borrowings are not included.

Formula for Fiscal Deficit

Fiscal Deficit = Total budget expenditure – Total budget receipts excluding borrowings

Or

Fiscal Deficit = Revenue expenditure + Capital expenditur e – Revenue receipts – Capital Receipts excluding borrowings

Or

Fiscal Deficit = Revenue expenditure + Capital expenditure – Tax Revenue – Non Tax Revenue – Recovery of loans – Disinvestment

Or

Fiscal Deficit = Total borrowing requirement of the government.

Implications of Fiscal Deficit

- **Inflationary Spiral:** Borrowing from RBI, increases the supply of money in the economy, which increases the general price level. A prolonged increase in the general price level results in an inflationary spiral, i.e. borrowing from RBI > Increase in money supply > Increase in prices > Inflationary Spiral.
- **National Debt**: Fiscal Deficit gives birth to the national debt. It hampers GDP growth, as a large portion of the national income is spent on repaying past debts.
- **Vicious Circle of High Fiscal Deficit and Low GDP Growth:** When there is a high fiscal deficit constantly, it gives rise to a situation in which GDP growth remains low due to high fiscal deficit and the fiscal deficit remains high due to low GDP growth.
- **Debt Trap:** Borrowing leads to two main problems, with respect to the repayment of loan and payment of interest, because the payment of interest again increases the revenue deficit. And more borrowing will be required to finance interest payments which results in a debt trap.\
- **Crowding Out:** Crowding Out Effect is an outcome of Fiscal Deficit. It refers to a condition when high government borrowings because of high fiscal deficit, decreases the availability of funds for private investors. This reduces overall investment in the economy.
- **Erosion of Government Credibility**: High fiscal deficit destroys the credibility of the government in both domestic and international markets. This lowers down the government's credit rating, and the foreign investors will begin withdrawing money that they have invested in the domestic economy. As a result of which GDP is reduced.

How is fiscal deficit balanced out?

- While a rising deficit is a challenge for the government in the long term, to balance it out in short-term macroeconomics, the government looks at market borrowings by issuing bonds and selling them in through banks. Banks buy these bonds with currency deposits and then sell them to investors. Government bonds are considered an extremely safe investment instrument, so the interest rate paid on loans to the government represents risk-free investment.
- The government also sees a deficit situation as an opportunity to expand policies and schemes, including welfare programmes, without having to raise taxes or cut spending in the Budget.

Trend of Fiscal Deficit in India (as % of GDP)

- The Centre's fiscal deficit **touched 59% of the budget target for 2022-23 in the first eight months**, led by sharp growth in capital expenditure, moderate expansion in tax revenues, and higher transfers to states.
- The estimate of 6.4% of GDP may be met on account of higher-than-expected nominal GDP.

FRBM Act

- **Enacted in 2003**, The FRBM Act sets target for the government to bring down fiscal deficit. It aims to introduce transparency in India's fiscal management systems.
- The Act's long-term objective is for India **to achieve fiscal stability and to give the Reserve Bank of India (RBI) flexibility to deal with inflation in India.**
- The FRBM Act was enacted to introduce more equitable distribution of India's debt over the years.

Key features of the FRBM Act

- The FRBM Act made it mandatory for the government to place the following along with the Union Budget documents in Parliament annually:

- Medium Term Fiscal Policy Statement
- Macroeconomic Framework Statement
- Fiscal Policy Strategy Statement
- The FRBM Act proposed that revenue deficit, fiscal deficit, tax revenue and the total outstanding liabilities be projected as a percentage of Gross Domestic Product (GDP) in the medium-term fiscal policy statement.

As per the requirements of the Act, Centre needs to limit fiscal deficit to 3 per cent of the country's gross domestic product (GDP). while, government's debt should be restricted to 40 per cent of GDP by 2024-25.

The FRBM Act also allows invoking of an escape clause in situations of calamity and national security. In such situations, the government can deviate from its annual fiscal deficit target.

N K Singh Committee's Recommendations on Fiscal Deficit

- **Targets:** The committee suggested using debt as the primary target for fiscal policy and that the target must be achieved by 2023.
- **Fiscal Council:** The committee proposed to create an autonomous Fiscal Council with a chairperson and two members appointed by the Centre (not employees of the government at the time of appointment)
- **Deviations:** The committee suggested that the grounds for the government to deviate from the FRBM Act targets should be clearly specified
- **Borrowings:** According to the suggestions of the committee, the government must not borrow from the RBI, except when the Centre has to meet a temporary shortfall in receipts RBI subscribes to government securities to finance any deviations RBI purchases government securities from the secondary market.

CREDIT DEFAULT SWAPS   GS-III ECONOMY

Context
- Regulator SEBI allowed Alternative Investment Funds (AIFs) to participate in the **Credit Default Swaps (CDS)** market as protection buyers and sellers in a bid to facilitate the deepening of the domestic corporate bond segment.

What is 'Credit Default Swaps'?
- A credit default swap (CDS) is a contract between two parties in which **one party purchases protection from another protection seller party against losses from the default of a borrower** for a defined period of time.
- In the event of a default, the buyer receives the face value of the bond or loan from the protection seller. From the protection seller's perspective, CDS provides a source of easy money if there is no default. CDS was **introduced by JP Morgan.**

Description:
- Assume that two parties A and B enter in a five-year CDS. In this, A is the protection buyer and B is the protection seller. Let's assume that the notional principal is Rs 50 crore and the protection buyer agrees to pay 100 basis points annually to the protection seller. If the reference entity does not default, the protection buyer keeps on paying 100bps of Rs 50 crore, which is Rs 50 lakh, to the protection seller every year.
- On the contrary, if a default occurs, the protection buyer will be compensated fully by the protection seller.
- If the credit event does not occur before the maturity of the loan, the protection seller does not make any payment to the buyer. CDS can be structured either for the event of shortfall in principal or shortfall in interest.
- CDS basically allows the **transfer of third-party credit risk from one party to another**.

What is an Alternative Investment Fund?
- **Investment schemes that allocate their funds to financial instruments other than traditional investment options** are called alternative investment funds. They include angel funds, commodities, real estate, venture capital, private equity, etc.

Different Types of AIFs in India
- AIFs invest in various alternate investment options including commodities, angel funds and others. The different types of alternative investment funds are as follows:

Category 1
- In Category 1, you will find Alternate Investment Funds that invest in start-ups, SMEs and new economically viable corporations that have high growth potential. They include the following:

Infrastructure funds
- These funding schemes primarily invest in companies that are engaged in infrastructural works like constructing railroads, airports, ports etc. Individuals who like to invest in infrastructural development generally invest in these types of funds.

Venture capital funds (VCF)
- Venture capital funds put their money into promising entrepreneurial businesses that have huge capital requirements. High

net-worth individuals who have a high-risk high return policy usually invest in VCF.

Angel funds
- This type of AIF generally invests in new start-ups that do not receive investments from Venture capital funds. Each angel fund investor generally allocates minimum funding of Rs.25 lakh.

Social Venture Funds
- Social venture fund schemes put their money in businesses that take part in philanthropic activities. They help people improve their standards of living and also provide good returns to their investors.

Category 2
- This category of AIF funds do not take debt for purposes other than daily operations and includes the following:

Debt funds
- These funds invest in debt securities of unlisted companies that follow good corporate governance models and have decent growth potential. However, they are not for conservative investors as they have a low credit rating.

Funds of funds
- Funds of funds are schemes that put their money in other Alternative Investment Funds.

Private equity funds
- Private equity funds invest in unlisted private businesses that face difficulty in raising capital by issuing equity and debt instruments.

Category 3
- Category 3 funds may be leveraged and use advanced trading strategies, and include the following:

Hedge funds
- Hedge funds collect money from investors and corporations in order to invest in debt and equity markets both on the domestic and international levels. These schemes follow an aggressive investment strategy to provide a higher return on investment for its investors. Moreover, they have a high expense ratio.

Private investment in public equity fund (PIPE)
- This type of funding scheme invests in public firms by buying their shares at discounted prices.

New norms set by SEBI
- Under the new norm, Category-I and Category-II AIFs can buy CDS on underlying investment in debt securities **only for the purpose of hedging**, while **Category-III AIFs can purchase CDS for hedging or otherwise**, within permissible leverage.

> **Hedging**
> Hedging is a strategy that tries to limit risks in financial assets. For example, **if you buy homeowner's insurance, you are hedging yourself against fires, break-ins, or other unforeseen disasters**. Portfolio managers, individual investors, and corporations use hedging techniques to reduce their exposure to various risks.

- With regard to selling, Category-II, and Category-III AIFs may sell CDS by earmarking unencumbered government bonds or Treasury bills equal to the amount of the CDS exposure. Such earmarked securities may also be used for maintaining applicable margin requirements for the CDS exposure. Further, exposure to CDS undertaken in this manner will not be tantamount to leverage.

> **Earmarking**
> Earmarking means setting aside some amount of money from the total funds and then using it for a stated purpose later.
> **Margin Requirements of Credit Default Swaps**
> Margin requirements refer to a certain amount of money that an investor must have available to make an investment. It is calculated by multiplying the notional amount with the margin percentage.

- Category III AIFs are allowed to sell CDS, subject to the condition that **effective leverage undertaken is within the permissible limits.**

> **Financial Leverage**
> Financial leverage results from using borrowed capital as a funding source when investing to expand the firm's asset base and generate returns on risk capital. Leverage is an investment strategy of using borrowed money—specifically, the use of various financial instruments or borrowed capital—to increase the potential return of an investment.

- AIFs will have to **report details of CDS transaction to the custodian by the next working day**.
- For Category II and Category III AIFs which sell CDS by earmarking securities, in case the amount of earmarked securities falls below CDS exposure, such AIFs will be required to send a report to the custodian on the same day of the breach.

CDS Exposure

CDS exposure is **a measurement of the maximum potential loss to a lender if the borrower defaults on payment**. It is a calculated risk to doing business.

- The AIF would bring the amount of earmarked securities equal to CDS exposure and report details regarding rectification of the breach to the custodian by the end of next trading day. In case the AIF fails to rectify the breach, the custodian would report details of the breach to SEBI on the next working day.
- Any unhedged position, which would result in gross unhedged positions across all CDS transactions exceeding 25 percent of investable funds of the scheme of an AIF, would be taken only after intimating to all unit holders of the scheme.
- Category I and II AIFs **would not** borrow funds directly or indirectly and engage in leverage except for meeting temporary funding requirements for not more than 30 days, not more than four occasions in a year, and not more than 10 percent of the investable funds. Further, such AIFs which transact in CDS will have to maintain a 30-day cooling-off period between the two periods of borrowing or engaging in leverage.
- **Note:** In 2012, the capital markets regulator SEBI had allowed mutual funds to participate in Credit Default Swap transactions, which allow business entities to hedge risks associated with the bonds market.

e-Rupee
GS-III ECONOMY

Context
- A Migrant fruit-seller near RBI headquarters in Mumbai is now part of e-Rupee pilot project.
- **Note:** The Reserve Bank of India (RBI) recently launched the **Central Bank Digital Currency (CBDC) — digital rupee or e-rupee (e₹)** — for the common man.

What Is CBDC?
- CBDC is a digital currency that is issued by the central bank of a sovereign nation. By definition, it is freely convertible against the physical currency issued by the same central bank. Similar to physical currency, one need not have a bank account to transact using CBDCs either.
- However, one major distinguishing factor between CBDCs and physical currency is that CBDCs will have an infinite life, in the sense that they cannot be damaged or lost in any physical form. It will be managed on a digital ledger that may or may not be blockchain-enabled.

Features of Digital Rupee
- CBDC is a sovereign currency issued by central banks in alignment with their monetary policy.
- It appears as a liability on the central bank's balance sheet.
- It must be accepted as a medium of payment, legal tender, and a safe store of value by all citizens, enterprises, and government agencies.
- CBDC is freely convertible against commercial bank money and cash.
- CBDC is a fungible legal tender for which holders need not have a bank account.
- CBDC is expected to lower the cost of issuance of money and transactions.

Types of CBDCs
- CBDCs can be of two types: retail (CBDC-R) and wholesale (CBDC-W). The wholesale kind would be used for interbank settlements and other wholesale transactions whereas CBDC-R would be used for retail transactions as an electronic form of cash. CBDC-W is expected to reduce transaction costs and make interbank markets more efficient. The RBI pilot program that began on November 1 2022 is for CBDC-W alone.
- Another pilot program for CBDC-R is expected to start by next month. Presently, several other central banks across the world are exploring the possibilities of putting CBDCs into practice.

In a nutshell,
Retail CBDC
- Retail CBDC can be used by all including the private sector, non-financial consumers, and businesses. Wholesale CBDC is designed for restricted access to select financial institutions.
- Retail CBDC can provide access to safe money for payment and settlement as it is a direct liability of the central bank.

Wholesale CBDC
- While retail CBDC is an electronic version of cash primarily meant for retail transactions, the wholesale CBDC is designed for the settlement of interbank transfers and related wholesale transactions.
- Wholesale CBDC has the potential to transform settlement systems for financial transactions and make them more efficient

and secure. Going by the potential offered by each of them, there may be merit in introducing both CBDC-W and CBDC-R.

Why is RBI introducing CBDC?

- CBDC is **aimed to complement, rather than replace, current forms of money and is envisaged to provide an additional payment avenue to users, not to replace the existing payment systems.**
- RBI believes that the digital rupee system **will "bolster India's digital economy, enhance financial inclusion, and make the monetary and payment systems more efficient."**

Pointing out the motivations for India to consider issuing CBDC, RBI mentioned these reasons

- Reduction in cost associated with physical cash management
- To further the cause of digitization to achieve a less cash economy.
- Supporting competition, efficiency, and innovation in payments
- To explore the use of CBDC for improvement in cross-border transactions
- Support financial inclusion
- Safeguard the trust of the common man in the national currency vis-à-vis proliferation of crypto assets

Differences between e-Rupee and UPI, RTGS, and other payment options

1) e-Rupee is legal tender, not a payment medium

- e-Rupee is an electronic form of sovereign currency while UPI applications such as Google Pay, PhonePe, NEFT, and RTGS are different methods of transferring funds or payment mediums.
- The main difference is that UPI transactions are completely backed by physical currency and the digital rupee is a legal tender not supported by a physical currency.

2) Digital rupee is not limited to just currency

- The usage of the e-Rupee is not limited to payments as it is a type of currency. The digital rupee also serves the purpose of being a 'unit of account' and more importantly, a 'store of value'.
- The key difference between digital rupee and UPI is that digital rupee is a store of value like currency and UPI is just an overlay infrastructure on top of any form of store of value like bank accounts (which have normal currency), prepaid instruments, credit cards, etc. UPI can be an overlay on any store of value. The e-Rupee is a store of value that can be transferred digitally instantly with finality of settlement.
- Moreover, the digital rupee could potentially have additional attributes specific to the currency which may be tested in future pilots.
- e-Rupee can be issued and used for multiple use cases beyond traditional payment transactions going forward like embedded or ecosystem finance, instant lending, trade finance, etc. It has the potential to be widely accepted and replace physical currency with digital money and use it for various transactions fulfillment.

3) No intermediation of banks

- Digital transactions in UPI or NEFT or RTGS must go through a bank while in the case of the e-Rupee, the money gets transferred from one wallet to another.

4) Anonymity a big factor

- The transactions via digital rupee are more anonymous than the current digital transactions including UPI, NEFT, RTGS, mentioned experts.
- In the case of the digital rupee, even though the transactions are recorded in the centralised ledger, it is fairly anonymous as the owner of the wallets are not known to the government or intermediaries in the ecosystem,.
- In the case of UPI or NEFT or RTGS, the transaction happens between the two bank accounts, and it can be easily tracked.

5) Will require PAN for digital rupee transactions after a certain limit

- At present, a person making a cash transaction above a certain threshold needs to submit his or her PAN. The same rule will apply to the digital rupee.
- The income tax department has got certain limits for cash payments like beyond a certain limit one has to give PAN number; the same rules will apply in the case of CBDC because both are currencies.
- For digital rupee users, SBI has allowed Rs 1 lakh holding limit for the wallet. Users can load or unload up to Rs 25,000 per day, as per the website. Up to 20 transfers including inward and outward payments are allowed in a day. Users can pay or collect up to Rs 10,000, according to the bank's website.
- At present, the upper limit per UPI transaction is Rs 2 lakh. However, the upper limit may **vary from one bank to another**.

CBDCs around the World

- A study by Atlantic Council Geo Economics Center has found that **close to 105 countries are considering the possibility of launching a CBDC** that would be primarily used for interbank transactions. From an estimated 35 nations in as recently as 2020, this is a significant jump.

- About 19 of the Group of Twenty (G20) countries are exploring the issuing of CBDCs and most of them have made progress beyond the initial research stage.

Closing Thoughts

- e-Rupee will make life easy by providing instant transfer of funds for the customer, no requirement of settlement for the banks or ecosystem participants and no need to print or manage the currency notes or coins for the regulator or banks or participants.

NATIONAL MONETISATION PIPELINE — *GS-III ECONOMY*
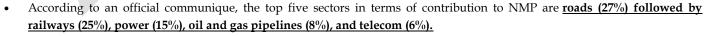
Context

- After achieving the target for the first year rather comfortably, the Centre's ambitious **National Monetisation Pipeline (NMP)** may miss the goal in FY23 by a wide margin as the railways, telecom and petroleum sector slip on their goals.
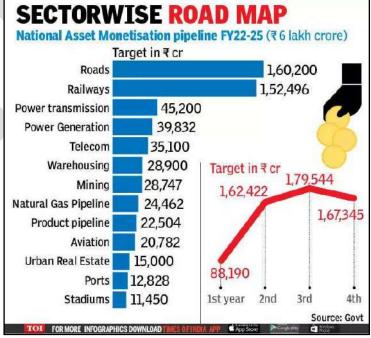
Background: Asset Monetisation

- Asset Monetisation is the **process of creating new sources of revenue for the government** and its entities **by unlocking the economic value of unutilised or underutilized public assets**. A public asset can be any property owned by a public body, roads, airports, railways, stations, pipelines, mobile towers, transmission lines, etc., or even land that remains unutilized.
- As a concept, asset monetization implies offering public infrastructure to institutional investors or the private sector through structured mechanisms. Monetisation is different from 'privatization', in fact, it signifies **'structured partnerships' with the private sector under certain contractual frameworks.**
- In India, the idea of asset monetisation was **first suggested by a committee led by economist Vijay Kelkar in 2012** on the roadmap for fiscal consolidation.

National Monetisation Pipeline

- The government of India announced the **National Monetisation Pipeline (NMP) worth Rs 6 trillion on August 23 in 2021**. This scheme aims to serve as a roadmap for the Asset Monetisation of several brownfield infrastructure assets across sectors including roads, railways, aviation, power, oil and gas, and warehousing.
- NMP is a **central portal that could act as a land bank housing information about all assets** that have been lined up for utilisation by strategic investors or private sector companies. It will also assess the potential value of unused and underutilised government assets.
- The NMP **targets to raise Rs 6 trillion through asset monetization of the central government**, over a four-year period, **from FY22 to FY25**. However, the ownership of the assets will be retained by the Centre. NMP focuses on brownfield assets in which investments have already been made but are underutilized.

SECTORWISE ROAD MAP
National Asset Monetisation pipeline FY22-25 (₹6 lakh crore)

Target in ₹ cr
- Roads 1,60,200
- Railways 1,52,496
- Power transmission 45,200
- Power Generation 39,832
- Telecom 35,100
- Warehousing 28,900
- Mining 28,747
- Natural Gas Pipeline 24,462
- Product pipeline 22,504
- Aviation 20,782
- Urban Real Estate 15,000
- Ports 12,828
- Stadiums 11,450

Target in ₹ cr
1,62,422 — 1,79,544 — 1,67,345
88,190 (1st year, 2nd, 3rd, 4th)
Source: Govt

- The underutilized brownfield assets are in sectors such as roads, railways, airports, mines, and power. This initiative is **necessary for bringing in private capital which will be used for infra creation.**
- According to an official communique, the top five sectors in terms of contribution to NMP are **roads (27%) followed by railways (25%), power (15%), oil and gas pipelines (8%), and telecom (6%).**

What are Brownfield Investments?

Brownfield investments are those in which a private company or investor purchases or leases an existing infrastructure project or production facility to carry out new production activity. In the case of the National Monetization Program, the government intends to lease rather than sell brownfield assets. The government's motto is to monetize these assets, which are either underutilized or not fully monetized, through private participation. To put this in perspective, in 1998, India completed a 756-kilometre Kokan Railway network. In terms of freight usage, which generates the most revenue, this rail network was underutilized. Hence, through the National Monetization Program, the government intends to monetize Rs. 3,600 crore.

Importance

- Government finances are stretched, especially post the massive economic jolt dealt by Covid. Public welfare measures require funding. With the fiscal deficit already stretched to its limits, the government needs to come up with **alternative ways to generate revenue.** NMP helps realize value from idle assets, without the Government transferring ownership of public sector assets to private parties for good. Primary ownership of assets under NMP will continue to be with the government.
- Funds from NMP will be used for infrastructure creation under the National Infrastructure Pipeline.
- Private entities will use the asset for a said tenure, at the end of which they will be handed back to the public authority.

Monetization Benefits

- o Enhanced capex spending and building world class infrastructure.
- o Multiplier effect on growth and employment.
- o Revival of credit flow.
- o Upgradation of Assets.
- o Underused assets will be now utilized fully creating new job opportunities.

Revenue generation

- The monetization program helps create new revenue sources for the government. This revenue generation from underutilized public sector units (PSU) owned assets can assist the government to use the additional revenue for more practical purposes. The Indian government has already planned to use this additional set of revenue for the national infrastructure program to help India build state-of-the-art infrastructure in the next five years.

Increase in productivity and efficiency

- Privatization will increase productivity and efficiency and also has a multiplier effect on the economy. Assets will be used at their maximum production capacity, which will help to create jobs and supply chains. Utilization of these brownfield assets will facilitate economic growth.

Improved quality of services

- The National Monetization Program includes key infrastructure projects that are vital for the economy to grow. These existing public infrastructure projects will be used efficiently and improve the quality of goods and services, further helping the consumers.

Window for Global Institutional Investors

- The National Monetization Program will provide a window for global institutional investors, such as sovereign wealth funds (SWFs), pension funds (PFs), and insurance funds, to establish their presence in India and invest in infrastructure. Due to the inherent risk in greenfield assets, investors prefer brownfield assets.

Final Thoughts

- Asset monetisation is not just about garnering revenues for the government but also ensuring the **economic efficiency of these assets by bringing them back to productive use.**
- **Regulatory consistency, clarity and predictability and a certain sense of stability** in the regulatory framework are very important. Policy Stability, consistency and transparency would have to spill over into the regulatory framework that would govern asset monetisation moving forward and that is what would make Asset Monetisation a successful programme.
- The asset monetization program is considered to have caused **a paradigm shift in the way the government treats brownfield assets**.
- It **will significantly improve the utilization of these assets and infrastructure efficiency**. Furthermore, the program **will generate revenue streams and deleverage the government's balance sheets.**
- This will **trigger credit growth in the economy** and help India achieve a new investment cycle.
- Additionally, the program plans to leverage revenue earned from these monetized assets to establish additional greenfield investments, which will assist India in developing world-class infrastructure and creating more economic opportunities.
- The National Monetization Program is an ambitious program that is **expected to help India achieve its goal of a US$ 5 trillion economy.**

REASSIGNING TAX POWERS BETWEEN THE UNION AND THE STATES — *GS-III ECONOMY*

Context

- There is a **vertical fiscal imbalance (VFI) between the Union and State Governments**. To correct the VFI the tax powers can be reassigned between the Union and the States.

What is VFI?

- A vertical fiscal imbalance describes **a situation in which revenues do not match expenditures for different levels of government**. A vertical fiscal imbalance is a structural issue that can be resolved if revenue and expenditure responsibilities can be reassigned.

- VFI equals one minus the ratio of the State's own revenue to own expenditure'. If this VFI ratio is zero, the States have enough own revenue to meet their own expenditure and there is no need for financial transfers.

VFI in India

- The Union government is endowed with more tax powers than the States, while the States are assigned more expenditure responsibilities than the Union government. This gives rise to a **vertical fiscal imbalance (VFI)** between the Union and State governments.

Note:

- The Union and State governments concurrently levy GST on commodities with 50% as Central GST (CGST) and 50% as State GST (SGST). There is an Integrated GST (IGST) on inter-State trade, so that 50% of it goes to the final destination State.
- The GST is a harmonised tax on commodities across the country. Individual States have little power to unilaterally change this tax. Though conceptually, the Union government could not do so either, the GST Council gives the Union government a veto to thrust its preferences on the States.

VFI Data Trend

- If we look at the data for all the States over the periods of the last three Finance Commissions (2005-06 to 2020-21), the **VFI ratio shows an increasing trend.**
- For the latest period of 2015-16 to 2020-21, the ratio was 0.530, which means that **only 47% of the States' own expenditure was financed by their own revenue in that period.**

Factors under play

1. First, the divisible taxes of the Union government expanded from two to all the Union taxes, thus enlarging the revenue base to be shared with the States.
2. Second, fiscal responsibility legislation was implemented to constrain the fiscal deficits of the States. States directly borrow from the market subject to limits imposed by the Union government.

> The Fiscal Responsibility and Budget Management Act, 2003 is an Act of the Parliament of India to institutionalize financial discipline, reduce India's fiscal deficit, improve macroeconomic management and the overall management of the public funds by moving towards a balanced budget and strengthen fiscal prudence.

3. Third, the Union Planning Commission was dissolved, leading to the withdrawal of Plan grants.
4. Fourth, GST was introduced in 2017.

- These changes have considerably altered the States' revenue structure. **States have little revenue autonomy** and **are more dependent on the Union government.**
- For instance, if we consider the withdrawal of the Union government's plan grants and loans to the States and their effect on States' combined budget, the VFI ratio increased for the same period to 0.594 from 0.530, indicating that only 40% of the State's own expenditure is financed by their own revenue.

Addressing Vertical Fiscal Imbalance

- To correct the VFI the tax powers can be reassigned between the Union and the States.
- Right now, the Union government has exclusive power to levy excise duty on petroleum products, and the States have exclusive power to levy excise duty and sales tax on liquor. All other commodities fall under the GST.

Changes that can be made:

- **CGST and the excise duty on petroleum products can be assigned to the States** so that the entire GST is assigned to the States.
- We should **bring all commodities, including petroleum products, under GST**.
- The **Union government should continue to collect IGST only to settle revenue on destination basis**. This will ensure harmonisation of GST across States.
- GST shall continue as a tax determined by the GST Council. However, **the veto power of the Union government should be removed**. Then, the GST Council will truly become a body by the States to settle tax issues among themselves, with the Union government facilitating the arrival of consensus among the States on tax issues. This may once again require some constitutional amendments.
- **Commodity taxation should be moved to State List II** of the Seventh Schedule of the Constitution, with a rider that harmonisation of commodity taxation should be maintained.

Implications

- The assignment of excise duty on petroleum products to the States will hasten the process of integrating taxes on petroleum products into GST and **remove the cascading effects of the current excise duty on petroleum products**. This will **reduce the tax potential of the States**, but **higher buoyancy of GST should compensate for this revenue loss**. The positive aspect of this reassignment of tax will be the increase in own tax revenue of the States. This will also improve accountability of the States to

their people on fiscal matters.

- Once GST is assigned to the States, VFI will come down to zero. Assuming this reassignment and revenue effect, **all the States' own expenditures can be financed by their own revenue resources.** The need for assigning share in Central taxes and grants in aid to address VFI does not arise.

Addressing Horizontal Fiscal Imbalance

- Though the financial transfers to the States to address VFI may not be needed if the entire GST is assigned to the States, the tax base of the GST, namely **consumption, is not equally distributed among the States**. The unequal tax base with unequal expenditure requirement between the States **creates horizontal fiscal imbalance among the States**.
- Therefore, the Union government should start **equalization transfers to address this issue of horizontal fiscal inequality**.
- The revenue surplus of the Union government after this tax reassignment should be enough to provide for this equalization transfer to the States.

MICROFINANCE INSTITUTIONS   *GS-III ECONOMY*

Context

- According to a Joint Study conducted by consultancy major Pricewaterhouse Coopers(PwC) and the Association of Microfinance Institutions of India, Microfinance institutions, will play a leading role in the growth process of India.

Report Highlights

- The global market size of the MFI industry is expected to grow by USD122.46 billion from 2021 to 2026 at a compound annual growth rate of 11.61 per cent.
- From 2017 onwards, the Indian MFI industry embraced the digital route by using online delivery channels, mobile banking and e-wallets, paving the way for the sector to adopt digitisation at a large scale.

- The future course of the industry will be determined by the ability of MFIs to forge partnerships, develop new products and investment channels and leverage technology.
- The challenges that the MFI sector will face are the diverse nature of customer segments such as small farmers, vendors and labourers.
- The consumer behaviour and loan requirements for different customers may require varied levels of services with financial products and digital literacy.
- The dependence on physical modes of interaction poses a challenge for MFIs to reach last-mile borrowers. Only technological integration will be able to assist MFIs in providing services as well as repayment collection processes.

Microfinance Institutions

- Microfinance institutions (MFIs) are financial companies that provide small loans to people who do not have any access to banking facilities.
- In India, a microfinance loan is defined as a **collateral-free loan given to a household having an annual income of up to Rs 3 lakh. (Recently revised by RBI. Earlier it was Rs 1 Lakh)**
- **Example of MFIs:** Bandhan Bank Limited, Ujjivan Small Finance Bank, Annapurna Finance Pvt. Ltd, Muthoot Microfin Limited, Credit Access Grameen Limited, Sonata Finance Private Limited etc.
- **The different types of institutions that offer microfinance are:**
  1. Credit unions
  2. Non-governmental organisations
  3. Commercial banks

Some government banks also offer microfinance to the eligible categories of borrowers.

Although most microfinance institutions target the eradication of poverty as their primary motive, some of the new entrants are focused on the sale of more products to consumers.

Goals of Microfinance Institutions

- Transform into a financial institution that assists in the development of communities that are sustainable.
- Help in the provision of resources that offer support to the lower sections of the society. There is special focus on women in this regard, as they have emerged successful in setting up income generation enterprises.
- Evaluate the options available to help eradicate poverty at a faster rate.
- Mobilize self-employment opportunities for the underprivileged.
- Empowering rural people by training them in simple skills so that they are capable of setting up income generation businesses.

Regulations for MFIs

- The regulations pertaining to MFIs are usually based on their statuses.
- A **microfinance bank will be required to adhere to all banking regulations like traditional banks**.
- **Cooperatives and NGOs will not be expected to comply with the same regulations.** However, they may be regulated by similar oversight authorities.

Challenges faced by MFIs in India

- **Cost of outreach -** reaching the unbanked populations of the world means servicing small loan amounts and servicing remote and sparsely populated areas of the planet, which can be dangerously unprofitable without high rates of process automation and mobile delivery.
- **Lack of scalability -** smaller microfinance systems often struggle to preserve the profitability and performance in these markets.
- **Quality of SHGs (Self Help Groups) -** Due to the fast growth of the SHG-Bank Linkage Programme, the quality of MFIs has come under stress. This is due to various reasons such as:
  1. The intrusive involvement of government departments in promoting groups.
  2. Diminishing skill sets on part of the MFIs members in managing their groups.
  3. Changing group dynamics.
- **Geographic Factors** - Around 60% of MFIs agree that the Geographic factors make it difficult to communicate with clients of far-flung areas which create a problem in growth and expansion of the organization.
- **Diverse business models -** Supporting the very wide range of features and lending activities is difficult and requires a considerable amount of cost and efforts.
- **High Transaction Cost -** High transaction cost is a big challenge for microfinance institution. The volume of transactions is very small, whereas the fixed cost of those transactions is very high.
- **KYC and security challenges –** The customers serviced by Microfinance instructions are usually the ones having none or very limited official identification or able to provide tangible security, this makes it extremely difficult for institutions to offer any banking services.
- **Limited budgets –** Making provisions for large upfront investments is not possible for most of the MFIs which limits their capability to purchase world-class banking solutions that can help them fulfil their requirements and support their growth targets.
- **Unfavorable policies:** Although microfinance institutions have been profitable in India, there have been regulations and populist politics that have proved to be unfavourable to them.
- **Easily affected:** The small size of these institutions implies that they will **be affected by small adverse developments resulting in fragile finances.**
- **Funding:** Banks usually have multiple products and an assured deposit structure. On the other hand, micro lending institutions are **highly dependent on the market for funding**. This means that at the smallest of events affecting business, MFIs could find it difficult to procure financing.
- **Over-dependence of the banking system:** Additionally, banks today have a presence in the microlending space and they are also partnering with MFIs through strategic stakes. MFIs are also finding it difficult to grow independently without any support from anchor investors. There are many MFIs that included NGO-run units and societies. Non-banking finance companies – microfinance institutions (NBFC-MFIs) had also been registered with the Microfinance Institutions Network (MFIN).
- **Overborrowing:** The biggest risk looming over the microfinance industry today is the tendency to overborrow on the part of loan seekers. The fact that 20% to 30% of loan applications are now being rejected by MFIs is attributed to the excess borrowing witnessed in the industry.
- **Missing of Targets:** It is a common mistake by the MFIs to neglect the urban poor; they primarily try to focus on the rural poor.
- **Loan Default:** Risk management remains inefficient. Plus, late payments are almost 70% in MFIs, which further creates a hurdle for the institution's working capital and profit.

> As per RBI regulations, the total microloan amount that a single loan seeker can avail should not exceed Rs.60,000 in the initial cycle. In the subsequent cycles, the amount should not be above Rs.1 lakh. The borrower is also not allowed to approach more than two microfinance institutions for the same. As part of self-regulation, MFIN increased the lending bar to Rs.80,000 as there was a huge demand for loans.

- **High rates of interest charged by lenders:** MFIs have a high rate of interest charged on the loans that amount to 12-30% of the principal amount. This leads to default.
- **Note:** It is in this context that under RBI's new regulations 2022, it has allowed microfinance lenders to fix interest rates on loans with a rider that those should not be usurious for the borrowers. And these shall be subjected to supervisory scrutiny by the

Reserve Bank.

No doubt, microfinance institutions have shown impressive growth and have been instrumental in the cause of financial inclusion, but a lot remains to be achieved.

Solutions

- **Proper Regulation -** When the microfinance was in its emergent stage, and individual establishments were allowed to have innovative, operational models, a non- restrictive surrounding wasn't a big concern. However, now the institution needs restrictions that protect the interest of stakeholders and promotes growth.
- **Field superintendence** - This can keep an eye on the performance of ground employees of MFIs and their loan recovery practices.
- **Focus on rural poor -** Instead of reducing the initial cost at places where there are MFIs, these institutions could start targeting the rural poor and establish new branches over the areas.
- **Complete variety of product** - This will help in diverting the dependency of people from the commercial banks.
- **Transparency of interest rates -** The MFIs should abide by an actual Interest rate on the products and amounts which should be mentioned to the customers.
- **Technology to scale back overhead -** MFIs ought to use new technologies and IT tools & applications to scale back their operational costs. Microfinance institutions should be inspired to adopt cost-cutting measures to scale back their operating costs.
- **Different sources of fund -** In the absence of adequate funds, the expansion and the reach of MFIs become restricted and to beat this downside, MFIs could hunt for alternative sources for funding their loan portfolio.

