

JULY 2022 CURRENT EVENTS

PM IAS initiative

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PM IAS ACADEMY

CREATIVE THOUGHT AND ACTION



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## HISTORY AND CULTURE:

### SANNATI SITE:

#### *Context:*

Left almost unattended to for 20 years after excavation, the ancient Buddhist site on the bank of Bhima river near Kanaganahalli (forming part of Sannati site) in Kalaburagi district, has finally got some attention.

#### *Relevance:*

GS I- Art and Culture

#### *Dimensions of the Article:*

1. About Sannati
2. Significance of Sannati

#### *About Sannati*

- Sannati is a small village on the banks of the River Bhima in Chittapur Taluk of Kalaburagi (Gulbarga).
- It came into prominence after the collapse of the roof of the Kali temple in Chandralamba temple complex in 1986.
- The collapse revealed the historically valuable Ashokan edicts written in Prakrit language and Brahmi script at the foundations of the temple, attracting historians from across India.
- While the Stupa is believed to be one of the largest of its time.
- The stone-portrait is considered to be the only surviving image of the Mauryan Emperor which had the inscription 'Raya Asoko' in Brahmi on it.

#### *Significance of Sannati*

- Further revelations led to the discovery of the magnificent Maha Stupa, which had been referred to as Adholoka Maha-Chaitya (The Great Stupa of the Netherworlds) in the inscriptions.
- More importantly, a sculpture-portrait of Ashoka seated on his throne with his queens was also discovered.
- Historians believe that the Sannati Ranamandal (war zone) was a fortified area spread over 210 acres, of which only a couple of acres have been excavated so far.

## GEOGRAPHY

### Does Tropical Ozone Hole exist?

#### *Context:*

- A new ozone hole has been detected over the tropics, at latitudes of 30 degrees South to 30 degrees North, a recent study claimed. But some experts are divided over this.

#### *Relevance:*

- GS I- Geography

#### *Dimensions of the Article:*

- 1. What is Ozone Layer and what are Ozone Holes?



- 2. Ozone creation and destruction
- 3. Tropical Ozone Hole
- 4. What caused an ozone hole in the tropics?
- 5. Significance of the finding

### ***What is Ozone Layer and what are Ozone Holes?***

- Ozone layer, also called ozonosphere, is a region of the upper atmosphere, between roughly 15 and 35 km (9 and 22 miles) above Earth's surface which contains relatively high concentrations of ozone molecules (O<sub>3</sub>).
- Approximately 90 percent of the atmosphere's ozone occurs in the stratosphere, the region extending from 10–18 km (6–11 miles) to approximately 50 km (about 30 miles) above Earth's surface.
- The ozone layer effectively blocks almost all solar radiation of wavelengths less than 290 nanometres from reaching Earth's surface, including certain types of ultraviolet (UV) and other forms of radiation that could injure or kill most living things.

### ***What are Ozone Holes?***

- The 'ozone hole' is not really a hole — it refers to a region in the stratosphere where the concentration of ozone becomes extremely low in certain months.
- The 'ozone holes' most commonly talked about are the depletions over Antarctica, forming each year in the months of September, October and November, due to a set of special meteorological and chemical conditions that arise at the South Pole, and can reach sizes of around 20 to 25 million sq km.
- Such holes are also spotted over the North Pole, but owing to warmer temperatures than the South Pole, the depletions here are much smaller in size.

### ***Ozone creation and destruction***

- The production of ozone in the stratosphere results primarily from the breaking of the chemical bonds within oxygen molecules (O<sub>2</sub>) by high-energy solar photons. This process, called photodissociation, results in the release of single oxygen atoms, which later join with intact oxygen molecules to form ozone.
- The amount of ozone in the stratosphere varies naturally throughout the year as a result of chemical processes that create and destroy ozone molecules and as a around the planet.
- Over the course of several decades, however, human activities substantially altered the ozone layer.
- Ozone depletion, the global decrease in stratospheric ozone observed since the 1970s, is most pronounced in polar regions, and it is well correlated with the increase of chlorine and bromine in the stratosphere.
- Those chemicals, once freed by UV radiation from the chlorofluorocarbons (CFCs) and other halocarbons (carbon-halogen compounds) that contain them, destroy ozone by stripping away single oxygen atoms from ozone molecules.
- As the amount of stratospheric ozone declines, more UV radiation reaches Earth's surface, and scientists worry that such increases could have significant effects on ecosystems and human health.

### ***Tropical Ozone Hole***

- According to the study, the ozone hole is located at altitudes of 10-25 km over the tropics.
- This hole is about seven times larger than Antarctica, the study suggested.
- It also appears across all seasons, unlike that of Antarctica, which is visible only in the spring.
- The hole has become significant since the 1980s. But it was not discovered until this study.

### ***What caused an ozone hole in the tropics?***

- Studies suggested another mechanism of ozone depletion: Cosmic rays.

- Chlorofluorocarbon's (CFC) role in depleting the ozone layer is well documented.
- The tropical stratosphere recorded a low temperature of 190-200 Kelvin (K).
- This can explain why the tropical ozone hole is constantly formed over the seasons.

#### ***Significance of the finding***

- The tropical ozone hole, which makes up 50 percent of Earth's surface, could cause a global concern due to the risks associated with it.
- It is likely to cause skin cancer, cataracts and other negative effects on the health and ecosystems in tropical regions.

## **Cloudbursts**

- **Context:**
- At least eight people have died after a cloudburst occurred at the Amarnath Cave Shrine near Pahalgam in south Kashmir.

#### ***Relevance:***

- GS-I: Geography (Physical Geography, Climatology, Important Geophysical phenomena), GSIII:
- Environment and Ecology (Climate Change and its effects), GS-III: Disaster Management

#### ***Dimensions of the Article:***

- 1. What is a Cloudburst?
- 2. Why do cloudbursts happen only in the mountains and hilly areas?
- 3. Why does cloudburst cause so many deaths?

#### ***What is a Cloudburst?***

- Cloudbursts are sudden and extreme rainfall events over a limited area in a short span of time. There is no universal definition of a cloudburst.
- The India Meteorological Department (IMD) defines a cloudburst as any event where 100 millimetres of rainfall have fallen in a span of an hour over a region that is 20-30 square kilometres in area. By this definition, 5 cm of rainfall in half an hour would also be classified as a cloudburst.

#### ***How do Cloudbursts occur?***

- A cloudburst occurs when moisture-carrying air moves up a hilly terrain, forming a vertical column of clouds known as 'cumulonimbus' clouds.
- Such clouds usually cause rain, thunder and lightning. This upward motion of the clouds is known as an 'orographic lift'.
- These unstable clouds cause an intense rainstorm over a small area after becoming heavy enough and locked in the ridges and valleys between the hills.
- The energy necessary for the cloudburst comes from the upward motion of air. Cloudbursts mostly occur at elevations between 1,000-2,500 metres above sea level.
- The moisture is usually provided by a low-pressure system (usually associated with cyclonic storms in the ocean) over the Gangetic plains associated with low level winds flowing in from the east.
- Sometimes winds flowing in from the north west also aid the occurrence of cloudbursts. The many factors that have to come together to make a cloudburst event happen make them highly unlikely.

#### ***Why do cloudbursts happen only in the mountains and hilly areas?***

- Cloudbursts do happen in plains as well, but there is a greater probability of them occurring in mountainous zones; it has to do with the terrain.

- Cloudbursts happen when saturated clouds are unable to produce rain because of the upward movement of very warm current of air.
- Raindrops, instead of dropping down, are carried upwards by the air current.
- New drops are formed and existing raindrops gain in size. After a point, the raindrops become too heavy for the cloud to hold on to, and they drop down together in a quick flash.
- Hilly terrains aid in heated air currents rising vertically upwards, thereby, increasing the probability of a cloudburst situation.
- In addition, as pointed out earlier, cloudbursts get counted only when they result in largescale destruction of life and property, which happens mainly in mountainous regions.

#### *Why does cloudburst cause so many deaths?*

- The rainfall itself does not result in the death of people, though sometimes, the raindrops are big enough to hurt people in a sustained downpour.
- It is the consequences of such heavy rain, especially in the hilly terrain, that causes death and destruction.
- Landslides, flash floods, houses and establishments getting swept away and cave-ins lead to the deaths.

#### *Is the frequency of cloudbursts increasing?*

- There is a paucity of past data on cloudbursts; in addition, since only some of them get counted – only those that result in death and destruction – there is a problem of accuracy as well.
- But what is very clear is that events of extreme precipitation have been on the rise in the last few decades due to global warming; it is expected, keeping in mind that trend, that cloudburst events might be on the increase as well.
- Extreme weather events are indeed increasing in the Himalayan region.

## What is a derecho?

#### *Context:*

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

#### *Relevance:* GS I- Geography

#### *Dimensions of the Article:*

- What is a derecho?
- Why did the sky turn green during the derecho that hit US recently?
- Are there different types of derechos?
- Where do derechos usually occur?

#### *What is a derecho?*

- A derecho, according to the US's National Weather Service is “**a widespread, longlived, straight-line windstorm**” that is associated with a “band of rapidly moving showers or thunderstorms”.
- The name comes from the Spanish word ‘la derecha’ which means ‘straight’.
- Straight-line storms are those in which thunderstorm winds have no rotation unlike a tornado.
- These storms travel hundreds of miles and cover a vast area.
- Being a warm-weather phenomenon, a derecho generally – not always – occurs during summertime beginning May, with most hitting in June and July.
- However, they are a rare occurrence as compared to other storm systems like tornadoes or hurricanes.
- For a storm to be classified as a derecho it must have wind gusts of at least 93 km per hour; wind damage swath extending more than 400 km.



- According to University of Oklahoma's School of Meteorology, the time gap between successive wind damage events should not be more than three hours.

### *Why did the sky turn green during the derecho that hit US recently?*

- Severe thunderstorms result in a 'green sky' due to light interacting with the huge amount of water they hold.
- A report in the Washington Post said that it is believed that the big raindrops and hail scatter away all but the blue wavelengths due to which primarily blue light penetrates below the storm cloud.
- This blue then combines with the red-yellow of the afternoon or the evening sun to produce green, the report said.

### *Are there different types of derechos?*

They fall into three categories –

- A **progressive derecho** is associated with a short line of thunderstorms that may travel for hundreds of miles along a relatively narrow path. It is a summer phenomenon.
- A **serial derecho**, on the other hand, has an extensive squall line – wide and long – sweeping across a large area. It usually occurs during spring or fall.
- **Hybrid ones** have the features of both progressive and serial derechos.

### *Where do derechos usually occur?*

- They mostly occur across central and eastern parts of the United States.
- The May 8, 2009 "Super Derecho" was one of the "most intense and unusual derechos ever observed" in the US as it swept from Kansas to Kentucky with wind speeds reaching up to 170 km/hr.
- Derechos have also been documented elsewhere across the world.
- In 2010, Russia witnessed its first documented derecho.
- They have also swept through Germany and Finland, and more recently in Bulgaria and Poland.

## **Jawaharlal Nehru Port**

- **Focus:** GS I- Geography
- **Why in News?**
- Recently, Jawaharlal Nehru Port became the first major port of the country to become a 100% Landlord port of India having all berths being operated on PPP model.

### *About Jawaharlal Nehru Port*

- Navi Mumbai, where it is located, is India's top port for handling containers, handling around half of all the country's main ports' volume of containerized cargo.
- JNP was established in 1989, and in the three decades since it has been in operation, it has evolved from a bulk-cargo terminal to the top container port in the nation. It is currently ranked 26th among the top 100 global ports (as per
- Lloyds List Top 100 Ports 2021 Report).
- With its cutting-edge amenities, welcoming environment, and superb rail and road connectivity to the hinterland, JNP satisfies all international requirements.
- It is presently handling 9000 twenty-foot equivalent units (TEUs) capacity vessels and with the upgradation, it can handle 12200 TEUs capacity vessels.

### *What is Landlord Port?*

- In this model, private enterprises handle port operations, primarily cargohandling activities, while the publicly run port authority serves as a regulatory body and a landlord.

- Here, the infrastructure is leased to private companies who install their own equipment to handle cargo and provide and maintain their own superstructure, while the port authority retains ownership of the port.
- In return, the landlord port gets a share of the revenue from the private entity.

## Wildfires intensifying in Europe

### *Context:*

- Europe is battling intense wildfires with countries like Spain, Greece and France struggling to stamp out fires and contain the damage.

### *Relevance:*

- GS I- Geography

### *Dimensions of the Article:*

- 1. What is wildfire?
- 2. What causes Wildfire?
- 3. How dangerous is inhaling wildfire smoke?

### *What is wildfire?*

- A wildfire is an uncontrolled fire that burns in the wildland vegetation, often in rural areas.
- Wildfires can burn in forests, grasslands, savannas, and other ecosystems, and have been doing so for hundreds of millions of years.
- They are not limited to a particular continent or environment.

### *What causes Wildfire?*

- Wildfires require right climatic conditions, burnable fuel and a spark.
- Rising temperatures suck moisture out of plants, creating an abundance of dry fuel.
- Drought and high heat can kill plants and dry out dead grass, and other material on the forest floor that fuel the fire once it starts sweeping through a patch.
- While dry vegetation is the burnable fuel that serves as kindling for fires, the spark is sometimes caused by lightning, at other times by accident or recklessness of the local population.

### *Wildfire in Europe:*

- As for Europe, the region has been hit by an early fire season due to an unusually dry, hot spring that left the soil parched.
- Authorities attribute this to climate change. They add that the fires are being fanned by earlier-than-usual extreme temperatures and drought conditions in some parts.
- Wildfire experts agree as they see clear climate change signatures in the dryness, high heat and early fire season.

### *How dangerous is inhaling wildfire smoke?*

- While fire poses a direct risk to people's life and property, wildfire smoke, and particularly the concentration of PM 2.5, or particles smaller than 2.5 microns, can also affect the respiratory and cardiovascular systems.
- For those already suffering from cardiovascular or respiratory illnesses, there is a risk of flare-ups.

# INDIAN SOCIETY

## Who are the Pasmanda?

### *Context:*

- In a political conclave in Hyderabad, PM made a special mention for the Pasmanda muslim community and their social upliftment.

### *Relevance:*

- GS I- Salient features of Indian Society

### *Dimensions of the Article:*

- Who are the Pasmanda Muslims?
- Why political parties are focusing on them?
- What is the history of the Pasmanda movement?

### *Who are the Pasmanda Muslims?*

- A Persian word, 'Pasmanda', means the 'ones left behind', and is used to describe depressed classes among the Muslims, while underlining their deliberate or conscious exclusion.
- Pasmanda has become an umbrella identity used by backward, Dalit, and tribal Muslims to push back against caste-based discrimination against them within the community.
- This community has its stronghold in Uttar Pradesh where the Pasmandas account for around 75% of the total Muslim population.
- In fact, 85% of the total population of Muslims in the country is known as Pasmanda.
- It is believed that the so-called untouchable Hindu converts are categorised as Pasmanda.

### *A caste system in minorities*

- Asian Muslims are subject to the caste system in the same manner that Indian society is.
- Of the Muslims from South Asia, including those who reside in India, 15% are Ashraf, or members of an elite caste.
- Arzal and Ajlaf, the remaining 85 percent of Muslims, are regarded as Dalits and backward. Arzal implies degraded.

### *Why political parties are focusing on them?*

- If reports are to be believed then the creamy section of the Muslim society looks down upon them.
- They are backward and oppressed economically, socially and educationally. This oppressed section among Muslims is called Pasmanda in India.

### *What is the history of the Pasmanda movement?*

- While the movement to ensure social justice for Pasmandas, and the recurrent use of the term, gathered pace in the **post-Mandal era**, its best known flagbearers in the period before Independence were Abdul Qayyum Ansari and Maulana Ali Hussain Asim Bihari, both of whom belonged to the julaha (weaver) community.
- Both these leaders opposed the communal politics being propagated at the time by the Muslim League, and challenged the League's claim to represent all Muslims.
- The first-wave leaders of the Pasmanda movement were leading an **anticolonial, anti-Ashraf, and anti-Muslim League fight**.



- About when the movement actually began, “India has a history of caste associations across communities. Among Pasmanda Muslims, such caste associations started emerging from 1910 onwards.
- There were caste collectives of weavers (julahas), butchers (qureshis), cotton carders (mansooris), saifis, rayeens, etc.
- These were reformist in nature, but also acted like pressure groups led by upwardly mobile lower caste communities.
- These outfits manifested the new kinds of demands from within the Muslim community.
- In the 1980s, the All India Muslim OBC Organisation (AIMOBCO) from Maharashtra started spearheading the fight for the rights of Pasmandas, and went on to enlist the unwavering support of Bollywood thespian Dilip Kumar, a Pathan.
- **The 1990s saw the rise of two outfits:** the All-India Backward Muslim Morcha (AIBMM) set up by Dr Ejaz Ali, and the Pasmanda Muslim Mahaz founded by Ali Anwar.
- This marked the phase of getting small caste-based outfits among Muslims to close ranks. Several other outfits started to work for the uplift of Pasmanda Muslims across states.

## GENDER GAP INDEX:

### *Context:*

- Recently The World Economic Forum has published its Global Gender Gap Report 2022. And within that report India was placed at 135th position out of 146 countries in Global Gender Gap Index.

### *Relevance:*

- GS Paper 1: Role Of Women & Women Organization

### *Mains Question*

- Inclusion of more women in science and applied technologies is critical for societal advancement. Discuss.

### *About the report*

- It assesses countries' progress toward gender parity across four dimensions, Economic Participation and Opportunity, Educational Attainment, Health and Survival and Political Empowerment.
- The highest possible score on the Index is 1 (equality), and the lowest possible score is 0. (inequality).
- To act as a guidepost for tracking progress on gender disparities in health, education, the economy, and politics.
- This annual yardstick allows stakeholders in each country to set priorities that are relevant in their respective economic, political, and cultural contexts.

### *India's stands on different sub-indices*

#### *(1) Economic Participation and Opportunity*

- This includes metrics such as the percentage of women in the labour force, wage equality for comparable work, earned income, and so on.
- India ranks 143rd out of 146 competing countries, despite an increase in its score from 0.326 to 0.350 since 2021.
- India was ranked 151st out of 156 countries last year.
- India's score is significantly lower than the global average, with only Iran, Pakistan, and Afghanistan trailing it on this metric..

#### *(2) Educational Attainment*

- The literacy rate and enrollment rates in primary, secondary, and tertiary education are included in this sub-index.
- India ranks 107th out of 146 in this category, with its score slightly worsening since last year.
- India was ranked 114th out of 156 countries in 2021.