Provisions of Reserve Bank of India (Regulatory Framework for Microfinance Loans) Directions, 2022'

- A collateral-free loan that can be given by MFI to a household is the one having an annual income of up to Rs 3 lakh. (Earlier it was Rs 1 Lakh).
- Each **regulated entity (RE)** should put in place a board-approved policy regarding pricing of microfinance loans.
- In the past, the central bank used to announce the rates on quarterly basis.
- Interest rates and other charges/ fees on microfinance loans should not be usurious. These shall be subjected to supervisory scrutiny by the Reserve Bank.

More Freedom

RBI has raised annual household income to ₹3 lakh for a collateral-free loan to be classified as microloan

Unsecured loans by other NBFCs, irrespective of end use, will now be classified as microloans

Monthly loan repayment is capped to below half the monthly household income to prevent debt traps

Margin cap was introduced a decade ago to stop NBFC-MFIs from charging usurious rates

They now have freedom in fixing board-approved rates but will be under RBI scrutiny

₹2.32 L cr Combined microcredit portfolio as of Dec 31, 2021, up 1.9% YoY

- Each RE has to disclose pricing-related information to a prospective borrower in a standardized simplified factsheet.
- Any fees to be charged to the microfinance borrower by the RE and/ or its partner/agent shall be explicitly disclosed in the factsheet.
- The borrower shall not be charged any amount which is not explicitly mentioned in the factsheet.
- There should be no pre-payment penalty on microfinance loans.
- Penalty, if any, for delayed payment shall be applied on the overdue amount and not on the entire loan amount.
- Regarding limit on loan repayment obligations of a household, each RE should have a board-approved policy regarding the limit on the outflows on account of repayment of monthly loan obligations of a household as a percentage of the monthly household income. This shall be subject to a limit of **maximum 50 per cent of the monthly household income.**
- There should also be a standard form of loan agreement for microfinance loans in a language understood by the borrower.
- Under the earlier guidelines, an NBFC that does not qualify as a non-banking financial company - microfinance institution (NBFC-MFI), cannot extend microfinance loans exceeding 10 percent of its total assets. The maximum limit on microfinance loans for such NBFCs (NBFCs other than NBFC-MFIs) now stands revised at 25 percent of the total assets.

Significance of the Recent New Regulations

- The harmonised regulations will usher in a new era/beginning for the microfinance sector where a common regulatory framework will be applicable to all REs of RBI.
- Besides creating a level playing field, the framework will address issues of over indebtedness and multiple lending which were of paramount concerns for the sector.
- The revision of the income cap to Rs 3 lakh will expand the market opportunity and interest rate cap removal will promote risk-based underwriting.
- The framework for microfinance loans announced by the RBI will further help deepen penetration of micro-credit in the

country.

- This harmonized regulatory framework for different types of lenders, will encourage healthy competition and enabling customers to make an informed choice regarding their credit needs.
- The new framework will help scale the industry further, ensure better risk mitigation and financial inclusion.

ROAD ACCIDENTS IN INDIA — GS-III ECONOMY

Context

- The Ministry of Road Transport and Highways has published the annual report 'Road accidents in India — 2021'.
- Also, Union Minister for Road Transport and Highways Nitin Gadkari said efforts by all are necessary to reduce road accidents by 50 percent before the end of 2025.

The Report

- The report provides information on various facets of road accidents in the country during the calendar year 2021.
- This report is based on the data/information received from police departments of States/Union Territories collected on calendar year basis in standardized formats as provided by the **United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP)** under the **Asia Pacific Road Accident Data (APRAD)** base project.
- It consists of ten sections and covers information relating to road accidents in the context of road length and vehicular population.

Findings of the Report

- India witnessed as many as 4,12,432 road accidents in 2021 in which 1,53,972 people were killed.
- Road accidents **decreased by 8.1 percent and injuries decreased by 14.8 percent in 2021 compared to 2019.** Fatalities, however, on accounts of road accidents increased by 1.9 percent in 2021 corresponding to the same period in 2019.
- Road accidents **increased by 12.6% year on year in 2021** (i.e compared to 2020). There was a **rise of 16.9% y-o-y in fatalities and 10.39% y-o-y** in injuries due to road accidents during the year.
- **Major reasons behind accidents:** Over-speeding, drunken driving, lane indiscipline, traffic light violations, on-use of helmets, using cell phones while driving. Violations such as over-speeding and driving on the wrong side do not constitute human error alone but are also possible faults in road design.

Road accidents in India

- **According to World Bank India ranks first in the number of road accident deaths** across the 199 countries.
- **With only 1 per cent of the world's vehicles, India accounts for 11 per cent of the global death in road accidents**, the highest in the world, according to **World Bank.**
- Witnessing 53 road crashes every hour; road accidents are **killing 1 person every 4 minutes.**
- The country accounts for **about 4.5 lakh road crashes per annum,** in which 1.5 lakh people die.
- **In the last decade, 13 lakh people died** and another 50 lakh got injured on Indian roads. The 2019 World Bank report, titled 'Guide for Road Safety Opportunities and Challenges: Low- and Middle-Income Countries Country Profiles', puts the road crash and serious injury cost estimate **at 7.5 per cent of India's GDP or Rs 12.9 lakh crore for 2016.**

Reasons behind Road Accidents in India

The major reasons that cause accidents in India are:

- **Crossing the speed limit:** Over speeding is one of the major causes of road accidents in India.
- **Intoxication:** Driving under the influence of heavy medication, alcohol, or drugs is another major reason for road accidents in the country. Any driver found with more than 30 mg of alcohol in 100 ml of blood is under the influence of alcohol and is a culprit of drunk driving.
- **Reckless driving:** Reckless driving includes over-confidence, street racing, running stop signs and red lights, changing lanes too quickly, tailgating the vehicle in the front, and hurling abuses at other drivers on the road.
- **Not following rules and regulations on the road:** Being unaware of rules and regulations on the road or knowingly ignoring them is another major cause of road accidents in India.
- **Deplorable conditions of the road:** Despite the vast network of roads in the country, most of them have potholes, without road signs or under construction for a long period. All these lead to road accidents.
- **State of the vehicle:** Many vehicles in India are not fit enough to operate on the roads in India. For instance, a vehicle may operate on the road without proper tyres, the vehicle may be overloaded or it might not be repaired.
- **Distracted Driving:** The number of accidents occurring due to distracted driving has increased are in the past decades. Reading messages, replying to texts, taking calls, reading, grooming, etc.
- **Avoiding Safety Gears like seat belts and helmets.**

> **Justice Radhakrishnan Committee:**
> - It has pointed out serious lapses in implementation of safety laws by States, which has led to increasing number of road fatalities.
> - It asked the State governments to formulate their respective State Road Safety policies besides setting up State Road Safety Councils.
> - States have to draw up a protocol to identify black spots on their roads and their removal.
> - The committee directed the States to strengthen enforcement on drunken driving, over speeding, red light jumping and helmet and seat belt laws.
> - Other directions include, tightening of road patrols on highways, establishment of road safety fund to which a portion of traffic fines collected would go to finance road safety expenses and remove encroachments on pedestrian paths, among others.

Steps taken to prevent Road Accidents

Motor Vehicle Amendment Act and its Provisions:

- A major initiative of the Ministry in the field of Road Safety has been the passing of the **Motor Vehicle Amendment Bill 2019:**

[Vehicle Fitness]

- Automated fitness testing for vehicles has been made mandatory under MVA**.** This would reduce corruption in the transport department while improving the roadworthiness of the vehicle.

[Recall of Vehicles]

- The Act allows the central government to order for recall of motor vehicles if a defect in the vehicle may cause damage to the environment, or the driver, or other road users. The manufacturer of the recalled vehicle will be required to:
1. reimburse the buyers for the full cost of the vehicle, or
2. replace the defective vehicle with another vehicle with similar or better specifications.

[Road Safety Board]

- A National Road Safety Board, to be created by the central government through a notification to advise the central and state governments on all aspects of road safety and traffic management including –
1. standards of motor vehicles,
2. registration and licensing of vehicles,
3. standards for road safety, and
4. promotion of new vehicle technology.

Education and Awareness

- Observance of **National Road Safety Month/Week every year** for spreading awareness and strengthening road safety.
- A Certification Course for Road Safety Auditors has been commenced in Indian Academy of Highway Engineers (IAHE).
- For the first time, the Government of India celebrated the **"Road Safety Month – 2021" with the themes: Sadak Suraksha-Jeevan Raksha**to increase awareness about road safety.

Engineering (both Roads and vehicles)

- Ministry has identified black spots (accident prone spots) on National Highways based on accident and fatality data and rectified many of them.
- Guidelines for pedestrian facilities on National Highways for persons with disabilities have also been issued to all States / UTs.
- Ministry has notified **fitment of Speed Limiting devices on all transport vehicles.**
- Scheme for setting up **one model Inspection & Certification Centre in each State/UT**.

National Road Safety Policy

- This Policy outlines various policy measures such as promoting awareness, establishing road safety information data base, encouraging safer road infrastructure including application of intelligent transport, enforcement of safety laws etc.

National Road Safety Council

- An apex body to take policy decisions in matters of road safety.

4 Es

- Multi-pronged strategy to address the issue of road safety based on 4 'E's viz. Education, Engineering (both of roads and vehicles), Enforcement and Emergency Care.

Model Driving Training Institutes

- Setting up of model driving training institutes in States.

Tightening of safety standards

- Tightening of safety standards for vehicles like Seat Belts, anti-lock braking system etc.

Road Safety Engineering Workshops

- National Level Workshops and several Regional Training workshops in various states have been organized on Road Safety Engineering.

Other

- "Grant of Financial Assistance for Administering Road Safely Advocacy and Awards for the Outstanding Work Done in the Field of Road Safety".
- **Crash Safety Norm** of the vehicles have been revised.
- Setting up of model **Institutes of Driving Training and Research (IDTR) Centres**.
- A central repository, **Integrated Road Accident Database (iRAD) system** has been developed for reporting, management, claim processing and analysis of road accidents data to enhance road safety in the Country.

2030 Agenda for Sustainable Development

- **Target 3.6**: pledges to halve by 2020 "the number of global deaths and injuries from road traffic accidents".
- **Target 11.2:** calls on providing, by 2030, "access to safe, affordable, accessible and sustainable transport systems for all, improving road safety".
- **Target 9.1:** calls for developing "quality, reliable, sustainable and resilient infrastructure", including through investments in transport infrastructure.
- The goals represent strong international road safety commitments and a renewed momentum for the Decade of Action for Road Safety 2011-2020.

Way Ahead

- Road safety education from the primary level. Including "Road Safety" in the school syllabus.
- Stricter exams and practical tests for driving licenses.
- Better road design, maintenance and signage.
- Crackdown on driving under influence of alcohol and drugs.
- **Bystander Training Programme** should be undertaken in a time-bound manner.
- **Enforcement of traffic rules:** The Amended Motor Vehicles Act has higher penalties and punishment to deter people from committing traffic offences and driving rashly. But **States have been lukewarm towards hard steps to bring order to the roads, viewing zero tolerance rule enforcement through the lens of populism.** It is still far away from being implemented or enforced properly on a national level.

HOW INDIA FARES ON LAW ENFORCEMENT

SPEED LIMIT

DRUNK DRIVING

MOTORCYCLE HELMETS

SEATBELTS

Source: WHO Global Status Road Safety Report 2015

- **Encouraging better road behavior**: Hyundai has been running a very educative and innovative campaign "Be the Better Guy", with some of the advertisements and films even featuring superstar Shahrukh Khan. Such campaigns that urge people to behave in a better manner on the road and "Be the Better Guy", need to be applauded, encouraged and expanded.
- **Better law enforcement:** In India, though the law is in place, its enforcement and communication is weak.
- Enforcement of all road safety laws needs to be improved. Enforcement efforts must be well-publicized, sustained, and implemented through the use of appropriate measures and penalties for infringement.
- **Only with high political will** — and there is no evidence this is present in all the States — we can hope of **ending the "silent pandemic" of accidents** that will need education, civil society cooperation and professional policing.

International Road Safety Conventions

Brasilia Declaration

- The Brasilia Declaration, adopted at the second global high-level conference on road safety held in Brazil, lays down recommendations on strengthening existing legislations, adopting sustainable transport and strengthening post-crash response.
- In the declaration, participants reasserted their commitment to reduce the deaths caused due to traffic accidents to half by the year 2020. This target was set under the 2030 Agenda for Sustainable Development.

Stockholm Declaration

- Known as the "Stockholm Declaration", this seminal commitment to address the 1.3 million lives lost every year on the world's roads, and the tens of millions who are seriously injured, was agreed by some 1 700 delegates from around 140 countries.
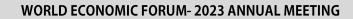
International Road Assessment Programme (iRAP)

- The International Road Assessment Programme (iRAP) is a registered charity dedicated to saving lives by eliminating high risk roads throughout the world.
- iRAP works in partnership with governments, road authorities, mobility clubs, development banks, NGOs and research organisations to:
1. Inspect high-risk roads and develop Star Ratings, Risk Maps and Safer Roads Investment Plans
2. Provide training, technology and support that will build and sustain national, regional and local capability
3. Track road safety performance so that funding agencies can assess the benefits of their investments.
- iRAP's Plan is **aligned to the Global Plan for the Decade of Action launched in October 2021.**

United Nations Road Safety Collaboration

- Established in 2004, the UNRSC is an informal consultative mechanism whose goal is to facilitate international cooperation and strengthen global and regional coordination among UN agencies and other international partners to implement UN General Assembly Resolutions on road safety.

Closing Thoughts

- The data and analysis on road accidents will help create awareness, formulate suitable policy, take effective measures and also assist in informed decision making in the area of road safety. The success of road safety initiatives requires **active cooperation and participation of all stakeholders**.
- Data on road accidents and the basic analysis will be **useful to administrators, policy makers, civil society organizations** as well as **researchers in analysis of road safety issues** leading to appropriate policy interventions to achieve reduction in road accidents and resultant fatalities.

WORLD ECONOMIC FORUM- 2023 ANNUAL MEETING   *GS-III ECONOMY*

Context

- The World Economic Forum's Annual Meeting 2023, was held in the Swiss town of Davos.

About WEF

- **About:** The **World Economic Forum** (**WEF**) is an international non-governmental and lobbying organisation.
- **Headquarters:** It is based in Cologny, canton of Geneva, Switzerland.
- **Establishment:** It was founded on 24 January 1971 by German engineer and economist Klaus Schwab.
- **Mandate:** It is committed to **improving the state of the world by engaging business, political, academic and other leaders of society to shape global, regional, and industry agendas**.
- **Renaming:** First named the **European Management Forum**, it changed its name to the World Economic Forum in 1987 and sought to broaden its vision to include providing a platform for resolving international conflicts.

Theme of 2023 WEF Meeting

- The World Economic Forum (WEF) Annual Meeting 2023 was held on the theme, '**Cooperation in a Fragmented World**.'

Agenda of the 2023 World Economic Forum (WEF) Davos meeting

- The following issues were taken into consideration in this year's meet:
o Economics of Women's Health.
o State of the Pandemic.
o Putting health at the Heart of Climate Action.
o Health System: Building through Disruption.
o Better Health with Data.

Overview of the meeting - Major Issues

Energy crises

- According to the programme, **energy transition and climate change are inextricably linked**. Furthermore, it states that more action is required to reduce carbon emissions and mitigate the effects of climate change.
- **Decoupling economic growth from energy consumption**, particularly in emerging economies, and mainstreaming breakthrough technological innovations are critical measures to accelerate the energy transition.
- WEF seeks **ambitious, comprehensive, and long-term infrastructure investment plans** that will assist the world in meeting the 2030 targets.

High inflation, low growth, high debt economy

- The agenda emphasises that **COVID-19 pandemic**, **has pushed 120 million more people into extreme poverty** and exposed market-wide underfunding of critical infrastructure.

- According to the report, **reshaping the economic agenda along strategic lines and restoring trust in the international system** will necessitate careful collaboration among all stakeholders as well as a new vision for economic prosperity and development.

Industry Headwinds

- The **Fourth Industrial Revolution (4IR), climate change, and geopolitical fragmentation** are forcing industries to reconsider their investment, production, and innovation decisions.
- It states that **collaboration must be strengthened** across increasingly diverse ecosystems, including competitors, companies from other industries, and innovators, in order to navigate current friction points and strengthen future competitiveness.

Social vulnerabilities

- It emphasises, that workers are continuing to leave - or are considering leaving - their jobs despite the growing global economic crisis. It also adds unfilled jobs and tight labour markets in many of the world's largest economies, while **real wages are declining in many job categories in the midst of a cost-of-living crisis.**
- According to the programme, because **emerging markets are facing significant unemployment as a result of the economic slowdown**, resulting in increased social pressure, a new social contract that supports strong investment in education, skills, and healthcare is needed.

Geopolitical risks

- According to the forum, trade, which serves as a common benefit for countries, has been used as a weapon to punish rivals. According to the report, there is a **growing need for a new global standard.**

Industry 4.0

Industry 4.0 refers to a **new phase in the Industrial Revolution that focuses heavily on interconnectivity, automation, machine learning, and real-time data**. The Fourth Industrial Revolution is a way of describing the blurring of boundaries between the physical, digital, and biological worlds. Industry 4.0, conceptualises rapid change to technology, industries, and societal patterns and processes in the 21st century due to increasing interconnectivity and smart automation. The term was popularised in 2015 by Klaus Schwab, the World Economic Forum founder.

MUNICIPAL BONDS   *GS-III ECONOMY*

Context

- Securities and Exchange Board of India (SEB) has launched an information database on Municipal Bonds.

Details

- The information database contains a wide range of information in the form of statistics and regulations, circulars, guidance note and Frequently Asked Questions issued by SEBI in respect of Municipal Debt Securities.

What are Municipal Bonds?

- A municipal bond is a **debt instrument issued by municipal corporations** or associated bodies in India.
- These local governmental bodies **utilise the funds raised through these bonds to finance projects for socio-economic development** through building bridges, schools, hospitals, providing proper amenities to households etc.

Maturity Period

- Such bonds come with a **maturity period of three years**, whereby municipal corporations provide returns on these bonds either from property and professional tax collected or from revenues generated from specific projects or both.

Municipal Bonds in India

- Municipal bonds exist in India **since the year 1997**. Bangalore Municipal Corporation is the first urban local body to issue municipal bonds in India.
- The municipal bonds lost the ground after the initial investors' attraction it received and failed to raise the desired amount of funds. To revive municipal bonds, the market watchdog SEBI came up with guidelines for the issue of municipal bonds in 2015.

Change in Guideline

- The Securities and Exchange Board of India (SEBI) revised the guidelines related to the issuance of municipal bonds in 2015 in an attempt to enable ULBs or Urban Local Bodies to raise finances from such sources.

A municipality should meet the following eligibility criteria to issue municipal bonds in India

- The municipality must not have a negative net worth in each of the three previous years.

- The municipality **must have no default in the repayment of debt securities** and loans availed from the banks or non-banking financial companies in the last year.
- The municipality, promoter and directors **must not be enlisted in the wilful defaulters** published by the Reserve Bank of India (RBI). The municipality should have **no record of default** in the payment of interest and repayment of principal with respect to debt instruments.

Following this measure, different cities have capitalized on the new guidelines to fund initiatives such as Atal Mission for Rejuvenation and Urbanisation Transformation (AMRUT) and Smart Cities Mission.

Types of Municipal Bonds in India
- There are primarily two types of municipal bonds in India, categorised as per their usage. These are –

General Obligation Bonds
- General Obligation Bonds are **issued to raise finances for general projects such as improving the infrastructure of a region**.
- Repayment of the bond, along with interest, is processed through revenue generated from different projects and taxes.

Revenue Bonds
- Revenue bonds, on the other hand, are **issued to raise finance for specific projects**, such as the construction of a particular building.
- Repayment of such bonds (principal and accrued interest) shall be **paid through revenues explicitly generated from the declared projects**.
- Revenue generation from projects which are financed with revenue bonds shall be **deposited in an Escrow Account**. Concerning financial institutions monitor this account.

Escrow Account

An escrow account is a **temporary pass-through account** held by a third party during the process of a transaction between two parties. This is a temporary account as it operates until the completion of a transaction process, which is implemented after all the conditions between the buyer and the seller are settled.

Description: In real estate, the fund flows for the development of the project from any source is kept in the escrow account and the funds utilized for the same are also generated from the escrow account. Even the buyers of the housing units in a project transfer the home price to the escrow account and the amount is not transferred to the seller until the project is completed.

Advantages of Municipal Bonds
Transparency
- These bonds that are issued to the public are **rated by renowned agencies such as CRISIL**, which allows investors transparency regarding the credibility of the investment option.

Tax benefits
- In India, municipal bonds are **exempted from taxation** if the investor conforms to certain stipulated rules. In addition to such conformation, interest rates generated on such investment tools are also exempt from taxation policy.

Minimal Risk
- These are issued by municipal authorities, implying involvement of **minimal risk with these securities.**

Disadvantages of Municipal Bonds
Long maturity period
- Municipal bonds come with a **lock-in period of three years**, imposing a burden on the liquidity requirements of investors. Nonetheless, selling such securities prematurely in the secondary market can be challenging if the bonds are issued by an unpopular municipal corporation. It is because, in such cases, entities are uncertain about their credibility and yielding capacity.

Low-interest rates
- Even though interest rates on these bonds, in some cases, are higher than other debt instruments, these rates are considerably low when compared to returns from market-linked financial instruments such as equity shares.

Closing comments
- The RBI has suggested issuing municipal bonds as the demand for infrastructure grows in the cities to meet their funding requirements.
- India's local bodies are financially weak as they don't have enough autonomy to levy taxes, grant exemptions, or even borrow funds, making them dependent on bank loans or central or state government resources. A vibrant sub-sovereign debt market catering to a robust investor appetite for municipal bonds can provide an avenue for these entities to access public funds.
- Municipal bonds can provide an avenue for these entities to access public funds, create an alternative class of assets for investors and further deepen India's domestic debt market.

- Also, listing municipal bonds in the stock exchanges <u>can pave the way for developing the much-needed secondary market for municipal bonds in India</u>.

RENEWABLE ENERGY IN INDIA

GS-III ECONOMY

Context

- India would have to add at least 25GW of renewable energy capacity per annum for eight years continuously **to achieve the 500 GW target by 2030.**

Important Stats

- At present, <u>**India has around 173GW of non-fossil fuel based clean energy**</u> capacity.
- This includes about 62GW of solar, 42GW of wind energy, 10GW of biomass power, about five GW of small hydro, 47 GW of large hydro and seven GW of nuclear power capacity.
- India was ranked **fourth in wind power, fifth in solar power and fourth in renewable power installed capacity**, as of 2020. Installed renewable power generation capacity has gained pace over the past few years, posting a CAGR of 15.92% between FY16-22.

Targets
Paris Agreement

- In the **Paris Agreement India** has committed to an Intended Nationally Determined Contributions target of achieving 40% of its total electricity generation from non-fossil fuel sources by 2030.

COP 26 Announcement

- India's COP 26 announcement that it intends to achieve **net zero carbon emissions by 2070 and to meet 50% of its electricity needs from renewable sources by 2030** marks a historic point in the global effort to combat climate change.

Central Electricity Authority's strategy blueprint

- India is aiming for a more **ambitious target of 57% of the total electricity capacity from renewable sources by 2027** in Central Electricity Authority's strategy blueprint.
- According to 2027 blueprint, India aims to have 275 GW from renewable energy, 72 GW of hydroelectricity, 15 GW of nuclear energy and nearly 100 GW from "other zero emission" sources.

These targets would place India among the world leaders in renewable energy use and place India at the centre of its "Sunshine Countries" International Solar Alliance project promoting the growth and development of solar power internationally to over 120 countries.

Renewable Energy Demand

- India's energy demand is expected to increase more than that of any other country in the coming decades due to its sheer size and enormous potential for growth and development. Therefore, it is imperative that most of this new energy demand is met by low-carbon, renewable sources.
- India is the market with the fastest growth in renewable electricity, and by 2026, new capacity additions are expected to double.

Government's Initiatives for generating Renewable Energy
Grid Connected Solar Rooftop Programme

- **Objective**: For achieving a cumulative capacity of 40,000 MW from Rooftop Solar (RTS) Projects.

Solar Park Scheme

- The scheme proposes to offer financial support by the Government of India to establish solar parks to facilitate the creation of infrastructure required for setting up new solar power projects in terms of allocation of land, transmission, access to roads, availability of water, etc.

International Solar Alliance

- The International Solar Alliance (ISA) is an alliance of 121 countries initiated by India, most of them being sunshine countries. The primary objective of the alliance is to work for efficient consumption of solar energy to reduce dependence on fossil fuels.
- The initiative was launched by Prime Minister Narendra Modi at the **India Africa Summit,** and a meeting of member countries ahead of the 2015 **United Nations Climate Change Conference (COP 21)** in Paris in November 2015. The framework agreement of the International Solar Alliance opened for signatures in Marrakech, Morocco in November 2016, and 200 countries have joined. **HQ**- Gurugram, Haryana

PM KUSUM

- <u>Pradhan Mantri Kisan Urja Suraksha evemUtthanMahabhiyan (PM KUSUM) Scheme</u> for farmers aims for installation of solar pumps and grid connected solar and other renewable power plants in the country.

National Green Corridor Project

- The green energy corridor is grid connected network for the transmission of renewable energy produced from various renewable energy projects.

National Wind-Solar Hybrid Policy

- This policy essentially aims at establishing a structure on the basis of which large-scale wind-solar hybrid power projects can be promoted.

National Offshore Wind Energy Policy

- The objective is to develop the offshore wind energy in the Indian Exclusive Economic Zone (EEZ) along the Indian coastline.

Sustainable Rooftop Implementation for Solar Transfiguration of India (SRISTI) scheme

- The Central government will offer with financial incentive to the beneficiary for installing Solar power plant rooftop projects within the country.

Biomass power & cogeneration programme

- It is being implemented with the main objective of promoting technologies for optimum use of country's biomass resources for grid power generation.

Draft National Wind-Solar Hybrid Policy

- The objective of the Policy is to provide a framework for promotion of large grid connected wind - solar PV hybrid system for optimal and efficient utilization of transmission infrastructure and land, reducing the variability in renewable power generation and achieving better grid stability.

FDI Policy

- 100% FDI is allowed in the renewable energy sector under the Automatic route and no prior Government approval is needed.

AkshayUrja Portal and India Renewable Idea Exchange (IRIX) Portal

- Promotes the exchange of ideas among energy conscious Indians and the Global community.

National Biogas and Manure Management Programme

- Central Sector Schemes that provides for setting up of Family Type Biogas Plants mainly for rural and semi-urban/households.

Production Linked Incentive (PLI) Scheme

- Incentives for High Efficiency Solar PV Modules for Enhancing India's Manufacturing Capabilities and Enhancing Exports.

Mission Innovation CleanTech Exchange

- In June 2021, India launched the Mission Innovation CleanTech Exchange, a global initiative that will create a whole network of incubators across member countries to accelerate clean energy innovation.

India Renewables Dashboard

- In April 2021, the Central Electricity Authority (CEA) and CEEW's Centre for Energy Finance (CEEW-CEF) jointly launched the India Renewables Dashboard that provides detailed operational information on renewable energy (RE) projects in India.

National Electricity Policy (NEP) 2021

- In April 2021, the Ministry of Power (MoP) released the draft National Electricity Policy (NEP) 2021.

National Mission on advanced ultra-supercritical technologies

- The GOI has announced plans to implement a US$ 238 million National Mission on advanced ultra-supercritical technologies for cleaner coal utilisation.

Indian Railways Efforts

- Indian Railways is taking increased efforts through sustained energy efficient measures and maximum use of clean fuel to cut down emission level by 33% by 2030.

Renewable energy park at the Rann of Kutch in Khavada, Gujarat

- In July 2021, the Ministry of New and Renewable Energy (MNRE) gave the go-ahead to NTPC Renewable Energy Ltd., a 100% subsidiary of NTPC, to build a 4,750 MW renewable energy park at the Rann of Kutch in Khavada, Gujarat. This will **be India's largest solar park to be developed by the country's leading power producer.**

ISTS Waiver

- The government waived off ISTS (Inter-State Transmission System) or wheeling charges on the transmission of electricity generated from new hydro power projects for 18 years from the date of commissioning.

Moving Ahead

- 2023 is positioned to become one of the most crucial milestones in **"Accelerating Our Energy Transition Journey".**
- Hydropower projects, being clean, green and sustainable will be of paramount importance in India's clean energy transition journey. They are also essential for the integration of solar and wind power, which are intermittent in nature.
- Green ammonia and green hydrogen production should be included under infrastructure sector definition, then, investment in these sectors also can be made through FVCI (Foreign Venture Capital Investor) route. This will give more flexibility to foreign investors and attract investment.

[**Note:** India needs to add about 25 GW of renewable energy capacity per annum for the next eight years, which would require an

investment of Rs 1,25,000 crore or USD 15 billion to 16 billion factoring in Rs 5 crore requirement per MW of capacity addition.]

- **Flexible financing solutions, tax exemptions, subsidy availability for R&D (in renewable energy)** will lead to innovation and capacity expansion.
- The next phase will require **deep structural reforms** to create a cleaner, more flexible and more efficient power system.
- With a potential capacity of 363 GW and with policies focused on the renewable energy sector, Northern India is expected to become the hub for renewable energy in India.

(T+1) SETTLEMENT   GS-III ECONOMY

Context
- After China, India will become the **second country in the world to start the 'trade-plus-one' (T+1) settlement cycle** in top-listed securities from January 27. This is for bringing operational efficiency, faster fund remittances, share delivery, and ease for stock market participants.

Trade Settlement
- Trade settlement is **a two-way process wherein the purchased securities are delivered to the buyer, and the seller receives cash**.
- As one buys or sells financial securities, the actual transfer of ownership occurs on the settlement date.

What Is T+1 (T+2, T+3)?
- T+1 (T+2, T+3) are abbreviations that refer to the settlement date of security transactions.
- The **"T" stands for transaction date**, which is the day the transaction takes place.
- The numbers 1, 2, or 3 denote how many days after the transaction date the settlement—or the transfer of money and security ownership—takes place. For determining the T+1 (T+2, T+3) settlement date, the only days counted are those on which the stock market is open.

Decoding T+1 settlement plan
- The T+1 settlement cycle means that **trade-related settlements must be done within a day, or 24 hours**, of the completion of a transaction.
- For example, under T+1, if a customer bought shares on Wednesday, they would be credited to the customer's demat account on Thursday. This is different from T+2, where they will be settled on Friday.
- As many as 25 large-cap and top mid-cap stocks, including Nifty and Sensex stocks, will come under the T+1 settlement.
- **Until 2001**, stock markets had a weekly settlement system. The markets then moved to a rolling settlement system of T+3, and then to T+2 **in 2003.** T+1 is being implemented despite opposition from foreign investors. The United States, United Kingdom and Eurozone markets are yet to move to the T+1 system.

What are the benefits of T+1?
Boost to Digital Journey: Seamless transactions
- In the T+1 format, **if an investor sells a share, she will get the money within a day,** and the **buyer will get the shares in her demat account also within a day.**
- The shorter trade settlement cycle that is set to be implemented augurs well for the Indian equity markets from a liquidity perspective, and **it shows how well we have grown on the digital journey to ensure seamless settlements within 24 hours.**

Operational Efficiency
- This will also help in getting the funds in the bank account within 24 hours of the sale of shares. The shift **will boost operational efficiency as the rolling of funds and stocks will be faster.**

Makes Markets Safer
- A T+1 settlement cycle frees up the capital required to collateralize that risk.
- A shortened settlement cycle also reduces the number of outstanding unsettled trades at any point of time, and thus **decreases the unsettled exposure to Clearing Corporation by 50 percent.**
- The narrower the settlement cycle, the narrower the time window for a counterparty insolvency/ bankruptcy to impact the settlement of a trade.
    - ***Note:*** *If bankruptcy is filed, settlements are impacted. A shorter settlement cycle will reduce this impact.*
- Further, the capital blocked in the system will get proportionately reduced with the number of outstanding unsettled trades at any point in time.
- Systemic risk depends on the number of outstanding trades and concentration of risk and becomes critical when this magnitude of outstanding transactions increases. Thus, in this era of increasing trade volumes, a shortened settlement cycle

will help in reducing systemic risk.

SYSTEMIC RISK

Systemic risk refers to **the risk of a breakdown of an entire system rather than simply the failure of individual parts**. In a financial context, it denotes the risk of a cascading failure in the financial sector, caused by linkages within the financial system, resulting in a severe economic downturn.

Why are foreign investors opposed?

- Foreign investors were against SEBI's T+1 proposal, and had written to the regulator and the Finance Ministry about the operational issues faced by them, as they operate from different geographies.
- Among the issues raised by them were **time zone differences, information flow process, and foreign exchange problems.**
  Note: In 2020, SEBI had deferred the plan to halve the trade settlement cycle to one day (T+1) following opposition from foreign investors.

SHORT SELLING   *GS-III ECONOMY*

Context
- Hindenburg Research has disclosed short positions in Adani Group, alleging stock manipulation and accounting fraud in its latest report.

Buy Low Sell High
- **"Buy low, sell high"** is the traditional **investment strategy in which one buys a stock or security at a particular price and then sells it when the price is higher, thereby booking a profit**. This is referred to as a **"long position",** and is based on the view that the price of the stock or security will appreciate with time.

Short Selling
- Short selling, on the other hand, is a trading strategy based on the expectation that the **price of the security will fall.** While fundamentally it is based on the **"buy low, sell high" approach,** the sequence of transactions is reversed in short selling — to sell high first and buy low later.
- Investors, who short sell stocks, **expect share prices to drop on a future date and aim to capitalize on this prediction.**
- Since it **depends on speculation** and entails infinite risk theoretically, only seasoned investors partake in short selling.
- When prices drop, traders make a profit from the difference between the selling price and the purchasing price.
- Also, in short selling, the trader usually does not own the securities he sells, but merely borrows them.
- In the stock market, traders usually short stocks by selling shares they have borrowed from others through brokerages. When the price of the shares falls to the expected levels, the trader would purchase the shares at the lower price and return them to the owner, booking a profit in the process. If, however, the price of the shares appreciates instead of falling, the trader will be forced to buy shares at a higher price to return to the owner, thereby booking a loss.

Watch these Videos for Conceptual Clarity:
https://www.youtube.com/watch?v=Z1LctxzEREE
https://youtu.be/5Hah_jffaHg

When is Short Selling Profitable?
- Short selling is **profitable when a trader speculates correctly**, and share prices do fall below the market price at which a trader sold short. In that case, a trader gets to keep the difference between the selling price and purchasing price as profit.

Short selling example:
- Rahul speculates that the current market price of stock ABC at Rs.200 is way overvalued and expects that once its quarterly financial reports are out in a week, its share price will drop. He **borrows** 20 ABC stocks and sells them in the market at Rs. 200, thus getting "short" by 20 stocks. In a week, as predicted, the price of ABC stocks starts to fall and reaches Rs. 175. He then repurchases those 20 stocks at the lower rate of Rs. 175, thus pocketing Rs. 25 per share as profit and earning an overall profit of Rs. 5000 (Rs. 25 x 20). He then gives back those stocks to the original broker.
- Even though, theoretically, Rahul profits Rs. 5000, in reality, there is interest on the borrowed stocks and commissions that an investor needs to pay. And depending on the timing of selling short, a trader might also need to pay a dividend to its buyer.
- Additionally, a stock might be overtly shorted by other traders that might cause a paucity of the stocks available with a broker. In that case, the borrowing costs might be steeper. Also, even after borrowing, there is no certainty that a trader will find buyers and sellers in the subsequent stages.

When Does Short Selling Result in Loss?
- When a trader predicts wrongly about the declination of share prices, they stand to lose infinitely. The term "infinite risk"
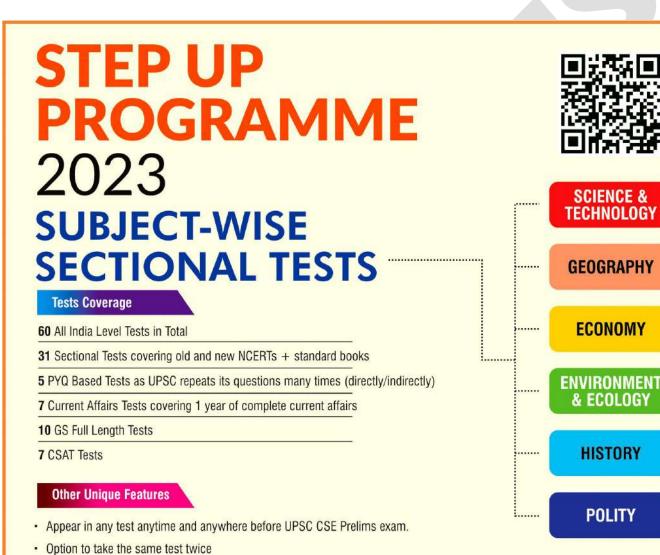
particularly applies to short selling where the modus operandi is "sell high and buy low".

- In the conventional trading approach, a trader purchases shares at a specific price and expects it to rise in the future when she can sell it to earn profits. In that case, even if the share prices fall a trader only stands to lose to the extent of her investment, thus limited risk.

- In case of short selling stocks, if contrary to prediction share prices surge, it can skyrocket infinitely, thus exposing a trader to unlimited risk.

Short selling example:

- Ruth speculates that PNM stocks will fall in value from its current market price of Rs. 100 when the company announces its dismal annual reports in the next week. Relying on this speculation, she borrows 15 PNM stocks and concludes short selling in the stock market at Rs. 100/share.

- However, just after the annual report's announcement, the company was overtaken by a reputed conglomerate, thus driving its share prices upwards to Rs. 110. Ruth then decides to close the position and buy back the shares at the increased market rate. She, therefore, realizes a loss of Rs. 10/share, and Rs. 1500 (15 x 10) overall in addition to the interest and commission.

BLOCKCHAIN IN AGRICULTURE

Context
- **India**'s natural farming could soon get a technological push through **blockchain**, as the government plans to use the technology across all export-driven crops.

What is Blockchain Technology?
- Blockchain records information with an immutable cryptographic signature that cannot be modified, hacked, or faked. This digital ledger is distributed across the entire network of computer systems on the blockchain.
- Blockchain use cases in agriculture contribute to building a transparent, fair, and tamper-proof value chain and will benefit smallholder farmers.

How Blockchain Technology Can Revolutionize Agriculture Sector?
- Blockchain is a technology that can bring breakthroughs in the Agri sector with its potential. By allowing information to be traced across the agricultural supply chain, **blockchain agriculture enhances food safety**.
- The ability of blockchain to store and manage data allows for traceability, which is used to aid in the development and implementation of intelligent farming and **index-based crop insurance systems.**

Uses of Blockchain Technologies in Agriculture
- Blockchain technologies can track all types of information about plants, such as **seed quality, and crop growth, and even generate a record of the journey of the plant after it leaves the farm**.
- This data can **improve supply chain transparency and eliminate concerns associated with illegal and unethical operations**.
- In the case of a recall, they can also make it **easier to track any contamination or other issues back to their source.**
- The primary goals of these technologies are **sustainability and food security**. When consumers have this amount of transparency, **they can make informed purchasing decisions**. They frequently utilize this information to reward farmers and producers that implement good farming methods.
- It promises a reliable source of truth about the state of farms, inventories and contracts in agriculture (tamper-proof), where the collection of such information is often incredibly costly and anyone can manipulate. As a trusted way of storing data, it **facilitates the use of data-driven technologies to make farming smarter.**
- In India, there is still heavy dependence on physical paperwork and files to store land/farmers' data, which often could be a cumbersome task and marred with a lot of inconsistencies. **Blockchain could provide a systematic, tamper-proof digital ledger of land records in case of farmer/land registrations both in urban and rural regions.**

Barriers to Using Blockchain Technologies
- Concerns have been raised that **blockchain technology could be misapplied or misused, putting food security at risk**. For example, privately held blockchains are easier to hack and less secure. Because these blockchains are based on private organisation norms, it's easy to see how the wrong people could take advantage of them. **Small-scale farmers,** on the other hand, who lack the necessary size, technological know-how, and scalability to take advantage of blockchain technology, **may be left behind.**
- Many issues must be resolved before blockchain technology can be completely incorporated into agriculture.
- First, **blockchain implementation must be decentralized to accommodate small farmers and rural dwellers.** Otherwise, food security will remain a problem. Implementation must enable sustainable and equitable food systems, allowing consumers to make better decisions.
- **Those who lack the digital literacy required to engage in blockchain technology must be educated**. This is part of the system's decentralisation process. Because of aged infrastructure and a lack of digital literacy, the **world's poor may be unable to participate.**

Why blockchain technology can be the game-changer for bolstering farming in India?
- While the food goes through many different players on its journey from the farm to the food plate, there is a strong urge by consumers today to know what are they eating. Also, as supply chains have become longer, any user becomes more concerned about the origin and journey of the produce. Blockchain is the only way that traceability can be brought reliably to farm produce with the distributed market architecture.
- IoT devices and sensors are being introduced by agritech companies, and blockchain technology can be used to consolidate data on a variety of topics, **including seed quality, crop tracking, and the path of crops from the farm to the market.**
- Apart from increasing transparency in the food supply chain, blockchain technology can also improve security by **prohibiting unethical crop production and distribution, which endangers farmers' livelihoods.**

Context
- Lowering of global prices has boosted fertiliser availability and cut the subsidy bill. However, asymmetry in the pricing structure has led to a worsening nutrient imbalance due to over-application of urea and DAP.

DAP and Urea
- Di-ammonium Phosphate popularly known as DAP is a preferred fertilizer in India because it contains both Nitrogen and Phosphorus which are primary macro-nutrients and part of 18 essential plant nutrients.

- DAP (NH4)2HPO4: Fertilizer grade DAP Contains 18% Nitrogen and 46% Phosphorus (P2O5).. DAP is manufactured by reacting Ammonia with Phosphoric acid under controlled conditions in fertilizer plants.
- Urea is a white crystalline organic chemical compound. It is the most important nitrogenous fertiliser in the country because of its high N content (46%N). Urea consists of **Nitrogen, Carbon, and Oxygen**. Formula: CH_4N_2O
- Besides its use in the crops, it is used as a cattle feed supplement to replace a part of protein requirements.
- It has also numerous industrial uses notably for production of plastics.

The issue of overuse of Fertilizers
- India's Fertiliser industry is **classified under the "red category"** of polluting sectors by CPCB.
- Wastewater generated at urea plants contain ammoniacal and Kjeldahl nitrogen, and cyanides in varying concentrations. This leads to **water-pollution problems**.
- Using urea excessively on crops causes **adverse effect on soil, crop quality and overall eco-system** besides leading to pest and insect attacks.
- **Too much Urea damages plants:** nitrogen impairs or completely impedes seed germination, and too much nitrogen can give crops a "burn."
- Over the time nitrogen fertilisers added in large quantities to fields **kills the balance between the three macronutrients, N, P and K**, resulting in **decreased crop yields.**
- Repeated chemical fertiliser applications may lead to a toxic build-up in the soil of heavy metals such as arsenic, cadmium, and uranium. Not only do these toxic heavy metals pollute the ground, but they also **accumulate in food grains, fruits and vegetables.**
- Application of fertilisers without the recommendation of soil testing can lead to implications such as **soil degradation, nutrient imbalance, soil structure destruction, bulk density increase.**

Some stats
- Since 2017-18, urea consumption has risen from below 300 lakh tonnes (lt) to 350 lt.
- Consumption of NPKS complexes and SSP in 2019-20 was lower than in 2011-12. There was an increase in 2020-21 and 2021-22.
- The current fiscal has, however, witnessed a worsening of nutrition imbalances. Consumption of both urea and DAP has shot up, with their sales for the year ending March 2023 likely to top 350 lt and 120 lt respectively.

Culprits
High subsidy:
- The imbalances to "disturbances in the price hierarchy". Urea was and is still the country's cheapest fertiliser.

DAP is a cheaper alternative
- DAP is today retailing at Rs 27,000 per tonne.

How to address the issues
- Indian agriculture needs to graduate from the present practice of bulk application of urea to a more precise supply of required nutrients.
- The industry needs to come up with **new and innovative products to improve efficiency of nitrogen use from the current 30-35% to more than 60%. (Nano Urea could be a breakthrough).**This will reduce urea consumption, improve soil health, increase yields and reduce N2O emissions.
- DAP use needs to be restricted to rice and wheat.
- **Raise SSP's acceptance by permitting sale only in granular, not powdered, form**. SSP powder is prone to adulteration with gypsum or clay. Farmers can be assured of quality through granules, which will also promote slower release of P without drift during application.

> **Single Super Phosphate (SSP)**
> SSP is **the most popular phosphatic fertilizer after DAP** as it contains 3 major plant nutrients namely Phosphorus, Sulphur and Calcium along with traces of many micro-nutrients. SSP is indigenously available and supply can be made at short notice.

Conclusion
- The ultimate aim should be to cap urea, DAP and MOP consumption. India, the expert points out, cannot sustain imports leading to their increasing application. Farmers must, instead, be **nudged to use more of low-analysis complex fertilisers and SSP.**

GENERATIVE ARTIFICIAL INTELLIGENCE

Context

- Be it communication, commerce, science, entertainment, sports, space, or art; Technology has cut through the impossibilities and carved a special niche for itself in our lives. One such technological marvel is the field of <u>Generative Artificial Intelligence</u>.

AI

AI (Artificial Intelligence) is the ability of a machine to perform cognitive functions as humans do, such as <u>perceiving, learning, reasoning and solving problems</u>. The benchmark for AI is the human level concerning **in teams of reasoning, speech, and vision.**

Generative Intelligence

- Generative AI refers to Artificial Intelligence **that can create new information from scratch,** as opposed to merely evaluating or acting on pre-existing data. Generative AI models <u>produce text and images: blog posts, program code, poetry, and artwork</u>.
- The software uses complex machine learning models to predict the next word based on previous word sequences, or the next image based on words describing previous images.

Applications
Generate Research Material Summary

- Generative artificial intelligence can <u>sift through numerous legal research materials</u> and <u>produce</u> a pertinent, specific, and actionable <u>summary.</u> As a result, it **can reduce the countless hours of human research** and enable them to focus on more complex and exciting problems.

Answer Complex Queries

- In addition, ChatGPT **can assist in providing answers to complex queries** and augment search algorithms to generate responses to complex search queries.

Discover new Research

- Generative AI **can accelerate the discovery of new research, drafting and synthesizing documents and reports**.

Develop Complex Engineering, Design, and Architecture

- Generative AI can also **help create and simulate complex engineering, design, and architecture**.

Help in Medical Diagnosis

- It can also **help health professionals with their Medical Diagnosis.** AI can generate potential and alternative treatments personalised to patients' symptoms and medical history. For instance, DeepMind AlphaFold can predict the shape of protein.

Generate Marketing Content

- In the shorter term, Generative AI can be used to **create marketing content, generate code, and in conversational applications such as chatbots**.

Concerns around Generative AI
Deepfakes

- One is the **ability to easily create "deepfakes"**—images or video created by AI that appear realistic but are false or misleading. Additionally, generative AI raises questions about what is original and proprietary content and may have a **significant impact on content ownership.**

Misuse, Biases and Discrimination

- AI can create harm and adversely impact society through **misuse, perpetuating biases, exclusion, and discrimination**.
- Generative AI systems can perpetuate and amplify existing biases. If the models are trained on biased, non-inclusive data, they will generate biased outputs, such as offensive or discriminatory language, demeaning and degrading imagery, and prejudicial content. For example, initially, generative imagery would show only images of white men for the prompt "CEO."

Create content for Malicious Purposes

- Generative AI systems can create content for malicious purposes, such as deepfakes, disinformation, and propaganda. It can also generate offensive or inappropriate content.

Influence Public Opinion

- Nefarious actors may use AI-generated media to **manipulate people and influence public opinion**.

Date and Privacy Concerns

- These systems can potentially access sensitive information, raising **concerns about data privacy and security.**

Generate inaccurate information

- It may also produce low-**quality and less accurate information**, specifically in the context of complex engineering and medical diagnosis.

Way Ahead

- Overall, it is essential to carefully consider the potential harms, threats, and concerns of Generative AI systems and ensure that they are used responsibly and ethically.
- Therefore, we must add **adequate policy, regulation, awareness, and education guardrails** to develop and use Generative AI services ethically and responsibly.

SUPERCONDUCTIVITY OF MERCURY

GS-III SCIENCE & TECHNOLOGY

Context

- Researchers from the University of L' Aquila Italy have found a comprehensive microscopic understanding of the superconductivity of Mercury.

Mercury

- Mercury is a **heavy, silvery-white metal that is liquid at room temperature**.
- Compared to other metals, it is **a poor conductor of heat, but a fair conductor of electricity**.
- It has a freezing point of −38.83 °C and a boiling point of 356.73 °C, **both the lowest of any stable metal.**
- It is found either as a native metal(rare) or in cinnabar, metacinnabar, sphalerite, corderoite, livingstonite and other minerals, with cinnabar (HgS) being the most common ore.

Superconductivity

- Superconductivity was **first observed in 1911 by H. K. Onnes, a Dutch physicist.**
- Superconductivity is a set of physical properties observed in certain materials **where electrical resistance vanishes and magnetic flux fields are expelled from the material.** In this, **materials conduct direct current (DC) electricity without energy loss when they are cooled below a critical temperature**. These materials also **expel magnetic fields as they transition to the superconducting state.** This capacity produces interesting and potentially useful effects. Superconductors have been employed in, or proposed for use in, an enormous variety of applications.
- **Examples:** High-speed magnetic-levitation trains, magnetic-resonance-imaging (MRI) equipment, ultra-high-speed computer chips, high-capacity digital memory chips, alternative energy storage systems, radio-frequency (RF) filters, radio-frequency amplifiers, infrared detectors, miniaturized wireless transmitting antennas, systems to detect submarines and underwater mines, and gyroscopes for earth-orbiting satellites.

Superconductivity of Mercury

- In 1911, Dutch physicist **Heike Kamerlingh Onnes** discovered superconductivity in mercury. He found that **at a very low temperature, called the threshold temperature, solid mercury offers no resistance to the flow of electric current.**

The BCS theory

- Scientists later classified mercury as **a conventional superconductor** because its superconductivity could be explained by the concepts of **Bardeen-Cooper-Schrieffer (BCS) theory.**

> **BCS Theory**
> BCS Theory describes superconductivity as a microscopic effect caused by a condensation of Cooper pairs- **a pair of electrons in a superconductor that is attractively bound and has equal and opposite momentum and spin**. **Below a specific critical temperature, the electrons in a metal pair up to create bosons called Cooper pairs**. These Copper pairs can move like water in a stream, facing no resistance to their flow, below a threshold temperature.

- While scientists have used the BCS theory to explain superconductivity in various materials, they have **never fully understood** how it operates in mercury — the oldest superconductor.
- **Now**, recently, scientists have drawn a clear picture of how mercury becomes a superconductor.

Recent Research on Mechanism of Superconductivity in Mercury

- When the researchers accounted for the relationship between an electron's spin and momentum, **they could explain why mercury has such a low threshold temperature (around –270°C).**
- The group found that one electron in each pair in mercury occupied a higher energy level than the other. This **lowered the Coulomb repulsion (like charges repel) between them and nurtured superconductivity.** Thus, the group has explained how mercury becomes a superconductor below its threshold temperature.

Closing Thought

- The findings suggest that we could have missed similar anomalous effects in other materials, leading to previously undiscovered ones that can be exploited for new and better real-world applications.

DOPPLER RADAR NETWORK — GS-III SCIENCE & TECHNOLOGY

Context

- The Government said that the entire Country will be covered by **Doppler Weather Radar Network** by 2025 to predict extreme weather events more accurately.

Doppler Effect

- Doppler Effect refers to the **change in wave frequency during the relative motion between a wave source and its observer**. It was discovered by Christian Johann Doppler.

Description

- Doppler Effect works on both light and sound objects. For instance, when a sound object moves towards you, the frequency of the sound waves increases, leading to a higher pitch. Conversely, if it moves away from you, the frequency of the sound waves decreases and the pitch comes down. The drop in pitch of ambulance sirens as they pass by and the shift in red light are common examples of the Doppler Effect.

- Edwin Hubble made the discovery that the universe expands as a consequence of the Doppler Effect. It has **important applications in the fields of astronomy and space technology.**

THE DOPPLER EFFECT
CHANGE IN PERCEIVED FREQUENCY DUE TO RELATIVE MOTION
STATIC SOURCE
MOVING SOURCE
FREQUENCY SHIFTED LOWER   FREQUENCY SHIFTED HIGHER

- There are various applications of Doppler Effect. It is used in:
  - Sirens
  - Astronomy
  - Radars
  - Medical imaging and blood flow management
  - Flow management
  - Velocity profile management
  - Satellite communication
  - Audio
  - Vibration measurement.

What is a Doppler Radar Network?

- A Doppler radar network is a **system of multiple radar stations** that work together to provide comprehensive coverage of a specific area. The system uses the Doppler effect to detect and track moving objects, such as weather systems, aircraft, and vehicles.

How does a Doppler radar network work?

- Each station in the network includes a radar transmitter, **which sends out a microwave signal, and a radar receiver, which detects the reflected signal.**
- The transmitter and receiver are typically located at the same site, but they can also be separated by a significant distance.
- The radar signal reflects off any moving objects in its path and the change in frequency of the signal due to the Doppler effect is used to determine the speed and direction of the moving object.

What are the uses of a Doppler radar network?

- Doppler radar networks are widely used for weather forecasting and severe weather warning, tracking of aircraft and vehicles, and also used in meteorology and atmospheric sciences.
- These radar networks provide **detailed information about storm systems, including the location, size, and movement of thunderstorms, tornadoes, and other severe weather events.**

How is the data from a Doppler radar network processed?

- The radar stations in a Doppler radar network are typically connected to a central processing system, which combines the data from all of the stations to create a comprehensive view of the area being monitored.
- The system can also be integrated with other weather monitoring equipment, such as weather balloons and weather satellites, to provide a more complete picture of the weather in the area.

How accurate is a Doppler radar network?

- The accuracy of a Doppler radar network depends on several factors, such as the <u>quality of the equipment and the skill of the operators.</u> In general, modern Doppler radar networks are <u>quite accurate and provide detailed information about moving objects in their coverage area.</u>

Is the Doppler radar network only used for weather forecasting?

- While Doppler radar networks are primarily used for weather forecasting and severe weather warning, they can also be used for other purposes **such as tracking of aircraft and vehicles, and also used in meteorology and atmospheric sciences.**

What are the drawbacks of Doppler radar network?

- The drawback of Doppler radar is that **it can be affected by atmospheric conditions such as precipitation, temperature inversions and wind**.
- This can cause the radar signals to scatter or reflect in unexpected ways, making it difficult to accurately track the objects in question.

● ADITYA-L1 MISSION   *GS-III SCIENCE & TECHNOLOGY*

Context

- Indian Space Research Organisation (ISRO) is planning to launch the Aditya-L1 mission.

Aditya-L1 mission

- **About:** The Aditya-L1 is the **first Indian space mission to observe the Sun and the solar corona**.
- **Placing:** The satellite will be placed in a **halo orbit around the Sun-Earth system's first Lagrangian Point (L1).** [about 1.5 million km from the Earth]. A satellite placed in the halo orbit around the L1 point has the major advantage of continuously viewing the Sun **without any occultation/eclipses.**

> **Lagrange Points**
> Lagrange Points are positions **in space where the gravitational forces of a two-body system like the Sun and the precisely equals the centripetal force required for a small object to move with them**. As a result, objects sent there tend to stay. These points can be used by spacecraft to **reduce fuel consumption** needed to remain in position. The L1 point of the Earth-Sun system affords an uninterrupted view of the sun and is currently home to the Solar and Heliospheric Observatory Satellite SOHO.

- **Launch**: The PSLV rocket would launch it. It will take nearly <u>100 days to reach the L-1 point</u>, the first Lagrangian point of the Sun-Earth system.
- **Payloads:** The spacecraft carries **seven payloads** to observe the **photosphere, chromospheres and the outermost layers of the Sun (the corona)** using electromagnetic and particle and magnetic field detectors.

Science Objectives:

- o The major science objectives of Aditya-L1 mission are:
- o Study of Solar upper atmospheric (chromosphere and corona) dynamics.
- o Study of chromospheric and coronal heating, physics of the partially ionized plasma, initiation of the coronal mass ejections, and flares
- o Observe the in-situ particle and plasma environment providing data for the study of particle dynamics from the Sun.
- o Physics of the solar corona and its heating mechanism.
- o Diagnostics of the coronal and coronal loops plasma: Temperature, velocity and density.
- o Development, dynamics, and origin of Coronal Mass Ejections.
- o Identify the sequence of processes that occur at multiple layers (chromosphere, base and extended corona) which eventually leads to solar eruptive events.
- o Magnetic field topology and magnetic field measurements in the solar corona.

- o Drivers for space weather (origin, composition, and dynamics of solar wind.

Significance

- Aditya L1 payloads are expected to provide most crucial information to <u>understand the problem of coronal heating, coronal mass ejection, pre-flare and flare activities and their characteristics, dynamics of space weather, propagation of particles and fields, etc.</u>
- Right now, no solar mission can measure the magnetic field of the Sun's corona as it is only observable during the eclipse. With Aditya, **we can now collect this information in real-time.**

ADOPTION OF ELECTRIC VEHICLES IN INDIA	*GS-III SCIENCE & TECHNOLOGY*

Context

- India finds itself in a very intriguing position in 2023. All signs point toward it being another landmark year in terms of electric vehicle adoption.

Electric Vehicles

- An electric vehicle (EV) is one that operates on an electric motor, instead of an internal-combustion engine that generates power by burning a mix of fuel and gases.

Benefits

- **Environment friendly:** Pure EVs have no tailpipe, so they don't emit any exhaust gases.
- **Lower running costs:** The cost to charge an electric vehicle compared to the price of petrol or diesel is substantially low.
- **Low maintenance costs:** Unlike EVs Petrol or diesel-powered vehicles require regular maintenance since they have multiple moving parts.
- **Financial benefits:** With India embracing the inclusion of EVs, the Govt. offers several policies and incentives to encourage the usage of EVs.
- **No Carbon Footprint**: EVs emit zero tailpipe emissions, helping reduce the carbon footprint.
- **No sound pollution:** EVs are quiet, thereby reducing the sound levels that fuel-powered vehicles generate.
- **Future Proof:** With countries pledging to reduce their dependence on petrol and diesel (fossil fuels), EVs are considered a sustainable alternative.

India's EV Market

- India electric vehicle market size was valued at **USD 1.45 billion in 2021**. Close to 0.32 million vehicles were sold in 2021, up **168% YoY.**
- Ongoing electric vehicle adoption in India is **based on the Paris agreement** to reduce carbon emissions, to improve the air quality in urban areas and reduce oil imports. As per India Energy Storage Alliance (IESA), the Indian EV industry is expected to expand at a CAGR of 36%.
- The Indian automobile industry **ranked fifth largest globally** and is expected to become the third largest by 2030 as the demand for electric vehicles is growing tremendously due to population rise.
- India's electric vehicles recorded strong growth supported by the government's implementation of favorable policies and programs. **Uttar Pradesh** held the maximum share in EV sales in 2021.

Driving Factors

- Rising fuel prices to boost the EV market growth during the forecast period.
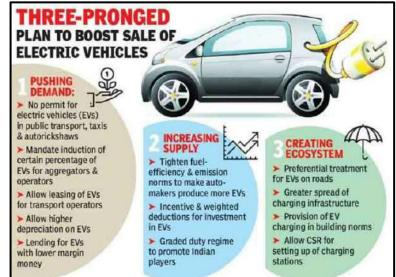- Consistently declining cost of electric vehicle battery to drive the market growth.

Steps taken by the Government to promote Electric Vehicles

- India unveiled the <u>'National Electric Mobility Mission Plan (NEMMP) 2020'</u> to make a major shift to electric vehicles.
- **Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India Scheme (FAME) was launched in 2015 to promote manufacturing of electric and hybrid vehicles.**
- The Ministry of Power released **Guidelines about Installing Charging Stations.** After ensuring adequate EV infrastructure in mega cities, the government is planning to expand the coverage to other cities.
- Department of Heavy Industry has sanctioned **Public Charging Stations for 25 Highways and Expressways**, <u>EV charging stations must be located within every 25 km of range on these expressways and highways.</u>
- Cabinet approved a **Production-Linked Incentive Scheme** for the automotive sector to boost the manufacturing of electric vehicles.
- NITI Aayog Released **Handbook to Guide EV Charging Infrastructure in India**.

- **GST** on the electric vehicles and the chargers/charging stations has been **reduced from 12% to 5% and from 18% to 5%,** respectively.
- Government Launched **'e-AMRIT' portal**: One-stop platform for information on electric vehicles.
- Union Ministry of Road Transport and Highways (MoRTH) has **allowed the age group of 16-18 years to drive e-scooters.**
- **Battery Swapping Policy**: A wide-spread charging infrastructure is essential for EV adoption. In this regard, in 2022, NITI Aayog released a draft battery swapping policy which will be valid until March 31, 2025.
- The **National Mission on Transformative Mobility and Battery Storage** has been approved by the cabinet. The Mission aims to create a Phased Manufacturing Program (PMP) for five years till 2024, to support setting up large-scale, export-competitive integrated batteries and cell-manufacturing giga plants in India, as well as localizing production across the entire electric vehicle value chain.

THREE-PRONGED PLAN TO BOOST SALE OF ELECTRIC VEHICLES

1 PUSHING DEMAND:
- No permit for electric vehicles (EVs) in public transport, taxis & autorickshaws
- Mandate induction of certain percentage of EVs for aggregators & operators
- Allow leasing of EVs for transport operators
- Allow higher depreciation on EVs
- Lending for EVs with lower margin money

2 INCREASING SUPPLY
- Tighten fuel-efficiency & emission norms to make auto-makers produce more EVs
- Incentive & weighted deductions for investment in EVs
- Graded duty regime to promote Indian players

3 CREATING ECOSYSTEM
- Preferential treatment for EVs on roads
- Greater spread of charging infrastructure
- Provision of EV charging in building norms
- Allow CSR for setting up of charging stations

- **Tax exemption** of up to Rs.1,50,000 under section 80EEB of income tax while purchasing an EV (2W or 4W) on loan.
- **Reduction of customs duty on nickel ore** (key component of lithium-ion battery) from 5% to 0%.

Note: Some challenges include: Lack of charging infrastructure, disruption in power supply, inadequate dedicated service centers, doubts over sustainability of Electric vehicles and charging infrastructure, long charging hours, etc are the key challenges, which need to be addressed.

Conclusion and Way Ahead

- The Indian EV Industry is slowly gathering momentum, supported by government initiatives. However, a mass shift from internal combustion engine (ICE) vehicles to EVs **requires expansion of infrastructure facilities, including charging stations, dedicated parking space, and vehicles that could provide a higher range (KM range with a single charge).**
- NITI Aayog rightly aims to achieve EV sales penetration of 70% for all commercial cars, 30% for private cars, 40% for buses and 80% for two and three-wheelers by 2030. This is **in line with the goal to achieve net zero carbon emission by 2070.**
- Realizing India's EV ambition will require an estimated annual battery capacity of 158 GWh by FY 2030, which provides huge investment opportunities for investors. **Enabling policy support measures are a critical need at this juncture.**
- The Central Government needs to align the policies at the central and state level and create a national level policy for promoting EVs in the country. **OTHER STEPS**: Promote local manufacturing, and provide adequate support to the local manufacturing ecosystem to lower the price of EV vehicles. **Improve the Research and Development** to promote indigenous manufacturing and reduce dependency on imports.

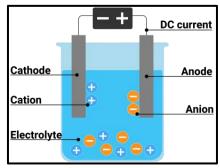## SODIUM TETRAFLUOROBORATE   GS-III   SCIENCE & TECHNOLOGY

Context
- Scientists from Institute of Nano Science and Technology (INST) Mohali, **have introduced a new electrolyte called (NaBF$_4$).**

About
- Sodium tetrafluoroborate is **an inorganic compound with formula NaBF$_4$.**
- It is a **salt that forms colorless or white water-soluble rhombic crystals** and is soluble in water but less soluble in organic solvents.
- Sodium tetrafluoroborate is used **in fluxes, metal finishing and in plating circuits**.

Electrolysis
- **Electrolysis** is a technique that uses direct electric current (DC) to drive an otherwise non-spontaneous chemical reaction.
- Electrolysis is commercially important as a stage in the separation of elements from naturally occurring sources such as ores using an electrolytic cell. The word "lysis" means to separate or break, so in terms, electrolysis would mean **"breakdown via electricity".**

Electrochemical Ammonia Synthesis

- NH$_3$ production is dependent on the century-old **Haber-Bosch process.**

> The **Haber–Bosch process**, is an artificial nitrogen fixation process and is the main industrial procedure for the production of ammonia today.
>
> The process converts atmospheric nitrogen (N$_2$) to ammonia (NH$_3$) by a reaction with hydrogen (H$_2$) using a metal catalyst under high temperatures and pressures. Though this reaction is exothermic (i.e. it releases energy, albeit not very much), it results in a decrease in entropy, which is the central reason why it is very challenging to carry out.

- Haber-Bosch process is **energy and capital-intensive and relies on H$_2$ from steam reforming**, hence, **contributing to greenhouse gas emissions**.
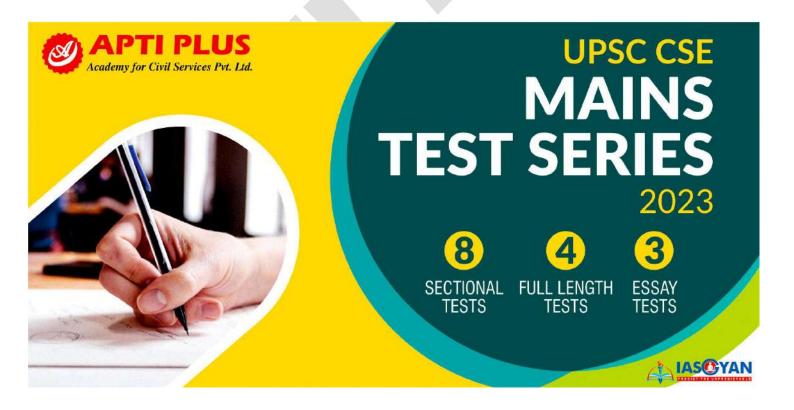
Electrochemical NH$_3$ Synthesis

- Electrochemical NH$_3$ synthesis can be realized by reaction of N$_2$ and a proton source under mild conditions powered by renewable electricity, which offers **a promising carbon-neutral and sustainable strategy.**
- However, N$_2$ has remarkable thermodynamic stability and **requires high energy to be activated.** Implementation of this "clean" NH$_3$ synthesis route therefore still requires significant enhancement in energy efficiency, conversion rate, and durability, which is **only achievable through the design of efficient electrocatalysts.**

The New Research: Use as an electrolyte

- Scientists have introduced this new electrolyte called (NaBF$_4$), which not only acts as an N$_2$-carrier in the medium but **also works as a full-fledged "co-catalyst"** along with MnN$_4$ **to deliver high yield of ammonia (NH$_3$) at absolutely ambient experimental conditions**.
- The high production rate of NH$_3$ approached industrial scale and exceeded almost all the standard catalysts in any other electrolyte medium.

Significance

- This new aqueous electrolyte that **can help make electrochemical ammonia synthesis more efficient will be useful for industries producing green energy or hydrogen.**

KUKI-CHIN COMMUNITY

Context

- Several members of the KukiChin community were "pushed back" by the Border Security Force (BSF).
- Lat year more than 270 members of the **Kuki-Chin community from Bangladesh who entered Mizoram are being referred to as "officially displaced persons" in State government records**, as **India does not have a law on refugees.**

Details

- The state government official said that "The refugees will be housed on the same lines as the shelter given to over 40,000 refugees from Myanmar who have entered Mizoram since a military coup in the neighbouring country in February 2021".
- The Ministry of Home Affairs (MHA) asked the Chief Secretaries of Nagaland, Manipur, Mizoram and Arunachal Pradesh to "take appropriate action as per law to check illegal influx from Myanmar into India."
  - According to MHA, **foreign nationals who enter the country without valid travel documents are treated as illegal immigrants.**
  - The MHA had said that State Governments have no powers to grant "' refugee' status to any foreigner" and added that India is not a signatory to the United Nations Refugee Convention of 1951 and its 1967 Protocol.

Who are the Kuki Chins and why are they fleeing to Mizoram?

- The Chins of Myamnar, the Mizos of Mizoram and the Kukis of Bangladesh are of the same ancestry and belongs to the Kuki ethnic group native to theMizo hills.
- They are collectively called the Zo people.
- The Kuki Chin people are settled in the Chittagong Hill Tracts, the only extensive hill area inBangladesh that lies in the south-eastern part of the country.
- It borders Myanmar on the southeast, Tripura on the north, Mizoram on the east and the Chittagong district in west. Mizoram shares a 318-km stretch of international border with Bangladesh.
- Already, since 2021, around 30,000 Kuki Chin refugees from Myanmar have sought shelter in Mizoram. They have been escaping the crackdown by the military junta in Myanmar.