### ***(3) Health and Survival***

- This includes two metrics: birth sex ratio (in percent) and healthy life expectancy (in years).
- India is ranked 146th out of 146 countries in this metric.
- Its score has remained constant since 2021, when it was ranked 155th out of 156 countries.
- The country ranks 146 in the "health and survival" sub-index, making it the worst performer in the world.

### ***(4) Political Empowerment***

- This includes metrics such as the proportion of women in Parliament, the proportion of women in ministerial positions, and so on.
- Of all the sub-indices, India ranks highest in this one (48th out of 146).
- However, despite its ranking, its score of 0.267 is quite low.
- Some of the highest-ranking countries in this category perform significantly better.
- Iceland, for example, is ranked first with a score of 0.874, while Bangladesh is ranked ninth with a score of 0.546.
- Furthermore, India's score on this metric has dropped from 0.276 to 0.267 since last year.
- Despite the decrease, India's score in this category is higher than the global average.

### ***India and its neighborhood***

- India trails Bangladesh (71), Nepal (96), Sri Lanka (110), the Maldives (117), and Bhutan among its neighbours (126).
- Only Iran (143), Pakistan (145), and Afghanistan (146) performed worse in South Asia than India.
- In 2021, India will be ranked 140th out of 156 countries.

### ***What are the causes of the disparity?***

- ***Gender-based sex-selective practises:*** The wide sex ratio gaps at birth are caused by a high incidence of gender-based sex-selective practises.
- Furthermore, more than one in every four women has experienced intimate violence in their lifetime.
- ***Literacy rate is low:*** Gender disparities in literacy persist.
- Women continue to face economic and workplace challenges, as well as declining political participation, despite advances in education and health.

### ***Government initiatives to narrow the gender gap***

- Health sector initiatives for women include ICDS (Integrated Child Development Services), Matritva Sahyog Yojana for Pregnant and Lactating Women, Matru Vandanayojna, and Janani Suraksha Yojna.
- ***Gender gap reduction:*** Some initiatives for gender gap reduction include the STEP scheme and MGNREGA.
- Educational initiatives include the Sarva Shiksha Abhiyan, Right to Education, and Kasturba Gandhi Balika Vidyalyas.
- The Women's Reservation Bill (108th amendment) was introduced in parliament to reserve 33% of Lok Sabha and Vidhan Sabha seats for women, but the bill has yet to be passed by Lok Sabha.

### ***The Way Forward***

- India's low ranking on the gender gap index is a major source of concern, indicating a lack of gender equality. The situation must be dealt with zeal, or else the other half of the population will be left out of the path of growth.

## United Nations' World Population Prospects

### *Context:*

- The 2022 edition of the United Nations' World Population Prospects (WPP) was released.
- India is projected to surpass China as the world's most populous country in 2023.

### *Relevance:*

- GS II- Population & Associated Issues

### *Dimensions of the Article:*

- 1. What is the World Population Prospects?
- 2. Main takeaways for the global population
- 3. What is the significance of India overtaking China?

### *What is the World Population Prospects?*

- The Population Division of the UN has been publishing the WPP in a biennial cycle since 1951.
- Each revision of the WPP provides a historical time series of population indicators starting in 1950.
- It does so by taking into account newly released national data to revise estimates of past trends in fertility, mortality or international migration.

### *Main takeaways for the global population*

#### **Pace of growth is slowing down:**

- The global population is expected to grow to around 8.5 billion in 2030, 9.7 billion in 2050 and 10.4 billion in 2100. In 2020, the global growth rate fell under 1% per year for the first time since 1950.

#### **Rates of population growth vary significantly across countries and regions:**

- More than half of the projected increase in global population up to 2050 will be concentrated in just eight countries: the Democratic Republic of the Congo, Egypt, Ethiopia, India, Nigeria, Pakistan, the Philippines and the United Republic of Tanzania.
- Disparate growth rates among the world's largest countries will re-order their ranking by size. The 46 least developed countries (LDCs) are among the world's fastest-growing.
- Many are projected to double in population between 2022 and 2050, putting additional pressure on resources and posing challenges to the achievement of the UN's Sustainable Development Goals (SDGs).

#### **The population of older persons is increasing both in numbers and as a share of the total:**

- The share of the global population aged 65 years or above is projected to rise from 10% in 2022 to 16% in 2050.
- As such, the report warns that countries with ageing populations should take steps to adapt public programmes to the growing proportion of older persons, including by improving the sustainability of social security and pension systems and by establishing universal health care and long-term care systems.

#### **A sustained drop in fertility :**

- A sustained drop in fertility has led to an increased concentration of the population at working ages (between 25 and 64 years), creating an opportunity for accelerated economic growth per capita.



- This shift in the age distribution provides a time-bound opportunity for accelerated economic growth known as the “demographic dividend”.

### International migration

- This is having important impacts on population trends for some countries.
- For high-income countries between 2000 and 2020, the contribution of international migration to population growth (net inflow of 80.5 million) exceeded the balance of births over deaths (66.2 million).
- Over the next few decades, migration will be the sole driver of population growth in high-income countries.
- In many of these countries, the outflows were due to temporary labour movements, such as for Pakistan (net flow of -16.5 million), India (-3.5 million), Bangladesh (-2.9 million), Nepal (-1.6 million) etc.

### *How reliable is the UN projection, and how do they compare with India's Census?*

- In India, of course, the Registrar General comes out with a population projection based on the Census.
- The last such projection was released in 2019 and it was based on Census 2011.
- The Census projection is slightly lower than the UN projection.
- Still UN projection is widely acknowledged across the world

### *What is the significance of India overtaking China?*

- That India would overtake China has been known for a while.
- Moreover, in the past, when the world population was still at 5-billion or 6- billion levels, there was a concern about overcrowding.
- Those concerns no longer exist because the global population is already 8 billion and several countries (including India) have achieved a replacement rate of fertility.
- The concern now is not about the absolute numbers — India's population is already 1.4 billion and may go up to 1.6 billion before declining.

## POLITY AND CONSTITUTION

### Suspension of MPs

#### Context:

- Over this week, the two Houses of Parliament have suspended 27 MPs between them, the latest being two AAP MPs and an independent MP from Rajya Sabha . Lok Sabha has suspended four Congress MPs, and Rajya Sabha 23 MPs. The Rajya Sabha suspensions are for the remaining part of this week, and those from Lok Sabha are for the rest of the session.
- The two Houses suspended these MPs because they disrupted proceedings, demanding a debate on rising prices and increasing GST rates on essential commodities.

#### Relevance:

- GS II: Polity and Governance

#### Dimensions of the Article:

- 1. Why do MPs disrupt Parliament?
- 2. What has Parliament done to address these issues?
- 3. Who can suspend MPs, and for how long?
- 4. Can courts intervene in a matter of suspension of MPs?

### Why do MPs disrupt Parliament?

- Over the years, the presiding officers of legislatures and political leaders have discussed and identified four broad reasons leading to disorder in legislatures.
- Lack of time available to MPs for raising important matters;
- Unresponsive attitude of the government and retaliatory posture by Treasury benches.
- Deliberate disruption by parties for political or publicity purposes
- Absence of prompt action against MPs disrupting parliamentary proceedings.

### What has Parliament done to address these issues?

- The government and not Parliament decides the parliamentary calendar.
- Therefore, the decision about the time available with Parliament for discussions rests with the government.
- Parliamentary procedure also prioritises government business over other debates that take place in the legislature.
- In this regard, Parliament has not updated its rules over the last 70 years to give Opposition parties a say in deciding the agenda for discussion.
- The stance of political parties on uninterrupted parliamentary functioning depends on whether they belong to the ruling party/coalition or are in the Opposition.
- And in 2001, Lok Sabha amended its rules to give the Speaker more powers to discipline MPs who disrupt House proceedings.

### *Who can suspend MPs, and for how long?*

- Rules for ensuring the smooth functioning of Parliament have been unchanged since 1952.
- First, the presiding officers can direct an MP to withdraw from the House for any disorderly conduct.
- If the MP continues disrupting the House, the presiding officer can “name” the legislator.
- After that, the House can move a motion to suspend the MP until the end of the session.
- These powers are common to the presiding officers of both Houses.

### *Speaker powers to discipline MPs:*

- In 2001, Lok Sabha changed its rules to give the Speaker more powers to deal with grave and disorderly conduct.
- As per this new rule, the Speaker can “name” an MP, who shall then automatically stand suspended for five days or the remaining part of the session.
- This rule removes the need for the House to pass a motion for suspension.
- Rajya Sabha has not incorporated this provision in its procedures.

### *Can courts intervene in a matter of suspension of MPs?*

- **Article 122** of the Constitution says parliamentary proceedings cannot be questioned before a court: “No officer or Member of Parliament in whom powers are vested by or under this Constitution for regulating procedure or the conduct of business, or for maintaining order, in Parliament shall be subject to the jurisdiction of any court in respect of the exercise by him of those powers”.
- In some cases, however, courts have intervened in the procedural functioning of legislatures.
- For example, the Maharashtra Legislative Assembly passed a resolution in its 2021 Monsoon Session suspending 12 BJP MLAs for a year.
- The matter came before the Supreme Court, which held that the resolution was ineffective in law beyond the remainder of the Monsoon Session.

## Replacement level fertility

**Context:**

- According to a recent study from the Indian government, up to 31 States and Union Territories now have total fertility rates of 2.1 or below, meaning that India has reached replacement level fertility.
- India has increased the usage of modern contraceptives between 2012 and 2020 by adding more than 1.5 crore new users. The India Family Planning 2030 Vision document was also made public by the government.

**Relevance:**

- GS II- Polity and Governance

**Dimensions of the Article:**

- 1. Determinants of Population Change:
- 2. Implications of High Fertility
- 3. About India Family Planning 2030 Vision:
- 4. How was the Replacement Level Fertility achieved in India?

**Determinants of Population Change:**

- **Fertility:** The fertility rate refers to the number of live births per 1000 women in the child-bearing age group, usually taken to be 15 to 49 years.
- **Total Fertility Rate:** It refers to the total number of live births that a woman would have if she lived through the reproductive age group and had the average number of babies in each segment of this age group as determined by the agespecific fertility rates for that area.
- **"Replacement level fertility"** is the total fertility rate—the average number of children born per woman—at which a population exactly replaces itself from one generation to the next, without migration. This rate is roughly 2.1 children per woman for most countries, although it may modestly vary with mortality rates.
- **Determinants of High Fertility:** As per data given by the Niti Aayog for the year 2016, the TFR for Indian women stood at 2.3. This is high and several factors contribute to the same:
  - o Religious Ideologies
  - o Universality of the institution of marriage.
  - o Early marriage and early child-bearing.
  - o Preference for sons ingrained in the Indian culture.
  - o Lack of right of self-determination with reference to reproduction.
  - o High infant and child mortality rates - (unsatisfactory health, low nutritional status and poverty) also contribute to a large family size.
  - o Economic, social, cultural as well as religious value of children in the Indian society.
  - o Absence of adoption of methods of conception control.

**Implications of High Fertility**

- Apart from contributing in a big way to the population problem of the country, high fertility affects the family and, in turn, society in many ways.
- **Women are tied down to child-bearing and child-rearing** for the best years of their productive lives. They are, therefore, denied the opportunity to explore other avenues for self-expression and self-development. This could lead to frustration.
- **Excessive child-bearing affects their health** and that of their children. Looking after a large number of children puts a further strain on the slender physical and emotional resources of such women.
- **The burden of providing for a large family** sits heavily on the bread-winner of the family. The constant struggle to maintain a subsistence level is exhausting.

- To escape from the problems of everyday life, men tend to take to drinking. This leads to further deterioration of the economic and emotional well-being of the family.
- ***The children, often unwanted, unloved and neglected,*** are left to their own to make life bearable. The children in large families often have to start working at a very early age to supplement the slender financial resources of the family. They may even indulge in delinquency. Hence they are denied the opportunity to go to school and get educated.
- ***The girl child is the worst sufferer in these circumstances.*** She is often not sent to school at all, or is withdrawn from school at an early age to help her mother in carrying out domestic chores and to look after her younger siblings when the mother is at work. Early marriage pushes her into child-bearing, and the vicious cycle continues.
- ***The children, both boys and girls,*** in a large family are thus often denied the joys of childhood, and are pushed into adult roles at a very early age.

#### ***About India Family Planning 2030 Vision:***

- Priorities have been established for combating teenage pregnancy, migration, a lack of access to contraception, and a lack of male engagement in awareness programmes.
- Despite an increase, there is still a low level of contemporary contraceptive use among married teenagers and young women.

The main causes include

- the stigma associated with obtaining contraceptives while the husband was gone,
- the absence of contraceptive preparation prior to the husband's arrival,
- the impossibility to obtain contraceptives due to the inaccessibility of health facilities.
- Young married women and adolescent girls expressed a high unmet demand for contraception.
- More than 20% of women in some regions marry before they reach adulthood.
- The districts are located in Bihar (17), West Bengal (8), Jharkhand (7), Assam (4) and two each in UP, Rajasthan and Maharashtra.
- The same districts have seen low use of modern contraceptives.
- The vision also envisioned using the private sector to supply contemporary contraception.
- 40 percent of condoms and 45 percent of tablets are produced by the private sector. The percentage is 30% for other reversible methods of birth control, such as injectables, and 24% for intrauterine devices (IUCD).

#### ***How was the Replacement Level Fertility achieved in India?***

- Indicators for fertility, family planning, age at marriage, and women's empowerment have all decreased TFR, and the most recent data demonstrate significant success in each of these areas.
- India has increased the usage of modern contraceptives between 2012 and 2020 by adding more than 1.5 crore new users.
- Over time, innovative reversible spacing (gaps between children) techniques, wage compensation programmes for sterilisation, and small family norms promotion have also been successful.

## **Flag Code of India**

#### ***Context:***

- Recently, The Indian government has declared that as long as the national flag is flown in the open and by a member of the public, it may now fly all night long.
- The tricolour could previously only be flown just between sunrise and dusk.
- The Ministry of Home Affairs revised the Flag Code of India 2002 to permit the flying of the national flag even at night as the government began a Har Ghar Tiranga campaign.



**Relevance:**

- GS II: Polity and Governance

**Dimensions of the Article:**

- 1. Historical Background
- 2. Flag Code of India
- 3. Rules governing the display of the Tricolour

**Background**

- On August 7, 1906, at Parsee Bagan Square, close to Lower Circular Road, in Calcutta, it is reported that the first national flag, which had three horizontal stripes of red, yellow, and green, was raised (now Kolkata).
- In 1921, freedom fighter **Pingali Venkayya** met Mahatma Gandhi and suggested the flag's basic layout, which had two bands of red and green.
- The Tricolor was finally designated as the national flag in 1931 during a Congress Committee meeting in Karachi after going through a number of modifications.
- In its current form, the Indian flag was approved by the Constituent Assembly on July 22, 1947.

**Flag Code of India**

- The Flag Code of India, which went into force in 2002, permits the display of the Tricolor without restriction so long as the flag's honour and dignity are upheld.
- The pre-existing regulations controlling the proper display of the flag were not repealed by the flag code.
- However, it was an attempt to include all of the earlier laws, conventions, and practises.

**The Flag Code of 2002 is divided into three parts**

- A general description of the tricolour
- Rules on the display of the flag by public and private bodies and educational institutions
- Rules for the display of the flag by governments and government bodies.

**Features:**

- There will be no restriction on the display of the flag by public and private bodies and educational institutions except to the extent as laid down in the Emblems and Names (Prevention of Improper Use) Act, 1950 and the Prevention of Insults to National Honour Act, 1971.
- The tricolour cannot be used for commercial purposes, and cannot be dipped in salute to any person or thing.
- The flag code mandates that the tricolour should always be distinctly placed and should "occupy the position of honour".
- The flag should always be hoisted briskly and lowered slowly and ceremoniously.
- The flag should not be used as a festoon, or for any kind of decoration purposes.
- Any tricolour which is damaged should be destroyed in private, "preferably by burning or by any other method consistent with the dignity of the Flag".
- For official display, only flags that conform to the specifications as laid down by the Bureau of Indian Standards and bearing their mark can be used.
- In the event of the death of heads of state, dignitaries or during state funerals, the tricolour can be flown at half-mast during the period of mourning.
- However, if the period of mourning coincides with events of national importance, such as Independence Day, Republic Day, etc., the tricolour should not be flown at half-mast anywhere except over the building in which the body of the deceased is lying.



*Rules governing the display of the Tricolour****The Emblems and Names (Prevention of Improper Use) Act, 1950:***

- It restricts the use of the national flag, the coat-of-arms used by a government department, the official seal of the President or Governor, the pictorial representation of Mahatma Gandhi and the Prime Minister, and the Ashoka Chakra.

***The Prevention of Insults to National Honour Act, 1971:***

- It prohibits the desecration of or insults to the country's national symbols, including the national flag, the Constitution, the national anthem and the Indian map.
- Section 2 of the Act says, "Whoever in any public place or in any other place within public view burns, mutilates, defaces, defiles, disfigures, destroys, tramples upon or [otherwise shows disrespect to or brings] into contempt (whether by words, either spoken or written, or by acts) the Indian National Flag or the Constitution of India or any part thereof, shall be punished with imprisonment for a term which may extend to three years, or with fine, or with both.

***Part IV-A of the Constitution:***

- The Part IV-A of the Constitution (which consists of only one Article 51-A) specifies the eleven Fundamental Duties.
- According to Article 51A (a), it shall be the duty of every citizen of India to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem.

***What is the Har Ghar Tiranga Campaign?***

- 'Har Ghar Tiranga' is a campaign under the aegis of Azadi Ka Amrit Mahotsav to encourage people to bring the Tiranga home and to hoist it to mark the 75<sup>th</sup> year of India's independence.
- Our relationship with the flag has always been more formal and institutional than personal.
- Bringing the flag home as a nation in our 75th year of independence symbolises both our dedication to establishing a better country and our act of personal connection to the Tiranga.
- Invoking a sense of patriotism in people's hearts and raising awareness of the Indian National Flag are the goals of the programme.

**NITI Aayog's India Innovation Index, 2022*****Context:***

- Karnataka has bagged the top rank in NITI Aayog's India Innovation Index, 2022, which determines innovation capacities and ecosystems at the sub-national level.

***Relevance:***

- GS II- Polity and Governance

***Dimensions of the Article:***

- 1. About India Innovation Index
- 2. Highlights of India Innovation Index 2022
- 3. Report recommended measures

***About India Innovation Index***

- NITI (National Institution for Transforming India) Ayog with the Institute for Competitiveness releases India Innovation Index.

- The index has been developed on the lines of the Global Innovation Index (GII), to ameliorate the innovation ecosystem of Indian states and Union Territories (UTs) and to design policies to drive innovation across regions.
- The index goes beyond traditional approaches by considering the best parameters in measuring innovation such as patents per million of population, publication in scientific journals, percentage of GDP spending on research.
- It also adds parameters that are specific to the Indian economy (eg. Demographic dividend), to give it a more holistic coverage.

#### ***Indicators Used:***

- The indicators that the survey uses includes the level and quality of education and parameters such as:
  - o Number of PhD students and knowledge-intensive employment.
  - o Enrolment in engineering and technology and number of highly skilled professionals.
  - o Investment in R&D and number of patents and trademark applications filed.
  - o Internet subscribers.
  - o FDI inflows, business environment and safety and legal environment.

#### ***Highlights of India Innovation Index 2022:***

- Manipur secured the lead in the Northeast and Hill States category
- Chandigarh was the top performer in the Union Territories and City States category.
- Karnataka was followed by Telangana, Haryana, Maharashtra and Tamil Nadu.
- Chhattisgarh, Odisha, Bihar and Gujarat were at the bottom of the index.

#### ***Report recommended measures:***

- Pointing out that India's average innovation score is insufficient, given the country's ambitious targets to be named among the top 25 nations in the Global Innovation Index, the report by the government think tank has recommended measures, such as
- Increasing Gross Domestic Expenditure on R&D (GDERD),
- Promoting private sector participation in R&D and
- Closing the gap between industry demand and what the country produces through its education systems.

## **President of India**

#### ***Context:***

- Former Jharkhand Governor and National Democratic Alliance (NDA) candidate Droupadi Murmu was elected the 15th President of India, the first tribal woman to be appointed to the position and the youngest as well.

#### ***Relevance:***

- GS II- Polity and Governance

#### ***Dimensions of the Article:***

- 1. How is the President elected?
- 2. Qualifications for Election as President
- 3. What is the value of each vote and how is it calculated?
- 4. What is required to secure a victory?

#### ***How is the President elected?***

- The Indian President is elected through an electoral college system, wherein the votes are cast by national and State-level lawmakers.
- The elections are conducted and overseen by the Election Commission (EC) of India.
- The President is elected not directly by the people but by members of electoral college consisting of:
  - o The elected members of both the Houses of Parliament
  - o The elected members of the legislative assemblies of the states
  - o The elected members of the legislative assemblies of the Union Territories of Delhi and Puducherry.
- This means, in the upcoming polls, the number of electors will be 4,896 — 543 Lok Sabha MPs, 233 MPs of the Rajya Sabha, and 4,120 MLAs of all States, including the National Capital Territory (NCT) of Delhi and Union Territory of Puducherry.
- Before the voting, comes the nomination stage, where the candidate intending to stand in the election, files the nomination along with a signed list of 50 proposers and 50 seconders.
- These proposers and seconders can be anyone from the total of 4,896 members of the electoral college from the State and national level.

### ***Qualifications for Election as President***

- He should be a citizen of India.
- He should have completed 35 years of age.
- He should be qualified for election as a member of the Lok Sabha.
- He should not hold any office of profit under the Union government or any state government or any local authority or any other public authority. A sitting President or Vice-President of the Union, the Governor of any state and a minister of the Union or any state is not deemed to hold any office of profit and hence qualified as a presidential candidate.

### ***What is the value of each vote and how is it calculated?***

- A vote cast by each MP or MLA is not calculated as one vote.
- There is a larger vote value attached to it.
- The fixed value of each vote by an MP of the Rajya Sabha and the Lok Sabha is 708
- Meanwhile, the vote value of each MLA differs from State to State based on a calculation that factors in its population vis-a-vis the number of members in its legislative Assembly.
- As per the Constitution (Eighty-fourth Amendment) Act 2001, currently, the population of States is taken from the figures of the 1971 Census.
- This will change when the figures of the Census taken after the year 2026 are published.
- The value of each MLA's vote is determined by dividing the population of the State by the number of MLAs in its legislative Assembly, and the quotient achieved is further divided by 1000.
- Uttar Pradesh for instance, has the highest vote value for each of its MLAs, at 208.
- The value of one MLA's vote in Maharashtra is 175, while that in Arunachal Pradesh is just 8.
- The total votes of each Legislative Assembly are calculated by multiplying the vote value of each MLA by the number of MLAs.
- Finally, based on these values, the total number of votes of all Rajya Sabha and Lok Sabha MPs would be 5,59,408 (776 MPs X 708), and the total votes of all MLAs from State Legislative Assemblies would come up to 5,49,495.
- Thus, the grand total vote value of the whole electoral college comes up to 10,98,903.

### ***What is required to secure a victory?***

- A nominated candidate does not secure victory based on a simple majority but through a system of bagging a specific quota of votes.
- While counting, the EC totals up all the valid votes cast by the electoral college through paper ballots and to win, the candidate must secure 50% of the total votes cast + 1.

- Unlike general elections, where electors vote for a single party's candidate, the voters of the electoral college write the names of candidates on the ballot paper in the order of preference.

## India's law on abortion

### *Context:*

- Recently, A 25-year-old pregnant woman moved the Supreme Court seeking an abortion after the Delhi High Court declined her plea last week.
- The woman has also challenged Rule 3B of the Medical Termination of Pregnancy Rules, 2003, which allows only some categories of women to seek termination of pregnancy between 20 and 24 weeks.

### *Relevance:*

- GS II- Polity and Governance

### *Dimensions of the Article:*

- 1. What is the case about?
- 2. The Medical Termination of Pregnancy Act, 1971
- 3. Medical Termination of Pregnancy Amendment Act, 2021

### *What is the case about?*

- Recently, a 25-year-old woman sought the Delhi High Court's permission for termination of a pregnancy of 23 weeks and 5 days.
- The woman, a permanent resident of Manipur who currently resides in Delhi, told the court that the pregnancy was a result of a consensual relationship, and that she wanted to terminate the pregnancy because her partner had refused to marry her.
- She also told the court that she feared stigmatisation as a single, unmarried woman.

### *Delhi HC's decision:*

- A two-judge Bench of the Delhi High Court refused to allow the termination of the pregnancy.
- In oral observations, the judges coaxed the woman to carry her pregnancy to term, and to give up the newborn for adoption — even offering to personally pay for the process.

### *The Medical Termination of Pregnancy Act, 1971*

- The Medical Termination of Pregnancy (MTP) Act, 1971 provides the legal framework for making CAC services available in India.
- Termination of pregnancy is permitted for a broad range of conditions up to 20 weeks of gestation as detailed below:
- When continuation of pregnancy is a risk to the life of a pregnant woman or could cause grave injury to her physical or mental health;
- When there is substantial risk that the child, if born, would be seriously handicapped due to physical or mental abnormalities;
- When pregnancy is caused due to rape (presumed to cause grave injury to the mental health of the woman);
- When pregnancy is caused due to failure of contraceptives used by a married woman or her husband (presumed to constitute grave injury to mental health of the woman).

### *The MTP Act specifies*

- who can terminate a pregnancy;
- till when a pregnancy can be terminated; and

- where can a pregnancy be terminated.

### ***Medical Termination of Pregnancy Amendment Act, 2021***

- The Act increases the gestation period of women seeking abortion up from **20 weeks to 24 weeks** - It allows abortion to be done on the advice of one doctor up to 20 weeks, and two doctors in the case of certain special categories of women between 20 and 24 weeks.
- The “special categories of women” include rape survivors, victims of incest, the differently-abled and minors.
- In case of the gestational period beyond 24 weeks, pregnancy may be terminated only in cases of substantial foetal abnormalities diagnosed by the Medical Board or if there is a threat to the life of the mother.
- Opinion of only one provider will be required up to 20 weeks of gestation and two providers for termination of pregnancy of 20-24 weeks of gestation. (Opinion of only one doctor will be required up to 20 weeks of gestation and two doctors for termination of pregnancy of 20-24 weeks of gestation.)
- Under the Act, a pregnancy may be terminated up to 20 weeks by a married woman in the case of failure of contraceptive method or device. It allows unmarried women to also terminate a pregnancy for this reason.
- All state and union territory governments will constitute a Medical Board. The Board will decide if pregnancy may be terminated after 24 weeks due to substantial foetal abnormalities.

### ***Significance of the amendment***

- It will provide greater reproductive rights and dignity to women as abortion is considered an important aspect of the reproductive health of women.
- Deaths and injuries from unsafe abortions are largely preventable provided services are performed legally by trained practitioners.
- The rape victims and vulnerable victims will also be benefitted from Privacy Clause.
- Many cases which were filed in High Courts to seek permission for abortion beyond 20 weeks will be reduced. Also, often 20 weeks were spent in completing the legal procedures and formalities – hence, there was a need to increase the upper limit of time.

### ***Criticisms of the 2021 amendment to the MTP act***

- One opinion is that terminating a pregnancy is the choice of the pregnant woman and a part of her reproductive rights. Another is that the state should protect life and hence should provide for the protection of the foetus.
- It enhances the gestational limit for legal abortion from 20 to 24 weeks only for specific categories of women. A woman who does not fall into these categories would not be able to seek an abortion beyond 20 weeks.
- The Act does not provide a time frame within which the Board must make its decision. Also, the shortage of specialised doctors will further delay the case.
- There may be cases where persons who identify as transgender (and not women) can become pregnant even after receiving hormone therapy to transition from female to male, and may require termination services. The Act is silent over this.
- The boards are unnecessary and an invasion of privacy of the pregnant women which pushes the laborious process a woman had to undergo in order to get an abortion.
- Many are still not aware of their reproductive rights and the amendment does not show concerns towards the need for awareness.

## **Fundamental duties**

### ***Context:***



- The Supreme Court has allowed the Centre's request for two months' time to file a reply to a petition seeking the enforcement of fundamental duties of citizens, including patriotism and unity of nation, through "comprehensive, and well-defined laws".

#### **Relevance:**

- GS II- Polity (Indian Constitution)

#### **Dimensions of the Article:**

- 1. Details
- 2. How were the fundamental duties incorporated in the Constitution?
- 3. What are the fundamental duties of the citizen?

#### **Details:**

- The need to enforce fundamental duties arises due to new illegal trend of protest by protesters in the garb of freedom of speech and expression.
- Vandalism, blocking of road and rail routes in order to compel the government to meet their demands is a sheer violation of the FDs which are generally not enforceable.

#### **How were the fundamental duties incorporated in the Constitution?**

- The fundamental duties were incorporated in Part IV-A of the Constitution by **The Constitution (42nd Amendment) Act, 1976**, during Indira Gandhi's Emergency.
- **Article 51(A)** describes 11 fundamental duties — 10 came with the 42<sup>nd</sup> Amendment; the 11th was added by the 86th Amendment in 2002, when Atal Bihari Vajpayee was Prime Minister.
- These duties are **not enforceable by law**.
- However, a court may take them into account while adjudicating on a matter.
- They were made a part of the Constitution to emphasise the obligation of the citizen in return for the fundamental rights that he or she enjoys

#### **What are the fundamental duties of the citizen?**

- Article 51(A) says it shall be the duty of every citizen of India:
- to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;
- to cherish and follow the noble ideals which inspired our national struggle for freedom;
- to uphold and protect the sovereignty, unity and integrity of India;
- to defend the country and render national service when called upon to do so;
- to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;
- to value and preserve the rich heritage of our composite culture;
- to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures;
- to develop the scientific temper, humanism and the spirit of inquiry and reform;
- to safeguard public property and to abjure violence;
- to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement;
- who is a parent or guardian to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.
- The last subsection, (k), on the education of children, was added in 2002 by The Constitution (86th Amendment) Act. The same amendment also introduced Article 21A in the Constitution: "The State

shall provide free and compulsory education to all children of the age of six to fourteen years in such manner as the State may, by law, determine.”

## Sub-categorisation of OBCs

### *Context:*

- Recently, the Centre extended the tenure of The Commission to Examine Sub-categorisation of Other Backward Classes (OBCs) headed by Justice G Rohini, former Chief Justice of Delhi High Court.
- The Commission, constituted nearly five years ago, has got 10 extensions so far, and now has until January 31 next year to submit its report.

### *Relevance:*

- GS II- Polity and Governance

### *Dimensions of the Article:*

1. What is sub-categorisation of OBCs?
2. What is the Commission's brief?
3. What progress has it made so far?
4. What have its findings been so far?
5. What is the extent of OBC recruitment in central jobs?

### *What is sub-categorisation of OBCs?*

- The idea is to create sub-categories within the larger group of OBCs for the purpose of reservation.
- OBCs are granted 27% reservation in jobs and education under the central government.
- This has been a legal debate for other reservation categories too: in September 2021, a Constitution Bench of the Supreme Court reopened the debate on sub-categorisation of Scheduled Castes and Scheduled Tribes for reservations.
- For OBCs, the debate arises out of the perception that only a few affluent communities among the over 2,600 included in the Central List of OBCs have secured a major part of the 27% reservation.
- The argument for creating sub-categories within OBCs is that it would ensure “equitable distribution” of representation among all OBC communities.
- It was to examine this that the Rohini Commission was constituted on October 2, 2017.

### *What is the Commission's brief?*

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

***This was added following a letter to the government from the Commission on July 30, 2019, in which it flagged “several ambiguities in the list as it stands now”.***

### *What progress has it made so far?*

- In its letter on July 30, 2019, the Commission wrote that it is ready with the draft report on sub-categorisation. Following the new term of reference added in January 22, the Commission began studying the list of communities in the central list.
- Among the challenges it has faced, one has been the absence of data for the population of various communities to compare with their representation in jobs and admissions.
- The Commission wrote to Minister of Social Justice and Empowerment on December 12, 2018, requesting for an appropriate Budget provision for a proposed all-India survey for an estimate of the caste-wise population of OBCs.
- On August 31, 2018, then Home Minister had announced that in Census 2021, data of OBCs will also be collected, but since then the government has been silent on this, whereas groups of OBCs have been demanding enumeration of OBCs in the Census.

#### ***What have its findings been so far?***

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

#### ***What is the extent of OBC recruitment in central jobs?***

- According to data tabled in Parliament by MoS for Personnel, Public Grievances and Pensions, in Rajya Sabha on March 17, the total number of Group A to Group C employees (including safai karmacharis) was 5.12 lakh (see table).
- Of these, 17.70% are SC, 6.72% ST, 20.26% OBC (Other Backward Classes), and 0.02% EWS (Economically Weaker Sections).
- In Group-A, the highest tier among these, the representation of SCs is just 12.86%, of STs 5.64% and of OBCs 16.88%. Reservation for these communities is 15%, 7.5% and 27% respectively.
- These data cover 43 departments and government offices including Cabinet Secretariat, UPSC and Election Commission, but excluding the largest central government employers such as Railways and Department of Posts.
- Among Secretaries and Special Secretaries, only six belong to SCs and STs, and, “no data regarding OBC is maintained”.
- Out of 91 Additional Secretaries, the number of officers belonging to SC/ST and OBC communities are 10 and 4 respectively and out of 245 Joint Secretaries, the number of officers belonging to SC/ST and OBC communities are 26 and 29 respectively in various Ministries/Departments under Central Staffing Scheme.

## **Hurt sentiments, Hate crimes and punishment**

### ***Context:***

- There should be no tolerance for violence motivated by "hurt feelings" caused by hate speech. Recent incidences of persons being killed for offending sentiments in Udaipur (Rajasthan) and Amravati (Maharashtra) cast doubt on India's secular foundation.

### ***Relevance:***

- GS Paper 2: Functions and responsibilities of the Union and the States pressure groups and formal/informal associations and their role in the Polity. Important aspects of governance, transparency and accountability

***Mains Question:***

- Hate speech in India is facilitated by a number of circumstances. Discuss the impact of hate speech in this context, as well as suggestions for dealing with it effectively.

***Dimensions of the article:***

- Hate speech in India
- Reasons behind hate speech
- Laws and Punishment on hate speech

***What is Hate Speech:***

- In general, it refers to comments with the goal of instilling hatred in a specific group, which could be a community, religion, or race. This speech may or may not have significance, but it will almost certainly result in violence.

***Major Reasons of Hate Speech:***

- Individuals believe in preconceptions that are ingrained in their thoughts, and these stereotypes cause them to assume that a class or group of people are inferior to them and, as such, cannot have the same rights as them.
- ***Stubbornness to a Specific Ideology:*** Sticking to a specific ideology without regard for the freedom to coexist peacefully adds fuel to the flames of hate speech.

***Hate Speech and Indian Laws:***

- The rationality of the right to express oneself is clearly stated in India's legislation on freedom of expression.
- However, the legislation does not explicitly define hate speech, which is directed at communities and intended to incite community animosity.
- However, there are elements in the legislation that can be regarded as allowing for the criminalization of hate speech offences, particularly those that are likely to inspire violence.
- There have been legitimate calls, including from India's Law Commission, to include specific provisions in the Indian Penal Code to combat hate speech.
- It is critical that policymakers act on this, especially in the age of internet media and messaging, where hate speech events have grown into an even bigger problem.
- That being said, there is no need for any sort of hate speech to be met with violence.
- Sticks and stones may break bones, but words will not, as the old proverb says.
- There should be no tolerance for violence.

***Legal Position of Hate Speech:******Under Indian Penal Code:***

- **IPC Sections 153A and 153B:** Punishes acts that incite animosity and hostility between two groups.
- **Section 295A of the IPC:** Deals with punishing acts that intentionally or maliciously offend a group of people's religious sentiments.
- **Sections 505(1) and 505(2)** make it an offence to publish or distribute content that may incite ill will or hatred amongst various communities.

***Under Representation of People's Act:***

- Section 8 of the Representation of the People's Act, 1951 (RPA) prohibits a person convicted of using free speech illegally from contesting an election.



- Sections 123(3A) and 125 of the RPA prohibit the promotion of hatred based on race, religion, community, caste, or language in relation to elections and classify it as corrupt electoral practises.

### *Suggestion for Changes in IPC:*

#### *Viswanathan Committee 2019:*

- It recommended amending the IPC to include Sections 153 C (b) and 505 A for inducement to commit an offence based on religion, race, caste or community, sex, gender identity, sexual orientation, place of birth, domicile, language, disability, or tribe.
- It advocated a sentence of up to two years in prison and a fine of Rs. 5,000.

#### *Bezbaruah Committee 2014:*

- It proposed amending Section 153 C of the IPC (promoting or attempting to promote acts prejudicial to human dignity), punishable by five years in prison and a fine, or both, and Section 509 A of the IPC (word, gesture, or act intended to insult a member of a particular race), punishable by three years in prison and a fine, or both.

### *The Two Cases*

- In both cases, suspects who were offended by the statements resorted to violence in response to what they saw as an insult to their religion.
- The National Investigation Agency is looking into the two cases.
- The perpetrators, those engaged in the planning and execution of these killings, must be brought to justice and punished severely.