Rights of Refugees under UNHCR Convention

- The cornerstone of the 1951 Convention is the principle of non-refoulement contained in Article 33. According to this principle, a refugee should not be returned to a country where he or she faces serious threats to his or her life or freedom.
  - The right not to be punished for illegal entry into the territory of a contracting State (Article31);
  - The right to work (Articles 17 to 19);
  - The right to housing (Article 21);
  - The right to education (Article 22);
  - The right to public relief and assistance (Article 23);
  - The right to freedom of religion (Article 4);
  - The right to access the courts (Article 16);
  - The right to freedom of movement within the territory (Article 26); and
  - The right to be issued identity and travel documents (Articles 27 and 28).

Indian stand on UNHCR Convention

- India has signed **neither the 1951 United Nations Refugee Convention nor its 1967 Protocol**, which has 140 signatories.
- India continues **to host a large population of refugees**. In the main, they are treated kindly.

- **Security Concern:** borders in South Asia are extremely porous and any conflict can result in a mass movement of people. This can have two results:
  - a **strain on local infrastructure and resources in countries that** are poorly equipped to deal with sudden spikes in population.
  - it **can upset the demographic balance**, a tinderbox in South Asia.
- India **already does its duty, so where's the need** to sign this piece of paper? It mostly doesn't even take UN money to look after the refugees.
- India retains **a degree of scepticism about the UNHCR**. This apparently flows from the Bangladesh war of 1971. As it doesn't perceive the role of UNHCR as fair and neutral.

Challenges associated with signing the convention

- India will be **bound by law not to repatriate a single refugee against their** It's known as the non-refoulement principle—no forcible repatriation.
- The Convention requires th**e signatory nation to accord a minimum standard of hospitality and housing towards those it accepts as refugees.** Failure to provide the minimum continues to attract a lot of international criticism for host nations even today.

Challenges with the refugees

- **Social consequences of permitting refugees:** By permitting refugees India might face many social consequences. Such as,
  - Refugees might **create an identity crisis** with the indigenous people. For example, the refugees from Bangladesh currently in Assam and Arunachal threaten to overtake the indigenous population of the region.
  - **Difficult to identify and deport** them back to their country after a few years. For example, the illegal migrants from Bangladesh and Rohingya refugees entered through North-East. But later they spread to all other states, like Haryana, Kerala, Telangana and UTs like Jammu and Kashmir, Delhi, etc. Identifying them among more than a billion Indians is a great challenge.
- **Economic consequence of permitting refugees**:
  - **Increased financial responsibility of the state.** According to the UNHCR report in 2014, there were more than 200,000 refugees in India. There are millions of illegal immigrants in India. India at present does not have the financial capacity to satisfy all their basic needs.
  - **Decreases wage level and replace the native people**. Since illegal immigrants and refugees require food and shelter, they also work at very low wages in their settling areas. It impacts the lives of locals, as they don't get adequate jobs.
- **Political consequence of permitting refugees**:
  - **Issue of illegal voting:** The illegal migrants to avail the benefits, procure illegal national identity cards such as voter id. By procuring that, they also vote in elections and influence the outcome.
  - **Issue of terrorism:** These refugees, since not accepted by governments, are vulnerable to join Pakistani based terror outfits for work and revenue.

Challenges Associated with India's Refugee Policy

- **Refugees vs. Immigrants:** In the recent past, many people from neighboring countries tend to illegally immigrate to India, not because of state persecution but in search of better economic opportunities in India.
- While the reality is that much of the debate in the country is about illegal immigrants, not refugees, the two categories tend to get bunched together.
- Due to this, policies and remedies to deal with these issues suffer from a lack of clarity as well as policy utility.
- **Ambiguity in the Framework:** The main reason why our policies towards illegal immigrants and refugees are confused is that as per Indian law, both categories of people are viewed as one and the same and are covered under the Foreigners Act, 1946.
- **Ad-hocism:** The absence of such a legal framework also leads to policy ambiguity whereby India's refugee policy is guided primarily by ad hocism.
- Ad hoc measures enable the government in office to pick and choose 'what kind' of refugees it wants to admit for whatever political or geopolitical reasons.
- This results in a discriminatory action, which tends to be a violation of human rights.
- **Discriminatory CAA:** The Government of India has passed the Citizenship Amendment Act (CAA). CAA envisages providing citizenship to people who are religious minorities in India's neighborhood and persecuted by the state.
- However, CAA is not the answer to the refugee problem primarily because of its deeply discriminatory nature, as it doesn't include a particular religion under its ambit.
- Further, many political analysts have dubbed the CAA as an act of refugee avoidance, not refugee protection.

VILLAGE DEFENCE COMMITTEES

GS-III SECURITY & DEFENSE

Context

- Recently Lt Governor Manoj Sinha assured the Jammu and Kashmir people that they would get a Village Defence Committee (VDC). People in Jammu and Kashmir are demanding that in the background of increasing militant attacks, they must be provided weapons to take on attackers.

About

Village Defence Committee (VDC)

- **The VDCs were first formed in the mid-1990s to defend people against militant attacks.**
  - o The then Jammu and Kashmir administrations had decided to provide residents of remote hilly villages with weapons and give them arms training to defend their people and village.
- **The VDCs have now been renamed as the 'Village Defence Guards (VDG)'.**
  - o It is set up in vulnerable areas of J&K and was approved by the Union Ministry of Home Affairs.
  - o Like a VDC member, each VDG will be provided with a gun and 100 rounds of ammunition.
- It is a **group of civilians provided with guns and ammunition to tackle militants in case of attack until the arrival of security forces.**
  - o The persons leading the VDGs will be paid Rs 4,500 per month by the government, while others will get Rs 4,000 each.
- The VDGs will function under the direction of the SP/SSP of the district concerned.
- **Composition of VDCs**
  - o A minimum of 10-15 ex-servicemen, ex-policemen and able-bodied local youth were enrolled in each VDC voluntarily.
- The VDCs also faced allegations of human rights violations and other crimes, including murder, rape and extortion.

Key facts about Jammu and Kashmir

- Jammu and Kashmir is home to several valleys such as the **Kashmir Valley, Tawi Valley, Chenab Valley, Poonch Valley, Sind Valley and Lidder Valley.**
- The Himalayas divide the Kashmir valley from the Tibetan plateau while the Pir Panjal range, which encloses the valley from the west and the south, separates it from the Punjab Plain of the Indo-Gangetic Plain.
- The Jhelum River is the major Himalayan river which flows through the Kashmir valley. The Tawi, Ravi and Chenab are the other important rivers flowing through the region.
- The union territory of Jammu and Kashmir is divided into 20 districts and consists of two divisions: the Jammu Division and the Kashmir Division.
- **Important Tribes;** Gujjar, Bakerwal, and Gaddi.
- The most widely spoken language in Jammu and Kashmir is Kashmiri, the mother tongue of 52.72% of the population according to the 2011 census. The second most spoken language is Dogri, spoken by 20% of the population.
- According to the 2011 census, the literacy rate in Jammu and Kashmir was 67.17%.

EXERCISE VEER GUARDIAN

GS-III SECURITY & DEFENSE

Context

- India, Japan to hold joint exercise to promote air defence cooperation

Details

- India and Japan are all set to hold the **joint Air Exercise, 'Veer Guardian-2023' involving the Indian Air Force and Japan Air Self Defence Force (JASDF) at Hyakuri Air Base, Japan from 12th of January.**
- The Joint Exercise which will continue till 26th January aims at promoting Air Defence cooperation between the countries.
- **The Indian contingent participating in the air exercise will include four Su-30 MKI, two C-17 and one IL-78 aircraft, while the JASDF will be participating with four F-2 and four F-15 aircraft**.
- The inaugural exercise will include the conduct of various aerial combat drills between the two Air Forces.
- They will undertake multi-domain air combat missions in a complex environment and will exchange best practices.

Joint Exercises conducted by Army

S. No.	Country	Exercise
1.	Australia	Ex AUSTRA HIND
2.	Bangladesh	Ex SAMPRITI
3.	China	Ex HAND IN HAND
4.	France	Ex SHAKTI

5.	Indonesia	Ex GARUDA SHAKTI
6.	Kazakhstan	Ex PRABAL DOSTYK
7.	Kyrgyzstan	Ex KHANJAR
8.	Maldives	Ex EKUVERIN
9.	Mongolia	Ex NOMADIC ELEPHANT
10.	Myanmar	IMBEX
11.	Nepal	Ex SURYA KIRAN
12.	Oman	AL NAGAH
13.	Russia	Ex INDRA
14.	Seychelles	Ex LAMITIYE
15.	Sri Lanka	Ex MITRA SHAKTI
16.	Thailand	Ex MAITREE
17.	UK	Ex AJEYA WARRIOR
18.	USA	Ex YUDHABHAYAS
		Ex VAJRA PRAHAR
19.	Vietnam	VINBAX
20.	Multinational (ADMM Plus)	Ex FORCE
21.	Japan	Dharma Guardian

Joint Exercises conducted by Navy

S. No.	Country	Exercise
1.	Australia	AUSINDEX
2.	Bangladesh	IN-BN CORPAT
3.	Brazil & South Africa	IBSAMAR
4.	France	VARUNA
5.	Indonesia	IND-INDO CORPAT
		IND-INDO BILAT
6.	Malaysia	IN-MN Table Top Ex
7.	Myanmar	IMCOR
		IN-MN BILAT
8.	Oman	Naseem-al-Bahr
9.	Russia	INDRA NAVY
10.	Sri Lanka	SLINEX
11	Singapore	SIMBEX
12.	Thailand	INDO-THAI CORPAT
13	UAE	In-UAE BILAT
14	UK	KONKAN
15.	USA	MALABAR
		RIMPAC (Multilateral)
16	Multilateral Exercise by Brunei	ADMM+ Exercise
17	Multilateral Exercise by Indonesia	Ex KOMODO
18	Multilateral Exercise by India	MILAN
19	Japan	JIMEX

Joint Exercises conducted by Air Force

S. No.	Country	Exercise
1.	Bangladesh	Table Top Ex
2.	Israel	Ex Blue Flag
3.	Oman	Ex EASTERN BRIDGE
4.	Russia	Ex INDRA
5.	Singapore	JOINT MILITARY TRAINING
6.	Thailand	Ex SIAM BHARAT
7.	UAE	DESERT EAGLE
8.	UK	INDRADHANUSH
9.	USA	RED FLAG

| 10. | Multinational Air Exercise | Ex Samvedna with Bangladesh, Nepal, Sri Lanka, UAE |
| 11. | France | Garuda |

PRITHVI-II MISSILE
GS-III SECURITY & DEFENSE

Context
- A successful training launch of a **Short-Range Ballistic Missile, Prithvi-II** was carried out from the Integrated Test Range, Chandipur off the coast of Odisha

Details
About:
- Prithvi is a tactical surface-to-surface short-range ballistic missile (SRBM) developed by Defence Research and Development Organisation (DRDO) of India **under the Integrated Guided Missile Development Program (IGMDP).**
- It is deployed by India's Strategic Forces Command.

Variants:
- The Prithvi missile project encompassed developing three variants for use by the Indian Army, Indian Air Force and the Indian Navy.
- The initial project framework of the Integrated Guided Missile Development Program outlines the variants in the following manner:
- Prithvi I (SS-150) – Army version (150 km) range with a payload of 1,000 kg
- Prithvi II (SS-250) – Air Force version (350 km) range with a payload of 500 kg
- Prithvi III (SS-350) – Naval version (350 km) range with a payload of 1,000 kg

Prithvi I
- Prithvi I class is a single-stage liquid-fueled surface-to-surface ballistic missile having a maximum warhead mounting capability of 1,000 kg, with a range of 150 km
- This class of Prithvi missile was inducted into the Indian Army in 1994

Prithvi II
- Prithvi II class is also a single-stage liquid-fueled missile having a maximum warhead mounting capability of 500 kg, but with an extended range of 250 km
- It was developed with the Indian Air Force being the primary user.
- It was first test-fired on 27 January 1996 and the development stages were completed in 2004.
- This variant has been inducted into the army as well.

Prithvi III
- Prithvi III class is a two-stage surface-to-surface missile.
- The first stage is solid fueled. The second stage is liquid-fueled.
- Prithvi III was first tested in 2000 from INS Subhadra, a Sukanya-class patrol vessel.

Dhanush (missile)
- Dhanush is a variant of the surface-to-surface or ship-to-ship Prithvi III missile, which has been developed for the Indian Navy.
- It is capable of carrying both conventional as well as nuclear warheads with pay-load capacity of 500 kg-1000 kg and can strike targets in the range of 350 km.
- Dhanush is a system consisting of a stabilization platform and the missile.
- It is a customized version of the Prithvi and is certified for sea worthiness.
- Dhanush has to be launched from a hydraulically stabilized launch pad.
- Its low range acts against it and thus it is seen as a weapon either to be used to destroy an aircraft carrier or an enemy port.
- The missile has been tested from surface ships of the navy many times.

ASMI MACHINE PISTOL
GS-III SECURITY & DEFENSE

Context
- A slew of domestic vendors have submitted their technical and commercial bids in response to an Indian Army (IA)'s tender, or request for proposal (RfP), to indigenously source 5,000 9×19 mm machine pistols as an 'Emergency Procurement' via the Fast Track Procedure (FTP) of the Defence Acquisition Procedure, 2020 (DAP 2020), for an estimated $6 million.

Details
- The majority of the manufacturers who responded to the RfP's deadline were in **tie-ups with overseas small arms original**

equipment manufacturers (OEMs), a provision admissible under DAP 2020's 'Buy Indian' category through which the pistols were being acquired.

Use

- These pistols were **intended for employment mainly by Infantry battalion Ghatak (Killer) commando platoons and to a limited extent by tank, artillery and helicopter crews**.
- The 20-odd strong, lightly armed and mobile Ghatak platoons were tasked by their respective battalion and brigade commanders to execute special reconnaissance missions behind enemy lines and to conduct other special operations at the tactical level.
- These could include raids on enemy artillery positions, airfields and supply dumps and directing artillery and air attacks in hostile territory.

Status of Asmi- DRDO's indigenous pistol

- Industry officials questioned the issuance of this tender, as in early 2021 **DRDO claimed to have successfully developed a 9×19 mm machine pistol, in just four months, for use by the military, paramilitaries and police forces.**
- **DRDO had stated that the prototype pistol, named Asmi (Pride/ Self-Respect) had been jointly designed by its Armament Research Development Establishment in Pune and the Infantry School**.
- It had declared that the pistol, with an empty weight of under 2 kg, featured an 8-inch barrel and a 33-round magazine of in-service 9 mm ammunition.
- DRDO maintained that it had used the 3D printing process to design and prototype the pistol's various parts, including its trigger components.
- Moreover, it added that each pistol's production cost would be around Rs 50,000 and though five vendors were reportedly shortlisted by the Ministry of Defence (MoD) around mid-2021 for Asmi's limited series production, little had since emerged on its status.

Concerns

- Given the **government's onus on self-reliance in the defence sector and the hype surrounding this initiative, why is the IA seeking a new machine pistol**, when one seemingly credible one had already been successfully developed indigenously by the DRDO?
- Acquiring just 5,000 new machine pistols **would merely impose additional logistic requirements upon the army at a time when it was under pressure to streamline its equipment profile and right-size its expenditure**.

Analysis

- The first batch of 5,000 Ak-203s, of an eventual 750,000 units, produced by the Indo-Russian Private Limited joint venture is scheduled for delivery in March as replacements for the DRDO designed Indian Small Arms Systems (INSAS) assault rifle, which was declared 'operationally inefficient' by the force in 2010.
- Perhaps Asmi too has been similarly deemed in this category, and the emergency procurement of machine pistols invoked to meet the army's urgent operational requirements for this weapon system.

COLOUR- CODED WEATHER WARNING

Context
- Orange alert issued as Delhi logs season's lowest at 4.4°C.

Details
- Colour codes are used in weather warnings. Indian Meteorological Department (IMD), issues them for bringing out the severity of the weather phenomena expected. The key idea is to forewarn relevant officials and the disaster management authority "about the impact of the weather expected so as to keep them ready for necessary action related to disaster risk reduction.
- The objective is to alert people ahead of severe or hazardous weather which has the potential to cause damage, widespread disruption or danger to life. Warnings are updated daily.

Color codes
- **The IMD uses 4 colour codes -:**
  1. **Green (All is well):** No advisory is issued.
  2. **Yellow (Be Aware):** Yellow indicates severely bad weather spanning across several days. It also suggests that the weather could change for the worse, causing disruption in day-to-day activities.
  3. **Orange/Amber (Be prepared):** The orange alert is issued as a warning of extremely bad weather with the potential of disruption in commute with road and rail closures, and interruption of power supply.
  4. **Red (Take Action):** When extremely bad weather conditions are certainly going to disrupt travel and power and have significant risks to life, the red alert is issued.
- These **alerts are universal in nature** and are also issued during floods, depending on the amount of water rising above land/in a river as a result of torrential rainfall. For instance, when the water in a river is 'above normal' level, or between the 'warning' and 'danger' levels, a yellow alert is issued.
- While this is the general interpretation of these colours, for more specific weather events such as rainfall, thunderstorm, lightning, etc these colours point out more warning.

How is the colour decided?
- According to IMD, a special matrix is followed to decide the colour of weather situations.
- It is based on the **"probability of occurrence of the event as well as its impact assessment".**
- The decision of the colour also depends on the meteorological factors, hydrological factors, and geophysical factors that indicate the risk.

About IMD
- The India Meteorological Department (IMD) is an agency of the **Ministry of Earth Sciences of the Government of India**.
- It is the principal agency responsible for meteorological observations, weather forecasting and seismology.
- IMD is headquartered in **Delhi** and operates hundreds of observation stations across India and Antarctica.
- Regional offices are in Chennai, Mumbai, Kolkata, Nagpur, Guwahati and New Delhi.
- IMD operates a network of hundreds of surface and glacial observatories, Upper Air (high altitude) stations, ozone and radiation observatories and meteorological radar stations.
- Additional data is received from India's constellation of satellites, such as **Kalpana-1, Megha-Tropiques** and instruments on board the IRS series and the INSAT series of satellites.

FOREST (CONSERVATION) RULES 2022

Context
- **The National Commission for Scheduled Tribes (NCST) stated that the (Conservation) Rules (FCR) 2022, violate the rights of the Scheduled Tribes mentioned under the Forest Rights Act, 2006.**

Details
New Forest Conservation Rules
- **The Ministry of Environment, Forest and Climate Change (MoEFCC)** notified the new Forest (Conservation) Rules, 2022, but it does not mention the earlier requirement of attaining a gram sabha NOC (No Objection Certificate) before diverting forest land for a project.
  - It allows forest rights to be settled after the final approval for forest clearances has been granted by the Centre, a point

flagged by critics.

- **The settling of forest rights now needs to be carried out by the state government instead of the Centre, as was the case earlier.**
  - The state governments will be under even greater pressure from the Centre to accelerate the process of diversion of forest land, critics say.
  - The government said that the Forest (Conservation) Rules, 2022, are reformative to streamline the process of approvals under the Act and enable the parallel processing under other Acts and Rules including FRA, 2006.
- It constituted an Advisory Committee, a regional empowered committee at each of the integrated regional offices and a screening committee at the State/Union Territory (UT) government level. The role of the Advisory Committee is restricted to advising or recommending the grant of approval.
- The MoEFCC has directed the constitution of a project screening committee in each state/UT for an initial review of proposals involving the diversion of forest land. The five-member committee will meet at least twice every month and will advise the state governments on projects in a time-bound manner.
- **All non-mining projects between 5-40 hectares must be reviewed within 60 days and all such mining projects must be reviewed within 75 days.**
  - For projects involving a larger area, the committee gets some more time — 120 days for non-mining projects involving more than 100 hectares and 150 days for mining projects.
- All linear projects (roads, highways, etc), projects involving forest land up to 40 hectares and those that have projected use of forest land having a canopy density up to 0.7 shall be examined in the Integrated Regional Office.
- The applicants for diverting forest land in a hilly or mountainous state with green cover covering more than two-thirds of its geographical area, or in a state/UT with forest cover covering more than one-third of its geographical area, will be able to take up compensatory afforestation in other states/UTs where the cover is less than 20%.

Forest Rights Act, 2006

- The Scheduled Tribes (Recognition of Forest Rights) Act seeks **to recognize the forest rights of forest-dwelling Scheduled Tribes (FDSTs) who have been occupying the land before October 1980.**
  - An FDST nuclear family would be entitled to the land currently occupied subject to a maximum of 2.5 hectares.
  - The land may be allocated in all forests including core areas of National Parks and Sanctuaries.
- In core areas, an FDST would be given provisional land rights for five years, within which period he would be relocated and compensated.
  - If the relocation does not take place within five years, he gets permanent rights over the land.
- The Act outlines 12 forest rights which include the right to live in the forest, to self-cultivate, and to use minor forest produce.
  - Activities such as hunting and trapping are prohibited.
- The **Gram Sabha is empowered to initiate the process of determining the extent of forest rights that may be given to each eligible individual or family.**

National Commission for Scheduled Tribes (NCST)

- Established by amending Article 338 and inserting a new Article 338A in the Indian Constitution through 89th Amendment Act.
- **Appointed by the Indian President for 3 years office term.**
  - Chairperson equal to the rank of Union Cabinet Minister, and Vice-Chairperson that of a Minister of State and other Members have the rank of a Secretary to the Government of India.
- **Function:**
  - Investigate and Monitor matters relating to Safeguards provided for STs.
  - Inquire into Specific complaints relating to the Rights & Safeguards of STs.
  - Participate and Advise in the Planning Process relating to the Socioeconomic development of STs.
  - Submit a report to President annually.
  - Discharge Such other functions concerning STs as the President may, subject to the provisions of any law made by Parliament, by rule specify.
- **Powers of a Civil Court, having authority to:**
  - Summon and enforce the attendance of any person and examine on oath.
  - Discovery & production of any documents.
  - Receive evidence on affidavits.
  - Requisition any public record or copy thereof from any court or office.
- Union and every State Govt. to consult the Commission on all major Policy matters affecting Scheduled Tribes.

NATIONAL GREEN HYDROGEN MISSION

GS-III ENVIRONMENT & ECOLOGY

Context

- The Union Cabinet, chaired by the Hon'ble Prime Minister Shri Narendra Modi, has approved National Green Hydrogen Mission.

Details

About the mission

- The initial outlay for the Mission will be Rs.19,744 crore, including an outlay of Rs.17,490 crore for the SIGHT programme, Rs.1,466 crore for pilot projects, Rs.400 crore for R&D, and Rs. 388 crore towards other Mission components.
- MNRE will formulate the scheme guidelines for implementation of the respective components.
- **The Mission will result in the following likely outcomes by 2030:**
  - Development of green hydrogen production capacity of at least 5 MMT (Million Metric Tonne) per annum with an associated renewable energy capacity addition of about 125 GW in the country
  - Over Rs. Eight lakh crore in total investments
  - Creation of over Six lakh jobs
  - Cumulative reduction in fossil fuel imports over Rs. One lakh crore
  - Abatement of nearly 50 MMT of annual greenhouse gas emissions
- **The Mission will have wide ranging benefits**- creation of export opportunities for Green Hydrogen and its derivatives; Decarbonisation of industrial, mobility and energy sectors; reduction in dependence on imported fossil fuels and feedstock; development of indigenous manufacturing capabilities; creation of employment opportunities; and development of cutting-edge technologies.
- India's Green Hydrogen production capacity is likely to reach at least 5 MMT per annum, with an associated renewable energy capacity addition of about 125 GW.
- The targets by 2030 are likely to bring in over Rs. 8 lakh crore investments and create over 6 lakh jobs.
- Nearly 50 MMT per annum of CO_2 emissions are expected to be averted by 2030.
- The Mission will facilitate demand creation, production, utilization and export of Green Hydrogen.
- Under the Strategic Interventions for Green Hydrogen Transition Programme (SIGHT), two distinct financial incentive mechanisms – targeting domestic manufacturing of electrolysers and production of Green Hydrogen – will be provided under the Mission.
- The Mission will also support pilot projects in emerging end-use sectors and production pathways. Regions capable of supporting large scale production and/or utilization of Hydrogen will be identified and developed as Green Hydrogen Hubs.
- An enabling policy framework will be developed to support establishment of Green Hydrogen ecosystem.

About Hydrogen

- There are **no natural hydrogen deposits on earth**, it has to be extracted from other compounds by a chemical process.
- The vast majority of industrial hydrogen is currently produced from natural gas through a process known as **steam methane reforming or SMR.**
- Producing hydrogen in this way is sometimes referred to as **brown or grey or even blue hydrogen**.

Types of Hydrogen

- **Brown Hydrogen:** Most of the gas that is already widely used as an industrial chemical is either brown, if it's made through the gasification of coal or lignite.
- **Grey Hydrogen:** If it is made through steam methane reformation, which typically uses natural gas as the feedstock. Neither of these processes is exactly carbon-friendly.
- **Blue Hydorgen**: Where the gas is produced by steam methane reformation but the emissions are curtailed using carbon capture and storage.
- **Green Hydrogen**: Green hydrogen, in contrast, could almost eliminate emissions by using renewable energy — increasingly abundant and often generated at less-than-ideal times — to power the electrolysis of water.

What is green hydrogen?

- A **colourless, odourless, tasteless, non-toxic and highly combustible gaseous substance**, hydrogen is the lightest, simplest and most abundant member of the family of chemical elements in the universe.
- But a colour — green — prefixed to it makes hydrogen the **"fuel of the future".** The 'green' depends on how the electricity is generated to obtain the hydrogen, which does not emit greenhouse gas when burned.
- Green hydrogen is **produced through electrolysis using renewable sources of energy such as solar, wind or hydel power**.

- Hydrogen gas **can be used as a fuel in transportation, power generation and industrial activities**. It does not release greenhouse gas emissions such as carbon dioxide when it is burned.
- Green hydrogen, which has the potential to replace fossil fuels, is the name given to hydrogen gas produced using renewable energy such as wind or solar power that do not entail greenhouse gas emissions.

Green Hydrogen: The importance

- Green hydrogen is **one of several potential low-carbon fuels that could take the place of today's fossil hydrocarbons.**
- Other **low-carbon fuels require the production of green hydrogen as a precursor**, why not just stick with the original product?
- **Hydrogen is already widely used by industry**, so technical problems relating to storage and transport are not likely to be insurmountable.
- **The gas is potentially very versatile, with possible applications in areas ranging**from heating and long-term energy storage to transportation.
- The opportunity for green hydrogen to be applied across a wide range of sectors means there is a correspondingly large number of companies that could benefit from a burgeoning hydrogen fuel economy.

Green hydrogen current status

- At present, **less than 1 per cent of hydrogen produced is green hydroge**n, according to **IRENA's World Energy Transitions Outlook.**
- India consumes about six million tonnes of hydrogen every year. This could increase to 28 million tonnes by 2050.
- India has favorable geographic location and abundance of sunlight and wind for the production of green hydrogen.
- India will become a net exporter of green hydrogen by 2030 due to its cheap renewable energy tariffs, according to the **Global Hydrogen Council.**

Challenges in producing Green Hydrogen

- The challenge right now is that **big electrolyzers are in short supply, and plentiful supplies of renewable electricity still come at a significant**
- **Storing and transporting the highly flammable gas is not easy**; it takes up a lot of space and has a habit of making steel pipes and welds brittle and prone to failure.
- The **bulk transport of hydrogen will require dedicated pipelines**, which would be costly to build, pressurizing the gas, or cooling it to a liquid.
- **High Cost:** In a report published last year (using data from 2018), the International Energy Agency put the cost of green hydrogen at $3 to $7.50 per kilo, compared to $0.90 to $3.20 for production using steam methane reformation.
- **Loss of Efficiency in every process:** Electrolyzer efficiencies range from around 60 percent to 80 percent, according to Shell. The efficiency challenge is exacerbated by the fact that many applications may require green hydrogen to power a fuel cell, leading to further losses.

Why is India pursuing green hydrogen?

- Under the Paris Agreement (a legally binding international treaty on climate change with the goal of limiting global warming to below 2°C compared to pre-industrial levels) of 2015, **India is committed to reducing its greenhouse gas emissions by 33-35% from the 2005 levels.**
- At the 2021 Conference of Parties in Glasgow, **India reiterated its commitment to move from a fossil and import-dependent economy to a net-zero economy by 2070.**
- India's average annual energy import bill is more than $100 billion and the increased consumption of fossil fuel has made the country a high carbon dioxide (CO2) emitter, accounting for nearly 7% of the global CO2 burden.
- In order to become energy independent by 2047, the **government stressed the need to introduce green hydrogen as an alternative fuel that can make India the global hub and a major exporter of hydrogen.**
- The **National Hydrogen Mission** was launched on August 15, 2021, with a view to cutting down carbon emissions and increasing the use of renewable sources of energy.

Green Hydrogen Infrastructure in India

- Government has said that country **was focusing on producing blue and green hydrogen along with blended hydrogen in Compressed Natural Gas (CNG)** for various purposes, including transport.
- Through **technological advancements, India is blending hydrogen with compressed natural gas for** use as transportation fuel as well as an industrial input to refineries.
- **50 buses in Delhi are plying on blended hydrogen** in Compressed Natural Gas on a pilot basis.
- The **Indian Oil Corporation Limited** announced **it would set up the country's first green hydrogen.**

- Reliance Energy said that it would invest Rs 600 billion in building factories to produce green hydrogen among other carbon friendly technologies.

Why India should opt for Green Hydrogen?

- Adoption of Green hydrogen technology is **favorable in those sectors where direct electrification isn't feasible** for ex in Heavy duty, long-range transport and long-term storage in the power sector.
- With technological improvements, green hydrogen will become **more affordable and accessible**.
- It can be used in a wide range of existing applications such as **fertilisers, mobility, power, chemicals and shipping**.
- It **can be blended up to 10 per cent by city gas distribution networks** for wider acceptance.
- It is a cross-cutting solution that **may reduce emissions across a range of sectors.**

What can India do to build a global-scale green hydrogen industry?

- India should **announce ambitious national targets for green hydrogen** and electrolyser capacity by 2030.
- Launch an **incentive programme for the production of electrolysers.**
- Implementing **complementary solutions** that create virtuous cycles for ex. building the hydrogen infrastructure for refueling, heating and generating electricity at airports.
- **Optimising distribution networks** to decarbonise the gas grid.

SAIME INITIATIVE	GS-III ENVIRONMENT & ECOLOGY

Context

- A new initiative of sustainable shrimp cultivation provides hope for mangrove restoration in the Sundarbans. For several years, environmentalists and experts have expressed concern over unsustainable aquaculture, particularly shrimp collection, after cleaning large tracts of mangrove forests in the Sundarbans.

Details

- **Under the initiative, Sustainable Aquaculture In Mangrove Ecosystem (SAIME), farmers have taken up cultivation of shrimp on 20 hectares at Chaital in West Bengal's North 24 Parganas, and 10 hectares at Madhabpur in adjoining South 24 Parganas. However, they are doing their part in restoring the mangroves as well.**
- The community-based initiative of sustainable shrimp cultivation is being conceived by NEWS and Global
- Shrimp cultivation is integrated into the mangrove ecosystem but when people extended the fisheries inwards, they excluded the mangroves.
- The rate of survival of planted mangrove saplings, which is usually 5-10%, has ranged between 30% and 50% in the initiative.
- Fishing, particularly shrimp cultivation, is one of the key occupations of the people of the Sundarbans, which is a complex network of rivers and low-lying islands that face a tide surge twice a day.
- **Shrimp cultivation is practised in 15,000 to 20,000 hectares of the unique ecosystem in India. The Sundarbans forest is about 10,000 sq. km across India and Bangladesh, of which 40% lies in India.**
- There are 42 shrimp farmers engaged in the pilot project and a majority of them say that they have had higher incomes compared to previous years.

Mangrove

- A mangrove is a shrub or tree that grows in coastal saline or brackish water. There are about 80 different species of mangrove trees. All of these trees grow in areas with low-oxygen soil, where slow-moving waters allow fine sediments to accumulate.

Where are mangrove ecosystems found?

- Mangroves can be found in the **tropical and subtropical regions of the world**.
- **Asia has the largest coverage of the world's mangroves**, followed by Africa, North and Central America, Oceania and South America.

In India:

- The deltas of the **Ganges, Mahanadi, Krishna, Godavari, and the Cauvery** rivers contain mangrove forests.
- The backwaters in Kerala have a high density of mangrove forest.
- The **Sundarbans in West Bengal is the largest mangrove region in the world and a UNESCO World Heritage Site**. It spans from the Hooghly River in West Bengal to the Baleswar River in Bangladesh.
- The **Bhitarkanika mangrove system in Odisha** is India's second largest mangrove forest. **Pichavaram in Tamil Nadu** has a vast expanse of water covered with mangrove forests. It is home to many aquatic bird species.

Sunderbans

- Sundarbans is a **mangrove area** in the delta formed by the confluence of the **Ganges, Brahmaputra and Meghna Rivers in the Bay of Bengal.**
- It comprises closed and open mangrove forests, land used for agricultural purpose, mudflats and barren land, and is intersected by multiple tidal streams and channels.
- Four protected areas in the Sundarbans are enlisted as **UNESCO World Heritage Sites**, viz. Sundarbans National Park, Sundarbans West, Sundarbans South and Sundarbans East Wildlife Sanctuaries.
- Despite these protections, the Indian Sundarbans were considered endangered in a 2020 assessment under the IUCN Red List of Ecosystems framework

Shrimp

- Shrimp, any of the approximately 2,000 species of the suborder Natantia (order Decapoda of the class Crustacea).
- Close relatives include crabs, crayfish, and lobsters.
- Shrimp are characterized by a semitransparent body flattened from side to side and a flexible abdomen terminating in a fanlike tail.
- The appendages are modified for swimming, and the antennae are long and whiplike.
- Shrimp occur in all oceans—in shallow and deep water—and in freshwater lakes and streams.
- Many species are commercially important as food.
- Shrimp range in length from a few millimetres to more than 20 cm (about 8 inches); average size is about 4 to 8 cm (1.5 to 3 inches). Larger individuals are often called prawns.
- Shrimp swim backward by rapidly flexing the abdomen and tail. Their food consists mostly of small plants and animals, although some shrimp feed on carrion.
- Freshwater prawns (family Atyidae) occur mainly in warm regions, where some live in brackish water.

PRESERVATION OF OZONE HOLE — GS-III ENVIRONMENT & ECOLOGY

Context

- The Earth's protective ozone layer is on track to recover within four decades, closing an ozone hole that was first noticed in the 1980s, a United Nations-backed panel of experts announced.

Details
Findings of the United Nations Report:

- Global emissions of the banned chemical chlorofluorocarbon-11, or CFC-11, which was used as a refrigerant and in insulating foams, have **declined since 2018 after increasing unexpectedly for several years.**
- The report also found that the **ozone-depleting chemical chlorine declined 11.5%** in the stratosphere since it peaked in 1993, while **bromine declined 14.5% since it peaked in 1999.**
- If current policies remain in place, the **ozone layer is expected to recover to 1980 levels** — before the appearance of the ozone hole — by 2040, and will return to normal in the Arctic by 2045. Additionally, Antarctica could experience normal levels by 2066.

Ozone

- Ozone is a molecule containing three oxygen atoms. It is **blue in color and has a strong odor.** Normal oxygen, which we breathe, has two oxygen atoms and is colorless and odorless.
- The Ozone Layer was discovered by the French physicists Charles Fabry and Henri Buisson in 1913.