### *What should be done?*

- Even as these hate crimes are investigated, the Union and State governments must promptly reassure residents of the importance of communal amity and that those who spread hate speech and engage in violence in reprisal will be prosecuted.
- Justice and the rule of law must not only be seen to be applied, but must also be applied fairly and without bias toward or against specific communities.
- The Union and State governments should not impose coercive measures on communities by deploying enforcement authorities to punish them collectively for individual acts of transgression.
- Political parties of all stripes, particularly those in power, must avoid from inciting communal animosity.
- Governments must reorient themselves to the rule of law and strict devotion to constitutional norms in order to protect the country's secular fabric at all costs.

### *Way forward*

- Education is the most effective means of reducing animosity. Our educational system plays an important role in creating and understanding compassion for others.
- The fight against hate speech cannot be compartmentalised. It should be debated on a larger stage, such as the United Nations. This threat should be addressed by every responsible country, regional body, and other international and regional actors.
- Cases of hate speech can be addressed through Alternative Dispute Resolution, which offers a change from lengthy judicial procedures to the resolution of disputes between parties through negotiation, mediation, arbitration, and/or conciliation.
- Furthermore, public officials must be held accountable for dereliction of duty of care as well as non-compliance with this court's orders by failing to take action to prevent vigilante groups from inciting communal disharmony, spreading hatred against citizens of the country, and taking the law into their own hands.



## Election freebies

### *Context:*

- Recently, the Supreme court asked the central government whether distributing irrational freebies during election campaigns is financially viable.
- It also referred to use the expertise of the Finance Commission in curbing the irrational poll freebies.

### *Relevance:*

- GS-II: Governance (Government Policies and Interventions, Issues arising out of the design and implementation of policies, Transparency and Accountability)

### *Dimensions of the Article:*

- 1. What are Freebies?
- 2. Understanding difference between welfare schemes and freebies
- 3. Impact of freebie culture
- 4. What is Populism and what is its impact?
- 5. Judiciary on the culture of freebies
- 6. Way Forward

### *What are Freebies?*

- Political parties promise to offer free electricity/water supply, monthly allowance to unemployed, daily wage workers, and women as well as gadgets like laptops, smartphones, etc. in order to secure the vote of the people.
- The states have become habituated to giving freebies, be it in the form of loan waivers or free electricity, cycles, laptops, TV sets, and so on.

### *Understanding difference between welfare schemes and freebies*

- Welfare initiatives include a targeted Public Distribution System, providing social security for labourers, quality education, fair employment, affordable healthcare, decent housing, and protection from exploitation and violence.
- Freebies, on the other hand, are provided to attract voters to cast their vote in a particular election. They create limited private benefit for the receiver and do not contribute towards strengthening public goods/facilities.
- Freebies could include offers such as free rations, TV sets, laptops to students, free rides for women in buses, free gas cylinders and stoves and so on.

### *Impact of freebie culture*

- Given the electoral effectiveness of the freebies culture, states seem to accord lesser importance to welfare initiatives and hence welfare measures have taken a back seat in terms of governance. There seems to be a withdrawal of the state in providing welfare measures such as social security, access to quality education and health, etc.
- The impact has been all the more severe on the poor and marginalised communities due to denial of access to their rightful share of state resources. Freebies drastically widen the gap between the rich and the poor.
- Freebies violate the constitutional mandate of extending benefits for public purposes and instead create private benefits.

### *Drawbacks of Freebies*

- Freebies undermine the fundamental tenets of macroeconomic stability, the politics of freebies confuses priorities for spending, and subsidies continue to dominate expenditures.
- Freebies ultimately have an influence on the public coffers, since the majority of Indian states frequently have very little financial resources and revenue sources.
- Voters are unfairly influenced, the playing field is disrupted, and the integrity of the voting process is tainted by the promise of irrational giveaways from public funds before elections.
- When giveaways involve providing free electricity, it will result in an excessive use of natural resources and divert attention away from renewable energy sources.

### ***Judiciary on the culture of freebies***

- The Supreme Court gave a ruling in favour of offering of freebies stating that freebies are not corrupt practice as it is mentioned in election manifesto.
- In ***S. Subramaniam Balaji v. Govt. of Tamil Nadu (2013)***, the court said that “Although, promises in the election manifesto cannot be construed as ‘corrupt practice’ under **Section 123 of Representation of People Act**, the distribution of freebies influences the people shaking the root of free and fair elections.”
- In 2021, The Madras High Court expressed its strong displeasure over the way in which political parties were competing with each other to garner votes by offering freebies.

### ***Way Forward***

- There is an urgent need to tackle the freebie culture in India, given its negative impacts. Also, there needs to be a reorientation of public policy in a healthy direction.
- The political party manifestos should offer programmatic policy interventions towards better public services than narrow private benefits in the form of freebies. They should focus on enhancing budgetary allocation for the maintenance of public infrastructures like schools, colleges, hostels and hospitals.
- The Election Commission and the Higher Judiciary intervention can help in this regard. An informed and aware citizenry is a must to bring about this change.

## **PARIMAN**

**Focus:** GS II- Governance

### ***Why in News?***

- PARIMAN: The Geo-Portal for NCR made Public

### ***About PARIMAN:***

- National Capital Region (NCR) is presently spread over 55,083 Sq. Kms and has four participating states (24 Districts and entire NCT of Delhi) as its constituent area.
- For the purpose of effective utilization of Remote Sensing and GIS technology, a web geo-portal has been developed through National Informatics Centre (NIC), initially for use by NCR Participating states and the Office of NCRPB.
- This Geo-Portal will help to improve decentralized planning and management in NCR region.
- The Portal consists of around 179 Layers presented as Line, Point & Polygon feature covering details of various sectors like Land Use, Transport, Industries, Water, Power, Health, Shelter, Heritage & Tourism, Disaster Management, etc.
- With an intent of optimum utilization of resources in Public interest, NCRPB has made the Geo-Portal open to Public. In cases involving minors or persons of unsound mind, the law provides for the court to pass orders to protect them.

## **Public Safety Act (PSA)**

**Context:**

- Families of several youth taken into preventive detention this year under the controversial Public Safety Act (PSA), which allows detention for up to two years without a trial, allege their kin were “shifted outside jails and held incommunicado” in violation of the provisions of the Act.

**Relevance:**

- GS-II: Governance (Government Policies and Innovations, Issues Arising Out of the Design and Implementation of Policies)

**Dimensions of the Article:**

- About the Jammu & Kashmir Public Safety Act (PSA), 1978
- What are some concerns with the PSA?
- SC’s views on the Public Safety Act

**About the Jammu & Kashmir Public Safety Act (PSA), 1978**

- The Jammu and Kashmir Public Safety Act, 1978 (PSA) is a preventive detention law applying only to Jammu and Kashmir. It is very similar to the National Security Act that is used by the central and other state governments of India for preventive detention.
- Under the PSA, an individual can be detained on the basis of an executive order for a maximum of two years, without trial, if their act is prejudicial to the security of the State or the maintenance of public order.
- The Detention order is passed either by the Divisional Commissioner or the District Magistrate.
- The only way the administrative preventive detention order can be challenged is through a habeas corpus petition filed by relatives of the detained person.
- The High Court and the Supreme Court have jurisdiction to hear such petitions and pass a final order seeking quashing of the PSA.
- However, if the order is quashed, there is no bar on the government passing another detention order under the PSA and detaining the person again.
- There can be no prosecution or any legal proceeding against the official who has passed the order.

**What are some concerns with the PSA?**

- Detention Without Trial:** The PSA allows for the detention of a person without a formal charge and without trial. It can be slapped on a person already in police custody; on someone immediately after being granted bail by a court. Unlike in normal circumstances, a person who is detained under the PSA need not be produced before a magistrate within 24 hours of the detention.
- No Right to File Bail Application:** The detained person does not have the right to move a bail application before the court, and cannot engage any lawyer to represent him or her before the detaining authority.
- Section 8 of the PSA:** It provides a vast number of reasons for detention, ranging from “promoting, propagating, or attempting to create, feelings of enmity or hatred or disharmony on grounds of religion, race, caste, community, or region” to incitement, instigation, abetment and actual commission of such acts. It leaves it to district collectors or district magistrates to decide, giving a 12-day period within which an advisory board has to approve the detention.
- No Distinction Between Minor and Major Offences:** It allows detention for up to 1 year for disturbance of public order and 2 years for actions prejudicial to the security of the State.

**SC’s views on the Public Safety Act**

- The Supreme Court (SC) has held that while detaining a person under the PSA, the DM has a legal obligation to analyse all the circumstances before depriving that person of his/her personal liberty.

- It has also held that when a person already under police custody is slapped with the PSA, the DM has to record “compelling reasons” for detaining that person.
- While the DM can detain a person multiple times under the PSA, he or she has to produce fresh facts while passing the subsequent detention order.
- Also, all the material on the basis of which the detention order has been passed, should be provided to the detained person for making an effective representation.
- The grounds of detention have to explain and communicate to the person in the language understood by the detained person.

## The Potentials of ICT: E-Governance in India

### Context

- Democratic governance mechanisms are becoming more open to the potentials of Information and Communication Technologies (ICT) for achieving good governance in their implementation. This use of ICTs for governance falls under the umbrella term of E-governance.
- India, as one of the largest democratic, demographic, and geographically diverse countries, faces a significant challenge in implementing e-governance to empower its citizens and promote overall economic development, particularly in rural areas.

### Relevance

- **GS Mains Paper 2:** Challenges Associated with E-Governance in India, Solutions and Recent Government Initiatives to Promote E-Governance in India

### Mains Question

- Explore the obstacles that face the implementation of e-governance in India and provide potential solutions to these problems. (250 Words)

### Advantages of E-Governance in India:

- **Data Driven Governance:** Technology makes communication easier. The Internet and smartphones have enabled the instant transmission of large amounts of data, which serves as fuel for effective governance.
- **Saving Money:** A large portion of government spending goes toward the purchase of official stationery. Letters and written records require a large amount of stationery. However, replacing them with smartphones and the internet can save billions of dollars in annual expenses.
- **Transparency:** The use of e-governance aids in the transparency of all business functions. All official information is available on the internet. Citizens can access whatever information they want, whenever they want, at their leisure.
- **Accountability:** Transparency is inextricably linked with accountability. When citizens have access to the functions and information of government, the government becomes more accountable for its actions.
- **Land Record Monitoring:** With its diverse land tenure system, a vast developing country like India necessitates effective land monitoring. Along with physical transactions, online record maintenance is a key feature of e-governance in India to ensure that property transactions are not fraudulent.

### Challenges Associated with E-Governance in India:

- **Interoperability Challenges:** This is one of the most critical e-governance challenges. Interaction between ministries and departments is difficult, and it becomes a barrier to data processing and sharing. The majority of e-governance services provided by state or federal governments are not integrated.
- **Linguistic Barriers:** Due to the country's diversity, this is a challenge. The majority of the languages spoken in India are native languages. The majority of the rural population cannot participate in the



government-led project because their primary language is English or Hindi. This reinforces the importance of conducting governance in the local language.

- Literacy in rural areas is approximately 67 percent, with rural male literacy rate of 77 percent and rural female literacy rate of 60 percent. Many government schemes in India, such as NREGA, include rural people as end users. Most of them are unable to use government facilities due to a lack of technical awareness and related knowledge.
- **Lack of Digital Infrastructure:** Maintaining continuous electricity supply and connectivity in rural areas is a major challenge for effective e-governance. It is critical to identify the appropriate user of the services, or else they may be abused by private competitors. Meanwhile, the digital signature plays a significant role in ensuring authenticity. However, it is costly and requires regular maintenance.
- **Privacy Concerns:** Online transactions and privacy concerns are becoming more prevalent. E-Government offers insurance, banking, and utility bill payment services. Citizens are still dissatisfied with the government's level of security.
- **Ineffective Grievance Procedures Redressal Mechanism:** The absence of a timely and effective grievance redressal mechanism poses serious challenges. Specifically, biometric recognition errors and errors in online e-governance applications such as National Mobile Monitoring Software, which records MGNREGA workers' attendance at work sites. Authorities frequently hold the rights holder accountable for technical errors.

#### ***Government Initiatives to Promote E-Governance in India:***

- MyGov Initiative
- National Scholarships Portal (NSP)
- Darpan Portal
- DigiLocker
- National Center of Geo-informatics
- National e-Governance Plan

#### ***Way Forward:***

- **Intermediary deployment:** To ensure strategic coherence among planners and beneficiaries. E-government is expected to increase citizen satisfaction not only by improving the responsiveness of public service delivery mechanisms, but also by increasing citizens' participation in governance mechanisms.
- For example, involving locals in policy implementation will help to bridge the communication gap between the government and the people.
- Incentives for local initiative implementation.
- **Demand-Generated Services:** With a bottom-up approach to planning based on separate urban-rural level socioeconomic databases, there is a need for a holistic and integrated approach from government ministries that includes identifying, evaluating, formulating, implementing, and redressing data-driven policies to meet the needs of the population as soon as possible.
- **Focus on Local E-governance:** While E-Government must transform all levels of government, the emphasis should be on local governments because they are the closest to citizens and, for many, the primary interface with government.
- **Better Digital Infrastructure and Connectivity:** Special emphasis should be placed on improving digital infrastructure, particularly in rural areas, as well as improving internet connectivity.
- E-Governance through regional languages is beneficial for countries like India, where participants come from a variety of linguistic backgrounds.
- **Understanding E-readiness:** Different states in India have varying levels of e-readiness; this must be considered when implementing e-Governance reforms in various parts of the country.
- Today, the country is home to a number of successful projects. However, there are very few on a national scale.



- There is a need to replicate and scale up successful models across the country.

## The new 'normal' of political splits and shifts

### Context

- 'The current phase is bizarre when compared to the past because dominant parties appear to be actively encouraging splits and shifts and having no respect for the basic rules of the game' Parties are more closely aligned with the state; the party bond exists only as long as it ensures a legislator's success.

### Relevance:

- **GS Paper 2:** Parliament and State Legislatures, structure, functioning, conduct of business, powers & privileges and issues arising out of these

### Mains Question:

- Does Anti-Defection Law, while deterring defections, restricts a legislator from voting as per his conscience and erodes his independence? Comment (250 words)

### The New Political Circus

- Political parties sometimes break up like marriages, and individual legislators switch parties like remarriages.
- The consequences in both cases can be severe.
- Individual legislators or groups who decide to leave a party, form another party, or join another party may have ramifications for the formation, maintenance, and termination of government.
- Splits in the ruling party and subsequent realignment of legislators inaugurated new governments in Maharashtra and Madhya Pradesh, respectively.

### Distinct waves

- Splits and switches are common in legislatures all over the world, and India has experienced at least three distinct waves.
- The first wave occurred in the latter half of the 1960s, when challengers to Congress attempted to dethrone it in the United States.
- Because of the free movement of legislators across political parties, there was literally a lot of shoving and pushing, and governments changed quickly.
- The next wave: It began with an attempt to end free movement and regulate legislators' behaviour through the anti-defection law.
- While the law discouraged individual movement, it encouraged collective movement of legislators by establishing specific numbers to legitimise and validate party switches.
- When legislators switch in groups, the costs are shared, and the move appears less opportunistic, which defeats the purpose of the legislation in many ways.
- Despite the fact that the law has placed obstacles in the way of splits and switches, the activity has continued.
- To make matters worse, the law's implications are now influencing the strategies of legislators and political parties.
- The third wave began in 2014, with the Bharatiya Janata Party (BJP) ascending, when already-dominant parties began to use splits and switches to weaken and destroy their competitors.
- The BJP, like the Congress before it, benefited from a series of governmental changes brought about by legislators switching sides, including Arunachal Pradesh (2016), Bihar (2017), Karnataka (2019), Madhya Pradesh (2020), and Maharashtra (2022).

***The Current Phase***

- The current phase is unusual in comparison to previous phases because dominant parties appear to be actively cheering splits and shifts while ignoring basic game rules.
- The anti-defection law and institutional control are now used as weapons by dominant parties to intervene in the internal workings of opposition parties, sometimes making or breaking them.
- Furthermore, legislators are changing their support even if it does not contribute to the formation or maintenance of governments.

***A perspective***

- Much of our debate is dominated by the morality of splits and switches, which revolves around the harm they cause to the foundations of representative democracy.
- And these are unquestionably sound arguments. First, switchers violate their constituents' trust by providing them with something other than what they expected.
- Second, assuming that voters vote for parties rather than individuals, the argument is that incoherent parties make it difficult for voters to draw clear lines of responsibility.
- As a result, voters find it difficult to hold party governments accountable for their actions during elections.
- Despite strong arguments about the despicable nature of splits and switches, they continue to occur on a regular basis.
- The question then becomes, why do legislators leave and switch parties without fear of repercussions? We can't answer this question because our understanding of political parties is out of date.

***The change and transformation in Party system***

- While we track party system change, we overlook the fact that the component parts, the parties that comprise the system, also change and transform.
- Our understanding of parties is static and dates from a bygone era.
- Parties are constantly adapting new modes in order to survive and succeed.
- Our popular image of a party is that of a traditional mass party that emerges from societal movements and is primarily internally democratic.
- They are linked to mass organisations and groups that share a common goal that encompasses various aspects of societal life.
- The organization's leadership is accountable to it and committed to the goal. This ideal type is the source of our normative posture.
- This is what the Election Commission of India envisions a party to be, as many of its guidelines emphasise the 'democratic spirit' and the importance of transparency and participation in internal decision-making.

***The Other side of Reality:***

- While parties mobilise and compete around identity and group solidarity issues such as mass parties, the internal democracy element is missing, and their links with society and mass organisations are at best tenuous.
- Today's parties are centralised vote-getting machines which primarily work to ensure the return of political leaders to office.
- Mass inputs and ideas do not matter, and it is the central leadership that counts. All party activities begin and end with elections.

***The New Models of 'Paid Professionals'***

- In this model, it is not surprising that paid professionals occupy a central place.
- They pick strategies, run campaigns and are sometimes involved in ticket distribution.

- New forms of communication and campaign methods have displaced traditional campaign modes.
- Consequently, the vast pool of voluntary unpaid labour which traditionally formed the backbone of parties and linked parties with the grass roots are no longer as closely involved as they were in the past.

### *The New Choreography in Leadership*

- Leaders are "elected unanimously," and party conventions are staged events in which ordinary members meet and greet leaders.
- These events are designed to raise the profile of the leadership elite and are not intended to be a forum for intra-party debate and discussion.
- Because parties are primarily concerned with electoral success, anyone who has the trust of the top leadership and can help increase seat share is likely to get a ticket.
- Furthermore, we now know that parties prefer candidates who bring their own money, fund other candidates, and raise party resources. All of this keeps the party on the ground and in the shade.

### *New alignment*

- The most significant difference is that parties are more closely aligned with the state than with civil society.
- Parties exchange material and psychological rewards, as well as goods and services provided by the state, in exchange for electoral advantage.
- Voters also see parties as service providers.
- This link pushes legislators and political parties to be in government or close to it.
- In the two Telugu-speaking states, this was one of the most common reasons for Legislative Assembly members switching parties.
- As a result of this shift, the party has become a shadow of what it once was, reduced to a tool for defending the government's policies and programmes.

### *Conclusion:*

- On the supply side, the party on the ground no longer has the final say; parties are now both election vehicles and service providers. The party bond exists only as long as the legislator is successful.
- On the demand side, the voter appears to have no objection to either 'A' or 'B' as long as "services" are available.
- As a result, splits and switches are not considered objectionable by legislators and are not punished by voters.
- Legislators will be willing to do anything if the benefits outweigh the costs.

## **17-year-olds can pre-register for voter lists**

### *Context*

- The Election Commission of India recently announced that those over the age of 17 can now apply in advance to be enrolled in the voters' list, rather than waiting until they turn 18 on January 1 of each year.

**Relevance: GS Paper 2:** Salient features of the Representation of People's Act.

### *Who has the right to vote in India?*

- Part XV (Article 324-329) of the Indian Constitution contains provisions to ensure free and fair elections in India, as well as the authority of the Indian Parliament to regulate the electoral process.
- In this regard, the Representation of the People Act (RPA) of 1950 was passed by Parliament (and the Representation of the People Act, 1951).

- The 1950 Act establishes the allocation of seats and the delimitation of constituencies for elections, as well as the qualifications of voters and the preparation of electoral rolls.
- The 1951 Act governs how elections and by-elections are held.
- It governs the conduct of elections, as well as election-related offences and disputes, as well as the registration of political parties and the qualifications and disqualifications for membership in the Houses.
- Persons eligible to vote in an election are those who have registered as voters in accordance with the provisions of the Indian Constitution and the Representation of the People Act (RPA) of 1950.
- According to Article 326 of the Indian Constitution, all Indian citizens over the age of 18 who have registered to vote are eligible to vote.
- Eligible voters must register in the constituency where they live, after which they will be issued photo election identification cards.

### ***Background***

- The government issued four notifications to implement the electoral reforms enacted by the Election Laws (Amendment) Act, 2021. (passed by the Parliament in late 2021).

The notification resulted in the following changes:

- Voluntary Linking of Voter ID with Aadhaar The notification specified April 1, 2023 as the date by which every person whose name appears on the electoral rolls must provide his Aadhaar number.
- To make the registration process easier for first-time voters, it established four qualifying dates per year — January 1, April 1, July 1, and October 1 — for those over the age of 18.
- Make voting by special procedure gender neutral The notification changed the word "wife" to "spouse" so that a female Army officer's husband could be enrolled as a service voter.
- Greater authority for the Election Commission It empowered the EC to requisition premises for any purpose related to elections.

### ***In addition:***

- First-time voters will soon be able to apply for inclusion on the voter list even before reaching the voting age of 18.
- New voters who turn 18 on April 1, July 1, or October 1 of any given year, rather than just January 1, will be eligible to register to vote.
- However, ECI has announced that all 17-year-olds who will turn 18 on each of the four qualifying dates can submit their claims ahead of time.
- They may begin applying as of the date of the draught publication of electoral rolls.
- For example, the special summary revision with January 1, 2023 as the qualifying date has already been ordered.
- As a result, under the new model, 17-year-olds can begin applying for inclusion in rolls on November 9, 2022, the date of draught roll publication.

### ***What was the previous policy on registration?***

- Previously, electoral rolls were revised with reference to January 1st.
- The Representation of the People Act only allowed those over the age of 18 to register to vote once.
- Only those who have reached the age of 18 on or before January 1 of that year are eligible to be added to the voter list.
- Because there is only one cut-off date, a person turning 18 on January 2 cannot be registered and must wait until the following year.
- Enrollment of first-time voters will now be permitted four times per year. Section 20(6) of the RP Act was amended to accomplish this.



## The ideals of complete justice and Personal liberty

### Context

- India's top court cannot be seen to be helpless when faced with issues of individual liberty. 'In certain rare situations, the judiciary could still act as a determined umpire who checks the executive's excesses.

**Relevance: GS Paper 2:** Separation of powers between various organs, functioning of the Executive and the Judiciary.

### Mains Question

- The functional overlap of government organs undermines the principle of separation of powers. Comment (150 words)

### Challenges before judiciary

- Because of its broad judicial review power, the Supreme Court of India is widely regarded as the world's most powerful top court.
- Article 32 of the Constitution grants it the authority to issue writs.
- Under Article 131 of the Constitution, it also has original jurisdiction.
- Articles 132, 133, 134, and 136 of the Constitution provide for extensive appellate power.
- More importantly, according to Article 142 of the Constitution, the Supreme Court has the authority to "make such order as is necessary for doing complete justice in any cause or matter pending before it."

### The Helplessness

- Nonetheless, the Supreme Court has repeatedly demonstrated that it is powerless when it comes to issues of individual liberty.
- Many political prisoners are still imprisoned after their bail applications were repeatedly denied by various courts.
- The executive can register multiple FIRs in different states of India to ensure that the dissident is not released from prison, even if bail is granted in some cases. As a result, the executive's jail jurisprudence effectively outweighs the Court's bail jurisdiction.

### The Conventional weakness

- If the Supreme Court truly wants to address this situation in which an aggrandizing executive hunts its opponents in a systematic and incremental manner, it cannot afford to be conventional.
- According to conventional legal wisdom, every criminal case is a case that must be dealt with as such and pursued to its logical conclusion.
- Multiple FIR registration is a highly problematic practise.
- Professor Vincent Blasi, an American legal scholar, identifies "historical periods when intolerance of unorthodox ideas is most prevalent and governments are most able and most likely to stifle dissent systematically" in the context of free speech. India's situation is instructive.

### Rule by law

- In such difficult times, the criminal justice system degenerates into rule by law, which replaces rule of law.
- The law becomes an effective tool in the hands of the government for the purposes of a witch-hunt, and it works against regime opponents as a class.
- In this scenario, if the Court incorrectly assumes that the nation's legal system is governed by the rule of law, fallacies and unjust consequences are unavoidable.
- In such a legal environment, it will be equally erroneous to treat each case as if it were isolated, which it is not.



- Climate change is a hard reality that no court can ignore in a nation's constitutionalism.

### *Deconstitutionalisation*

- Even in difficult times, a constitutional court should be able to develop its own mechanism to protect the country's democratic foundation by intervening in the gradual process of "deconstitutionalization."
- In a recent study, law professor Rosalind Dixon stated that "at least under certain conditions — of sufficient independence, political support, and remedial power — courts can too play an important role in buttressing democratic processes and commitments," and that this is "the essence of responsive judicial review."
- Colombian and Brazilian constitutional courts have developed the new doctrine of "unconstitutional state of affairs."
- This allows the court to address structural deficiencies with realism and to issue effective orders even when deviating from procedural rigour in order to protect fundamental rights.
- This is similar to the practise of Public Interest Litigation (PIL) in India and structural injunctions in the United States in some ways.

### *Creating a judicial atmosphere*

- Without a doubt, the courts may occasionally serve the executive's interests.
- As has happened in some cases, this may even pose a serious threat to personal liberty.
- However, in rare cases, it may still act as a determined umpire who checks the executive's excesses.
- This point is illustrated by the Supreme Court's intervention in the Centre's COVID-19 vaccine policy and the Pegasus incident.
- The latter approach must be expanded in order to create and sustain a democratic judicial environment that supports the cause of liberty.
- In principle, the Indian Supreme Court is constitutionally empowered to invoke its jurisdiction for the greater cause of liberty, even if it means deviating from the conventional technical route.
- The phrase "complete justice" in Article 142 is intended to be used when legalistic arguments undermine the goal of constitutional justice.
- The Court requires a new version of judicial activism, which it developed in the 1980s.

### *The Idea of Complete justice*

- The origins of Article 142 demonstrate that the framers of the Constitution consciously incorporated this provision by significantly altering the earlier corresponding provision in the Government of India Act, 1935.
- Section 210(2) of the Government of India Act only mentioned the enforceability of Federal Court orders.
- It did not, of course, include a concept of complete justice in the constitutional sense. Article 142, on the other hand, gives the Supreme Court this supplemental authority.
- The interpretation of this provision's scope has been varied, and at times contradictory.
- Some decisions argued for its restrictive use, while others argued for its liberal and contextual application. The Supreme Court stated in *Delhi Development Authority vs Skipper Construction Company* (1996) that the power under Article 142 should be "undefined and uncatalogued, so that it remains elastic enough to be moulded to suit the given situation."

### *The way forward*

- It is critical that the Supreme Court of India treat political prisoners and dissenters who are facing multiple FIRs and are being held indefinitely as a class.
- It requires normative jurisprudence to address the technical arguments that create a false notion of rule of law when the very cause of arrest and detention is a lack of it.

- When a blatant instance of restricting a person's freedom is brought before the highest court, it should be capable of ordering the records pertaining to the multiple FIRs and adding all stakeholders as parties (if necessary); the Court should immediately ensure that vindictive incarceration does not continue for even a day.
- This may be difficult, but it is not impossible. As a result, it is critical to develop an effective jurisprudence of "complete justice" that focuses on personal liberty.
- The application of this new judicial tool may be able to preserve the country's democratic legacy.

## Reform in Bail Law

### *Context:*

- Recently, the Supreme Court underlined that "there is a pressing need" for reform in the law related to bail and called on the government to consider framing a special legislation on the lines of the law in the United Kingdom.

**Relevance:** GS II- Government policies and Interventions

### *Dimensions of the Article:*

- 1. What is the ruling about?
- 2. What is the India's law on bail?
- 3. What is Bail Law the UK law?
- 4. What has the Supreme Court held on reforms?

### *What is the ruling about?*

- A two-judge Bench issued certain clarifications to an older judgment delivered in July 2021 on bail reform (Satender Kumar Antil vs CBI).
- The ruling essentially a reiteration of several crucial principles of criminal procedure.
- Referring to the state of jails in the country, where over two-thirds lodged are undertrials, the Supreme Court underlined that arrest is a draconian measure that needs to be used sparingly.
- Theoretically, the court also linked the idea of indiscriminate arrests to magistrates ignoring the rule of "bail, not jail" to a colonial mindset.
- The Code of Criminal Procedure (CrPC) was first drafted in 1882 and continues to be in use with amendments from time to time.

### *What is the India's law on bail?*

- The CrPC does not define the word bail but only categories offences under the Indian Penal Code as 'bailable' and 'non-bailable'.
- The CrPC empowers magistrates to grant bail for bailable offences as a matter of right.
- This would involve release on furnishing a bail bond, without or without security.
- Non-bailable offences are cognisable, which enables the police officer to arrest without a warrant. In such cases, a magistrate would determine if the accused is fit to be released on bail.

### *What is Bail Law in the UK law?*

- The Bail Act of the United Kingdom, 1976, prescribes the procedure for granting bail. A key feature is that one of the aims of the legislation is "**reducing the size of the inmate population**".
- The law also has provisions for ensuring legal aid for defendants.
- The Act recognises a "general right" to be granted bail.
- Its Section 4(1) raises the presumption of bail by stating that the law applies to a person who shall be granted bail except as provided in Schedule 1 to the Act.

- For rejecting bail, the prosecution must show that grounds exist for believing the defendant on bail would not surrender to custody, would commit an offence while on bail, or would interfere with witnesses or otherwise obstruct the course of justice; unless the defendant must be detained for his own welfare or protection; or in other circumstances.

### ***What has the Supreme Court held on reforms?***

- The court's ruling is in the form of guidelines, and it also draws the line on certain procedural issues for the police and judiciary.

### ***Separate Law for Bail***

- The court underlined that the CrPC, despite amendments since Independence, largely retains its original structure as drafted by a colonial power over its subjects.
- The court made this point to signal that despite its rulings, structurally, the Code does not account for arrest as a fundamental liberty issue in itself.
- It also highlighted that magistrates do not necessarily exercise their discretionary powers uniformly.
- Uniformity and certainty in the decisions of the court are the foundations of judicial dispensation.
- Persons accused with same offense shall never be treated differently either by the same court or by the same or different courts.
- Such an action though by an exercise of discretion despite being a judicial one would be a grave affront to Articles 14 and 15 of the Constitution of India.
- The court's solution on this is the framing of a separate law that deals with the grant of bail.

### ***Indiscriminate Arrests:***

- The court noted that the culture of too many arrests, especially for noncognisable offences, is unwarranted.
- It emphasised that even for cognisable offences, arrest is not mandatory and must be "necessitated."
- Such necessity is drawn to prevent the committing of any further offense, for a proper investigation, and to prevent him/her from either disappearing or tampering with the evidence.
- He/she can also be arrested to prevent such person from making any inducement, threat, or promise to any person according to the facts, so as to dissuade him from disclosing said facts either to the court or to the police officer.
- One more ground on which an arrest may be necessary is when his/her presence is required after arrest for production before the Court and the same cannot be assured.
- It held that lower courts must satisfy that these conditions are met and "Any non-compliance would entitle the accused for grant of bail".

### ***Bail Application:***

- There need not be any insistence of a bail application while considering the application under Section 88, 170, 204 and 209 of the Code.
- These sections relate to various stages of a trial where a magistrate can decide on release of an accused.
- These range from power of the magistrate to take bond for appearance (Section 88) to power to issue summons (Section 204).
- The Supreme Court held that in these circumstances, magistrates must routinely consider granting bail, without insisting on a separate bail application.

### ***Direction to States:***

- The SC also directed all state governments and Union Territories to facilitate standing orders to comply with the orders and avoid indiscriminate arrests.
- The CBI has already communicated earlier orders of the Court to special judges under its jurisdiction.

- This would certainly take care of not only the unwarranted arrests, but also the clogging of bail applications before various Courts as they may not even be required for the offences up to seven years.

## Indian Antarctic Bill

### Context:

- Recently, Lok Sabha passed the Indian Antarctic Bill, 2022 amid clamour from the Opposition to have more discussion.
- **Relevance:** GS II- Government policies and Interventions

### Dimensions of the Article:

- 1. What is the Antarctica Bill?
- 2. What is the Antarctica Treaty?
- 3. What are the main provisions of the Bill?
- 4. What are the prohibitions?
- 5. What is the penalty system that has been introduced?

### What is the Antarctica Bill?

- The draft bill is the first domestic legislation with regard to Antarctica in India.
- Twenty-seven countries including Argentina, Australia, Belarus, Belgium, Canada, Chile, Columbia, Finland, France, Germany, Italy, Japan, Republic of Korea, the Netherlands, New Zealand, Norway, Peru, Russian Federation, South Africa, Spain, Sweden, Turkey, Ukraine, United Kingdom, United States of America, Uruguay and Venezuela already have domestic legislations on Antarctica. Many others, such as India, are now following suit.
- While India has been sending expeditions to Antarctica for the past 40 years, these expeditions have been circumscribed by international law.
- The Bill now puts into place a comprehensive list of regulations related to Antarctica, for such scientific expeditions, as well as for individuals, companies and tourists.
- The Ministry has explained that it expects activity in Antarctica to increase in the coming years, making the enforcement of a domestic set of protocols essential.
- A domestic legislation will further provide more validity to the Antarctic Treaty, and subsequent protocols, of which India is a signatory.
- The most significant part of the Bill is extending the jurisdiction of Indian courts to Antarctica, for crimes on the continent by Indian citizens, or foreign citizens who are a part of Indian expeditions.
- So far there was no recourse for crimes committed during an expedition, including crimes against the environment.

### What is the Antarctica Treaty?

- The Antarctic Treaty was signed in 1959 by 12 countries — Argentina, Australia, Belgium, Chile, French Republic, Japan, New Zealand, Norway, Union of South Africa, USSR, the UK of Great Britain and Northern Ireland and the US of America, and came into force in 1961.
- The Treaty covers the area south of 60°S latitude.
- Currently, 54 nations are signatories to the Antarctic Treaty, but only 29 nations have a right to vote at the Antarctic Treaty Consultative Meetings –this includes India.
- India signed the Antarctic Treaty in 1983 and received consultative status the same year.
- The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) was set up in 1980 for the protection and preservation of the Antarctic environment and, in particular, for the preservation and conservation of marine living resources in Antarctica.
- The Protocol on Environmental Protection to the Antarctic Treaty was signed in 1991 and came into force in 1998.



- It designates Antarctica as a “natural reserve, devoted to peace and science”.

#### ***Objectives of the treaty:***

- To demilitarize Antarctica and establish it as a zone used for peaceful research activities and to set aside any disputes regarding territorial sovereignty, thereby ensuring international cooperation.
- What are the main provisions of the Bill?

#### ***Extending of jurisdiction of Indian courts:***

- While the most significant provision of the Bill remains the extending of jurisdiction of Indian courts to Antarctica, and the investigation and trial for crimes committed on the Arctic continent, the Bill is a comprehensive document of regulations, particularly keeping in mind environmental protection and the fragile nature of the region.

#### ***Permit system:***

- The Bill introduces an elaborate permit system for any expedition or individual who wishes to visit the continent.
- These permits will be issued by a Committee that will be set up by the government.
- The Committee will comprise of the Secretary Earth Sciences ministry and will also have officials from Defence, Ministry of External Affairs, Finance, Fisheries, Legal Affairs, Science and Technology, Shipping, Tourism, Environment, Communication and Space ministries along with a member from the National Centre for Polar and Ocean Research and National Security Council Secretariat and experts on Antarctica.
- The permits can be cancelled by the Committee if deficiencies are found or activities in contravention of the law are detected.

#### ***Commercial fishing***

- While India does not carry out commercial fishing in the area, since every country has an allotted quota, the Bill now provides for this activity.
- However, strict guidelines are in place in accordance with international law.

#### ***Tourism activity***

- Like fishing, while India does not carry out any tourism activity in the region, and very few Indian tourists visit Antarctica, when they do, they do so through foreign tour operators.
- Antarctica receives a number of tourists from foreign countries.
- The Bill now enables Indian tour operators to operate in Antarctica, although, like for commercial fishing, this is circumscribed by strict regulations.
- The Bill further enlists elaborate standards for environmental protection as well as waste management.