How is Ozone created?

- When the sun's rays split oxygen molecules into single atoms, Ozone is created in the atmosphere. These single atoms combine with nearby oxygen to form a three-oxygen molecule — Ozone.

Why is Ozone Layer important?

- Ozone protects the Earth from harmful ultraviolet (UV) rays from the Sun. Without the Ozone layer in the atmosphere, life on Earth would be very difficult. Plants cannot live and grow in heavy ultraviolet radiation, nor can the planktons that serve as food for most of the ocean life.
- With a weakening of the Ozone Layer shield, humans would be more susceptible to **skin cancer, cataracts and impaired immune systems.**

Is Ozone harmful?

- Ozone **can both protect and harm the Earth —** it all depends on where it resides. For instance, if Ozone is present in the stratosphere of the atmosphere, it will act as a shield.
- However, if it is in the troposphere (about 10 km from the Earth's surface), Ozone is harmful. It is a pollutant that can cause damage to lung tissues and plants. Hence, an upset in the ozone balance can have serious consequences.

Ozone layers

Upper atmosphere

- Ozone occurs naturally in small (trace) amounts in the **upper atmosphere (the stratosphere)**.
- Ozone **protects life on Earth from the Sun's ultraviolet (UV) radiation**.

Lower atmosphere

- In the lower atmosphere (the troposphere) near the Earth's surface, **ozone is created by chemical reactions between air pollutants from vehicle exhaust, gasoline vapors, and other emissions**. At ground level, high concentrations of ozone are toxic to people and plants.

Stratospheric "good" ozone

- **Ninety percent of the ozone in the atmosphere sits in the stratosphere**, the layer of atmosphere between about **10 and 50 kilometers altitude.**
- The natural level of ozone in the stratosphere is a result of a balance between sunlight that creates ozone and chemical reactions that destroy it.
- Ozone is created when the kind of oxygen we breathe—O_2—is split apart by sunlight into single oxygen atoms. Single oxygen atoms can re-join to make O_2, or they can join with O_2 molecules to make ozone (O_3).
- The **peak concentration of ozone occurs at an altitude of roughly 32 kilometers** above the surface of the Earth. At that altitude, ozone concentration can be as high as 15 parts per million (0.0015 percent).
- Ozone is destroyed when it reacts with **molecules containing nitrogen, hydrogen, chlorine, or bromine.** Some of the molecules that destroy ozone occur naturally, but human activities have created others.

Tropospheric "bad" ozone

- Although ozone high up in the stratosphere provides a shield to protect life on Earth, direct contact with ozone is harmful to both plants and animals (including humans).
- Ground-level, "bad," ozone forms **when nitrogen oxide gases from vehicle and industrial emissions react with volatile organic compounds** (carbon-containing chemicals that evaporate easily into the air, such as paint thinners) in presence of sunlight.
- In the troposphere near the Earth's surface, the natural concentration of ozone is about 10 parts per billion (0.000001 percent). According to the Environmental Protection Agency, **exposure to ozone levels of greater than 70 parts per billion for 8 hours or longer is unhealthy.** Such concentrations occur in or near cities during periods where the atmosphere is warm and stable. The harmful effects can include **throat and lung irritation or aggravation of asthma or emphysema.**

What is 'Ozone Layer depletion'?

- When chlorine and bromine atoms come into contact with ozone in the stratosphere, they destroy ozone molecules. One chlorine atom can destroy over 100,000 ozone molecules before it is removed from the stratosphere. Ozone can be destroyed more quickly than it is naturally created.
- Ozone depletion is caused by the release of chlorofluorocarbons (CFCs) and other ozone-depleting substances (ODS), which were **used widely as refrigerants, insulating foams, and solvents.**
- Other chemicals that damage the ozone layer include **methyl bromide (used as a pesticide) and halons (used in fire extinguishers).** As methyl bromide and halons are broken apart, they release **bromine atoms**, which are **40 times more destructive to ozone molecules than chlorine atoms**
- Depletion of the Ozone Layer occurs globally, but the severe depletion of the Ozone Layer over the Antarctic is often referred to as the 'Ozone Hole'. Increased depletion has recently started occurring over the Arctic as well.

What is being done about ozone depletion?

- In 1978, the use of CFC propellants in spray cans was banned in the U.S. In the 1980s, the Antarctic "ozone hole" appeared and an international science assessment more strongly linked the release of CFCs and ozone depletion.
- In 1987, the Montreal Protocol was signed and the signatory nations committed themselves to a reduction in the use of CFCs and other ozone-depleting substances.

Montreal Protocol on Ozone Layer depletion

- Montreal Protocol is a **multilateral environmental agreement** that regulates the production and consumption of ozone-depleting substances (ODS). It was adopted on September 15, 1987.

- Since 1987, the treaty has been amended to ban CFC production after 1995 in the developed countries, and later in developing.

Vienna Convention

- The Vienna Convention for the Protection of the Ozone Layer is a multilateral environmental agreement signed in 1985 that provided frameworks for international reductions in the production of chlorofluorocarbons due to their contribution to the destruction of the ozone layer, resulting in an increased threat of skin cancer.
- The Vienna Convention was agreed upon at the Vienna Conference of 1985 and entered into force in 1988. The Vienna Convention provided the framework necessary to create regulatory measures in the form of the Montreal Protocol.
- While **not a binding agreement**, it acts as a framework for the international efforts to protect the ozone layer; however, it does not include legally binding reduction goals for the use of CFCs, the main chemical agents causing ozone depletion.

Kigali Amendment to the Montreal Protocol

- The 2016 Kigali Amendment to the Montreal Protocol is an international agreement **to gradually reduce the consumption and production of hydrofluorocarbons (HFCs).**
- Countries agreed to add HFCs to the list of controlled substances, and approved a timeline for their gradual reduction by 80-85 per cent by the late 2040s.
- It is a **legally binding agreement** designed to create rights and obligations in international law.

Note: HFCs were used to replace the substances banned in Montreal agreement because they have zero impact on the ozone. However, HFCs are powerful greenhouse gases that contribute to global warming and climate change, so this amendment adds HFCs to the list of chemicals that countries promise to phase down.

India will complete its phase down of HFCs in 4 steps from 2032 onwards with
cumulative reduction of 10% in 2032, 20% in 2037, 30% in 2042 and 85% in 2047.

Has the Montreal Protocol been successful?

- The Montreal Protocol has been **successful in slowing and reversing the increase of ozone-depleting gases** (halogen source gases) in the atmosphere. An important measure of its success is the change in the value of effective stratospheric chlorine.
- With the full and sustained implementation of the Montreal Protocol, the ozone layer is projected to recover by the middle of this century. **Without this treaty, ozone depletion would have increased tenfold by 2050** compared to current levels, **and resulted in millions of additional cases of melanoma, other cancers and eye cataracts**. It has been estimated, for example, that **the Montreal Protocol is saving an estimated two million people each year by 2030 from skin cancer**.
- To date, the Parties to the Protocol **have phased out 98% of ODS globally compared to 1990 levels**. Because most of these substances are potent greenhouse gases, the Montreal Protocol is also **contributing significantly to the protection of the global climate system.** From 1990 to 2010, the treaty's control measures are estimated to **have reduced greenhouse gas emissions by the equivalent of 135 gigatons of CO2, the equivalent of 11 gigatons a year.**

GROUNDWATER CONTAMINATED WITH URANIUM — *GS-III ENVIRONMENT & ECOLOGY*

Context

- Twelve Indian states have uranium levels beyond permissible limits in their groundwater, the most recent report on the state of groundwater released by the Central Groundwater Board, revealed.

Details

- **Uranium concentrations in the country's shallow groundwater range from 0-532 parts per billion (ppb), according to the document titled Groundwater yearbook 2021-2022 released in January, 2023.**
- Uranium concentration is found to be within safe limits in 13 states and none of the samples collected from Kerala had its presence.
- Punjab is the worst-affected state in terms of the percentage of wells found to have uranium concentration of more than 30 ppb — the safe levels prescribed by the Bureau of Indian Standards (BIS) and the World Health Organization (WHO).
- Haryana is the second state in terms of uranium prevalence in groundwater. The element's concentration in 14 per cent of the samples, or 67 out of 464 wells, exceeded the safe limit.
- Groundwater in Uttar Pradesh, Rajasthan and Delhi was also found to have a toxic concentration of uranium.

2019 vs 2022- a comparison

- In a 2019 assessment, groundwater in 18 states was found to be contaminated with uranium.
- Of those, the uranium levels in six states — Andhra Pradesh, Himachal Pradesh, Maharashtra, Goa, Karnataka and West Bengal — are currently upgraded to 'within the prescribed limits' zone.
- Does this mean that the groundwater in these states is uranium-free? Not necessarily, because sample size of three of these

states is considerably small compared to 2019.

About Uranium

- Uranium is a nephrotoxic element and can have an adverse impact at very high concentrations.
- This means that people dependent on groundwater containing the element are at a higher risk of impaired renal function and kidney disease.
- Exposure to uranium may also lead to other adverse health impacts, including bone toxicity.

Uranium in India

- Found in Singhbhum and Hazaribagh districts of Jharkhand, and Gaya District of Bihar, and in sedimentary rocks of Saharanpur District of Uttar Pradesh.
- The largest source of uranium comprise the monazite sands, both beach and alluvial.
- Monazite sand rich in uranium is found in Kerala.
- Some uranium is found in the copper and zinc mines of Udaipur (Rajasthan).
- In 2011 large deposits of uranium were discovered in the Tummalapalle belt in Andhra Pradesh and in the Bhima basin in Karnataka.
- The Tummalapalle belt uranium reserves promises to be one of the world's top 20 uranium reserves discoveries.
- The total reserves of uranium as estimated by the Department of Atomic Energy, are about 31,000 tonnes.
- Kazakhstan is the largest supplier of uranium to India providing 5,000 tonnes during 2015-19.
- India also imports uranium fuel from Russia, Kazakhstan, Uzbekistan, France and Canada.
- Kazakhstan is the world's largest producer of uranium.
- In recent years, India has shown increased interest in thorium fuels

Causes of contamination

- Geogenic processes are responsible for uranium contamination, but the overexploitation of groundwater can also be a reason for it.
- High levels of uranium are largely due to natural uranium content in aquifer rocks, oxidation state and groundwater chemistry, noted researchers from Duke University.
- Extreme bicarbonate levels were also found at the sites with high uranium levels. Bicarbonates help to bring the uranium out of the source rocks and is a reason for the high occurrence of the element, said Rachel Coyte, the lead author of the study.
- The study also alerted that human-made causes too could be behind this. Groundwater-table decline, nitrate pollution and over-exploitation of groundwater from irrigation further exacerbate uranium mobilisation, said the study.
- Overexploitation of groundwater has been observed in all types of aquifers in the country, confirmed another 2021 study by researchers from Bhabha Atomic Research Centre (BARC) and Homi Bhabha National Institute.

Solution

- Reverse osmosis (RO) is one of the latest membrane-based technologies used in water purification systems to remove uranium.
- BARC has conducted studies on the removal of uranium from drinking water using a hybrid membrane technique.
- Field studies are also being carried out in a few districts of Punjab based on RO technique at a village level to provide potable water, stated the BARC researchers.

NICOBAR LONG-TAILED MACAQUE

GS-III ENVIRONMENT & ECOLOGY

Context

- Great Nicobar Island (GNI), situated at the end of the Andaman and Nicobar archipelago, is in peril.

Details
Concerns

- While it has withstood great changes—from deforestation to natural disasters like the tsunami of 2004—**ever since the first settlers arrived from the mainland, it is now set to be altered like never before**.
- If the proposed plans for an international container transhipment terminal, power plant, township area, and international airport, as part of the large-scale development project put forth by NITI Aayog and the Andaman and Nicobar Islands Integrated Development Corporation Limited, materialise, the landscape, along with its unique people and flora and fauna, will change irreversibly.

About

- **GNI lies between the Bay of Bengal and the Andaman Sea in a tectonically sensitive zone.**
- The **largest of the Nicobar group of islands at 910 square kilometres**, it has an astounding array of microhabitats: sandy and

rocky beaches, bays and lagoons, littoral patches with mangrove communities, rural mosaic landscapes, monocultures, dense rainforests, coastal forest patches, riverine habitats, and estuarine stretches.

- **Each of these habitat types is home to an uncommon assemblage of species**, including marine animals, reptiles, birds, mammals, trees, ferns, insects, crustaceans, and amphibians, of which several are endemic to GNI and found nowhere else in the world.

The largest mammal on the island is the Nicobar long-tailed macaque (*Macaca fascicularis umbrosa*)
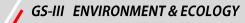
- **A vulnerable subspecies of the larger family of long-tailed macaques found across South-East Asia.**
- This particular subspecies is distinct from its cousins in appearance, behaviour and geographical location.
- The macaque is found on only three of the Nicobar islands—Katchal, Little Nicobar, and Great Nicobar—with GNI being home to the largest population
- The primates have adapted to island life perfectly and make use of rainforests, coastal habitats, and mangroves alike.
- **Their staple is the endemic screwpine species, *Pandanus fascicularis,* which is also the staple of the indigenous Nicobarese communities of these islands**.
- Sudden land-use changes enacted over time have caused the macaques to use human-occupied regions of the island for shelter, food, and movement.

The Crux:

- Great Nicobar Island (GNI) has an astounding array of microhabitats: sandy and rocky beaches, bays and lagoons, littoral patches with mangrove communities, rural mosaic landscapes, monocultures, dense rainforests, coastal forest patches, riverine habitats, and estuarine stretches.
- The largest mammal on the island is the Nicobar long-tailed macaque (*Macaca fascicularis umbrosa*), a vulnerable subspecies of the larger family of long-tailed macaques found across South-East Asia.
- Research in GNI and similar places across the world show how habitat alterations can increase human-wildlife conflict, adversely affecting the populations and health of the animals and leaving them vulnerable to fatal injuries from territorial fights.
- Another flagship species from GNI is the Nicobar megapode (*Megapodius nicobariensis*), a medium-sized scrubfowl species found only in a few Nicobar islands.
- An estimated 8,52,245 trees are to be cut down in GNI's prehistoric rainforests.
- In a land still recovering from the effects of the 2004 tsunami, a project of this scale and magnitude without scientific backing or well-placed mitigation measures is sheer folly.

RE-HAB PROJECT — GS-III ENVIRONMENT & ECOLOGY

Context

- KVIC through RE-HAB project of the Honey Mission Programme aims to reduce elephant attacks on humans and farmers' crops

Details

About Project RE-HAB (Reducing Elephant-Human Attacks using Bees):

- **Khadi and Village Industries Commission (KVIC)** launched Project RE-HAB for areas which severely grapples with elephant-human conflicts.
- Under **Project RE-HAB,** "**Bee-fences**" are created by setting up bee boxes in the passage ways of elephants to block their entrance to human territories.
- The **boxes are connected with a string** so that when elephants attempt to pass through, a tug or pull causes the bees to swarm the elephant herds and dissuade them from progressing further.
- It is a **cost-effective way of reducing human-wild conflicts without causing any harm to the animals.**
- It is scientifically recorded that elephants are annoyed by the honey bees.
- Elephants also fear that the bee swarms can bite their sensitive inner side of the trunk and eyes. The collective buzz of the bees is annoying to elephants that force them to return.
- Project RE-HAB would prove to be a sustainable solution to the human-elephant conflicts that are very common in Assam.
- Project RE-HAB is a **sub-mission of KVIC's National Honey Mission**. While the Honey Mission is a programme to increase the bee population, honey production and beekeepers' income by setting up apiaries, Project RE-HAB uses bee boxes as a fence to prevent the elephant attacks.

Need:

- **Crop-raiding by elephants** in these villages are reported almost every day for 9 to 10 months a year.
- The elephant menace here is so severe that villagers, over the last few years, had stopped cultivating their farms fearing elephant attacks.

- Nearly 500 people die every year due to elephant attacks in India. This is nearly 10 times more than the fatalities caused by big cats across the country. From 2015 to 2020, nearly 2500 people have lost their lives in elephant attacks.
- On the contrary, nearly one-fifth of this number, i.e. nearly 500 elephants have also died in retaliation by humans in the last 5 years.

Honey Mission:
- Chairman also informed that in order to realize the call of "Sweet Revolution" and to provide self-employment opportunities to the unemployed youth of the country, and to increase the income of the farmers, **the Honey Mission program is implemented under the Khadi and Gramodyog Vikas Yojana, in the entire country from the year 2018-19.**
- The beneficiaries of this scheme are provided with 10 bee-boxes, bee-colonies and toolkits after completion of the beekeeping training provided by KVIC.

BHOJ WETLAND   *GS-III ENVIRONMENT & ECOLOGY*

Context
- The National Green Tribunal has directed the Central Pollution Control Board (CPCB) and Madhya Pradesh Pollution Control Board (MPPCB) to periodically monitor the activities of a cruise vessel polluting the Bhoj wetland in Bhopal, MP.

Details:
About:
- The Bhoj wetland is **situated in the heart of Bhopal district** in Madhya Pradesh.
- The wetland **consists of two man-made lakes--the upper lake and the lower lake.**
- The upper lake, the oldest among large man-made lakes in central India, was created by king Bhoj in the 11th century by constructing an earthen dam across the Kolans river and the lower lake was constructed nearly 200 years ago mostly from the seepage from the upper lake.

Background:
- In 1995, the Madhya Pradesh government initiated a Rs 2.5 billion project for the conservation of the wetland with the money borrowed from the Japanese Bank For International Cooperation (JBIC).
- **In 2002, the Bhoj wetland was recognised as a wetland of international importance under the Ramsar Convention of 1971.**
- As per a report by the Centre for Science and Environment (CSE), the upper lake has reduced from the initial 30 sq km to 8 sq km now. The lower lake also got reduced from 8 sq km to 2 sq km in 2009. The total length of the lake was 38 km, but it got reduced to 5 km in 2009.

Importance of Bhoj wetland
- **The upper lake in Bhopal is an important wetland which is home to more than 700 species of diverse flora like zooplankton, phytoplankton, etc.**
- The wetland is also an important site of avian fauna with more than 150 species of both migratory and resident birds.
- This rich biodiversity of the wetland has, however, been affected adversely in the last few years due to various anthropogenic pressures and natural calamities, irregular rainfall during the last decade being one of them.
- **The upper lake is the principal source of drinking water (40 percent) for the city of Bhopal; the lower lake meets out the requirement of raw water and enhances the beauty of the city.**
- These lakes are ideal spots for watersports like kayaking, canoeing, parasailing and water skiing and attract tourists in hordes.
- The upper lake is a source of livelihood--both direct and indirect--for many communities including fishermen, boat owners and local vendors.

Problems the lakes face
- The last six decades have seen rapid urbanisation near the Bhoj wetland resulting in various environmental problems.
- The water quality is getting deteriorated from the sewage inflow from urban areas, agricultural waste from rural areas and industrial effluents, apart from the flourishing growth of invasive aquatic plants, depletion of biodiversity and other anthropogenic activities.

DOLPHINS   *GS-III ENVIRONMENT & ECOLOGY*

Context
- **A new study has found that noise generated by human activity makes it harder for dolphins to communicate and coordinate with each other. As the levels of underwater noise increase, these mammals have to "shout" to each other, it added.**

Details

- Dolphins are social mammals that communicate through squeaks, whistles and clicks. They also use echolocation in order to locate food and other objects.
- Therefore, anthropogenic noise coming from large commercial ships, military sonars or offshore drilling can severely impact their well-being.

What are the findings of the study?

- It was found that as it got noisier underwater, both dolphins changed their behaviour to communicate and work together.
- Apart from raising the volume and increasing the length of their calls, they also changed their body language — they turned their bodies towards each other and swam across the lagoon to be closer to each other.

What are the consequences of noisy oceans?

- Marine animals are known to use sound to navigate, find food and protect themselves.
- As sound travels faster in water than air, it makes for an important mode of communication because it can convey a lot of information quickly and over long distances.
- Scientists believe that fish species rely on sounds during reproductive activities, including mate attraction, courtship and mate choice.
- However, several studies and incidents have shown that sounds made by drilling, commercial ships and military operations lead to disruption of marine life.
- In 2020, Australia witnessed one of its worst mass stranding of whales when around 200 of them died on Tasmania's west coast. Researchers suggest that mass strandings are linked to noise pollution in oceans.
- **Recently, *The Guardian* reported that the newly launched MV Ganga Vilas cruise, which will "make stops at about 50 tourist and heritage sites along the Ganga and Brahmaputra river systems", could severely damage the habitat of the Ganges river dolphin, which already face a number of threats, including water pollution and poaching.**

Dolphin Profile

- The dolphin is a small to medium-sized marine mammal, which are found all over the world, generally in warmer waters. They usually inhabit shallow seas and continental shelves.
- They are members of the order Cetacea, of which there are four families, the oceanic dolphins (Delphinidae), Indian river dolphins (Platanistidae), the new world river dolphins (Iniidae), and the brackish dolphins (Pontoporiidae).
- Between these four families, there are 40 distinct species of dolphin.
- The 40 different species can be found in a vast geographic region, which makes it very difficult to estimate the current population of dolphins. Around 35 of the species live in oceans, while five of the living dolphin species live in rivers.
- The smallest, the maui dolphin, grows to an average 5.6 feet (1.7 meters) in length, and weighs 90 – 110 pounds (40 to 60 kg).
- The largest dolphin is the killer whale, which can grow up to 31.0 ft (9.5 m) in length, weighing 22,000 lb (9,980 kg).
- Dolphins are meat eaters and have a steady diet of squid, fish and crustaceans.
- Although the coloration of the dolphin varies, they are most often grey, with their backs having a slightly darker shade than the rest of their bodies.
- Agile swimmers, dolphins are a favorite for wildlife watchers as their playful activities and aerobatics in the water are a delight to see. They are also highly intelligent and can learn to do different tasks just through observation.

DARK-SKY RESERVE   *GS-III ENVIRONMENT & ECOLOGY*

Context

- **On December 14, 2022, the district administration of Ladakh designated six hamlets within the Changthang Wildlife Sanctuary a "dark-sky reserve" – an area whose skies were free of light pollution**. The designation meant that the reserve had a responsibility to keep the skies dark, particularly for the astronomical observatories located in the area.

Details:

- When SpaceX's Starlink constellation of small satellites began to obscure the view of ground-based telescopes around Earth, the idea of the sky as a natural resource capable of being polluted became popular.
- These incidents also rendered the absence of a global treaty to reduce light pollution more conspicuous.
- But while authorities safeguard telescopes' access to dark skies by actively lowering light pollution around their sites, the night is actually becoming brighter in almost the rest of the world thanks to 'skyglow', with significant ecological, health and cultural consequences.

How bad is light pollution?

- In a new study, researchers from Germany and the U.S. **found that non-natural light had increased the brightness of the artificial glow of the night sky, or skyglow, by 9.2-10% every year between 2011 and 2022.**
- Specifically, they reported that skyglow had brightened around 6.5% over Europe, 10.4% over North America, and 7.7% over the rest of the world.
- The finding is significant because **it disagrees with satellite-based data, which has indicated that the rate of increase has been around 2% per year**.
- Visible light emitted by many sources (except e.g. lasers) is divergent, so light emitted insufficiently downward could find its way into the sky.
- Almost all surfaces in cities also reflect light, meaning a portion of entirely down-cast light will be reflected upwards, **contributing to nighttime light pollution.**
- The researchers recommend light sources casting light at an angle below the plane of the horizon, capping the emissions of these sources and calibrating their output according to the total brightness at the spot being lit.

What is the situation over India?

- India isn't a blind spot
- **A 2016 study reported that 19.5% of India's population – the lowest fraction among G20 countries – experiences a level of skyglow that would at least keep the Milky Way galaxy out of sight and at most render "dark adaptation for human eyes" impossible.**
- A 2017 study reported that between 2012 and 2016, India's lit area increased by 1.07-1.09% and the average radiance of "stably lit areas" – e.g. excluding wildfires – increased by 1.05-1.07%.

What are the consequences?

- Even though LEDs have become more efficient, their utilisation hasn't decreased, which in turn means the carbon emissions due to their production and use hasn't decreased.
- Numerous studies have also found artificial light at night affects both people and wildlife in important ways.
- According to a 2003 report, lit beaches deter sea turtles from coming ashore to nest.
- A 2006 review found that skyglow keeps trees from sensing seasonal variations
- A 2017 study found that young burrow-nesting seabirds don't take flight unless the nesting site becomes dark.
- A 2019 study reported that clownfish eggs don't hatch when exposed to artificial light at night, killing the offspring.
- A 2020 study noted that skyglow interferes with multiple aspects of insect life and allows insect predators to hunt for longer.
- Parties to the Convention on Migratory Species adopted guidelines to address this specific problem at their meeting in Gandhinagar in 2020.
- By disrupting the circadian rhythm, artificial light at night can hamper the production of melatonin, an influential hormone in the human body with effects on sleep, moods and cognition. A small 2009 review concluded that circadian disruption – which altered melatonin levels can cause – increased the risk of breast cancer among night-shift workers by 40%.

Dark Sky Reserve:

- Hanle is ideally suitable for the project because it is situated in the freezing desert region of Ladakh, far from any human interference, and has dry weather conditions all year round.
- The site will have activities to help in boosting local tourism and economy through interventions of Science and Technology.
- It will boost Astro tourism in India and will be one of the world's highest-located sites for optical, infra-red, and gamma-ray telescopes.

HUMAN-ANIMAL CONFLICT   *GS-III ENVIRONMENT & ECOLOGY*

Context

- As a result of habitat loss and fragmentation, elephants often come in contact with humans while foraging for food or migrating from one place to another, a World Wildlife Fund report said. Human-elephant conflict caused 1,401 human and 301 elephant deaths in India from 2018-2020

What is Man-Animal Conflict (MAC)?

- **It refers to the negative interactions between people and wild animals, with consequences for both people and their resources and wildlife and their habitats (IUCN 2020).**
- Over 2,000 people in India were killed by elephants while tigers claimed over 200 lives in the last five years, according to data provided by the government.

Common Reasons:

- Competition for shared natural resources between people and wildlife
- Human population growth and the transformation of land use.
- shrinking forest cover, poaching, rapid and unplanned urbanization
- electrification penetrating into forest areas
- increasing road density
- destruction of natural animal corridors
- agricultural expansion and cultivation up to forest boundaries.

Consequences of MAC:

- Influences food security of people and the well-being of both people and animals.
- serious global threat to sustainable development and conservation in urban and rural landscapes.
- destruction of crops and reduced farm productivity
- competition for grazing lands and water, livestock predation, injury and death to farmers,
- damage to infrastructure and
- increased risk of disease transmission among wildlife and

Conflict mitigation strategies includes:

- Lethal control
- Translocation of problematic animals
- Predator-deterring guard dogs
- Effective land use planning
- Compensation
- Spatial analyses and mapping conflict hotspots:
- Erection of fences or other barriers
- Managing garbage to prevent attraction of carnivores
- Improving community education and perception of animals
- population size regulation and
- endangered species preservation
- applying scientific research, sociological studies, and the arts to reducing conflicts.

Existing government policies

- The government has come up with some policies to grapple with the problem: The compensation for human deaths has been increased from Rs 2.5 lakh to Rs 5 lakh;
- Project Elephant and National Tiger Conservation Authority (NTCA) guidelines have been issued to mitigate the conflict.
- Immune-contraception has been introduced in order to control the population of nilgai, monkeys and wild boars.

M-SAND PROJECTS

GS-III ENVIRONMENT & ECOLOGY

Context

- Coal India Ltd is gearing up to Launch M-Sand Projects in a big way.

M Sand

- M Sand is artificial sand made from the crushing of rock or granite for construction purposes in cement or concrete.
- It is used as a substitute for river sand.
- M sand differs from natural river sand in its physical and mineralogical properties.

Background

Finding Alternative Sand: What was the need?

- Sand is classified as a **"minor mineral",** under The **Mines and Minerals (Development and Regulations) Act, 1957 (MMDR Act)**.
- And administrative control over minor minerals vests with the State Governments.
- Accordingly, these minerals are **regulated through State specific rules**.
- Due to high demand, regulated supply and a **complete ban of sand mining during monsoon to protect river ecosystem**, finding alternative to river sand became necessary.

M-Sand from Overburden (OB) of coal mines

- **Sand Mining Framework (2018)** prepared by Ministry of Mines envisages alternative sources of sand in the form of **Manufactured Sand (M-Sand)** from crushed rock fines (crusher dust), sand from Overburden (OB) of coal mines.
- Basically, during Opencast mining the overlying soil and rocks are removed as waste to extract coal and the fragmented rock

(Overburden or OB) is **heaped in dumps**. Most of the waste is disposed of at the surface which occupies a large land area and requires extensive planning and control to minimize the environmental impact of mining. Coal India Ltd (CIL) has envisaged processing the overburden rocks for sand production in mines where OB material contains about 60% sandstone by volume harnessed through crushing and processing of Overburden.

* To **expedite Overburden to Sand utilization initiative**, Coal India Limited has prepared a Model Bid Document for installing more such plants across subsidiaries.

Benefits of manufacturing M- Sand from Overburden Coal Mines

* Manufactured Sand (M-Sand) from overburden of coal mines have several benefits in terms of economy and environmental sustainability, including:
* <u>Cost-effectiveness:</u> Using manufactured sand can be more cost-effective than using natural sand, as it can be produced in large quantities at a lower cost.
* <u>Consistency:</u> Manufactured sand can have a consistent grain size and shape, which can be beneficial for construction projects that require a specific type of sand.
* <u>Environmental benefits</u>: Using manufactured sand can help to reduce the need for mining natural sand, which can have negative environmental impacts. Additionally, using the overburden from coal mines can help to repurpose materials that would otherwise be considered waste.
* <u>Reduced water consumption</u>: Using manufactured sand can help to reduce the amount of water required for construction projects, as it does not require washing before use.
* <u>Better workability</u>: Manufactured sand is more angular and has a rougher surface, which makes it more workable for construction projects.
* <u>Land occupied by OB dumps can be freed</u> for alternative useful purposes.
* Recovery of sand from waste overburden is **the best out-of-waste product.**
* Commercial sale of produced sand **can generate additional revenue for coal companies.**
* Apart from commercial use, sand produced shall also be consumed for sand stowing in Underground Mines **enhancing safety & conservation.**
* Lesser Sand extraction from rivers **will reduce erosion of channel bed & banks and protect water habitat.**
* Help **maintain water table.**

Read more about M-Sand in detail: https://www.iasgyan.in/daily-current-affairs/m-sand-27

ASIAN GOLDEN CAT   GS-III ENVIRONMENT & ECOLOGY

Context

* Officials of the Buxa Tiger Reserve (BTR) in north Bengal said that they were able to capture some pictures of rare and elusive melanistic Asian golden cat in the camera traps, set up in the dense forests to monitor tigers.

Details

* The Asiatic Golden Cat *Catopuma temmincki* is a feline of many costumes.
* Sturdily built with fairly long legs, they are medium sized, with fox-red to gold-brown, black, brown or grey fur. Melanistic examples are not uncommon.
* The moderate length, dense coat is generally unmarked, but those cats in the more northerly regions often exhibit a variety of spots and stripes that closely resemble the markings of the Leopard Cat *Prionailurus bengalensis*.

NOT EVALUATED	DATA DEFICIENT	LEAST CONCERN	NEAR THREATENED	VULNERABLE	ENDANGERED	CRITICALLY ENDANGERED	EXTINCT IN THE WILD	EXTINCT
NE	DD	LC	NT	VU	EN	CR	EW	EX

* The most conspicuous features of this cat are the white lines bordered with black running across the cheeks, and from the inner corners of the eyes up to the crown.

Distribution

* **The Golden Cat is a nocturnal forest dweller, preferring sub-tropical and tropical evergreen forests, but they occasionally frequent more open areas with rocky tracts. In parts of China they are known as the 'rock cat'.**

- They are found from Nepal and northeast India through Southeast Asia, China, Thailand, Malaysia and Sumatra, but not on the island of Borneo.
- Hill forests of India also contain Clouded Leopards and Marbled Cats, but no Asiatic Golden Cats.

Conservation

- Local tribal people in Bangladesh traditionally hunt and trap Asiatic Golden Cats to eat.
- With the extreme rarity of the Tiger *Panthera tigris* and the Leopard *Panthera pardus* in the area, people now look to the lesser cats as sources of meat.
- **Their meat is believed to have special ingredients to increase strength and vigour, as carnivores are strong hunters of other animals.**

Legends

- Asiatic Golden Cats have long been known in Myanmar and Thailand as 'fire cats'.
- Legend says that carrying one hair will give the bearer protection from Tigers, or burning the pelt will drive Tigers away from the village.
- Their bones are sometimes ground into a powder to be given to children for fevers.

LAKE CHAD   GS-III ENVIRONMENT & ECOLOGY

Context

- A report by a humanitarian organisation has highlighted the dangerous link between climate change and conflict in countries like Cameroon, Chad, Niger and Nigeria in the Lake Chad Basin.

Details

- **Shrinking natural resources due to adverse weather are heightening tensions across communities and displacing people, said the report by Refugees International.**
- Around 3 million people have been displaced and an additional 11 million are in need of humanitarian assistance.
- One of Africa's largest freshwater bodies, the Lake Chad, has shrunk by 90 per cent.
- **Over 10 million people across the region are in need of emergency assistance. The United Nations has term the Lake Chad crisis as "one of the worst in the world".**

About

- Lake Chad in the Sahel straddles Nigeria, Niger, Chad and Cameroon and is home to 17.4 million people. It is blessed with rich aquatic and terrestrial biodiversity.
- The Lake Chad basin comprises biosphere reserves, World Heritage and Ramsar sites as well as wetlands of international conservation importance.
- For years, the lake has been supporting drinking water, irrigation, fishing, livestock and economic activity for over 30 million people in the region.
- **Located in Northern Central Africa, Lake Chad borders four countries — Chad, Nigeria, Niger and Cameroon. But the Lake Chad "Basin" that covers almost 8% of the continent, spreads over seven countries: Algeria, Cameroon, Central African Republic, Chad, Libya, Niger and Nigeria.**

Tackling the challenges

- Governments of the affected countries are now battling on several fronts around Lake Chad.
- **First, they are conducting a military offensive against the terrorists.** A joint multinational task force made up of troops from Nigeria, Niger, Cameroon, Chad, and Benin continues to launch military strikes against the terrorists.
- **Second, the governments want to end the violent conflict between herders and farmers over water and pasture.**
- **Third, they are trying to find a lasting solution to the drying of the lake,** which is exacerbating poverty in the region. An ambitious plan to restore the lake to its former glory involves a multibillion-dollar project that will channel water from the Ubangi River in the Democratic Republic of the Congo, which is 2,400 km from the lake. A feasibility was already underway in 2018.
- In the last two years, the UN has co-hosted two back-to-back international donor conferences, the first in Oslo where donors pledged $672 million in emergency assistance, and the second in Berlin, where donors announced $2.17 billion, including $467 million in concessional loans, to support activities in Cameroon, Chad, Niger and Nigeria.