#### ***What are the prohibitions?***

- The Bill prohibits drilling, dredging, excavation or collection of mineral resources or even doing anything to identify where such mineral deposits occur — the only exception is for scientific research with a granted permit.
- Damaging of native plants, flying or landing helicopters or operating vessels that could disturb birds and seals, using firearms that could disturb the birds and animals, remove soil or any biological material native to Antarctica, engage in any activity that could adversely change the habitat of birds and animals, kill, injure or capture any bird or animal have been strictly prohibited.
- The introduction of animals, birds, plants or microscopic organisms that are not native to Antarctica are also prohibited. Extraction of species for scientific research needs to be done through a permit. The central government can also appoint an officer to carry out inspections.

*What is the penalty system that has been introduced?*

- The draft Bill proposes the setting up of a separate designated court to try crimes committed in Antarctica.
- The Bill further sets high penal provisions — the lowest penalty comprising an imprisonment between one-two years and a penalty of Rs 10-50 lakh.
- Extraction of any species native to Antarctica, or introduction of an exotic species to the continent can draw imprisonment of seven years and a fine of Rs 50 lakh.
- For dumping of nuclear waste or a nuclear explosion, the imprisonment can range between 20 years to life imprisonment with a fine of Rs 50 crore.

## SOCIAL JUSTICE AND GOVERNANCE

### Minority status of religious, linguistic communities is State-dependent

*Context*

- The Supreme Court stated that it is a settled position that a community's religious and linguistic minority status is to be determined state-by-state based on state population.

**Relevance: GS Paper 2:** Structure, organisation and functioning of the Executive and the Judiciary, Welfare schemes for vulnerable sections of the population by the Centre and the States and the performance of these schemes; mechanisms, laws, institutions and Bodies constituted for the protection and betterment of these vulnerable sections.

- **Mains Question**

- Discuss the role and function of India's National Commission for Minorities. Do you believe it requires more authority to ensure social justice for Indian minorities? (250 Words)

*Background*

- The Supreme Court made those remarks while hearing a petition filed by a Mathura resident, Devkinandan Thakur. The petitioner questioned the legality of legislation that limits minority benefits to only six communities across the country.
- He had challenged the provisions of the 1992 National Commission for Minorities Act and the 2004 National Commission for Minorities Educational Institutions Act.
- According to the petition, these laws limited minorities' rights, including the ability to establish and administer institutions, to six notified communities: Christian, Muslim, Sikh, Buddhist, Parsi, and Jain.
- He complained that adherents of Judaism, Bahaism, and Hinduism were unable to establish and manage educational institutions of their choice.
- In Ladakh, Mizoram, Lakshadweep, Kashmir, Nagaland, Meghalaya, Arunachal Pradesh, Punjab, and Manipur, these are the true minorities.
- This is due to a lack of minority identification at the state level, putting their basic rights guaranteed under Articles 29 and 30 at risk.

*India's Minorities*

- Although the term "minorities" appears in several articles of the Constitution, it is not defined anywhere.
- In India, the central government decides who is eligible for minority community status. It is done in accordance with the National Commission for Minorities Act of 1992.
- Only residents of the communities listed in Section 2(c) of the 1992 law are considered minority citizens.
- However, this arrangement may soon change.

- The central government informed the Supreme Court in March 2022 that states could decide the minority status of eligible communities within their territorial jurisdiction.
- This was in response to a public interest litigation (PIL) filed by Ashwini Upadhyay, who claimed that those from majority communities are treated as minority citizens in some states and thus receive undue benefits.
- Currently, the Centre has designated five groups as 'minority' communities under this law: Muslims, Christians, Sikhs, Buddhists, Parsis, and Jains.
- In January 2014, Jains were added to the list.
- The central government's decision to notify only six communities of their minority status at the national level has caused complications.
- Most states do not have separate lists of minority communities.
- There are, however, exceptions. For example, the state of Maharashtra has designated Jews as a minority community.

#### ***Minority rights are addressed in constitutional provisions.***

- The topic of minority community identification is on the Concurrent List.
- Article 29 addresses the protection of minorities' interests.
- Any section of citizens residing in India's territory or any part of it with a distinct language, script, or culture has the right to preserve it.
- No citizen shall be denied admission to any educational institution maintained by the State or receive aid from State funds solely on the basis of religion, race, caste, language, or any combination of these factors.
- Article 30 addresses minorities' right to establish and manage educational institutions.
- It states that all religious and linguistic minorities have the right to establish and administer educational institutions of their choice.
- According to Article 350(B), the President shall appoint a Special Officer for linguistic minorities.

#### ***Various Supreme Court decisions involving minorities***

- ***TMA PAI:***
- In 'TMA Pai,' an 11-judge bench of the Supreme Court addressed the scope of minorities' constitutional right to establish and administer educational institutions of their choice.

#### ***The court determined:***

- The State is to be regarded as the unit for determining both linguistic and religious minorities.
- The question of whether a religious sector denomination can claim minority status despite the fact that followers of that religion are in the majority remains unanswered.

#### ***CASE OF INAMDAR:***

- ***The 7-judge panel ruled:***
- The demography of the state will determine whether a minority is linguistic or religious.
- Minority institutions are classified into three types:
  - Those who do not seek assistance or recognition
  - Those in need of assistance, and
  - Those who seek only recognition and no assistance.

#### ***PATIL BAL:***

- In its 2005 decision in 'Bal Patil,' the Supreme Court referred to the TMA Pai ruling, saying:
- The state would be the unit for determining the status of both linguistic and religious minorities.

- The Supreme Court stated that the minority status of religious and linguistic communities is "state-dependent."

#### ***SC's main observations***

- Minority status is determined by the state.
- Every Indian can be a minority in one or more states. Religious and linguistic communities' minority status is determined by the state.
- Minorities have an inherent right to assert rights guaranteed by the Constitution.
- Under Articles 29 and 30, a religious or linguistic community that is a minority in a particular State can inherently claim protection and the right to administer and run its own educational institutions.
- It is a travesty of justice for a majority to be granted minority status in a state.
- Granting minority status to a Sikh institution in Punjab is a travesty of justice.
- Christians in Nagaland and Mizoram cannot be considered a minority in those states.
- The court emphasised that the process of determining minority status must be decided on a state-by-state basis, rather than nationally.

### **Minimum Support Price**

- The Centre has finally constituted a committee headed by former Union Agriculture Secretary Sanjay Agrawal here to look into the issues of Minimum Support Price (MSP), as promised to protestant farmers after the repeal of three farm laws.

#### ***Relevance:***

- GS-III: Agriculture (Agriculture Pricing), GS-II: Social Justice (Welfare Schemes)

#### ***Dimensions of the Article:***

- 1. What is Minimum Support Price (MSP)?
- 2. Why is there a need for MSP?
- 3. What are the issues related to MSP?

#### ***Terms of reference of constituted panel:***

- The panel will consist of representatives of the Central and State governments, farmers, agricultural scientists and agricultural economists.

This panel will be constituted:

- To promote zero budget-based farming,
- To change crop patterns keeping in mind the changing needs of the country
- To make MSP more effective and transparent
- It also says that the committee will discuss methods to strengthen the Agricultural Marketing System as per the changing requirements of the country
- It would ensure higher value to the farmers through remunerative prices of their produce by taking advantage of the domestic output and export.
- On natural farming, the committee will make suggestions for programs and schemes for value chain development, protocol validation, and research for future needs.
- It would support area expansion under the Indian Natural Farming System through publicity and through the involvement and contribution of farmer organizations.

#### ***What is Minimum Support Price (MSP)?***

- Minimum Support Price is the price at which government purchases crops from the farmers, whatever may be the price for the crops.



- MSPs have no statutory backing — a farmer cannot demand MSP as a matter of right.
- Commission for Agricultural Costs & Prices (CACP) in the Ministry of Agriculture recommends MSPs for 23 crops.
- CACP consider various factors while recommending the MSP for a commodity like cost of cultivation, supply and demand situation for the commodity; market price trends (domestic and global) and parity vis-à-vis other crops etc.

MSP seeks to:

- **Assured Value:** To give guaranteed prices and assured market to the farmers and save them from the price fluctuations (National or International).
- **Improving Productivity:** By encouraging higher investment and adoption of modern technologies in agricultural activities.
- **Consumer Interest:** To safeguard the interests of consumers by making available supplies at reasonable prices.

*While recommending MSPs, the CACP looks at the following factors:*

- the demand and supply of a commodity;
- its cost of production;
- the market price trends (both domestic and international);
- inter-crop price parity;
- the terms of trade between agriculture and non-agriculture (that is, the ratio of prices of farm inputs and farm outputs);
- a minimum of 50 per cent as the margin over the cost of production; and
- the likely implications of an MSP on consumers of that product.

*Crops covered*

*Crops covered by MSPs include:*

- 7 types of cereals (paddy, wheat, maize, bajra, jowar, ragi and barley),
- 5 types of pulses (chana, arhar/tur, urad, moong and masur),
- 7 oilseeds (rapeseed-mustard, groundnut, soyabean, sunflower, sesamum, safflower, nigerseed),
- 4 commercial crops (cotton, sugarcane, copra, raw jute)

*Why is there a need for MSP?*

- The MSP is a minimum price guarantee that acts as a safety net or insurance for farmers when they sell particular crops.
- The guaranteed price and assured market are expected to encourage higher investment and in adoption of modern technologies in agricultural activities.
- With globalization resulting in freer trade in agricultural commodities, it is very important to protect farmers from the unwarranted fluctuation in prices.

*What are the issues related to MSP?*

- Low accessibility and awareness of the MSP regime: A survey highlighted that, 81% of the cultivators were aware of MSP fixed by the Government for different crops and out of them only 10% knew about MSP before the sowing season.
- Arrears in payments: More than 50% of the farmers receive their payments of MSP after one week.
- Poor marketing arrangements: Almost 67% of the farmers sell their produce at MSP rate through their own arrangement and 21% through brokers.
- According to NITI Aayog report on MSP, 21% of the farmers of the sample States expressed their satisfaction about MSP declared by the Government whereas 79% expressed their dissatisfaction due to

various reasons. Although, majority of the farmers of the sample States were dissatisfied on MSP rates, still 94% of them desired that the MSP rates should be continued.

## NAMASTE scheme

**Focus:** GS II- Government policies and Interventions

**Why in News?**

- The Government has formulated a National Action Plan for Mechanized Sanitation Ecosystem- NAMASTE scheme for cleaning of sewers and septic tank.

### NAMASTE Scheme

- The scheme is a joint venture of Department of Drinking Water and Sanitation, Ministry of Social Justice and Empowerment and the Ministry of Housing and Urban Affairs.
- It aims to achieve outcomes like:
  - Zero fatalities in sanitation work in India
  - No sanitation workers come in direct contact with human faecal matter
  - All Sewer and Septic tank sanitation workers have access to alternative livelihoods
- The Ministry has shortlisted type of machineries and core equipments required for maintenance works, safety gear for Safai Mitras.

## Juvenile Justice Board

**Context:**

- Recently, The Supreme Court asked the central government, the National Commission for Protection of Child Rights (NCPCR) and the State Commission for Protection of Child Rights (SCPCR) to consider issuing guidelines or directions to assist and facilitate the Juvenile Justice Boards (JJBs) in making the preliminary assessment for determining whether a child of 16 years of age and above can be tried as an adult for a heinous offence.

**Relevance:**

- GS-II: Social Justice and Governance (Issues Related to Children, Governance and Government Policies, Issues Arising Out of Design & Implementation of Policies)

**Dimensions of the Article:**

- 1. About Juvenile Justice Board
- 2. What does the law say on trying a juvenile as an adult?
- 3. Juvenile Justice (Care and Protection of Children) Act, 2015
- 4. Juvenile Justice (Care and Protection of Children) Amendment Bill, 2021
- 5. What happens when a juvenile is ordered to be treated as an adult?
- 6. What was the case before the Supreme Court?

**About Juvenile Justice Board:**

- Juveniles accused of a crime or detained for a crime are brought before the Juvenile Justice Board (JJB) under the Juvenile Justice (Care and Protection of Children) Act 2000 (amended in 2006).
- The aim of JJB is to hold a child culpable for their criminal activity, not through punishment, but counselling the child to understand their actions and persuade them away from criminal activities in the future.

**Structure:**

- The JJB consists of judicial magistrate of the first class and two social workers, at least one of whom should be a woman.
- JJB are meant to resolve cases within a four month period.
- Most circumstances the juvenile can be released on bail by the JJB.
- The JJB is a child-friendly space that should not be intimidating or overwhelming for the child.

***What does the law say on trying a juvenile as an adult?***

- According to Section 15 of The Juvenile Justice (Care and Protection of Children) Act (JJ Act), where a child of 16 years of age or above has committed a heinous offence — a crime for which the minimum punishment is seven years imprisonment — the JJB is required to “conduct a preliminary assessment with regard to his mental and physical capacity to commit such offence, ability to understand the consequences of the offence and the circumstances in which he allegedly committed the offence” before taking a decision whether the child needs to be tried as an adult.
- The assessment is required to be done within three months from the date of first production of the child before the JJB.
- The apex court also said that when the JJB does not comprise a practising professional with a degree in child psychology or child psychiatry, it would have to mandatorily seek the assistance of experts.

***Juvenile Justice (Care and Protection of Children) Act, 2015***

- The Juvenile Justice (Care and Protection of Children) Act, 2015 replaced the Juvenile Justice (Care and Protection of Children) Act, 2000 to comprehensively address children in conflict with law and children in need of care and protection.
- The Act changes the nomenclature from ‘juvenile’ to ‘child’ or ‘child in conflict with law’.
- Also, it removes the negative connotation associated with the word “juvenile”.
- It also includes several new and clear definitions such as orphaned, abandoned and surrendered children; and petty, serious and heinous offences committed by children.
- The 2015 law also included special provisions to tackle child offenders committing heinous offences in the age group of 16-18 years.
- It mandates setting up Juvenile Justice Boards and Child Welfare Committees in every district. Both must have at least one-woman member each.
- A separate new chapter on Adoption to streamline adoption procedures for an orphan, abandoned and surrendered children,
- Also, the Central Adoption Resource Authority (CARA) was granted the status of a statutory body to enable it to perform its function more effectively.
- All Child Care Institutions, whether run by State Government or by voluntary or non-governmental organisations are to be mandatorily registered under the Act within 6 months from the date of commencement of the Act.

***Juvenile Justice (Care and Protection of Children) Amendment Bill, 2021***

- Now, “Serious offences” will also include offences for which maximum punishment is imprisonment of more than seven years, and minimum punishment is not prescribed or is of less than seven years. [Serious offences are those for which the punishment under the Indian Penal Code or any other law for the time being is imprisonment between three and seven years.]
- The Juvenile Justice Board inquiries about a child who is accused of a serious offence.
- The Bill amends the present act to provide that an offence which is punishable with imprisonment between three to seven years to be non-cognizable (noncognizable where arrest is allowed without warrant).
- Presently, the adoption order issued by the court establishes that the child belongs to the adoptive parents. The Bill provides that instead of the court, the District Magistrate (including Additional District Magistrate) will issue such adoption orders.

- The Bill provides that any person aggrieved by an adoption order passed by the District Magistrate may file an appeal before the Divisional Commissioner, within 30 days from the date of passage of such order.

### ***Changes to the Child Welfare Committee (CWC)***

- The amendment provides Additional Functions of the District Magistrate as the supervising the District Child Protection Unit, and also mandates the District Magistrate to conduct a quarterly review of the functioning of the Child Welfare Committee.
- The amendments include authorizing District Magistrate including Additional District Magistrate to issue adoption orders under Section 61 of the JJ Act, in order to ensure speedy disposal of cases and enhance accountability. It provides that a person will not eligible to be a member of the CWC if he/she:
  - has any record of violation of human rights or child rights,
  - has been convicted of an offence involving moral turpitude,
  - has been removed or dismissed from service of the central government, or any state government, or a government undertaking,
  - is part of the management of a child care institution in a district.

### ***What happens when a juvenile is ordered to be treated as an adult?***

- The case is transferred before the children's court.
- As per Section 19 of the amended Act, the court can pass a decision on whether there is a need for trial of the child as an adult, or otherwise.
- A children's court has to ensure that the child in conflict with the law is sent to a "place of safety" until he reaches the age of 21 years, and is only then transferred to jail.
- The court can also order the conditional release of the child after he attains the age of 21 years.
- Two important protections — protection from disqualification, and erasure of conviction record after a reasonable period — do not extend to a child who has been tried as an adult.
- If the child is tried as an adult, the sentence can go up to life imprisonment, but if the child is tried by the board as a juvenile, the maximum sentence can only be three years in a special home.

### ***What was the case before the Supreme Court?***

- In September 2017, a Class 2 student of a prominent school in Gurgaon was found murdered inside the school washroom.
- Haryana Police arrested a conductor of a school bus for the murder and claimed that he had confessed to the crime. However, the CBI, which took over the investigation, arrested a student of Class 11 at the school for the murder.
- In December 2017, the JJB decided to treat the accused as an adult. In October 2018, the Punjab and Haryana High Court directed the JJB to make a fresh assessment of whether the accused should be treated as an adult or a juvenile.
- Both the victim's father and the CBI challenged the High Court's decision before the Supreme Court.
- In November 2018, the apex court ordered a status quo in the case. The petitions were dismissed on July 13 2022. The accused has remained in an observation home since his arrest by the CBI.
- In absence of any guidelines on making the assessment, how does the JJB take a call on whether to try the child as an adult?
- The Supreme Court said that while considering a child as an adult, one should look at his or her physical maturity, cognitive abilities, and social and emotional competencies.
- It rejected the view that if the child has the mental capacity to commit the offence, then he automatically has the capacity to understand the consequences of the offence as well.
- The "consequences" mentioned in Section 15 of the Act would not just be confined to the immediate consequence, "but it would also take within its ambit the consequences which may fall upon not only



the victim as a result of the assault, but also on the family of the victim, on the child, his family, and that too not only immediate consequences but also the far reaching consequences in future”, the court said.

- The court also said that children may be geared towards instant gratification, and may not be able to understand the long-term consequences of their actions.
- “They are also more likely to be influenced by emotion rather than reason,” it said.

## Centre's Push for Labour Codes

### *Context:*

- With the rollout of the labour codes getting delayed due to the pandemic, renewed deliberations are underway at the highest levels of government on a fresh implementation schedule, amid divergent views on whether to push through all four codes simultaneously or opt for the more practical option of staggering them.