Way Forward

- There is a need to reach out to the rebel groups and initiate participatory way of planning and executing peace building

programme.

- Prime focus should be given to empower and integrate the internally displaced persons and refugees into mainstream society.
- Providing sustainable solutions to deep-rooted challenges require sustained engagement. This is possible through promoting good governance and international development cooperation.
- On the contrary, conventional peace building effort is of course never enough unless we incorporate and strategically address the interconnected issues of conflict and climate change. It is important to address the cause and effect relationship between the environment and human security.
- Radical military operation and humanitarian relief will never restore peace and stability.
- Instead, food security analysis and early warning systems should be reinforced to help communities effectively prepare for threats and future shocks.
- To make this happen, there is a need to implement systematic data collection, collation, storage and dissemination.

Long-term solutions
- There should be robust and integrated management of water resources at the national and regional levels in the affected countries
- Sustainable management of natural resources will strengthen regional stabilisation, reduce people's vulnerability and increase resilience
- To translate this on ground, the UN Security Council and other peace building agencies should integrate the linkages of environmental, social and political issues in their peace building efforts
- Cultivation of climate-smart crops such as millets, tubers and cereals, could effectively ameliorate the socio-economic situation
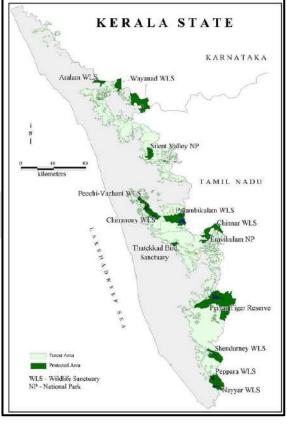
SILENT VALLEY

Context

- A bird survey conducted at the Silent Valley National Park in the last week of December identified 141 species, of which 17 were new.

About

- **Silent Valley National Park** is a national park in Kerala.
- It is located in the border of Malappuram district, Kerala, and Nilgiris district of Tamil Nadu. It is in the rich biodiversity of Nilgiri Biosphere Reserve.
- Karimpuzha Wildlife Sanctuary, New Amarambalam Reserved Forest, and Nedumkayam Rainforest, Attappadi Reserved Forest, and Mukurthi National Park of Nilgiris district, are located around Silent Valley National Park.
- Mukurthi peak, the fifth-highest peak in South India, and Anginda peak are also located in its vicinity.
- Bhavani River, a tributary of Kaveri River, and Kunthipuzha River, a tributary of Bharathappuzha river, originate in the vicinity of Silent Valley.
- The Kadalundi River has also its origin in Silent Valley. **River Kunthi** descends from the Nilgiri hills and traverses the entire length of the valley.
- The valley areas of the park are in a **Tropical and subtropical moist broadleaf forests Ecoregion.**
- Silent Valley is home to the **largest population of lion-tailed macaques, an endangered species of primate.**
- Mudugar and Irula tribal people are indigenous to the area and do live in the adjacent valley of Attappady Reserved Forest.
- Brown wood owl, Banded Bay cuckoo, Malabar wood shrike, White-throated kingfisher, Indian nightjar, Jungle nightjar, and Large cuckoo shrike were among the 17 species newly identified in the Silent Valley.
- Birds such as Crimson-backed sunbird, Yellow-browed bulbul, Black bulbul, Indian white-eye and Indian swiftlet were found in abundance in Silent Valley.
- Silent Valley Park is known for many highly endangered species. The major animals of the park are **Indian elephants**, lion-tailed macaque, tiger, gaur, leopard, wild boar, panther, Indian Civer and Sambhar.

Save Silent Valley movement: Plans for a hydroelectric project that threatened the park's rich and unique wildlife stimulated an environmentalist social movement in the 1970s, which resulted in cancellation of the project. It was declared as a **National Park** in the year of 1984.

SHORT NEWS ARTICLES

GS-I
CULTURE & HISTORY

Nattukotai Nagarathas

Context

- Nagarathars, members of a trader community, from various parts of the globe thronged Nattarsankottai for the *Sevva*i Pongal.

About

- **Nagarathar is a Chettiar community in Shaivism that originated in Naganadu a small island in Sri Lanka**
- Later they were brought by Pallavas to Kanchi and they lived there for more than 1000 years
- But they couldn't live a satisfying life due to the kings behaviour so they migrated to Kaveripoompattinam under the Chola kingdom.
- in Kaveripoompattinam, the chola kings gave lots of benefits to the nagarthar and nagarthars increased the economy of the chola and helped them a lot during the war times financially.
- Due to some cruel behaviour of cholas and natural calamities, nagarthars migrated to the pandya kingdom
- Pandyas offer a dry land area for the nagrathar community that is the present Chettinad
- **Nagarathars are a prominent mercantile tamil vanigar caste in Tamil Nadu, South India.**
- They are a community with very rich cultural heritage, known for their philanthropy; building temples and schools, and maintaining them throughout India and Asia.
- Chettiars are extremely intelligent and have strong values.
- They were able to travel to foreign countries by boat, train, and by foot and set up businesses.
- They have built huge mansions, many with gorgeous tiles imported from Italy in the late 1800s and early 1900s.
- Even today, Nagarathars have formed Sangams in different countries where they meet, preserve their culture, the Tamil Language
- Now Nagarathars live in 52 countries

Bhima-Koregaon Battle

Context

- The 205th anniversary of the Bhima-Koregaon battle passed without incident as lakhs of Ambedkarites from across Maharashtra and the country congregated near the Ranstambh (victory pillar) in Perne village in Pune district under heavy security cover.

Background

- Keeping an ever-vigilant eye to avoid any recrudescence of the violence during the bicentenary celebrations of the battle in 2018, the Pune Rural Police strictly monitored social media, deleting over 100 posts found to contain provocative content with the possible aim of rupturing peace

Historical Significance

- **The 'Jaystambh' is obelisk in Bhima-Koregaon village commemorates the British East India Company soldiers who fell in a battle on January 1, 1818, where the British, with just 834 infantrymen — about 500 of them from the Mahar community — and 12 officers defeated the 28,000-strong army of Peshwa Bajirao II.**
- **It was one of the last battles of the Third Anglo-Maratha War, which ended the Peshwa domination.**
- While the outcome of the Koregaon-Bhima battle was inconclusive, Babasaheb Ambedkar's visit to the spot on January 1, 1927, revitalised its memory for the Dalit community, making it a rallying point and an assertion of pride.
- The victory was seen as a win against caste-based discrimination and oppression.
- Peshwas were notorious for their oppression and persecution of Mahar dalits.
- The victory in the battle over Peshwas gave dalits a moral victory a victory against caste-based discrimination and oppression and sense of identity.

Ahom Burial Mounds

Context

- Assam Chief Minister Himanta Biswa Sarma said that the Centre has decided to send a proposal to UNESCO nominating Charaideo Maidam of Ahom Kingdom as a World Heritage Site.

Details:

- **Charaideo (Literally: the shining city on the hills in Ahom language) is a town in Charaideo district, Assam, India and was also the first capital of the Ahom kingdom established by the first Ahom king Chao Lung Siu-Ka-Pha in 1253.**
- It is now known for its collection of maidams, **tumuli or burial mounds of the Ahom kings and Ahom royalty**.
- It was the permanent settlement of the first Ahom king Chaolung Sukaphaa. According to Tai-Bailung-Mohong Buranji (a manuscript in Tai), Sukaphaa was buried in his capital city Che-Rai-Doi.
- Before the arrival of Sukaphaa the place was a place of worship for local tribes like Moran, Borahi.
- Though the capital of the Ahom kingdom moved many times, Charaideo remained the symbolic center.
- It contains sacred burial grounds of Ahom kings and queens and is also the place of ancestral Gods of the Ahoms.
- **The tombs Maidam of Ahom kings and queens at Charaideo hillocks resemble the shape of the pyramids and are objects of wonder revealing the excellent architecture and skill of the sculptors and masons of Assam of the medieval days.**
- The actual number of Maidam were more than 150 but only 30 Maidams are protected by the Archaeological Survey of India and Assam State Archaeology Department, and the remaining Maidams are unprotected.
- **The biggest unprotected Maidam is the Bali Maidam near Nimonagarh. This Maidam is called Bali Maidam, because while British plundered it, they got obstruction from excess sands (Bali) in the surrounding of the Maidam.**

Buddhist Monastery Found in Bharatpur

Context

- Recent excavations at Bharatpur in West Bengal's Paschim Bardhaman district have revealed the presence of a Buddhist monastery.

Details:

- A Buddhist stupa cannot exist in isolation, and the recent excavations have revealed the presence of an extended monastery complex

Unique stupa:

- **According to experts, what makes the site unique in terms of Buddhist sites in the State is the presence of a large stupa along with a monastery complex and black and red ware pottery from the Chalcolithic or Copper Age.**
- In other sites across West Bengal, such as Karnasubarna in Murshidabad, Moghalamari in Paschim Medinipur and Jagjivanpur in Malda, archeologists have **found only smaller votive stupas.**
- **A Buddhist stupa is a commemorative monument usually housing sacred relics associated with the Buddha or other saints or priests, whereas votive stupas have similar significance but are smaller structures originating in eight cylindrical structures.**

Early village settlements:

- The site was important for two main reasons: one, because it is an early village settlement on the bank of the river Damodar which could date to around 2000 BCE; and two, the Buddhist monastery complex.
- So there are two significances to the site: one is secular which is an early village settlement, and second, religious, which is Buddhist site.

Sculptures found:

- In the 1970s when the site was excavated along with the stupa, five beautiful seated sculptures of the Buddha in Bhumisparsha Mudra -- with all five fingers of the right hand extended to touch the ground -- were found.
- These miniature sculptures, each about 30 cm in height, were most likely used for worship in the monastery.

GEOGRAPHY

Chanaka-Korata Barrage

Context

- The centre has granted environmental clearance to **Chanaka-Korata Barrage.**

Chanaka-Korata Barrage

- Chanaka-Korata Barrage is an inter-State barrage **on Penganga River**.
- The irrigation project started jointly by Government of Telangana and Government of Maharashtra in March 2016.
- It will irrigate agriculture in the states of Telangana and Maharashtra.

- The irrigation project was **first conceived in 1975.**

Penganga River

- The Penganga river is a **part Pranhita river basin** which is <u>part of Godavari river basin.</u>
- The Penganga River **originates in the Ajantha ranges** in Aurangabad district in Maharashtra.
- It then **flows through Buldhana&Washim Distri**ct & flows through border of Washim&Hingoli District.
- Then it acts as a <u>boundary between Yavatmal and Nanded districts of Maharashtra</u>.
- The river **flows along State border between Maharashtra & Andhra Pradesh** before converging into Wardha river near small village called wadha in Wani Tehsil of Yavatmal district. The main **tributaries of the river are Adan, Kas, ArunavatiKayadhu& Pus.**
- **Sahasrakund Waterfall** is a waterfall on the Painganga River

Green Comet

Context

- On Feb. 1, a bright-green comet named C/2022 E3 (ZTF) made a close approach to Earth for the first time in 50,000 years.

Comet

- Comets are **cosmic snowballs of frozen gases, rock, and dust that orbit the Sun**.
- When passing close to the Sun, warms and begins to release gases, a process that is called outgassing. This produces a visible atmosphere or coma, and sometimes also a tail. Comet nuclei range from a few hundred meters to tens of kilometers across.

Types of Comets

- **Short-period comets** originate in the Kuiper belt or its associated scattered disc, which lie beyond the orbit of Neptune.
- **Long-period comets** originate in the Oort cloud, a spherical cloud of icy bodies extending from outside the Kuiper belt to halfway to the nearest star. Long-period comets are set in motion towards the Sun from the Oort cloud by gravitational perturbations caused by passing stars and the galactic tide.
- *Note: The Oort cloud is a big, spherical region of outer space enveloping our sun, consisting of innumerable small objects, such as comets and asteroids. NASA terms it "the most distant region of our solar system" and "Home of the Comets".*

What is the 'Green Comet'?

- Some comets appear to glow green **when ultraviolet sunlight vaporizes carbon molecules in the comet's head.**
- In this case, **the green glow arise from the presence of diatomic carbon** – pairs of carbon atoms that are bound together – in the head of the comet. The **molecule emits green light when excited by the ultraviolet rays in solar radiation.**

The rarity of Green Comets

- Coming under the **category of long-period comets**, which take more than 200 years to orbit the Sun, the green comet is not easily spotted.
- With a highly elliptical orbit, the comet will head back to the Oort cloud and make its next appearance roughly 50,000 years later.
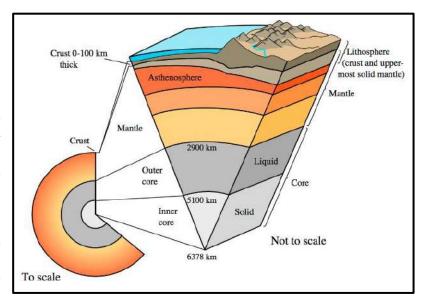
Inner Core of Earth

Context

- According to new research, published in the journal 'Nature Geoscience', the inner core of **Earth seems** to have stopped spinning in the same direction as the rest of the planet.

Background

- With a radius of almost 2,200 miles, Earth's core is about the size of Mars. It consists mostly of iron and nickel, and contains about one-third of Earth's mass. At the center of Earth is the core, a ball with a mean radius of 3480 kilometres that is composed mostly of iron.
- The <u>outer </u>core is liquid while the <u>inner core</u>, with a radius of 1220 km, is solid.
- Because the outer core has a low <u>viscosity</u>, it could be rotating at a different rate from the mantle and <u>crust</u>. This possibility was first proposed in 1975 to explain a phenomenon

of <u>Earth's magnetic field</u> called westward drift: some parts of the field rotate about 0.2 degrees per year westward relative to Earth's surface.

- In 1981, <u>David Gubbins</u>of <u>Leeds University</u> predicted that a differential rotation of the inner and outer core could generate a large <u>toroidal</u> magnetic field near the shared boundary, accelerating the inner core to the rate of westward drift. This would be **in opposition to the <u>Earth's rotation</u>, which is eastwards,** so the overall rotation would be slower.

Note: The spinning of the Earth's core is by the magnetic field that is generated in the outer core that is regulated by the gravitational effects.

New Findings and implications

- Earth's inner core, seems to have been spinning in the opposite direction in comparison to the rest of the planet.
- The rotation of the inner core that is the hot iron ball, which is around the size of **Pluto** "came to near halt around 2009 and then turned in an opposite direction.
- Till now, no evidence is found suggesting that the change in the course or direction will affect the lives on the mother planet, Earth.

TRIVIA

According to Researchers, the inner core rotates, relative to the Earth's surface, back and forth, just like a swing.

One cycle of the swing is of around seven decades. This means that it changes direction after every 35 years, the researchers added.

It changed its direction earlier in the early 1970s and the same may happen again in the mid-2040s.

This rotation lines up with changes in what is called the "length of day", the small variations in the exact time it takes the Earth to rotate on its axis.

GS-II
POLITY

Passive Euthanasia

In News

- **A 5-judge Constitution Bench of the Supreme Court questioned the utility of executing an advanced medical directive** when an individual is free to deny invasive treatment and accept death.
  - **Advance directives are legal documents that extend a person's control over health care decisions** if the person becomes incapacitated.
- Justice K.M. Joseph highlighted that there were many cases when the mind had overridden the limitations of the body and persons and returned to normalcy.
  - The court pointed to the case of renowned physicist Stephen Hawking, who despite diagnosis with amyotrophic lateral sclerosis, lived till 76 years.
  - In many cases, the financial background of people has decided whether a person's illness was "critical" or "terminal".
- **The court indicated that advanced directives place a heavy burden on doctors, as they have to ultimately say when a patient has gone beyond the point of return**. This is risky viewing the recent attacks on medical professionals by aggrieved families of patients who accuse them of negligence.
- The court said advanced directives operate in a "very narrow realm" when a person was/is unable to tell the doctors to stop the treatment, "Otherwise, a person has the right to say 'I don't want treatment'.
- **The court said that need to focus on three aspects of an advanced directive;**
  - Its contents
  - The method by which such a directive should be recorded without the danger of tampering.
  - Its implementation.
- The court made it clear that the court verdict would not be much effective until the Legislature came up with a law.
- The court is hearing a plea to modify a 2018 judgment which had upheld passive euthanasia and advanced directives but made the process of implementing it unclear.

Advanced Medical Directives

- An **advance healthcare directive** is also known as a **living will**, **personal directive**, **advance directive**, **medical directive** or **advance decision**.
- It is a legal document in which a person specifies what actions should be taken for their health if they are no longer able to make decisions for themselves because of illness or incapacity.
- **One form of advance directive is "leaving instructions for treatment".**
  - Another form is a specific type of power of attorney or health care proxy, in which the person authorizes someone (an agent) to make decisions on their behalf when they are incapacitated.
- Supreme Court of India in 2018 permitted living wills and passive euthanasia. The court held that the right to a dignified life extends up to the point of having a dignified death.

Euthanasia

- **Assisted suicide and euthanasia both are practices under which a person intentionally ends their life with active assistance from others.**
  - o Both are controversial topics as they involve moral, ethical and religious concerns.
- Several European nations, some states in Australia and Colombia in South America allow assisted suicide and euthanasia under specific circumstances.
- **Euthanasia can further be divided into Active and Passive;**
  - o Passive euthanasia involves simply stopping a life-saving treatment or medical intervention with the consent of the patient or a family member or a close friend representing the patient.

> **'STATE MUST PROTECT RIGHT TO LIFE'**
>
> ➤ Five-judge bench of unanimous view that **state duty-bound to protect right to life** whenever there is threat from any quarter, including private persons
>
> ➤ In dissenting verdict, **Justice Nagarathna** says except for habeas corpus (produce the person), **right to free speech and life cannot be enforced against persons other than state**
>
> ➤ Majority verdict says **fundamental right to free speech and life can be enforced against private persons** other than state or its instrumentalities
>
> ➤ Majority verdict says mere **statement of a minister may not lead to violation of constitutional rights** and hence not actionable for award of compensation
>
> ❝ Article 19(1)(a) (right to free speech) serves as a vehicle through which dissent can be expressed. The right to dissent, disagree and adopt varying and individualistic points of view inheres in every citizen of this country —**Justice BV Nagarathna**

  - o Active euthanasia, is legal in only a few countries, in this case, some substance/method is used of substances to end the life of the patient.
- In 2018, the **Supreme Court of India legalized passive euthanasia**, and highlighted that it was a matter of 'living will'.
  - o The court laid down a set of guidelines for 'living will' and defined passive euthanasia and euthanasia as well.
  - o According to the Court judgment, an adult in his conscious mind is permitted to refuse medical treatment or voluntarily decide not to take medical treatment to embrace death naturally, under certain conditions.

Freedom of Speech

In News

- A Constitution bench of the **Supreme Court was unanimous on the issue that the right to free speech needed no additional restrictions.**
  - o The bench said that "**the grounds mentioned in Article 19(2) for restricting the right to free speech are exhaustive".**
- The Court verdict came in the case of "curbing free speech of public functionaries", the case was related to the statement made by a Minister in Uttar Pradesh Government who termed the horrific 2016 gang-rape incident as an "opposition conspiracy" to defame the government.

Details

- The Court ruled that no additional restrictions could be imposed on the fundamental right to freedom of speech and expression.
  - o The court also highlighted that the existing "reasonable" restrictions under Article 19(2) of the Indian Constitution are "exhaustive".
- The bench voted in the favor of freedom of speech and stated that the role of the courts is to protect fundamental rights and not to insert more restrictions on them.
- The court highlighted that "**The restrictions under Article 19(2) are comprehensive enough to cover all possible attacks on the individual, groups/classes of people, the society, the court, the country, and the State".**

Freedom of Speech and Expression under the Indian Constitution

- The right to freedom of speech and expression is a Fundamental Right under Article 19.
- It implies that every citizen has the right to express his views, opinions, belief and convictions freely by word of mouth, writing, printing, picturing or in any other manner.
- The **Supreme Court in several verdicts held that the freedom of speech and expression includes the following:**
  - o Right to propagate one's views as well as the views of others.
  - o Freedom of the press.
  - o Freedom of commercial advertisements.
  - o Right against tapping of telephonic conversation.
  - o Right to telecast, that is, the government has no monopoly on electronic media.
  - o Right against bundh called by a political party or organisation.
  - o Right to know about government activities.
  - o Freedom of silence.

- o Right against the imposition of pre-censorship on a newspaper.
- o Right to demonstration or picketing but not right to strike.
- **The State can impose reasonable restrictions on the exercise of the freedom of speech and expression on the grounds of;**
  - o Sovereignty and integrity of India.
  - o Security of the State.
  - o Friendly relations with foreign states.
  - o Public order.
  - o Decency or morality.
  - o Contempt of court.
  - o Defamation.
  - o Incitement to an offence.

GOVERNANCE

World Report 2023 of Human Rights Watch

In News:

- The recently released **World Report 2023 by Human Rights Watch mentioned that Indian authorities had "intensified and broadened" their crackdown on social activist groups and the media.**
  - o The report reviews human rights practices in nearly 100 countries.
- The Human Rights Watch is an international non-governmental organization headquartered in New York City that conducts research and advocacy on human rights.

Key Points about India in the Report:

- **Authorities arrested activists, journalists, and other critics of the government on malafide and "politically motivated" criminal charges**, including that of terrorism.
- Authorities are **promoting discrimination** and many times violent actions against religious minorities.
- Many states have demolished religious minorities' homes and properties without legal authorization or due process of law.
- **Authorities also "misused" laws in the name of forced religious conversions** "to target Christians, especially from Dalit and Adivasi communities".
- The release of the 11 men convicted and sentenced to life in jail for the gang rape of Bilkis Bano and the murder of 14 members of her family, and the celebration of their release.
  - o The action highlighted the government's discriminatory view toward minority communities even in cases of violence against women.
- **In Jammu and Kashmir even after 3 years of removal of Article 370**, the government continued to restrict free expression, peaceful assembly, and other basic rights there.
- Human Rights groups, Social activists, and non-governmental organisations were harassed by authorities throughout the country through tax raids, the use of the Foreign Contributions Regulation Act, and other allegations of financial irregularities.
- **The report appreciated the liberal steps taken by the Supreme Court of India**, including the ruling to stop the use of the Sedition law, which was misused to arrest critics of the government and its policies.
  - o The court's ruling on extending abortion rights to all women regardless of marital status.
  - o The court banned the two-finger tests to protect survivors of sexual assault.
- The report also criticized the Supreme Court of India for its verdict on Muslim female students who wants to wear a hijab, or a headscarf, in educational institutions in Karnataka.
- The Report summarized that it is the responsibility of every government to protect and promote Human Rights and apply a human rights framework in their policies and work continuously to protect and promote human rights.

Schools of Eminence Project

About

- The **Chief Minister of Punjab has launched the Schools of Eminence project intending to make the state a role model in education**.
- Under the project, 117 state-run schools in 23 districts will be upgraded with a budget support of Rs 200 crore.
  - o Special focus on students in classes 9-12.

The project aims to;
  - o Ensure holistic development of students.
  - o Preparing students to be responsible citizens.
  - o Providing Career-related counselling.

- o Innovative teaching practices.
- o Guidance for professional exams.

The project is based on five pillars;
- o Infrastructure.
- o Academics.
- o Human resource management.
- o Sports and co-curricular activities.
- o Community engagement.
- While launching the project, the Chief Minister announced that all the 117 schools under the project will be named after martyrs and national leaders.

Padma Awards 2023

In News
- President of India conferred Padma awards 2023 at a civil investiture ceremony at Rashtrapati Bhavan.

Padma Award
- **The Padma Awards, which were instituted in the year 1954,** are one of the highest civilian honours of India, announced annually on the eve of Republic Day.
- **The Awards are given in three categories:**
  - o 'Padma Vibhushan' is awarded for exceptional and distinguished service.
  - o 'Padma Bhushan' for distinguished service of a high order.
  - o 'Padma Shri' for distinguished service in any field.
- The award seeks to recognize achievements in all fields of activities or disciplines where an element of public service is involved.
- The Awards are given in various disciplines/ fields of activities; art, social work, public affairs, science and engineering, trade and industry, medicine, literature and education, sports, civil service, etc.
- **The Padma Awards are conferred on the recommendations made by the Padma Awards Committee, which is constituted by the Prime Minister every year.**
- **The nomination process is open to the public. Even self-nomination can be made.**
- All persons without distinction of race, occupation, position or sex are eligible for these awards. However, Government servants including those working with PSUs, except doctors and scientists, are not eligible for these Awards.
- **The award is normally not conferred posthumously. However, in highly deserving cases, the Government could consider giving an award posthumously.**
- The awards are presented by the President of India usually in March/April every year where the awardees are presented a Sanad (certificate) signed by the President and a medallion.
- The recipients are also given a small replica of the medallion, which they can wear during any ceremonial/State functions etc. if the awardees so desire.
- **The total number of awards to be given in a year (excluding posthumous awards and to NRI/foreigners/OCIs) should not be more than 120.**
  - o **For the year 2023, the President has approved the conferment of 106 Padma. The list comprises 6 Padma Vibhushan, 9 Padma Bhushan and 91 Padma Shri Awards.**
- **The award does not amount to a title and cannot be used as a suffix or prefix to the awardees' name.**

Important Personalities in the list of Padma Award 2023
- **Padma Vibhushan**
  - o Balkrishna Doshi (Posthumous) for Architecture.
  - o Zakir Hussain for Art.
  - o Mulayam Singh Yadav (Posthumous) for Public Affairs.
- **Padma Bhushan**
  - o Shri Kumar Mangalam Birla for Trade & Industry.
  - o Sudha Murty for Social Work.
- **Padma Shri**
  - o Rakesh Radheshyam Jhunjhunwala (Posthumous) for Trade & Industry.
  - o Raveena Ravi Tandon for Art.

Report on Municipal Finances

About
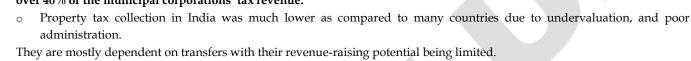- **The Reserve Bank of India (RBI) analyzed the** financial condition of urban local bodies.

- The report titled "Report on municipal finances" indicates that municipal bodies are dependent on fund transfers from the State and the Centre government, while their revenue-earning capacity is limited.
  - o Their revenue-raising powers are trimmed.

Key Points of the Report

- In the urban local bodies, **nearly 70% of budgets are spent on salaries, pensions and administrative expenses.**
- The combined budget of all the municipal corporations in India is much smaller than that of the Central and State governments.
- Taxes earned by municipal corporations are insufficient to meet their expenditure needs.
- Their tax revenue; **comprising property tax, water tax, toll tax and other local taxes, formed only 31-34% of their total revenue.**
  - o This is low as compared to many other countries and it is also declining over time.
- They are overdependence on property taxes. **In 2017-18, property taxes formed over 40% of the municipal corporations' tax revenue.**
  - o Property tax collection in India was much lower as compared to many countries due to undervaluation, and poor administration.
- They are mostly dependent on transfers with their revenue-raising potential being limited.

The own tax revenue of municipal corporations as a share of the State's GDP in 2017-18 crossed the 1% mark in Delhi, Gujarat, Maharashtra and Chhattisgarh, while it was 0.1% or less in Karnataka, Goa, Assam and Sikkim

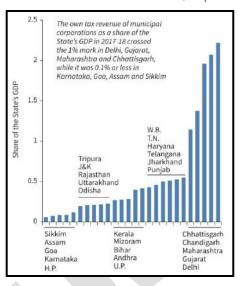# Aspirational Block Programme

In News

- The Union Government will soon launch the Aspirational Blocks Programme (ABP), a new initiative along the lines of the Aspirational District Programme.
  - o The **Aspirational Blocks Programme (ABP) was announced by the Union Finance Minister** in her 2022-23 Budget speech.
- Under the Programme, a total of 500 blocks across the country have been identified based on the recommendations of a four-member committee constituted by the government last year.
- The NITI Aayog, in partnership with the states, will release a quarterly ranking of these blocks based on their performance on development indicators covering sectors such as health, education and nutrition, among others.

Aspirational District Programme (ADP)

- The Union Government launched the **'Transformation of Aspirational Districts' programme in 2018.**
- The overall **objective of the programme**;
  - o Convergence of Central & State Schemes.
  - o Collaboration of Central, State level 'Prabhari' Officers and District Collectors.
  - o Competition among districts with a spirit of mass Movement.
- **115 districts were transparently identified from 28 states** by a committee of Senior Officers to the Government of India, in consultation with State Officials using a composite index.
  - o The **Composite index included data from the Socio-Economic Caste Census**, Key health and education sector performance and the basic infrastructure of the State.
- **The NITI Aayog coordinates and manages the programme** with support from Central Ministries and State Governments.
  - o NITI Aayog is supervising the initiative in 30 districts.
  - o Various central ministries oversee 50 districts.
  - o The Ministry of Home Affairs focuses on 35 Left Wing Extremism (LWE) affected districts.
- The Officers at the level of Joint Secretary or Additional Secretary are nominated to become the 'Central Prabhari Officers' of each district.
- States have appointed Prabhari officers.
- An Empowered Committee under the NITI Aayog will help in the convergence of various government schemes and efforts.
- **NITI Aayog release the Delta ranking for Aspirational Districts to assess the performance across 5 developmental areas;**
  - o Health and Nutrition
  - o Education
  - o Agriculture and Water Resources
  - o Financial Inclusion and Skill Development
  - o Basic Infrastructure

Young Professionals Scheme

About

- The Governments of India and the **United Kingdom (**U.K) launched the Young Professionals Scheme on the occasion of Pravasi Bharatiya Divas on 9th January 2023.
- Under the U.K.-India Young Professionals Scheme, **the U.K. will offer, annually, 3,000 degree-holding Indians in the 18–30-year age group place to work in the U.K. for up to two years.**
- The U.K. government called the launch of the program a "significant moment" for the U.K.-India relationship but also for the U.K.'s links to the Indo-Pacific.
- The U.K. has more links with India than almost any country in the Indo-Pacific region, with Indians comprising almost a quarter of all international students in the U.K. and Indian investment in the U.K. supporting 95,000 jobs in the country.

INTERNATIONAL RELATIONS

Major Non-NATO Ally

Context

- A US Congressman has recently moved a Bill in the House of Representatives to **revoke Pakistan's designation as a Major Non-NATO Ally.**

Details:

- The Bill says that for the country to keep the status, the **US President must submit a certification to the Congress that Islamabad has met certain conditions.**
- The conditions listed are: "Pakistan continues to conduct military operations that are contributing to significantly disrupting the safe haven and freedom of movement of the Haqqani Network in Pakistan; Pakistan has taken steps to demonstrate its commitment to prevent the Haqqani Network from using any Pakistani territory as a safe haven; the Government of Pakistan actively coordinates with the Government of Afghanistan to restrict the movement of militants, such as the Haqqani Network, along the Afghanistan-Pakistan border; and Pakistan has shown progress in arresting and prosecuting Haqqani Network senior leaders and mid-level operatives."

Major Non-NATO Ally status:

- Designation as MNNA **entitles a country to some military and economic privileges.**
- According to the US Department of State website, "Major Non-NATO Ally (MNNA) **status is a designation under US law that provides foreign partners with certain benefits in the areas of defense trade and security cooperation… While MNNA status provides military and economic privileges, it does not entail any security commitments to the designated country."**

Wassenaar Arrangement (WA)

Context

- India assumed chairmanship of Wassenaar arrangement on 1 Jan 2023

Details:

What is Wassenaar Arrangement?

- **The Wassenaar Arrangement is an elite club of countries which subscribe to arms export controls, similar to the Nuclear Suppliers Group and the Missile Technology Control Regime.**
- The body came into being in 1996 to succeed the Cold War-era Coordinating Committee for Multilateral Export Controls.
- The name comes from Wassenaar, a suburb of The Hague, where the agreement to start such a multi-lateral cooperation was reached in 1995.]

Who are all members of the Wassenaar Arrangement?

- **The WA has 42 members, the latest entrant being India.**
- With the exception of China, all the other permanent members of the U.N. Security Council are signatories of the WA, which is headquartered in Vienna.

How does the Wassenaar Arrangement work?

- **According to the WA website, the goal of the Arrangement is to "promote transparency and greater responsibility in transfers of conventional arms and dual-use goods and technologies".**
- Participants are required to "ensure that transfers of these items do not contribute to the development or enhancement of military capabilities which undermine the goal".
- The aim, according to WA, is also to prevent the acquisition of these items by terrorists.
- The Arrangement works according to what it calls WA Control Lists. The controls are subject to ratification by the participants.

- WA members agree to exchange information on sensitive dual-use goods and technologies and report on such transfers and denials of controlled items to non-participants.
- Critics see WA simply as a Cold War instrument with a different name. According to them Arrangement perpetuates a digital divide by restricting western companies and governments from supplying crucial technologies to emerging markets.

Asian Pacific Postal Union

Context

- India will take over the leadership of the Asian Pacific Postal Union (APPU) having its Headquarters in Bangkok, Thailand from this month.

Details:

- **Following the successful elections held during the 13th APPU Congress held in Bangkok during August- September 2022, Dr. Vinaya Prakash Singh, erstwhile Member (Personnel), Postal Services Board will take over the charge of Secretary General of the Union for a tenure of 4 years.**

About APPU:

- Asian Pacific Postal Union (APPU) is an intergovernmental organization of 32-member countries of the Asian-Pacific region.
- APPU is the only Restricted Union of the Universal Postal Union (UPU) in the region, which is a specialized agency of the United Nations.
- The goal of APPU is to extend, facilitate and improve postal relations between member countries and to promote cooperation in the field of postal services.
- As the regional center for various UPU projects, APPU also takes the lead in ensuring that all technical and operational projects of the UPU are fulfilled in the region so that the region is integrated into the global postal network in the best possible way.
- Secretary General leads the activities of the Union and is also the Director of the Asian Pacific Postal College (APPC) which is the largest intergovernmental postal training institute in the region.
- This is the first time an Indian is leading an international organization in the postal sector.

About UPU:

- Created in Bern in 1874
  - ➤ **The International Bureau, the permanent secretariat of the UPU, is based in Bern**
- An intergovernmental organization and a United Nations specialized agency
- The principal forum for cooperation between governments, Posts and other postal sector stakeholders

What is the main purpose of the Universal Postal Union?

- Coordinates international postal services
- Universal postal employee representatives
- The universal registrar for postage stamps
- A quality and control division in the US postal service.