### *Relevance:*

- GS-II: Social Justice and Governance (Government Interventions and Policies, Issues arising out of the design and implementation of Government Policies), GS-III: Indian Economy (Human Resource)

### *Dimensions of the Article:*

- 1. Labour Codes
- 2. Code on Wages Act, 2019
- 3. Industrial Relations Code Bill 2020
- 4. Occupational Safety, Health and Working Conditions Code Bill, 2020
- 5. Code on Social Security Bill, 2020
- 6. Concerns regarding the implementation of the codes (labour law reforms)

### *Labour Codes*

#### It includes 4 versions:

- 1. Code of Wages Act 2019,
- 2. Industrial Relations Code Bill, 2020,
- 3. Social Security Code Bill, 2020,
- 4. Occupational Safety, Health and Working Conditions Code Bill, 2020

### *Code on Wages Act, 2019*

- The new wage code removes the multiplicity of wage definitions, which can significantly reduce litigation as well as compliance cost for employers.
- It links minimum wage across the country to the skills of the employee and the place of employment.
- It seeks to universalise the provisions of minimum wages and their timely payment to all employees irrespective of the sector and wage ceiling.
- It seeks to ensure Right to Sustenance for every and intends to increase the legislative protection of minimum wage.
- A National Floor Level Minimum Wage will be set by the Centre and will be revised every five years, while states will fix minimum wages for their regions, which cannot be lower than the floor wage.

It subsumes the following four labour laws:

- Payment of Wages Act, 1936
- Minimum Wages Act, 1948
- Payment of Bonus Act, 1965
- Equal Remuneration Act, 1976

***Industrial Relations Code Bill 2020***

- The code, among its important provisions, makes it easier for companies to hire and fire workers.
- Companies employing upto 300 workers will not be required to frame rules of conduct for workmen employed in industrial establishments. Presently, it is compulsory for firms employing upto 100 workers.
- It proposes that workers in factories will have to give a notice at least 14 days in advance to employers if they want to go on strike.
- Presently, only workers in public utility services are required to give notices to hold strikes.
- Besides, every industrial establishment employing 20 or more workers will have one or more Grievance Redressal Committees for resolution of disputes arising out of employees' grievances.
- The code also proposes setting up of a reskilling fund to help skill retrenched workers.

***Occupational Safety, Health and Working Conditions Code Bill, 2020***

- It spells out duties of employers and employees, and envisages safety standards for different sectors, focusing on the health and working condition of workers, hours of work, leaves, etc.
- The code also recognises the right of contractual workers.
- The code provides employers the flexibility to employ workers on a fixed-term basis, on the basis of requirement and without restriction in any sector.
- More importantly, it also provides for statutory benefits like social security and wages to fixed-term employees at par with their permanent counterparts.
- It also mandates that no worker will be allowed to work in any establishment for more than 8 hours a day or more than 6 days in a week.
- In case of an overtime, an employee should be paid twice the rate of his/her wage. It will be applicable to even small establishments, which have upto 10 workers.
- The code also brings in gender equality and empowers the women workforce. Women will be entitled to be employed in all establishments for all types of work and, with consent can work before 6 am and beyond 7 pm subject to such conditions relating to safety, holidays and working hours.
- For the first time, the labour code also recognises the rights of transgenders. It makes it mandatory for industrial establishments to provide washrooms, bathing places and locker rooms for male, female and transgender employees.

***Code on Social Security Bill, 2020***

- This will replace nine social security laws, including Maternity Benefit Act, Employees' Provident Fund Act, Employees' Pension Scheme, Employees' Compensation Act, among others.
- The code universalizes social security coverage to those working in the unorganised sector, such as migrant workers, gig workers and platform workers.
- For the first time, provisions of social security will also be extended to agricultural workers also.
- The code also reduces the time limit for receiving gratuity payment from the continuous service of five years to one year for all kinds of employees, including fixed-term employees, contract labour, daily and monthly wage workers.

***Concerns regarding the implementation of the codes (labour law reforms)***

- The Government announced its intentions of implementing the Codes from April 2021 even as **State governments were completely unprepared** with the rules.
- Further, the major political parties reallocated their energies to *regional elections* rather than the implementation of codes.
- The central government has deferred the possible date of implementation to October 2021, while the Supreme Court of India has exerted pressure on both the central and the State governments to

implement a 'one nation, one ration card' (ONOR) scheme (which is essential alongside the implementation of the labour law reforms) and register all the unorganised workers under the

- National Database for Unorganized Workers (NDUW), which was to have been done by July 2021. Hence, Government agencies are rushing to comply with both the directives.

## Hepatitis B

- **Context:**
- A series of unexplained cases of Hepatitis B in children has taken over the world. Many countries including the US and UK reported mysterious cases of a few children being diagnosed with Hepatitis B.

**Relevance:** GS II- Health

### *Dimensions of the Article:*

- 1. What is Hepatitis B?
- 2. How does hepatitis B virus spread?
- 3. Symptoms of Hepatitis B
- 4. What is adenovirus and how is it leading to Hepatitis B in children?

### ***What is Hepatitis B?***

- Hepatitis B is an infection in the liver which happens because of the Hepatitis B virus or HBV.
- The virus usually spreads through blood, semen or other body fluids.
- It can be prevented or protected against through vaccination.
- When it is acute, the virus lasts a small time and doesn't always necessarily need treatments although it can get serious and lead to life-threatening diseases like organ scarring, liver failure and even cancer.

### ***How does hepatitis B virus spread?***

- The virus is found in the blood or certain body fluids and is spread when blood or body fluid from an infected person enters the body of a person who is not infected. This can occur in a variety of ways including:
- Unprotected sexual contact
- Sharing drugs, needles, or "works" when using drugs
- Poor infection control practices in medical settings
- Sharing of blood sugar (diabetes) testing equipment
- Needle sticks or sharps exposures on the job
- From mother to baby during birth
- Contact with wounds or skin sores
- When an infected person bites another person
- Pre-chewing food for babies
- Sharing personal-care items, such as razors or toothbrushes
- Hepatitis B virus particles can be found on objects, even in the absence of visible blood. The virus can remain infectious and capable of spreading infection for at least seven days outside the human body. Hepatitis B is not spread through food or water, sharing eating utensils, hugging, kissing, coughing, and sneezing or by casual contact, such as in an office or factory setting.

### ***Symptoms of Hepatitis B***

- Jaundice
- Fever
- fatigue that lasts for weeks or even months
- Vomiting

- Loss of appetite
- Pain in joints or belly
- There is a fair chance that the symptoms are not visible for one to six months since you catch the virus.

#### ***What is adenovirus and how is it leading to Hepatitis B in children?***

- Adenovirus is a group of viruses that commonly cause cold or flu-like symptoms, fever, sore throat, acute bronchitis, pneumonia, conjunctivitis, acute inflammation of the stomach, diarrhoea, vomiting, nausea and stomach pain.
- Adenovirus is known to spread from one person to another through close contact, coughing, sneezing and even by touching an object containing adenovirus and then further touching the mouth, nose or eyes.
- Type 41 adenovirus is suspected of causing Hepatitis B in children.
- While there are more than 50 types of adenoviruses, it is type 41 that causes diarrhoea, vomiting and fever along with respiratory problems.

## **Anthrax**

#### ***Context:***

- After finding several carcasses of wild boar, Kerala health officials confirmed the presence of anthrax, a serious infectious disease caused by spore-forming bacteria, in Athirappilly of Thrissur district.

#### ***Relevance:***

- GS II-Health

#### ***Dimensions of the Article:***

1. What is Anthrax?
2. How do animals get Anthrax?
3. How do humans get infected?
4. What are the symptoms of Anthrax?
5. How can it be treated?

#### ***What is Anthrax?***

- Anthrax, also known as malignant **pustule or woolsorter's disease**, is a rare but serious disease caused by the rod-shaped bacteria known as *Bacillus anthracis*.
- It occurs naturally in soil and, according to the WHO it is primarily a disease of herbivores, with both domestic and wild animals being affected by it.
- Anthrax is a zoonotic disease, meaning that it is naturally transmissible from animals (usually vertebrates) to humans. People can get the disease through contact with infected animals or animal products that are contaminated with bacteria.
- According to the WHO, Anthrax is generally regarded as non-contagious. There have been instances of person-to-person transmission, however, such instances are extremely rare.
- Anthrax has usually been found in India's southern states and is less frequently found in the northern states. Over the past years, it has been reported in Andhra Pradesh, Jammu and Kashmir, Tamil Nadu, Assam, Orissa and Karnataka.

#### ***How do animals get Anthrax?***

- Domestic and wild animals can get infected when they breathe in or ingest spores in contaminated soil, plants or water.
- Host animals shed the bacteria into the ground, which sporulates when exposed to the air.



- These spores, which can persist in the soil for decades, wait to be taken up by another host, subsequently germinating and multiplying, leading to its spread. Flies also appear to play a significant role in explosive outbreaks of the disease, as per the WHO.
- Herbivorous animals can get the disease through contaminated soil and feed, while omnivorous and carnivorous animals get infected through contaminated meat, bones and other feeds.
- Wild animals get sick through feeding on anthrax-infected carcasses.

#### ***How do humans get infected?***

- Humans almost always contract the disease directly or indirectly from animals or animal products.
- People get infected with anthrax when spores enter the body, through breathing, eating contaminated food or drinking contaminated water, or through cuts or scrapes in the skin.
- The spores then get “activated” and multiply, spreading across the body, producing toxins and causing severe illness, according to the Centres for Disease Control and Prevention (CDC), The US’s national public health agency.
- Humans can acquire the disease by handling carcasses, bones, wool, hides or other products from infected animals.
- People that deal with animals can get cutaneous anthrax when spores from the enter through cuts or scrapes on the skin.
- They can also get inhalation anthrax, by inhaling spores present on the wool, hide or hair of the animal.
- Ingesting raw or undercooked meat from infected animals can get people sick with gastrointestinal anthrax.
- People that are most at risk of contracting the disease are people that work with animals, such as farmers, veterinarians, livestock handlers, wool sorters and laboratory professionals.

#### ***What are the symptoms of Anthrax?***

- In livestock species, like cattle, sheep or goats, the first sign is usually the sudden death of one or two animals within the herd.
- Prior to their death, they might show signs of high fever.
- In wildlife, sudden death is also a usual indicator, often accompanied by bloody discharge from natural orifices (mouth, nose, ear, anus), bloating, incomplete rigour mortis and the absence of clotting of the blood, according to WHO.
- In humans, cutaneous anthrax symptoms can include groups of small blisters that may itch, painless skin sores with a black centre, with the possibility of swelling around them. This is the most common route of the disease and is seldom fatal.
- Inhalation anthrax includes fever and chills, shortness of breath, coughing and nausea to name a few.
- It’s the most deadly form of the disease and can lead to death within 2-3 days.
- Gastrointestinal anthrax symptoms can include nausea and vomiting (with blood), swelling of the neck, stomach pain and diarrhoea.

#### ***How can it be treated?***

- Antibiotic therapy that is administered early in the course of the infection has been proven to be responsive, according to the WHO.
- Penicillin has long been the antibiotic of choice and in recent years, ciprofloxacin and doxycycline have also been used as alternatives.
- One way to prevent the disease is by vaccination of livestock so that the disease cannot spread.
- There are also vaccines for humans, but their availability is usually restricted to at-risk individuals, such as lab workers and people who handle animals.

### **The major omission in the proposed policy on disability**

**Context:**

- The Department of Empowerment of Person with Disabilities (DoEPwD) recently released the draft of the national policy for persons with disabilities ("Policy").

**Relevance:**

- GS Paper 2: Welfare schemes for vulnerable sections of the population by the Centre and the States and the performance of these schemes; mechanisms, laws, institutions and Bodies constituted for the protection and betterment of these vulnerable sections.

**Mains Question**

- What are the various challenges that people with disabilities face in India? Highlight the government's efforts to improve the lives of people with disabilities. (250 words)

**The Policy and the necessity:**

- The need for a new policy to replace the 2006 policy was felt due to a number of factors, including India's signing of the United Nations Convention on the Rights of Persons with Disabilities; enactment of new disability legislation (Rights of Persons with Disabilities Act 2016), which increased the number of disabilities from seven to 21; and membership in the Incheon Strategy for Asian and Pacific
- Decade of Persons with Disabilities, 2013-2022 ("Inch").
- The most recent was prepared under the auspices of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), and it identifies ten goals for Asia-Pacific countries to ensure the inclusion and empowerment of people with disabilities, as well as compliance with the Sustainable Development Goals 2030.

**Highlights of the Draft Policy**

- **Shift away from traditional causes of disability:** Disability prevention programmes primarily focus on 'traditional causes of disability,' such as polio, iodine deficiency, leprosy, fluorosis, deafness, and blindness, while other causes, such as medical negligence, malnourishment, socio-cultural factors, impairments caused by disasters, malnourishment, and so on, are largely ignored
- Thus, the draught policy calls for a comprehensive national programme on disability prevention, including medical conditions that have the potential to manifest as any type of disability.
- **New framework:** A roadmap for the development of Cross Disability Early Intervention Centres (CDEICs) in each district has been provided, with access to the Unique Disability ID portal for assisting PwDs with disability assessment and certification within 30 days of application receipt.
- **Reservations in education:** According to the draught policy, every government/government-aided higher educational institution should ensure the implementation of 5% reservations for PwDs. It has also been suggested that a disability-specific course curriculum and evaluation system be developed.
- **Job creation:** A PwD employment portal will be created with information such as skill training in various locations, vacancies, job nature, eligibility, recruitment, and so on.
- **Sports curriculum:** Given India's performance in the Paralympics and Special Olympics, the policy calls for the establishment of dedicated sports centres in each zone with cutting-edge facilities.
- **Cultural enrichment:** The Department of Culture should devise a programme to promote fine and performing arts among people with disabilities.
- **Improved accessibility:** Access to cinemas, shopping malls, theatres, parks, museums, and tourist attractions, among other things, must be ensured.
- **Recognition on national holidays:** A tableau for Republic Day highlighting the Department of Empowerment of People with Disabilities' initiative to empower Divyangjan has been proposed.
- **Universal design as a guiding principle:** New government buildings should adhere to disabled accessibility standards during the planning stage, and guidelines for making modifications in personal vehicles used by PwDs are suggested.

- **Self-sufficiency:** While the policy emphasises research, it also calls for the promotion of Atmanirbhar Bharat in the Disability Sector for the manufacture of assistive devices.

### *Policy flaws in the Draft*

- **Election commission mandate:** Section 11 of the Rights of Persons with Disabilities Act states that the Election Commission of India and the State Election Commissions are responsible for ensuring that all polling stations are accessible to persons with disabilities and that all materials related to the electoral process are easily understandable and accessible to them.
- **No political empowerment:** A notable omission is the lack of any commitment to the political uplift of people with disabilities.
- The National Platform for the Rights of the Disabled (NPRD) expressed concern that the allocation for PwDs was only 0.0039 percent of GDP, and no measures to improve this were mentioned.

### *The significance of disabled political representation*

- **Advance specific interests:** Representation is critical in furthering the interests of the marginalised community, as evidenced by reservations in the legislature for Scheduled Castes/Scheduled Tribes. Disabled people, on the other hand, are underrepresented at all three levels of government.
- **Statistics:** According to the 2011 Census, there are 68 crore persons with disabilities (PwD) in India, accounting for 2.2 percent of the total population.
- **Increase in number:** With the passage of the Rights of Persons with Disabilities Act of 2016, the government has added more types of disabilities, bringing the total number of types from seven to twenty-one.

### *The need for a new policy*

- **Lack of favourable policy:** India has no policy commitment aimed at increasing the political participation of disabled people.
- **New obligations:** The need for a new policy to replace the 2006 policy was felt due to a number of factors, including the following:
- **UN Convention:** India signed the United Nations Convention on the Rights of Persons with Disabilities, which requires states to ensure that disabled people participate in political and public life on an equal footing with others, either directly or through freely chosen representatives.
- **New legislation:** Adoption of a new disability legislation (Rights of Persons with Disabilities Act 2016) that embodies an anti-discrimination commitment and recognises the political domain in which disabled people should be able to exercise their human rights and fundamental freedoms.
- **Incheon pledge:** Joining the Incheon Strategy for the Asian and Pacific Decade of Persons with Disabilities, 2013-2022.
- **About the Incheon Strategy:** It was created under the auspices of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP), and it identifies ten goals for Asia-Pacific countries to ensure the inclusion and empowerment of people with disabilities, as well as compliance with the SDGs 2030.
- The Incheon objectives also encourage participation in political processes and decision making.
- **Discourse shift:** These commitments have shifted the focus of disability discourse from the individual to society, i.e., from a medical model of disability to a social or human rights model of disability.

### *Exclusion of disabled people from political space demonstrated*

- **Inaccessibility of the voting process:** a lack of accessible polling booths, a lack of widespread adaptation of braille electronic voting machines, and a lack of wheelchair services at all polling locations.
- **No voter base:** Political parties in India still do not see the disabled as a large enough electorate to address their specific needs. Furthermore, the lack of accessible space for PwD in party meetings,

inaccessible transportation for campaigning, attitudinal barriers among voters and party leaders, and exclusion from party manifestos all contribute to their alienation.

- **Inadequate data:** The lack of live aggregate data on the exact number of disabled people in each constituency only adds to their marginalisation.
- **No separate database:** According to the Ministry of Parliamentary Affairs, the government does not keep data on the disability status of its members.
- **No acknowledgement:** India has failed to recognise disabled political figures who have overcome numerous barriers in India's political space. Sadhan Gupta, the first visually impaired Member of Parliament in independent India, for example, receives little attention in our political or disability discourse.

### *Successful Initiatives to enhance political participation of PwDs*

- Chhattisgarh initiated the nomination of at least one disabled person in each panchayat. If a disabled person is not elected, they are nominated as a panchayat member in accordance with changes in the law. This is a step that has increased the participation of the disabled in local politics.

### *Conclusion*

- The document emphasises the importance of central and state governments working together with other stakeholders to "make the right real." This right can only be realised if it includes political rights and political participation. This is only consistent with the universal principle of disability, namely, "Nothing about us. Without us."

### *Way Forward*

- The policy document's goal of inclusiveness and empowerment cannot be realised without political inclusion. As a result, the draught policy can take the following four steps:
- **Facilitation:** Increasing the capacity and empowering members of disabled people's organisations through training in the electoral system, government structure, and basic organisational and advocacy skills.
- **Relaxing norms:** Creating, amending, or removing legal and regulatory frameworks by legislators and election bodies to encourage disabled political participation.
- **Include Civil Society:** Involve civil society in domestic election observation or voter education campaigns.
- **Model blueprint:** A framework for political parties to use when developing election campaign strategies and policy positions to reach out to people with disabilities.

## **Pradhan Mantri Fasal Bima Yojana (PMFBY)**

- **Focus:** GS II- Welfare Schemes

### *Why in News?*

- The Andhra Pradesh government has decided to rejoin the ambitious Pradhan Mantri Fasal Bima Yojana (PMFBY)

### *About Pradhan Mantri Fasal Bima Yojana (PMFBY)*

- The Pradhan Mantri Fasal Bima Yojana (PMFBY) launched on 2016 by Prime Minister Narendra Modi is an insurance service for farmers for their yields.
- PMFBY is in line with One Nation – One Scheme theme.
- The PMFBY will replace the existing two schemes National Agricultural Insurance Scheme as well as the Modified NAIS.