1280 × 1920

International North–South Transport Corridor

Context

- Ministry of Ports, Shipping and Waterways, GoI, in association with India Ports Global Ltd, conducted a workshop on the 'Linking Chabahar Port with INSTC' in Mumbai
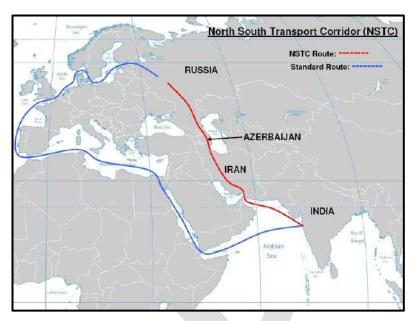
Details:

About:

- The International North–South Transport Corridor (INSTC) is a **7,200-km-long multi-mode network of ship, rail, and road route** for moving freight between **India, Iran, Afghanistan, Azerbaijan, Russia, Central Asia and Europe**.
- The route primarily involves moving **freight from India, Iran, Azerbaijan and Russia via ship, rail and road**.
- The objective of the corridor is to **increase trade connectivity between major cities**.
- The INSTC envisages the movement of goods from Mumbai (India) to Shahid Beheshti Port – Chabahar (Iran) by sea, from Chabahar to Bandar-e- Anzali (an Iranian port on the Caspian Sea) by road, and then from Bandar-e- Anzali to Astrakhan (a Caspian port in the Russian Federation) by ship across the Caspian Sea, and after that from Astrakhan to other regions of the Russian Federation and further into Europe by Russian railways

Importance:

- The strategic location of Chabahar has a great advantage for developing it as a transshipment hub.
- The Port's deep draft of 16 m is suitable for handling large shipment vessels. The Port lies close to some of the busiest trade routes in the world.
- The region comes under the Asia-Europe, Asia-Asia trade route, which carries large cargo volumes.
- INSTC (International North-South Transport Corridor) is India's vision and initiative to reduce the time taken for EXIM shipments to reach Russia, Europe and enter the central Asian markets.
- Successful activation of the corridor will help connect India to Russia and Central Asian countries.

- The Chabahar Port, located in Iran, is the commercial transit centre for the region, especially Central Asia.

Wagner Group

Context

- **The U.S. designated Russia's Wagner group as a "transnational criminal organization," piling pressure on the private Russian army fighting in Ukraine.**

Details:

- Wagner, controlled by Yevgeny Prigozhin, a businessman close to President Vladimir Putin, has about 50,000 fighters in Ukraine, 80% of them drawn from prisons.
- North Korea supplied arms to Wagner for its Ukraine operations, and the private army has become a rival to the formal Russian military.
- U.S. Treasury was formally designating Wagner as a transnational criminal organization, putting it in league with Italian mafia groups and Japanese and Russian organised crime.
- The designation will allow the wider application of sanctions on the group's sprawling global network, which includes mercenary operations as well as businesses in Africa and elsewhere.
- The arms transfers from North Korea are in direct violation of United Nations Security Council resolutions,
- Wagner was founded in 2014 and has been involved in conflicts in Africa, Latin America and the Middle East.

HEALTH

Hybrid Immunity

Context

- A recent study in the journal The Lancet Infectious Diseases held that "hybrid immunity" **provides better protection** against severe Covid-19.

What is Hybrid Immunity?

- Hybrid immunity is defined as the **immune protection in individuals who have had one or more doses of a COVID-19 vaccine** and **experienced at least one SARS-CoV-2 infection** before or after the initiation of vaccination.
- Thus, Hybrid immunity is **gained from a previous infection plus vaccines** – either the primary doses or both primary and booster doses.

Finding of Lancet Study

- The study said that a hybrid immunity offers a **"higher magnitude and durability" of protection** as compared to infection alone, emphasising the need for vaccination.

Implications of the Findings

- It provides information that **can be used to tailor guidance on the number and timing of SARS-CoV-2 vaccinations.**

- In regions with high Sars-CoV-2 sero-prevalence, the primary vaccination – focused mainly on those at the highest risk of severe disease such as the old or co-morbid – can offer high protection against severe disease and hospitalisation for at least one year.
- Seroprevalence is the number of persons in a population who test positive for a specific disease based on serology specimens.
- The other key recommendation is to **roll out booster vaccine drives whenever an increase in the number of infections is expected.**

Virovore

Context
- The first known "virovore"- an organism that eats viruses- has been found, researchers claimed.

About
- Scientists found that a *species of Halteria* - which are **microscopic ciliates** that populate freshwater throughout the world - can eat huge numbers of infectious chloroviruses. These **virus-eating species of protists —** which are their own kingdom on the tree of life and are **not an animal, plants, or fungi — are now classified as virovores.**
- Virovores can sustain themselves with viruses, consuming many and growing in size. For the first time, laboratory tests have demonstrated that **a virus-only diet, or "virovory," is sufficient to support an organism's physiological growth and even population increase.**

WHO Report on Acute Malnutrition

Context
- Currently, more than 30 million children in the 15 worst-affected countries suffer from or acute malnutrition and 8 million of these children are severely wasted, the deadliest form of undernutrition--WHO.

Malnutrition
- Malnutrition is the condition that develops when the body is **deprived of vitamins, minerals and other nutrients that our body needs to maintain healthy tissues and organ function**.
- Malnutrition occurs in people who are either undernourished or overnourished.

Acute Malnutrition
- Acute malnutrition is a form of **under-nutrition caused by a decrease in food consumption and/or illness** that results in sudden weight loss or oedema (fluid retention).

WHO Report on Acute Malnutrition
- Currently, more than **30 million children in the 15 worst-affected countries suffer from or acute malnutrition <u>and 8 million of these children are severely wasted</u>**, the deadliest form of undernutrition.
- **Conflict, climate shocks, the ongoing impacts of COVID-19 and rising living costs** are leaving increasing numbers of children acutely malnourished. Meanwhile, <u>critical health, nutrition and other life-saving services</u> are **becoming less accessible.**
- The **Global Food Crisis** is also a health crisis, and a vicious cycle: **malnutrition leads to disease, and disease leads to malnutrition.**
- Acute malnutrition is a **major threat to children's lives and their long-term health and development**, the impacts of which are felt by individuals, their communities and their countries.

Response to the Report
- Five UN agencies subsuming WHO are calling for **accelerated progress on the Global Action Plan on Child Wasting**. These agencies are Food and Agriculture Organization (FAO), UN Refugee Agency (UNHCR), United Nations Children's Fund (UNICEF), World Food Programme (WFP) and WHO.
- The action plan aims to **prevent, detect and treat acute malnutrition among children in the worst-affected countries**: Afghanistan, Burkina Faso, Chad, the Democratic Republic of the Congo, Ethiopia, Haiti, Kenya, Madagascar, Mali, the Niger, Nigeria, Somalia, South Sudan, Sudan and Yemen.
- The agencies have called for **decisive and timely action to prevent this crisis from becoming a tragedy for the world's most vulnerable children**.
- All agencies urged **greater investment in support of a coordinated UN response** that will meet the unprecedented needs of this growing crisis before it is too late.

GS-III
ECONOMY

Draft New Industrial Policy

Context

- The Department for Promotion of Industry and Internal Trade (DPIIT) is working on a New Industrial Policy which will replace the industrial policy of 1991. This will be the **third industrial policy, after the first in 1956 and next in 1991.**

Highlights of Draft New Industrial Policy

- It seeks to achieve **One Nation-One Standard**, promote start-ups in every district, create startup innovation zones at the level of urban local bodies, and **incentivise Indian speciality products** by creating premium international brands.
- The draft policy, also proposes to **create a Universal Enterprise ID for micro, small and medium enterprises (MSMEs)** to strengthen their credit rating mechanism and MSME cluster financing models, as it aims to showcase India as an attractive investment destination.
- Sustainability, R&D, MSME and ease of doing business for manufacturing are the thrust areas of the country's industrial vision.
- **Made in India brand**, would serve as a platform for manufacturers to demonstrate local value addition which can enhance the country's credibility as a source of quality products.
- Other suggestions in the proposed policy include providing performance-based loans and incentives for innovation and green growth; leveraging fintech; encouraging MSMEs to choose the corporate bond market; and accepting intellectual property rights as collaterals for loans.

The draft is still under stakeholder consultation.
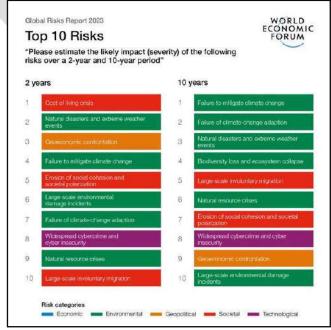
Global Risks Report

Context

- Recently, **the World Economic Forum (WEF)** released the 18th Edition of **Global Risks Report 2023**.

About the Report

- The **Global Risks Report** is an **annual study** published by the World Economic Forum ahead of the Forum's Annual Meeting in Davos, Switzerland.
- The Global Risks Report series tracks global risks perceptions among risk experts and world leaders in business, government, and civil society. It examines risks across five categories: **Economic, Environmental, Geopolitical, Societal, and Technological.**
- The report also explores the interconnectedness of risks, and considers how the strategies for the mitigation of global risks might be structured.

Global Risks Report 2023

- The Global Risks Report 2023, published by the World Economic Forum in collaboration with Marsh McLennan, examines how widening geopolitical, economic, and societal fissures will trigger and exacerbate crises to come.

- The report unpacks some of the key dangers in the short term, highlights escalating risks over the next decade, and examines how **competition for critical resources such as food and minerals** may play out in alternate futures.

2023's Risk Profile

- There are risks that could have serious impacts—such as **attacks involving nuclear or biological weapons**.
- Then there are risks that are causing a strain on society. The top risks are related to issues that impact a wide variety of people, such as the **rising cost of living and inflation**. WEF points out that increases in fuel prices alone led to protests in an estimated 92 countries.
- One risk worth watching is **geoeconomic confrontation,** which includes **sanctions, trade wars, investment screening, and other actions** that have the intent of weakening the countries on the receiving end. Efforts to mitigate this risk result in some of the key themes we see for the coming year. One example is the **onshoring of industries, and "friend-shoring",** which is essentially moving operations to a foreign country that has more stable relations with one's home country.

WEF

The **World Economic Forum** (**WEF**) is an **international non-governmental and lobbying organisation** based in Cologny, canton of Geneva, Switzerland. It was **founded in 1971.** The WEF is mostly known for its annual meeting at the end of January in Davos, a mountain resort in the eastern Alps region of Switzerland. The Forum engages the foremost political, business, cultural and other leaders of society to shape global, regional and industry agendas.
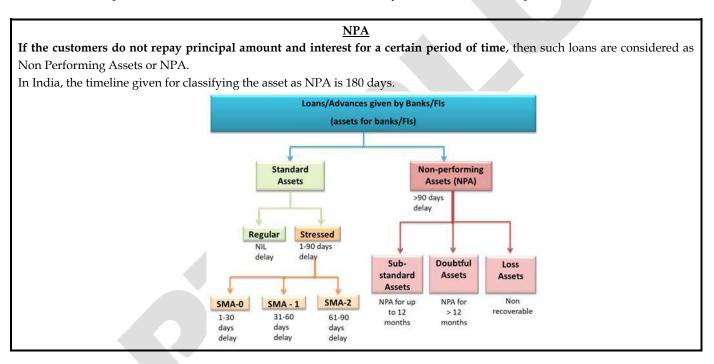

Bad Loan

Context

- Banks had written off bad loans worth ₹10,09,511 crore during the last five financial years- Finance Minister Nirmala Sitharaman.

What is a Bad Loan?

- A bad loan is one that has not been 'serviced' for a certain period. **Servicing a loan is paying back the interest and a small part of the principal — depending on the agreement between the bank and borrower.**
- In 2009, the RBI brought out norms that **set out categories of Non-Performing Asset (NPA) and what banks must do as these bad loans age**.
- Bad loans are a problem, for, with time, there is less and less certainty that the loan would be paid back in full.

NPA

If the customers do not repay principal amount and interest for a certain period of time, then such loans are considered as Non Performing Assets or NPA.

In India, the timeline given for classifying the asset as NPA is 180 days.

Domestic Systemically Important Banks (D-SIBS)

Context

- The Reserve Bank of India (RBI) issued its list of Domestic Systemically Important Banks (D-SIBs) for 2021. In line with the 2020 list of D-SIBs, SBI, ICICI Bank, and HDFC Bank are still categorized as Domestic Systemically Important Banks (D-SIBs), according to the central bank.

D-SIBs

- D-SIBs refer to **banks whose distress or failure have the potential to cause considerable disruption to the domestic financial system and the wider economy.**
- Systemically important banks attract closer supervision and regulation from the country's central bank as these entities are **considered to be too big-to-fail banking companies.**
- As a result of their importance, the government is expected to bail out these banks in times of economic distress to prevent widespread harm.
- Additionally, D-SIBs follow a different set of regulations in relation to systemic risks and moral hazard issues.
- The system of D-SIBs was adopted in the aftermath of the **2008 Financial Crisis** where the collapse of many systematically important banks across various regions further fueled the financial downturn.

How are D-SIBs determined?

- Since 2015, the RBI has been releasing the list of all D-SIBs. They are classified into five buckets, according to their importance to the national economy. In order to be listed as a D-SIB, **a bank needs to have assets that exceed 2 percent of the national GDP**. The banks are then further classified on the level of their importance across the five buckets.
- ICICI Bank and HDFC Bank are in bucket one while SBI falls in bucket three, with bucket five representing the most important D-SIBs.

What regulations do these banks need to follow?

- Due to their economic and national importance, the **banks need to maintain a higher share of risk-weighted assets as tier-I equity**.
- SBI, since it is placed in bucket three of D-SIBs, has to maintain Additional Common Equity Tier 1 (CET1) at 0.60 percent of its Risk-Weighted Assets (RWAs).
- ICICI and HDFC on the other hand, have to maintain Additional CET1 at 0.20 percent of their RWA due to being in bucker one of D-SIBs.

Global Economic Prospects Report

Context

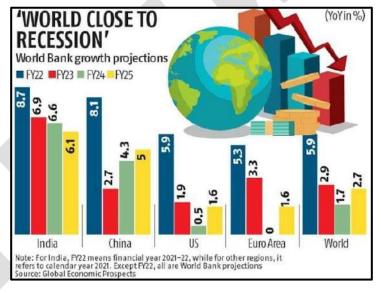- The World Bank projected the Indian economy to grow at a robust 6.6 percent in 2023-24 (FY24) in its Global Economic Prospects Report.

About

- Global Economic Prospects (GEP) is a **flagship report of the World Bank Group**, which examines global economic developments and prospects, with a special focus on emerging market and developing economies, on a semi-annual basis (in January and June).
- Each edition includes analytical pieces on topical policy challenges faced by these economies.

Highlights of the recent report

- The global economy has been projected to grow by 1.7 per cent in 2023.
- China's growth has been projected to pick up to 4.3 per cent in 2023 as the lifting of pandemic restrictions releases pent-up consumer spending.
- On India, the Report said the slowdown in the global economy and rising uncertainty would weigh on export and investment growth.
- Governments increasing infrastructure spending and various business facilitation measures, however, will crowd in private investment and support the expansion of manufacturing capacity. Growth is projected to slow, to 6.6 percent in FY23/24 before falling back toward its potential rate of just above 6 per cent. India is **expected to be the fastest-growing economy of the seven largest EMDEs** (emerging market and developing economies)

Hyperglobalization

News

- In a hyperglobalised world, not only were wars passé, but economies broadly followed the principles laid down by the late-18th/early-19th century economists Adam Smith and David Ricardo.

About

- International Monitory Fund defines "Globalization means that world trade and financial markets are becoming more integrated."
- The term 'Hyper-globalisation' is used to describe the dramatic increase in international trade witnessed for about a decade and a half from the early 1990s. It led to an unprecedented movement of capital and of people. Capital and labour flowed across the world.
- **Hyper-globalization** is the **belief that globalisation is happening and that local cultures are being eroded primarily because of the expansion of international capitalism and the emergence of a homogenous global culture**.
- The concept first arose in the 2011 work by Dani Rodrik.

Description

- In a hyper-globalised world, countries produce things in which they have comparative advantage and import those others can make at lower opportunity cost. For example, Indonesia and Malaysia produce palm oil; and Ukraine and Russia produce

sunflower oil. They have comparative advantages in the palm oil and sunflower oil. Therefore, Indonesia alone is the largest exporter of palm oil.

- Hyper-globalisation and leveraging comparative advantage work well in a world without geopolitical frictions or natural disasters. For example, 2011 Thailand floods impacted the computer hard drive supply chain.
- The period of hyper-globalization has been associated with the most dramatic turnaround in the economic fortunes of developing countries.
- Recently war-torn Ukraine started Rethinking in terms of hyper-globalisation. In a hyper-globalised world, countries would largely produce things in which they have a comparative advantage and import those others can make at lower opportunity cost.
- The main difference between globalisation and hyper globalisation is very narrow and can be best described as the rate of speed at which the process of globalisation takes place.

Critiques

- Hyper Globalization is **increasing the inequality around world.**
- Hyperglobalism is **also leading to increased extraction of raw materials, and deforestation without any value addition to indigenous people.**

SCIENCE & TECHNOLOGY

Deepfake

Context

- China, is rolling out new regulations, to restrict the use of deep synthesis technology and curb disinformation.

Deepfake

- Deepfake refers to an image or recording that has been convincingly **altered and manipulated to misrepresent someone as doing or saying something that was not actually done or said.**
- Deepfake technology has been used to impersonate notable personalities like former U.S. Presidents Barack Obama and Donald Trump, Prime Minister Narendra Modi, Facebook chief Mark Zuckerberg and Hollywood celebrity Tom Cruise, among others.
- Deepfakes leverage powerful techniques from Machine Learning **and** Artificial Intelligence to manipulate or generate visual and audio content that can more easily deceive.

Watch: https://www.youtube.com/watch?v=gLol9hAX9dw

Starlink Project

Context

- Elon Musk's satellite internet venture Starlink has started offering a "premium" service to its customers.

About Starlink

- **Starlink** is a satellite internet constellation operated by SpaceX Company, providing satellite Internet access coverage to 45 countries.
- It aims for global mobile phone service after 2023.
- SpaceX started launching Starlink satellites in 2019. As of December 2022, Starlink consists of over 3,300 mass-produced small satellites in low Earth orbit (LEO), which communicate with designated ground transceivers. In total, nearly 12,000 satellites are planned to be deployed.
- The service **offers low-latency broadband internet to remote areas across the globe**, using a constellation of satellites in low-

Starlink operates in low orbit
Low-Earth orbit satellites can link to Earth faster, but more are needed to provide coverage

Normal satellites 621+ miles
Starlink 341 miles

Source: BBC research

Earth orbit. In other words, it allows users to connect to the internet beamed from space onto a dish antenna, much like satellite TV.

Molecular Cloud

Context

- Astronomers have announced the discovery of different ices in the darkest and coldest regions of a molecular cloud measured to date.

Molecular Cloud

- **About:** A molecular cloud is an **accumulation of interstellar gas and dust**. These clouds do not contain atomic hydrogen/ionized gases.
- **Temperature:** These clouds have **very low temperatures of just 10 to 30 kelvin** and therefore the **hydrogen is primarily composed of molecular hydrogen or H2.**
- **Composition:** Hundreds of different types of molecules have been detected in these clouds, among them **water (H2O), ammonia (NH3), ethyl alcohol (C2H5OH), and even sugar and amino acids like glycine (C2H5NO2), the basic modules of life.** Compared to the mainly ionized hydrogen in other areas of the interstellar medium, **less than 1% of all hydrogen in the Milky Way is bound in molecular clouds**. The rest is in the form of atomic hydrogen which can become a molecular cloud at a later point in time. Molecular Clouds **mainly consist of hydrogen and dust particles** which are all that are needed to form new star systems with stars and planets. These clouds **often contain newly formed stars**; we just cannot see them due to the extinction of visible light caused by the dust of the clouds.
- **Size and Mass:** The size of these molecular clouds can be from **a few light years up to 600 light-years** and their total mass **can reach several million solar masses.** Molecular clouds with dimensions of more than about 15 light-years are also called giant molecular clouds.
- **Importance:** Molecular clouds are the **raw material of stars and planets**. A dark nebula (or dark cloud) is a very dense part of a bigger molecular cloud; the light extinction is caused by the high density and the presence of interstellar dust in these clouds. These are the **regions where new stars are forming.** Such a density can only occur if the temperatures are very low, otherwise, the thermal pressure of the gas would lead to an expansion of the dark nebula and no new stars would be able to form.
- **Existence:** These clouds **do not last for a very long time**. After the new stars are born their solar winds blow away the remaining gas and dust. Only a fraction, about 10%, of the original material of the molecular cloud gets locked up in stars and planets. The rest of the material will be blown away into the interstellar medium and one day will be "recycled" in other molecular clouds - its next chance to become a star or a planet.

Nitrate Radicals

Context

- According to a new study published in Nature Geosciences, **parts of China and India are night-time hotspots for the production of nitrate radicals.** This could increase the amount of **health-threatening ozone and PM 2.5** fine particulate matter in the atmosphere.

About

- Nitrate radical is an **oxide of nitrogen that consists of three oxygen atoms bound to a nitrogen atom.**

Role in Air Quality deterioration

- Nitrate radicals **oxidise gas pollutants such as volatile organic compounds (VOCs),** which **then generate ozone** and secondary organic aerosol. So, **this deteriorates air quality**.
- Ozone is an air pollutant that **affects human health and crop yield**. Secondary organic aerosol is an important component of PM2.5.

Findings of Recent Study

- There has been increased production of nitrate radicals in three megacity clusters in China - North China Plain, Yangtze and Pearl River Delta.
- It also **observed the same phenomenon in parts of India**. Northern India has also seen **an increase in night-time production of nitrate radicals.** If India follows trends seen in Los Angeles and China, it will be harder for India to improve air quality in the future.

Local Bubble

Context

- Researchers have generated a 3D magnetic map of the cavity called Local Bubble.
- Our Solar system is passing through the centre of one of these bubbles. The Local Bubble is a **1,000-light-year-wide cavity** or a superbubble. Other superbubbles also exist in the Milky Way, according to scientists.
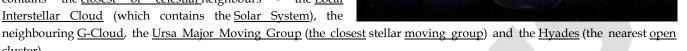
Background

- Fourteen million years ago, a firecracker chain of supernova explosions **drove off all the gas and dust** from a region roughly 1,000 light-years wide. **Result-** The region was left deprived of the material needed to produce new generations of stars.
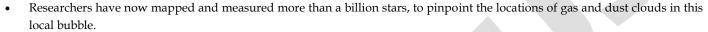
Note: Supernova is a cosmic explosion occurring when stars meet their end.

- Now, at the edges of this 1000 light years wide bubble abrupt **forces** of a previous generation of exploding stars has pushed gas clouds together into dense forms. It is dense enough to collapse under their own diffuse gravity and condense enough to ignite, as baby stars.

- Thus, all the baby stars in our neighbourhood can be found stuck **on the edges** of this 1000 light years wide bubble.

- Our sun, 4.5 billion years old, drifts through the middle of this space amid a group of aged stars. Thus, this Local bubble contains the closest of celestial neighbours - the Local Interstellar Cloud (which contains the Solar System), the neighbouring G-Cloud, the Ursa Major Moving Group (the closest stellar moving group) and the Hyades (the nearest open cluster).

- Researchers have now mapped and measured more than a billion stars, to pinpoint the locations of gas and dust clouds in this local bubble.

Final Thought

- Space is full of these SuperBubbles that trigger the formation of new stars and planets and influence the overall shapes of galaxies.

ChatGPT

Context

- ChatGPT the latest Artificial Intelligence (AI) Tool is creating a buzz among computer scientists and programmers due to its creative capabilities.

ChatGPT

- ChatGPT (Generative Pre-trained Transformer) is a **natural language processing tool driven by AI technology** that allows one to have human-like conversations and much more with a chatbot.

- Basically, ChatGPT is a **conversational dialogue model**, a chatting robot, trained by artificial intelligence (AI) and machine learning. It understands and responds to natural human language and answers questions, and talks like you were to talk to humans.

- The language model can answer questions, **assist with tasks such as composing emails, essays and code**. Usage is currently open to public free of charge because ChatGPT is in its research and feedback-collection phase.

- ChatGPT is different from other AI models because it remembers earlier conversations for context, it will even admit its mistakes, challenge premises, and sometimes even decline to answer.

- ChatGPT was created by OpenAI, an AI and research company.
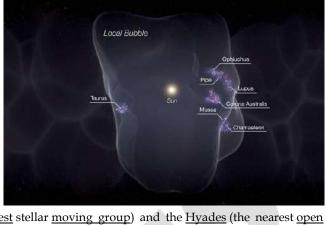
Giant Metrewave Radio Telescope

Context

- A radio signal originating from atomic hydrogen in an extremely distant galaxy was detected by the Giant Metrewave Radio Telescope (GMRT).

GMRT

- **About:** The Giant Metrewave Radio Telescope (GMRT), is an **array of thirty fully steerable parabolic radio telescopes of 45 metre diameter, observing at metre wavelengths.**

- **Location:** It is located about 80 km north of Pune at Khodad.

- **Aim:** To **determine the epoch of galaxy formation in the universe.**

- **Usage:** Astronomers **from all over the world** regularly use this telescope to observe many different astronomical objects such as galaxies, pulsars, supernovae, and Sun and solar winds.

- **Note:** In February 2020, it helped in the observation of the biggest explosion in the history of the universe, the Ophiuchus Supercluster explosion.

The recent detection by GMRT

- Astronomers have used data from GMRT in Pune **to detect a radio signal originating from Atomic Hydrogen** in an extremely distant galaxy.

- Atomic hydrogen is the <u>basic fuel required for star formation in a galaxy</u>. When hot ionised gas from the surrounding medium of a galaxy falls onto the galaxy, the gas cools and forms atomic hydrogen, which then becomes molecular hydrogen, and eventually leads to the formation of stars. Atomic **hydrogen emits radio waves of 21 cm wavelength**, which can be detected using low frequency radio telescopes like the GMRT.
- Until now, the most distant galaxy detected using 21 cm emission was at redshift z=0.376, which corresponds to a look-back time – the time elapsed between detecting the signal and its original emission – of 4.1 billion years (Redshift represents the change in wavelength of the signal depending on the object's location and movement; a greater value of z indicates a farther object).
- But now researchers, have detected a radio signal from atomic hydrogen in a distant galaxy at redshift z=1.29. Due to the immense distance to the galaxy, the 21 cm emission line had redshifted to 48 cm by the time the signal travelled from the source to the telescope. The signal detected by the team was emitted from this galaxy when the universe was only 4.9 billion years old; in other words, the look-back time for this source is 8.8 billion years.
- This detection was made possible by a phenomenon called **Gravitational Lensing,** in which the light emitted by the source is bent due to the presence of another massive body, such as an early type elliptical galaxy, between the target galaxy and the observer, effectively resulting in the "magnification" of the signal. In this specific case, the magnification of the signal was about a factor of 30, allowing us to see through the high redshift universe.

Significance

- Detecting neutral hydrogen in emission from the distant Universe is extremely challenging and has been one of the key science goals of GMRT.
- It opens up exciting new possibilities for probing the cosmic evolution of neutral gas with existing and upcoming low-frequency radio telescopes in the near future.

Exoplanets

Context

- NASA recently, announced that the James Webb Space Telescope has discovered its first new exoplanet. Researchers have labelled the planet as **LHS 475 b**, and it's roughly the same size as Earth.

What are exoplanets?

- Exoplanets are **planets that orbit other stars and are beyond our solar system**. According to NASA, to date, **more than 5,000 exoplanets** have been discovered. Scientists believe that there are more planets than stars as each star has at least one planet orbiting it.
- Exoplanets come in a host of different sizes. They can be gas giants bigger than Jupiter or as small and rocky as Earth. They are also known to have different kinds of temperatures — boiling hot to freezing cold.

Why do we study them?

Origin of Solar System and Planetary system

- Studying exoplanets not only **broadens our understanding of other solar systems** but also **helps us piece together information about our own planetary system and origin**.

Habitability

- Another important element of the study is finding out the distance between an exoplanet and its host star. This helps scientists determine if a discovered world is habitable or not.
- If an exoplanet is too close to the star, it might be too hot to sustain liquid water. If it's too far, it might only have frozen water. When a planet is at a distance that enables it to have liquid water, it is said to be in the "Goldilocks zone".

Most importantly, to answer the question: Are we alone in this universe?

Titanosaurs

Context

- Researchers from Delhi University have found 92 nests and 256 fossilized eggs belonging to Titanosaurs.
- **Area of Discovery**: Dhar district of Madhya Pradesh between 2017 and 2020.

Titanosaurs

- **About:** Titanosaurs were a diverse group of <u>sauropod dinosaurs.</u> They were basically the last surviving group of <u>long-necked sauropods</u>. [**Note:** Sauropods had very long necks, long tails, small heads (relative to the rest of their body), and four thick, pillar-like legs.]
- **Range of Body Size**: Titanosauria had the **largest range of body size** of any sauropod clade. One of the largest titanosaurs, *Patagotitan*, had a body mass

estimated to be 69 tonnes, whereas one of the smallest, *Magyarosaurus*, had a body mass of approximately 900 kilograms.

- **Prevalence:** Titanosaurs were **thriving at the time of the extinction event at the end of the Cretaceous.**

Evidence of Dinosaurs in India

- India has been a **hotspot for finding dinosaur fossils for** decades.

> **Cretaceous Period**
>
> The **Cretaceous** is a geological period that lasted from about 145 to 66 million years ago (Mya). It is the third and final period of the Mesozoic Era, as well as the longest. The Cretaceous was a period with a relatively warm climate. The Cretaceous (along with the Mesozoic) ended with the **Cretaceous–Paleogene extinction event,** a large mass extinction in which non-avian dinosaurs, pterosaurs, and large marine reptiles, died out.

- The **first time dinosaur bones were found was in 1822** by Capt. William H Sleeman of the East India Company army**.** These bones were **discovered near Jabalpur** and belonged to a titanosaur.
- Since then, evidence of several other kinds of dinosaurs has been found in states such as **Rajasthan, Gujarat, Andhra Pradesh, Maharashtra, Telangana, Karnataka and Tamil Nadu.**

Juice Mission

Context

- Europe's JUICE spacecraft is all ready to embark on an eight-year odyssey through the Solar System.

About JUICE Mission

- The **Jupiter Icy Moons Explorer (JUICE)** is an interplanetary spacecraft in development by the European Space Agency (ESA).
- The mission will study three of Jupiter's Galilean moons: Ganymede, Callisto, and Europa. All of these are thought to have significant bodies of liquid water beneath their surfaces, making them potentially habitable environments.
- The spacecraft is scheduled to launch in April 2023 and will reach Jupiter in July 2031 after four gravity assists and eight years of travel.
- JUICE's ice-penetrating cameras, sensors, spectrometers and radars will probe the moons to determine whether they could be habitable to past or present life.

Science Objectives

- The *Jupiter Icy moons Explorer* orbiter will perform detailed investigations on Ganymede and evaluate its potential to support life. Investigations of Europa and Callisto will complete a comparative picture of these Galilean moons. The three moons are thought to harbour internal liquid water oceans, and so are central to understanding the habitability of icy worlds.
- **The main science objectives for Ganymede, and to a lesser extent for Callisto, are:**
  o Characterisation of the ocean layers and detection of putative subsurface water reservoirs.
  o Topographical, geological and compositional mapping of the surface.
  o Study of the physical properties of the icy crusts.
  o Characterisation of the internal mass distribution, dynamics and evolution of the interiors.
  o Investigation of Ganymede's tenuous atmosphere.
  o Study of Ganymede's intrinsic magnetic field and its interactions with the Jovian magnetosphere.
- For Europa, the focus is on the chemistry essential to life, including organic molecules, and on understanding the formation of surface features and the composition of the non-water-ice material.
- Furthermore, JUICE will provide the first subsurface sounding of the moon, including the first determination of the minimal thickness of the icy crust over the most recently active regions.

Indian Science Congress

Context

- The 108th Edition of the Indian Science Congress is getting underway in Nagpur.

Indian Science Congress Association and Indian Science Congress

- **Indian Science Congress Association** (ISCA) is a premier scientific organisation of India with **headquarters in** Kolkata. The association **started in the year 1914** and it meets annually in the first week of January. It has a membership of more than 30,000 scientists.
- The first Indian Science Congress **was held in 1914** at the Asiatic Society in Calcutta. Several prominent Indian and foreign scientists, including Nobel laureates, attend and speak in the congress.

Objectives

- To advance and promote the cause of science in India;
- To hold an annual congress at a suitable place in India;
- To publish such proceedings, journals, transactions, and other publications as may be considered desirable;

- To secure and manage funds and endowments for the promotion of science including the rights of disposing of or selling all or any portion of the properties of the Association;
- To do and perform any or all other acts, matters, and things as are conductive to, or incidental to, or necessary for, the above objects.

108th Science Congress

- The 108th Indian Science Congress <u>is being held at Nagpur.</u>
- <u>Focal Theme</u> - Science and Technology for Sustainable Development with Women Empowerment.

DEFENSE & SECURITY

Kalashnikov Assault Rifles

Context

- An Indo-Russian joint venture has started manufacturing Kalashnikov AK-203 assault rifles in Uttar Pradesh's Amethi, a move that will lend greater firepower to the Indian armed forces.

Details:

- Indo-Russian Rifles Private Limited **plans to ensure 100 per cent localisation of the production of AK-203 rifles in India.**
- The joint venture, registered and located in India, whose founders on the Russian side are Rosoboronexport and Kalashnikov Concern (both subsidiaries of the Rostec State Corporation), has started producing Kalashnikov assault rifles
- Korwa Ordnance Factory in Amethi, Uttar Pradesh, has produced the first batch of 7.62 mm Kalashnikov AK-203 assault rifles
- As per the contract, over 6.1 lakh AK-203 assault rifles costing over ₹5,000 crore will be manufactured by a Joint Venture, Indo-Russian Rifles Private Ltd (IRRPL), at Korwa, Amethi in Uttar Pradesh.
- IRRPL was set up jointly between erstwhile OFB [now Advanced Weapons and Equipment India Limited (AWEIL) and Munitions India Limited (MIL)] of India and Rosoboronexport (RoE) and concern Kalashnikov of Russia.

Why AK 203 assault rifles?

- AK-203 assault rifle is considered to be the **latest and most advanced version of the AK-47 rifle.**
- **It is** a 7.62×39mm variant from the AK-100 rifle family (one that offers the AK-74M system, in multiple cartridges and lengths).
- This variant is expected to **replace the Indian Small Arms System (INSAS) 5.56×45 mm assault rifle**, that are presently being used by Army, Navy and the Air Force besides other security forces.
- INSAS rifles are **not suitable for use at high altitude**. Several other issues with these rifles include gun jamming, oil leakage etc.

AK 203- Strengths & Advantages:

- Popular because of **robust mechanics and simplicity of operation**, these rifles have been tested under the conditions of **extreme heat and cold**.
- This variant is an advanced version of AK-47 and its **magazine can hold 30 bullets.**
- Unlike the INSAS rifles, these rifles **never get jammed as these belong to AK series**.
- These rifles are a type of Kalashnikov rifles, which can work under extreme climatic conditions and are **effective even in sand, soil and water.**
- These rifles also offer **high degree of versatility, adjustability and customizability**.
- The 7.62 mm ammunition in AK-203 gun is NATO grade and therefore more powerful.
- The rifle, which can fire 600 bullets in one minute, means 10 bullets in a second, can be used in automatic and semi-automatic mode.

Ops Alert' Exercise

Context

- The Border Security Force started an "Ops Alert" exercise to enhance security along the India-Pakistan border' in Kutch district of Gujarat and Barmer in Rajasthan in view of the upcoming Republic Day celebrations.

Details:

About BSF:

- The BSF is a central armed police force (CAPF) that functions under the Union government.
- It was raised in 1965 in the **aftermath of the India-Pakistan war.**
- The BSF Act was passed by Parliament in 1968 and the rules governing the Act were framed in 1969.
- The MHA issues all orders pertaining to the BSF and other CAPFs such as the Central Reserve Police Force (CRPF), Sashastra Seema Bal (SSB), Indo Tibetan Border Police (ITBP), Central Industrial Security Force (CISF), National Security Guard (NSG) and Assam Rifles.

- India is a Union of States and under **One Border One Force policy**, the BSF is deployed **along the Pakistan and Bangladesh borders.**
- It is also deployed in areas **affected by Left Wing Extremism (LWE) and is routinely deployed for election and other law and order duties on the request of State governments.**

About Central Armed Police Forces (CAPFs):

- It refers to uniform nomenclature of seven central armed police organisations **of the India under the authority of the Ministry of Home Affairs.**
  o **Border Security Force (BSF)**
  o **Central Reserve Police Force (CRPF)**
  o **Central Industrial Security Force (CISF)**
  o **Indo-Tibetan Border Police (ITBP)**
  o **Sashastra Seema Bal (SSB)**
  o **National Security Guard (NSG) and**
  o **Special Protection Group (SPG)**
- Their **role** is **to defend the national interest mainly against the internal threats.**
- **BSF, ITBP, SSB** primary role is **border guarding.**
  o The primary role of the Border **Security Force is to guard the Indo-Pakistan and Indo-Bangladesh borders, it is deployed both on the international border and the LOC.**
  o The **Indo-Tibetan Border Police** is deployed for guarding duties on the Indo-China **border from Karakoram Pass in Ladakh to Diphu Pass in Arunachal Pradesh.**
  o The objective of the the**Sashastra Seema Bal is to guard the Indo-Nepal and Indo-Bhutan borders.**
- **CISF** guarding **Security of sensitive establishments**
- **CRPF and NSG**: Assisting Police to tackle Law & Order, Counter-Terrorist Operations, Counter Naxal Operations.
- All CAPFs are involved in assisting Police in Law & Order situations and also Army in Counter-Terrorist Operations. BSF & CRPF have assisted the army during external aggression in the past.

INS Vagir

Context

- **The Indian Navy commissioned the fifth diesel-electric Kalvari-class submarine Vagir.** It is among the six submarines being built by the Mazagon Dock Shipbuilders Limited (MDL), Mumbai, in collaboration with the French M/s Naval Group under Project 75. Four of these submarines have already been commissioned into the Navy and a sixth will be commissioned next year.

Details:

- Vagir was launched into water on November 12, 2020 and commenced sea trials on February 1, 2022.
- It is having "superior stealth features" like advanced acoustic absorption techniques.
- The sixth and last of the Scorpène-class submarines, Vagsheer, was launched into water in April 2022 and is expected to be delivered to the Navy by end 2023.
- Six Scorpene submarines are being built under Project-75 by MDL under technology transfer from Naval Group of France under a $3.75 billion deal signed in October 2005.
- The project is about four years behind schedule.
- The first submarine INS Kalvari was commissioned in December 2017, second submarine INS Khanderi in September 2019, third one INS Karanj in March 2021 and the fourth one INS Vela joined service in November 2021.

Unexploded Ordnance

Context

- An unexploded artillery shell was found near the official residence of Punjab Chief Minister

What is an Unexploded Ordnance (UXO)?

- A military ammunition or explosive device that remains unexploded even after it has been primed and fired is known as Unexploded Ordnance (UXO) in military parlance.
- **Such UXO can be left-overs from a war, a military battle inoculation exercise, field firing exercises or even be part of military scrap that is often exported from one country to another to extract metal.**

Danger associated with them:

- **All unexploded munitions are treated as potentially dangerous and capable of detonating** till proven otherwise by professional assessment by military ammunition experts.
- Whenever such unexploded munition is found by civilians, it is always advised to maintain a safe distance and inform the nearest police or district administration official.

- The civilian administration is expected to get in touch with the nearest Army station, which will then dispatch Army Ordnance Corps personnel, who are ammunition experts and can identify the ordnance and the safest way of disposing it.

Possible consequences:

- There have **been instances of scrap pickers and scrap dealers dying when such ammunition explodes.**
- Unexploded ordnance **can always be used as an Improvised Explosive Device** by connecting it to an explosive circuit.

Safe disposal:

- The **Army ammunition experts examine the ammunition and make a decision** as to whether it will be safe to take the unexploded ordnance to a distant place like a firing range and explode it, or whether it will be better is exploded in situ, with all safety measures in place.
- This decision is taken considering the volatility of the ammunition and if it can be transported safely.

Project Sambandh

Context

- Retired army officer and Shaurya Chakra awardee Colonel Vembu has begun '**Project Sambandh' - a one-man philanthropic initiative to connect the Next of Kin (NoK) of 'physical casualties' in the Army.**

Details:

- Project Sambandh **was initially started as a 1,000-day endeavour to reach out to families of army officers who lost their lives under 'non-operational circumstances' such as physical ailments, accidents, and suicides.**
- Project Sambandh has identified that the NoKs, particularly young widows and children of the army personnel, face three kinds of challenges - financial, emotional, and social.
- While the financial aspect was because of losing the primary breadwinner of the family, social challenges could be brought about by the stigma that the NoKs had to face within the society.
- Although the Indian Army assisted the NoKs in the initial years after an officer's death, the connection was lost in the subsequent years
- Over the last five years, he mapped over 15,000 NoKs and connected them to authorities.
- This had helped in delivery of more than ₹1 crore financial assistance.
- **The main intent of the project was to bring awareness about the challenges the NoK of the physical casualties faced and assist them in connecting them to the Directorate of Indian Army Veterans, which provided several educational and social schemes to children and the widows of slain army personnel**.

ENVIRONMENT & ECOLOGY

Zebrafish

Context

- A protein found in the backbone of zebrafish that plays a positive role in disc maintenance and promotes regeneration in aged discs between vertebrae can have potential therapeutic implications to promote regeneration in degenerated human discs.

Details:

Need:

- In humans, discs degenerate naturally, leading to many related health concerns, including low back, neck, and appendage pain.
- Currently, only symptomatic treatments for disc degeneration are available, including pain relievers or anti-inflammatories.
- In severe cases, disc replacement or disc fusion surgery is performed.
- **Thus, there is an urgent need to develop a treatment either to suppress disc degeneration or to promote disc regeneration in humans.**
- Medical examinations have given insights into the stages of degenerating human discs, but limited information is available about the cellular and molecular processes playing a role in the maintenance of the discs.
- Most importantly, no medical procedures or treatments have been known to suppress disc degeneration or induce disc regeneration.

About:

- **The zebrafish (Danio rerio) is a fresh water fish that originates from Southeast Asia and is the premier nonmammalian vertebrate for genetics studies.**
- This teleost was first described in the 1800s as an inhabitant of the Ganges River in India.
- Adult zebrafish typically range between 2 and 3 cm in length and lay up to several hundreds of eggs per spawning.

- Their embryos develop very rapidly, hatching after about 50 h in controlled conditions, and their larvae begin to eat starting on day 5.
- **Zebrafish are exotherms and are typically cultured at 28°C, though wild zebrafish have been shown to populate diverse habitats from 18°C to over 38°C.**
- This animal is popular among aquatic hobbyists, and 'GloFish' are the first approved genetically modified pet for commercial use.
- Due in part to the ease of husbandry, the zebrafish has been actively studied for a century in life science research.
- **Since 1980, the zebrafish has become a popular model organism for the study of many and diverse aspects of human behavior, development, and disease.**

Spot Bellied Eagle Owl

Context
- **A wildlife team recently stumbled upon a spot-bellied eagle owl (Bubo Nipalensis) for the first time in the Seshachalam forest, and for the third time in Andhra Pradesh**

Details:
- The bird's habitat, found on large trees in thick forests, is spread across the Indian subcontinent.
- But it was sighted only twice in the State earlier, and both the times it was at Nagarjunasagar Srisailam Tiger Reserve (NSTR).

About:
- The bold predatory bird, measuring 20-25 inches in length and weighing between 1.5 kg and 2 kg, feeds on small rodents and lizards.
- **The bird makes a strange scream similar to humans and it is hence called the 'ghost of the forest' in India and 'devil bird' in Sri Lanka.**
- The team also spotted a 'Mottled wood owl' (Strix Ocellata).
- **Though both are labelled as 'least concern' in terms of population stability, the development assumes significance in view of their maiden sighting in the verdant Seshachalam ranges.**

Dwarf Boa

Context
- Scientists have discovered a new species of dwarf boa in the Ecuadoran Amazon and named it after an Indigenous activist.

Details:
- Up to 20 centimeters (7.8 inches) long and with skin colouring similar to those of the boa constrictor -- the previously unknown snake was named *Tropidophis cacuangoae*.
- The second part of the name honors early 20th century Indigenous rights activist Dolores Cacuango.
- The species is unusual for having a "vestigial pelvis" characteristic of primitive snakes and taken as evidence by some that snakes descended from lizards that lost their limbs over millions of years.
- The ministry said the discovery brought to six the number of known Tropidophis species, endemic to South America.

About Boa:

Physical Description
- Boa constrictor has long been famous as one of the largest species of snake.
- In reality, boa constrictors are fairly modest-sized boids and are dwarfed by the other competitors for this title.
- Individuals are generally between 2 and 3 meters in length, although island forms are commonly below 2 meters.
- Within populations, females are usually larger than males.
- However, the tails of males may be proportionally longer than those of females

Geographic Range
- Boa constrictor is an exclusively New World species which has the largest distribution of all neotropical boas.
- Boa constrictors range from northern Mexico south through Central and South America.

Habitat
- Primary habitat is rainforest clearings or edges.
- However, they are also found in woodlands, grasslands, dry tropical forest, thorn scrub, and semi-desert.
- Boa constrictors are also common near human settlements and often found in agricultural areas.
- Boa constrictors are commonly seen in or along streams and rivers in appropriate habitats.
- Boa constrictors are semi-arboreal, although juveniles tend to be more arboreal than adults.

Neelakurinji

Context

- The Ministry of Environment, Forest and Climate Change (MoEF) has **listed Neelakurinji (Strobilanthes kunthiana) under Schedule III of the Wildlife (Protection) Act, 1972, including it on the list of protected plants.**

Details:

- Those who uproot or destroy the plant will invite a fine of ₹25,000 and three years' imprisonment. The cultivation of Neelakurinji and its possession is not allowed, according to the order.
- **Neelakurinji has been included on the list when the Centre expanded the earlier protected list of six plant species to 19.**
- **Destroying and uprooting of Neelakurinji plants is a major threat to the flowering areas.** Normally, the Chief Wildlife Warden issues a statement to the effect that destroying Neelakurinji plants and flowers is a punishable offence under the Wildlife Protection Act and action will be taken accordingly. But it does not prevent the offence.

About:

- **The plant was endemic to a small stretch in the Western Ghats from the Mangaladevi hills to the Nilgiris hills.**
- In the Western Ghats region, nearly 70 varieties of Neelakurinji plants have been identified.
- The most popular Neelakurinji is Strobilanthes kunthiana which blooms once in 12 years. However, some other rare varieties of Neelakurnji are also found in the Western Ghats region.
- The Eravikulam National Park, near Munnar, is known for widespread blooming of the kurinji, with the next flowering season expected in 2030.
- The Neelakurinji is a shrub of the Acanthaceae family that famously blooms once every 12 years.
- Strobilanthesis a genus of about 350 species of flowering plants in the family Acanthaceae, mostly native to tropical Asia and Madagascar
- The Topli Karvy (Strobilanthes sessilis), the Karvy (Strobilanthes callosa) and the Kurinji (Strobilanthes kunthiana), all belong to the Strobilanthesgenus
- The external resemblance of these flowers being taxonomically related, is very similar. People can often get confused.
- The Topli Karvyis found more in the northern section of the Western Ghats in Maharashtra. It is called so since it resembles and inverted basket
- The Karvy(Strobilanthes callosa) grows on the steepest cliffs where trees can't grow.
- The Topli Karvygrows on the plateaus of the northern Western Ghats on the other hand.
- The Neelakurinji on the other hand grows in the shola grasslands of the southern Western Ghats, which are not found in Maharashtra
- Neelakurinji was endemic to the southern Western Ghats and higher reaches of the Eastern Ghats.

PENDENCY IN HIGHER COURTS

Context

The Chief Justice of India stated that the Indian Judiciary is overburdened because of the system and he also mentioned that it is difficult to find good lawyers to fill judicial vacancies in High Courts.

The Chief Justice highlighted that increasing the number of judges will not solve the problem of pendency.

He said that 20% of the judicial posts in the High Courts were vacant.

Present Status

More than 70 thousand cases are pending in the Supreme Court according to the latest data available on the National Judicial Grid.

Nearly 60 lakhs cases are pending in the High Courts.

Over 40 million cases are pending in Subordinate Courts across the country.

The high pendency of Cases in Some tribunals indicates that the objective of setting them is not achieved.

According to data compiled from the National Judicial Data Grid, more than one lakh cases are pending in district and taluka courts for 30 years. Over 90% of these cases are pending in just 4 states: Uttar Pradesh, Maharashtra, West Bengal, and Bihar.

Reasons

Lack of sufficient number of judges and high vacancies in the judiciary and long leave to judges deteriorate the already grim situation.

Frequent adjournment of the cases even on frivolous issues.

India has very few courts compared to its huge population.

Excessive litigation from the government side, the government is the largest litigant, responsible for nearly half the pending cases and most of them are on petty issues such as interdepartmental conflict.

Lack of quality judges in the lower judiciary leads to appeals to the higher judiciary in most cases.

Archaic laws or vague laws present another challenge as it takes time to interpret the law and most of the time matters go to higher courts through appeal.

Poor police investigation leads to poor collection of evidence and hostile witness thus adjourning the hearing for the next date.

Increasing the number of use of Public interest litigation (PIL).

Increasing awareness among citizens about their rights and law courts.

Consequences

Common people's faith in the judiciary declines.

It denies true justice to under-trial prisoners, many of whom get acquitted after spending many years which is a violation of their fundamental rights and also spoil their whole life.

The economic cost of pendency is also very huge. Projects worth billions get delayed amid delays in judgement. It is estimated that delay in justice costs 1.5% of GDP annually which also deters future investment in India.

Delay in justice also fails to create deterrence in the mind of criminals thus crime goes on perpetuating.

Overcrowding of jails is also a result of a delay in judgment.

The criminalization of politics keeps on rising as culprits are not punished timely

Concerns

Case pendency Hurts investors' confidence.

Economic activity is getting affected by high pendency and delays across the legal system.

It adds a burden on Courts and collaterally harms other litigants.

It increases project costs and delays projects.

Slows down administrative processes, delaying decision-making.

Diversion of precious resources.

Effects ease of doing business.

Steps taken

Infrastructure has been improved from the Supreme Court to the lower court.

The Central government increased the number of Judges in the Supreme Court from 31 to 34.

The government is also emphasizing the increasing use of lokadalats and other alternate dispute settlement mechanisms.

Special courts deal with technical matters so that judgement can be pronounced on time.

Adoption of "National Litigation Policy 2010" to transform the government into an Efficient and Responsible litigant.

All states formulated state litigation policies after National Litigation Policy 2010.

Legal Information Management and Briefing System (LIMBS), was created in 2015 with the objective of tracking cases to which the government is a party.

The Supreme Court advised the centre that criminals sentenced to imprisonment for 6 months or a year should be allocated social service duties rather than be sent to further choke the already overflowing prisons.

GREEN BONDS

Context

The Reserve Bank of India (RBI) announced that it will, for the first time, issue Sovereign Green Bonds (SgrBs) worth Rs 16,000 crore.

What are Green Bonds?

Green bonds are debt securities specifically destined for the funding or refunding of green projects, i.e. projects that are sustainable and socially responsible in areas as diverse as renewable energy, energy efficiency, clean transportation or responsible waste management.

They commit the use of the funds obtained to an environmental project or one related to climate change.

They are issued by any sovereign entity, inter-governmental groups or alliances and corporates.

Green Bonds finance projects that help reduce the effects of climate change or protect the environment.

Proceeds from these bonds are utilized for projects classified as environmentally sustainable.

The very first green bond was issued in 2007 by multilateral institutions European Investment Bank (EIB) and World Bank.

Application of Green Bonds in India

The government will use the proceeds raised from SGrBs to finance or refinance expenditures for various green projects, including in renewable energy, clean transportation, energy efficiency, climate change adaptation, sustainable water and waste management, pollution and prevention control and green buildings.

In renewable energy, investments will be made in solar, wind, biomass and hydropower energy projects.

Importance of Green Bonds

Climate change threatens communities and economies, and it poses risks to agriculture, food, and water supplies. A lot of financing is needed to address these challenges.

Green Bonds can be an important financial instrument to deal with the threats of climate change and related challenges.

It's critical to connect environmental projects with capital markets and investors and channel capital toward sustainable development. Green Bonds are a way to make that connection.

Green Bonds in India

In 2021, the government said it stands committed to reduce the Emissions Intensity of GDP by 45 percent from the 2005 level by 2030.

It further aims to achieve about 50 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030.

In line with the commitment to significantly reduce the carbon intensity of the economy, the Union Budget 2022-23 made an announcement to issue Sovereign Green Bonds.

Closing Thoughts

Over the last 14 years, green bonds have become an important tool to address the impacts of climate change and related challenges.

Green financing will increase the level of financial flows (from banking, micro-credit, insurance and investment) from the public, private and not-for-profit sectors to sustainable development priorities.

The issuance of Sovereign Green Bonds will help the Government of India (GoI) in tapping the requisite finance from potential investors for deployment in public sector projects aimed at reducing the carbon intensity of the economy.

MALNUTRITION IN INDIA

Context

The Union Minister of Women and Child Development has released a target report to curb malnutrition in India and updated the Rajya Sabha about the various steps taken by the government to reduce:

Stunting and under-nutrition (underweight prevalence) by 2% per annum among children under 6 years.

Low birth weight by 2% per annum.

Anaemia among children between 6 and 59 months, as well as women and adolescent girls from 15 to 49 years, by 3% per annum.

About

Malnutrition is the condition that develops when the body is deprived of vitamins, minerals and other nutrients that our body needs to maintain healthy tissues and organ function.

Malnutrition occurs in people who are either undernourished or over nourished.

Article 47 of the Indian Constitution mentions the "duty of the State to raise the level of nutrition and the Standard of living and to improve Public health".

Key Points

Meghalaya has the highest number of stunted children (46.5%), followed by Bihar (42.9%).

Maharashtra (25.6%) has the highest number of wasted children (weight for height), followed by Gujarat (25.1%).

Bihar (41%) has the highest number of underweight children, followed by Gujarat (39.7%), and Jharkhand (39.4%).

Jharkhand has the highest percentage of women, between 15 and 49 years, who have a below-normal Body Mass Index (BMI).

Challenges

In our Country, both obesity and malnutrition are Public health issues.

Over half of adolescent girls and women are anemic.

Every 3rd Child is undernourished which leads to several diseases, Child death and maternal mortality.

Inadequate health infrastructure, inadequate investments in health and other Sectors.

Anganwadi has good Programmes but due to a lack of Coordination with PHCs, Children tend to miss the necessary nutrient updates.

Government initiatives

Promotion of Institutional deliveries through Cash incentive under Janani Suraksha Yojana.

Janani Shishu Suraksha Karyakaram: Free ante-natal Check-ups, Post-natal Care and treatment of Sick infants till one year of age.

Newborn Stabilization Units and Kangaroo Mother Care units for Care of Sick babies.

The government launched an Action Plan for 'Undernourishment free India' by 2022.

The national nutrition Strategy has Set targets for 2022 and Poshan Abhiyan has Specified 3 years targets to reduce Stunting, under nutrition and low birth weight by 2% each year and to reduce anaemia by 3% each year.

Mission Indradhnaush: Expanding full immunization Coverage, the introduction of new vaccines.

POSHAN Abhiyaan to address Malnutrition.

Iron and folic acid Supplementation for Prevention of Anaemia, home visits by ASHAs to Promote breast feeding and Promote the use of ORS and Zinc for management of diarrhoea in Children.

Way forward

Need to ensure access to Safe drinking water & Proper Sanitation.

Dietary diversification, Promote millets and Pulses Production and distribution under Food Security Programme.

Fortified food into mid-day meals, Public Distribution Shops and Anganwadi Centres.

Women empowerment can help end malnutrition.

ICT enabled a real-time monitoring mechanism.

Improving the infrastructure of Anganwadi Centres along with training of Anganwadi workers.

Social awareness through both formal and informal channels to generate awareness.

Bio-fortification is important in overcoming hidden hunger Caused by micro-nutrient deficiencies Such as iron, iodine, zinc, vitamin A, and vitamin B12.

MICROPLASTICS

About

Microplastics are plastic debris smaller than 5mm in length, or about the size of a sesame seed.

They come from a variety of sources, one of them is when larger pieces of plastic degrade into smaller pieces, which are difficult to detect.

Details

In an experiment, over 99.9 per cent of contaminants were taken out of the water in just 10 seconds.

Microplastics have inundated the world, finding their way into the human food chain. While some traditional carbon-based filters can filter out microplastics, they have limitations — the adsorption rate is slow and they are not energy-efficient.

The Korean team's breakthrough system requires lower levels of energy, making it ideal for solar-based use. This is particularly useful for developing countries where power supply is inconsistent.

Impacts

The durability of plastic, which implies that plastic can take hundreds to thousands of years to decompose depending on the type of plastic and where it has been dumped.

In the oceans, plastic pollution impacts marine life, ocean health, coastal tourism and even human health.

Over the past few years, various news reports have shown that marine animals such as whales, seabirds and turtles unknowingly ingest plastic and often suffocate.

For humans, too, marine plastic pollution is harmful if it reaches the food chain. For instance, microplastics have been found in tap water, beer and even salt.

One of the first studies to estimate plastic pollution in human ingestion that was published in June 2019 said that an average person eats at least 50,000 particles of microplastic each year.

Government measures

India has pledged to ban all single-use plastics by 2022.

All offices of central and state governments and major PSUs have been told to prohibit single-use plastic products.

India has banned imports of solid plastic waste.

India has passed the Plastic Waste Management Rules, 2016 and introduced the Extended Producer Responsibility.

Plastic Waste Management Rules, 2016

It aims to increase minimum thickness of plastic carry bags from 40 to 50 microns.

Extended Producer Responsibility: To bring in the responsibilities of producers and generators, both in plastic waste management system and to introduce collect back system of plastic waste by the producers/brand owners, as per extended producers responsibility

Introduced collection of plastic waste management fee through pre-registration of the producers, importers of plastic carry bags/multilayered packaging and vendors selling the same for establishing the waste management system

Promote use of plastic waste for road construction as per Indian Road Congress guidelines or energy recovery, or waste to oil etc. for gainful utilization of waste and also address the waste disposal issue.

Way forward

Law can be framed and used to tackle plastic pollution and support a circular plastics economy.

Policy shifts can reduce plastic pollution by incentivizing changes in both business and consumer behavior, as well as in plastic design, alternatives and recycling.

The 3R's +E Strategy: Reduce: To efficiently reduce plastic pollution, there is an evident need of reducing our usage of plastic. Reuse: Many plastic items can be reused or used for different purposes. Recycle: Plastic recycling consists of collecting plastic waste and reprocessing it into new products, to reduce the amount of plastic in the waste stream. Educate.

Product standards, certifications and labeling requirements can be designed to educate the public on the environmental impacts of plastic, and on the health and safety hazards involved in their production and use.

NATIONAL GEOSPATIAL POLICY, 2022

About

The National Geospatial Policy, 2022 is a citizen-centric policy that seeks to strengthen the geospatial sector to support national development, economic prosperity, and a thriving information economy.

Aims and objectives

Working towards creating an enabling infrastructure for the sector.

Bring out a high-resolution topographical map covering every inch of the country by 2030

Bring out fashion digital twins of India's major cities and towns by 2035.'

Mandate

Under the policy, the central government will constitute a Geospatial Data Promotion and Development Committee (GDPDC) at the national level. GDPDC will be the apex body for formulating and implementing appropriate guidelines, strategies and programmes for the promotion of activities related to the geospatial sector.

The focus of the Policy is to make geospatial technology and data as agents of transformation for achieving Sustainable Development Goals (SDGs).

It will also try to bring efficiency in all sectors of the economy and instill accountability and transparency at all levels of governance.

Significance

The National Geospatial policy 2022, comes at a time when India's geospatial economy is expected to cross Rs 63,000 crore by 2025 at a growth rate of 12.8%. The sector is expected to provide employment to more than 10 lakh people mainly through geospatial start-ups.

Future of Geospatial technologies

Geospatial technologies enhance the performance of artificial intelligence and smart machinery in multiple spheres and agriculture in particular. Remotely controlled equipment completes numerous tasks via GPS and digital dashboards. Robots and smart machinery in the fields seem futuristic no longer, and it is not the limit.

Expansion and new application solutions are expected in biosecurity, education, construction, engineering, ecology, food supplies, precision agriculture, financial market, statistics, transportation to mention a few.

Basically, geospatial data enhances performance in each sphere, outlining specific needs or issues in selected regions. Example: Employment of GPS in the automobile and aircraft industries enables frequent use of driverless vehicles and UAVs as a matter of fact.

New achievements in this branch mean the corresponding upgrade of related industries. So, the improvement process will be ensuring even greater precision, credibility, performance, quality, and security.

Closing thoughts

Democratization of Indian geospatial ecosystem will spur domestic innovation and enable Indian companies to compete in the global mapping ecosystem by leveraging modern geospatial technologies and realizing the dream of "Atmanirbhar Bharat" or "Self-sufficient India" fully.

INDIA'S EXPANDING MANUFACTURING PMI

Context

India's manufacturing PMI expands at a robust pace in November; Employment rises solidly for the ninth month in a row.

Present Status

The manufacturing sector currently accounts for nearly 17 per cent of India's GDP. It employed over 5 crore Indians in 2016-17 and has declined by 46 per cent to reach 2.73 crore in 2020-21. This indicates that the sector has been gradually losing momentum over the years.

In the last few years earlier small manufacturers have now just become traders.

Tough labour laws, expensive credit, costly or inadequate power supply make import from China and selling in India more profitable than producing these goods domestically.

MSMEs sector accounts for around 6% of the manufacturing GDP and around 25% of the service sector GDP; and contributes to around 33% to India's manufacturing output.

Potential

Labor-intensive sectors: We need to recognize that our strength lies in labor, cost and productivity skills so we need to make mega industrial clusters preferably near its ports, which leverage on labor intensive sectors.

Ease of doing business: We must aggressively work on policy matters related to logistics costs, loading-unloading time, moving stock by road or rail etc.

Boosting export: Manufacturing is closely related to export. We cannot be successful in manufacturing unless we are also successful in exports.

Correcting the exchange rate: One of the handicaps in manufacturing is our exchange policy because the exchange rate is somewhat overvalued.

Increasing market access: In the present time, trade blocs are more popular than multilateral policies under the WTO.

Competitiveness

Research & Development (R&D): R&D is not merely the responsibility of the Government and public sector units but also that of private sector companies.

India's R&D spend is only 0.7% of the GDP which is less than then our peer countries such as Vietnam (2%) – it needs to be double and triple. R&D in our educational institution must be encouraged. More academia and industry partnership is required to boost R&D.

To promote exports, a three way partnership is needed

Diplomatic missions abroad must reach out to investors in those countries who are interested in setting up R&D facilities in India.

The Ministry of Commerce & Industry should take the lead towards promoting R&D.

Industry associations and chambers like FICCI and CII, should connect small -medium enterprises an companies to this initiative.

Reforms needed

Fixed employment policy: It gives flexibility to industries to hire and fire the workers or upscale or downscale workforce as per need, without significantly compromising on labor interest.

Simple labor laws: labor laws must be made less complex to give more decision making autonomy to manufacturing units.

Amend Factories Act 1948: many provisions are obsolete which must be removed.

Self-certification: To develop a culture of trust and transparency, monthly and quarterly inspections by the Government authorities should be replaced by a self-certification norm and defaulters should be strictly penalized.

Way forward

Boost spending on research and development to at least 2% of the GDP.

Eliminate exemptions on countervailing duties on imports as the duty exemptions are favoring foreign producers over domestically made goods

Monetize the land owned by public sector companies which could be used to develop eco-systems to nurture start-ups and develop sites for industrial clusters.

Allow industries to buy electricity directly from the markets.

Rationalizing labor laws to promote big industries rather than small and dwarf industries.

Government should refrain from frequent policy twisting as it deter investment due to policy uncertainty.

Improving infrastructure from transport systems to the power sector to reduce logistic cost and power outage.

Improve access to finance for MSMEs sectors as most are facing financial crunch.

PRISON REFORMS

Context

The Minister of State for Home Affairs informed the Rajya Sabha about the funds released by the Ministry of Home Affairs (MHA) to the States and Union Territories (UTs) for strengthening the 'e-prisons' portal, intended for prison computerisation; and in connection with 'modernisation of prisons' for enhancing the security infrastructure in prisons, etc.

Prison in pre-Independent India

In 1935, Macaulay's Minute laid down the foundations of the Prison system in India.

In 1938, a Prison Discipline Committee rejected the humanitarian needs of the prisoners.

The Prison Acts of 1861 and 1894 formed the basis for the present jail management and administration.

In 1919-1920, for the first time in India's colonial history, the Indian Jail Committee declared reform and rehabilitation as the objectives of the Prison administration.

The Government of India Act of 1935 transferred the subject matter of "prisons" from the Central list to the State list. After-Independence, Indian Constitution also kept the prison under the "State list".

Prison in Independent India

In 1960, All-India Jail Manual Committee prepared a Jail Manual. This forms the bedrock of Prison management in modern India.

In 1972, the Group appointed by the Union Home Minister recommended designing a National Policy on Prisons.

In 1983, Justice Mulla's committee reviewed the laws, rules, and regulations for protecting society and reforming offenders. The Committee suggested several reforms.

Supreme Court from time to time has taken a reformative approach in many significant judgments giving a boost to the discourse on prison reforms. Important directives by the Supreme court:

Prisoners have some human rights, but inside the jail, only the right to liberty is curtailed. However, they are entitled to other fundamental rights.

Challenges

Existing prison infrastructure is inadequate resulting in overcrowding.

The unsatisfactory living conditions affect every aspect of inmates' daily existence such as food, cleanliness, etc.

Abuse of authority by the staff sometimes takes unfair advantage of the prisoner's dependency.

Custodial deaths

According to the latest available data released by the National Crime Records Bureau (NCRB) for 2020, about 76% of all prisoners in India are undertrials.

Availability of drugs, and access to mobile phones.

Overcrowding, Unhygienic Conditions.

Understaffing and Underfunding:

33% of the total requirement of Prison officials Still lies vacant.

In the absence of adequate Prison Staff, overcrowding of Prisons leads to violence and other Criminal activities inside the Jails.

Way forward

The most important challenge that arises from both the human rights perspective and the internal security point of view is the upgradation of infrastructure. This can be done through improvement in budgetary allocations to the prison establishments.

Prisons are a state subject; this creates difficulty in having uniform prison management. The Union can only frame models for the states to incorporate and help in coordinating between states, encouraging them to adopt best practices.

Need to enhance accountability in the administration system.

Strengthen Surveillance and Grievance Redressal mechanisms.

The Supreme Court advised the centre that criminals sentenced to imprisonment for 6 months or a year should be allocated social service duties rather than be sent to further choke the already overflowing prisons.

Ensure adequate availability of medical assistance, Psychological Counseling.

Allowing undertrials on Personal bonds to leave jails.

Many important Committees have been set up to review the situation of prisons in India and suggest reforms. However, the implementation of the reforms has been lax and the necessary political will are required to bring change to the present system of prison management in India.

RECORD UPI TRANSACTIONS

Context

The Unified Payments Interface (UPI) closed the year 2022 on a high note as the number of transactions reached a record 7.82 billion in December and totalled Rs 12.82 trillion, also a record high.

About

Unified Payments Interface (UPI) is an instant real-time payment system developed by the National Payments Corporation of India (NPCI).

It facilitates inter-bank peer-to-peer (P2P) and person-to-merchant (P2M) transactions.

The system powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing & merchant payments into one hood.

NPCI launched Unified Payments Interface (UPI) with member banks in 2016.

Features

Immediate money transfer through mobile device round the clock 24*7 and 365 days.

Single mobile application for accessing different bank accounts.

Single Click 2 Factor Authentication – Aligned with the Regulatory guidelines, yet provides for a very strong feature of seamless single click payment.

The virtual address of the customer for Pull & Push provides for incremental security with the customer not required to enter the details such as Card no, Account number; IFSC etc.

Merchant Payment with Single Application or In-App Payments.

Utility Bill Payments, Over the Counter Payments, QR Code (Scan and Pay) based payments.

Evaluation of UPI Ecosystem in India

The Economic Survey 2021-22 highlighted the growing trend of increasing digital transactions over the years and the emergence of the Unified Payments Interface (UPI) as the most preferred mode of transaction since its launch in 2016.

UPI emerged as the single largest retail payment system in India in terms of the number of transactions.

Commensurate with growing participation in equity markets, UPI also emerged as a popular method of participation in the primary market by investors. In 2018, SEBI introduced UPI as a payment channel to invest in IPO. Over time, RBI has increased the transaction limit for IPO participation from Rs 1 lakh to Rs 5 lakh.

Bhutan recently became the first country to adopt UPI standards for its QR code. It is also the second country after Singapore to have BHIM-UPI acceptance at merchant locations.

Reserve Bank of India launched a new Unified Payments Interface (UPI) payments solution – 'UPI123Pay' for feature phone users.

In 2022, UPI transactions have increased dramatically in both volume and value over the last year, demonstrating the success of UPI in India.

Reasons behind the penetration of UPI

Transaction amount: It accepts transactions as small as one rupee and for merchants,

The absence of MDR that they have to pay to their banks is a significant incentive to accept UPI payments.

Simple process: Since just a smartphone is needed to complete a transaction it makes the process as simple as it can get, instead of using devices like the Point-of-Sale card-swiping machines.

Ecosystem in which UPI thrives: The presence of high-speed internet, cloud computing and modern software engineering technologies that fulfil a transaction in a few seconds.

Conclusion

Consumers have benefited greatly from the digitization of payments as well as the revolution in investing on the demand front. India's Unified Payment Interface (UPI) has been appreciated by the World Bank and others.

While India to a great extent has covered digital literacy grounds, digital financial inclusion remains the need of the hour for the country.

The usage of digital literacy created a bridge for inclusion in the new digital finance system. This degree of inclusion is now the need of the hour for the whole of India to advance its economy.

The cumulative participation of the whole country in digital finance will pave the way for economic growth in tandem with global numbers.