- The Scheme shall be implemented through a multi-agency framework by selected insurance companies under the overall guidance & control of the Department of Agriculture, Cooperation & Farmers Welfare (DAC&FW), Ministry of Agriculture & Farmers Welfare (MoA&FW), Government of India (GOI) and the concerned State in co-ordination with various other agencies.
- Premium cost over and above the farmer share is equally subsidized by States and the Central Government of India. However, the Central Government shares 90% of the premium subsidy for North Eastern States to promote the uptake in the region.

### **Objectives**

- To provide insurance coverage and financial support to the farmers in the event of failure of any of the notified crop as a result of natural calamities, pests & diseases.
- To stabilise the income of farmers to ensure their continuance in farming.
- To encourage farmers to adopt innovative and modern agricultural practices.
- To ensure flow of credit to the agriculture sector.
- **Beneficiaries:** All farmers growing notified crops in a notified area during the season who have insurable interest in the crop are eligible.

### **Coverage of Crops:**

- Oil seeds
- Food crop
- Annual Commercial / Annual Horticultural crops.
- In addition, for perennial crops, pilots for coverage can be taken for those perennial horticultural crops for which standard methodology for yield estimation is available.

### **Risks covered under the scheme**

- **Prevented Sowing/Planting/Germination Risk:** Insured area is prevented from sowing/planting/germination due to deficit rainfall or adverse seasonal/weather conditions.
- **Standing Crop (Sowing to Harvesting):** Comprehensive risk insurance is provided to cover yield losses due to non-preventable risks, viz. Drought, Dry spell, Flood, Inundation, widespread Pests and Disease attack, Landslides, Fire due to natural causes, Lightening, Storm, Hailstorm and Cyclone.
- **Post-Harvest Losses:** Coverage is available only up to a maximum period of two weeks from harvesting, for those crops which are required to be dried in cut and spread / small bundled condition in the field after harvesting against specific perils of Hailstorm, Cyclone, Cyclonic rains and Unseasonal rains
- **Localized Calamities:** Loss/damage to notified insured crops resulting from occurrence of identified localized risks of Hailstorm, Landslide, Inundation, Cloud burst and Natural fire due to lightening affecting isolated farms in the notified area.
- **Add-on coverage for crop loss due to attack by wild animals:** The States may consider providing add-on coverage for crop loss due to attack by wild animals wherever the risk is perceived to be substantial and is identifiable.
- **General Exclusions:** Losses arising out of war and nuclear risks, malicious damage and other preventable risks shall be excluded.

## **Mission Vatsalya Scheme**

- **Context:**
- Recently, the central government issued guidelines to states about the Mission Vatsalya child protection scheme

**Relevance:** GS II- Welfare schemes

### **Dimensions of the Article:**

- 1. What are the New Guidelines?
- 2. About Mission Vatsalya Scheme:
- 3. Key objectives of Mission Vatsalya

### *What are the New Guidelines?*

- According to the guidelines, **states cannot change the original name** of the scheme in order to gain access to funding granted by the central government.
- Funds to states will be approved through the **Mission Vatsalya Project Approval Board (PAB)**, which will be chaired by the WCD Secretary, who will scrutinise and approve annual plans and financial proposals received from states and UTs for release of grants.
- It will be implemented as a **Centrally Sponsored Scheme** in partnership with state governments and UT administrations, with a fund-sharing pattern in a **60:40 ratio**.
- However, for the eight states in the **Northeast** — as well as Himachal Pradesh, Uttarakhand and the **UT of Jammu and Kashmir** — the Centre and state/UT's share will be **90:10**
- MVS, in partnership with states and districts, will execute a 24×7 helpline service for children, as defined under Juvenile Justice Act, 2015.
- It will support **State Adoption Resource Agencies (SARA)**, which will further support the Central Adoption Resource Authority (CARA) in promoting incountry adoption and regulating inter-country adoption.
- SARA shall coordinate, monitor and develop the work related to noninstitutional care, including adoption in the state.
- The Mission plans to **establish cradle baby reception centers** in at least one specialized adoption agency in each area for receiving abandoned and trafficked children
- Children in need of care, as well as special needs children, will be placed in distinct homes based on gender (including separate homes for transgender children) and age.
- As they are unable to attend school due to physical or mental disabilities, these institutions will provide special educators, therapists, and nurses to impart occupational therapy, speech therapy, verbal therapy, and other remedial classes.
- Further, **employees in these specialised divisions must be fluent in sign language, Braille, and other related languages.**
- Establishment of **open Shelters by the state government will be supported to care for runaway children, missing children, trafficked children, working children, children in street situations, child beggars, child substance abusers etc.**
- **Financial support** has also been prescribed for vulnerable children living with extended families or in foster care, supporting their education, nutrition, and health needs.

### *About Mission Vatsalya Scheme:*

- **Nodal:** Ministry of Women & Child Development
- It is a Centrally Sponsored Scheme .
- "Mission Vatsalya" erstwhile Child Protection Services (CPS) Scheme, since 2009-10 for the welfare and rehabilitation of children.
- Mission Vatsalya is a roadmap to achieve development and child protection priorities aligned with the Sustainable Development Goals (SDGs).
- It lays emphasis on child rights, advocacy and awareness along with strengthening of the juvenile justice care and protection system with the motto to 'leave no child behind'.
- The Juvenile Justice (Care and Protection of Children) Act, 2015 provisions and the Protection of Children from Sexual Offences Act, 2012 form the basic framework for implementation of the Mission.

### *Vision and Mission of the Scheme:*

#### *Vision:*

- To secure a healthy & happy childhood for each and every child in India, ensure opportunities to enable them to discover their full potential and assist them in flourishing in all respects, in a sustained manner.
- Mission Vatsalya promotes family based non-institutional care of children in difficult circumstances based on the principle of institutionalization of children as a measure of last resort.

***The Mission aims to:***

- Support and sustain Children in difficult circumstances;
- Develop context-based solutions for holistic development of children from varied backgrounds;
- Provide scope for encouraging innovative solutions;
- Cement convergent action.

***Key objectives of Mission Vatsalya***

- **Prioritisation of children** in the scheme of Administration keeping Centrality of the Child during all the activities and actions taken under the Mission.
- **Best interest of the Child while designing or delivering projects** and programmes and to take affirmative action to ensure right to grow in happy family environment with strong social safety net to support families.
- Ensuring **Children's right to Survival, Development, Protection and Participation**.
- To **establish essential services** and strengthen emergency outreach, noninstitutional care within the family and community, and institutional care counselling and support services at the national, regional, state and district levels.
- To **ensure appropriate inter-sector response** at all levels, coordinate and network with all allied systems to promote convergent efforts for seamless service delivery to children.
- To **strengthen child protection at family and community level**, equip families and communities to identify risks and vulnerabilities affecting children, create and promote preventive measures to protect children from situations of vulnerability, risk and abuse.
- **Encourage private sector partnerships** and interventions to support children within the framework of law.
- **Raise public awareness, educate public** about child rights, vulnerabilities and measures for protection sponsored by government and engage community at all levels as stakeholder in ensuring the best interest of children.
- To **build capacities of duty holders & service providers** at all levels.
- **Monitor progress** on objective parameters against well-defined Outputs and Outcomes
- Participation of Panchayats and Municipal Local Bodies at the village level and at the ward and the urban cluster level within the urban municipal ward, for sustained assessment of the issues deserving attention, implementation of appropriate interventions, regular monitoring to develop a robust social safety net for children.

## Marburg virus

***Context***

- The first two cases of the Marburg virus, a highly infectious Ebola-like disease, have been confirmed officially by Ghana after test results were verified by a Senegal laboratory.
- This outbreak is only the second time that the disease has been detected in West Africa.

***Relevance:***

- GS II- Health

***Dimensions of the Article:***

- 1. What is the Marburg virus disease?
- 2. What are the symptoms of Marburg virus disease?
- 3. How can Marburg virus disease be diagnosed and treated?

#### ***What is the Marburg virus disease?***

- Marburg virus disease (MVD), earlier known as Marburg haemorrhagic fever, is a severe, often fatal hemorrhagic fever, according to the WHO.
- Marburg, like Ebola, is a filovirus; and both diseases are clinically similar.
- Rousettus fruit-bats are considered the natural hosts for Marburg virus.
- However, African green monkeys imported from Uganda were the source of the first human infection.
- It was first detected in 1967 after simultaneous outbreaks in Marburg and Frankfurt in Germany; and in Belgrade, Serbia.
- The disease has an average fatality rate of around 50%.
- However, it can be as low as 24% or as high as 88% depending on virus strain and case management, says the WHO.

#### ***What are the symptoms of Marburg virus disease?***

- After the onset of symptoms, which can begin anytime between 2 to 21 days, MVD can manifest itself in the form of high fever, muscle aches and severe headache.
- Around the third day, patients report abdominal pain, vomiting, severe watery diarrhoea and cramping.
- In this phase, the WHO says, the appearance of patients has been often described as “ghost-like” with deep-set eyes, expressionless faces, and extreme lethargy.
- Between days 5 and 7, patients report bleeding from nose, gums and blood appearing in vomits and faeces.
- Severe blood loss leads to death, often between 8 to 9 days after symptoms begin.

#### ***How can Marburg virus disease be diagnosed and treated?***

- It is difficult to clinically distinguish MVD from diseases such as malaria, typhoid fever and other viral haemorrhagic fevers.
- However, it is confirmed by lab testing of samples, which like Coronavirus and Ebola are extreme biohazard risk.
- There is no approved antiviral treatment or vaccine for MVD as of now.
- It can be managed with supportive care.
- According to the WHO, rehydration with oral or intravenous fluids, and treatment of specific symptoms can help prevent death.

## **Kala-Azar**

#### ***Context:***

- Eleven districts of Bengal reported at least 65 cases of black fever or ‘Kala-Azar’ disease in the last couple of weeks, a senior official of the health department said, based on state administered surveillance.

***Relevance:*** GS II- Health, Prelims

#### ***About Kala Azar***

- Kala-azar is a slow progressing indigenous disease caused by a protozoan parasite of genus Leishmania.
- In India Leishmania donovani is the only parasite causing this disease.
- The Kala-azar is endemic to the Indian subcontinent in 119 districts in four countries (Bangladesh, Bhutan, India and Nepal).



- This disease is the second-largest parasitic killer in the world. Elimination is defined as reducing the annual incidence of Kala Azar (KA) to less than 1 case per 10,000 people at the sub-district level.
- It is a neglected tropical disease affecting almost 100 countries.
- Neglected tropical diseases are a diverse group of communicable diseases that prevail in tropical and subtropical conditions in 149 countries.

#### ***There are three types of leishmaniasis***

- ***Visceral leishmaniasis***, which affects multiple organs and is the most serious form of the disease.
- ***Cutaneous leishmaniasis***, which causes skin sores and is the most common form.
- ***Mucocutaneous leishmaniasis***, which causes skin and mucosal lesions.
- The Visceral leishmaniasis, which is commonly known as Kala-azar in India, is fatal in over 95% of the cases, if left untreated.

#### ***Symptoms of Kala azar***

- It is associated with fever, loss of appetite (anorexia), fatigue, enlargement of the liver, spleen and nodes and suppression of the bone marrow.
- It also increases the risk of other secondary infections.

#### ***Diagnosing Kala azar***

- The first oral drug found to be effective for treating kala-azar is miltefosine.
- The most common method of diagnosing kala azar is by dipstick testing.
- However, this method is highly problematic.

#### ***Where has kala-azar been detected in India?***

- In West Bengal, the districts where the maximum number of cases were registered include Darjeeling, Malda, Uttar Dinajpur, Dakshin Dinajpur and Kalimpong.
- The districts of Birbhum, Bankura, Purulia, and Murshidabad have also reported a few cases, while none have been detected in Kolkata yet.
- The disease is endemic in Bihar, Jharkhand, Uttar Pradesh and West Bengal.
- An estimated 165.4 million people are at risk, according to data from the National Centre for Vector Borne Disease Control Programme (NCVBDC).
- In the country as a whole, there has been a significant decline in cases over the years.
- In 2014, around 9,200 cases were reported while in 2021 the number fell to 1,276 cases.

#### ***What does the treatment include?***

- 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.
- 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.
- 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.

## **Scaling up the dietary Interventions**

- ***Context:***

- Priority should be given to preconception nutrition, maternal nutrition, and child feeding practices in the first 1,000 days of life.

**Relevance: GS Paper 2:** Issues relating to development and management of Social Sector/Services relating to Health, Education, Human Resources

***Mains Question:***

- (NFHS)-5 data shows the duality in the Public health infrastructure and policy making. Comment. (250 words)

***Introduction:***

- As India begins its 75th-anniversary celebrations, there is plenty to be proud of; tremendous developments in science, technology, and medicine have added to the country's ancient, traditional, and civilizational knowledge base, wisdom, and wealth.

***The Current Issues in Public health:***

- Even after seven decades of independence, India is still plagued by public health challenges such as child malnutrition (**35.5 per cent stunted, 67.1 per cent anaemic**), which accounts for 68.2 per cent of under-five child mortality.
- Poor nutrition has a negative influence not just on health and survival but also on learning ability and school performance.
- And as an adult, it entails lower earnings and a higher risk of chronic diseases, including diabetes, hypertension, and obesity.

***The Government's Firm Actions:***

- The government intends to right the ship, rebranding the National Nutrition Mission (NNM) as the Prime Minister's Overarching Scheme for Holistic Nutrition, or POSHAN Abhiyaan.
- Its goal is to reduce malnutrition in women, children, and adolescent girls.
- The Ministry of Women and Children (MWCD) remains the nodal Ministry in charge of implementing the NNM, with the goal of aligning multiple ministries to work together on the "window of opportunity" during the first 1,000 days of life (270 days of pregnancy and 730 days; 0-24 months).
- This method, which avoids essentially irreparable stunting by two years of age, is entirely supported by global and Indian evidence.
- POSHAN Abhiyaan (now referred to as POSHAN 2.0) correctly places a special emphasis on selected high-impact essential nutrition interventions, combined with nutrition-sensitive interventions that indirectly impact mother, infant, and young child nutrition, such as improving maternal-child health service coverage, enhancing women empowerment, availability, and access to improved water, sanitation, and hygiene, and enhancing homestead food production for a diverse diet.

***NHFS data: The Takeaways***

- Data from the National Family Health Survey (NFHS)-5 2019-21, compared to NFHS-4 2015-16, show a significant improvement in key proxy measures of women's empowerment over a four to five-year period, for which the government deserves recognition.
- There is a significant increase in antenatal service attendance (58.6 to 70.0 per cent); women having their own savings bank accounts (63.0 to 78.6 per cent); women owning mobile phones that they use (45.9 per cent to 54.0 per cent); women married before the age of 18 (26.8 per cent to 23.3 per cent); women with ten or more years of schooling (35.7 per cent to 41.0 per cent); and access to clean fuel for cooking (43.8 per cent to 68.6 per cent).
- Recent evidence from the Centre for Technology Alternatives for Rural Areas (CTARA), IIT Mumbai team indicates that well-planned breastfeeding counselling is provided to pregnant women during

antenatal checkups prior to delivery, as well as frequent home visits in follow-up, makes a significant difference. A baby's daily weight gain averaged 30 to 35 grammes per day, and the prevalence of underweight was reduced by about two-thirds.

### *The Alarming signs*

- During this time, the country has made little progress in terms of direct nutrition interventions.
- Preconception nutrition, maternal nutrition, and optimal baby and child feeding all need to be addressed more effectively.
- Even in the first six months of life, when exclusive breastfeeding is the only sustenance necessary, India has a 20% to 30% undernutrition rate. Neither maternal nutrition care interventions nor baby and young child feeding behaviours produced the expected results. A policy on maternal nutrition is still pending.
- Despite a policy on infant and young child feeding and a restriction on the sale of commercial milk for newborn feeding, the practice of exclusive breastfeeding has only improved somewhat (EBF).
- Child malnutrition persists in the first three months of life. Raising awareness about EBF, as well as supporting appropriate holding, latching, and manually emptying the breast, are critical for the optimal transfer of breast milk to a baby.
- NFHS-5 also confirms a gap in another nutrition intervention: complementary feeding practices, which include supplementing semi-solid feeding with breast milk from six months on.
- Poor complementary feeding is typically caused by a lack of information about when to begin feeding at six to eight months, what and how to feed suitably family food items, how frequently and in what quantity, and so on.
- The fact that 20% of children in upper socioeconomic groups are stunted also suggests a lack of understanding of food selection and feeding techniques, as well as a child's ability to swallow mashed food.

### *Action Required:*

- Creating awareness about special care in the first 1,000 days at the right moment with the proper tools and procedures merits top consideration.
- We must act immediately and commit financial and energy in a mission mode. Using his 'Mann Ki Baat' initiative, the Prime Minister may give POSHAN 2.0 a huge push, much as he did Swachh Bharat Abhiyaan.
- There is an urgent need to rethink and update the system driving POSHAN 2.0 in order to eliminate any weaknesses in its execution.
- We need to examine whether we are making the best use of the opportunity for service delivery contacts with mother-child in the first 1,000 days. There is a need to revisit the nodal system for a nutrition programme that has been in place since 1975, the Integrated Child Development Scheme (ICDS) under the Ministry of Women and Children, and determine whether it is the best system for reaching mother-child in the first 1000 days of life.
- We are missing out on frequent encounters with expectant mothers and children that the public health sector delivers during antenatal care and child immunisation services by relying on the ICDS.
- There is also a need to investigate whether there is an alternate approach to delivering ICDS-supplied supplementary nutrition as Take-Home Ration packages through Public Distribution (PDS), freeing up Anganwadi workers to provide timely counselling on optimal mother and child feeding habits.

### *National Family Health Survey (NFHS):*

- The NFHS is a multi-round, large-scale survey conducted on a representative sample of households across India.

- The International Institute for Population Sciences (IIPS) in Mumbai has been chosen as the lead institution for providing coordination and technical guidance for the survey by the Ministry of Health and Family Welfare (MoHFW).
- For survey execution, IIPS works with a variety of Field Organizations (FO).
- USAID, the Bill and Melinda Gates Foundation, UNICEF, UNFPA, and MoHFW have provided money for various rounds of NFHS (Government of India).

**Targets:** Each round of the NFHS has had two distinct goals:

- 1) To supply the Ministry of Health and Family Welfare and other agencies with critical data on health and family welfare for policy and programme reasons.
- 2) To disseminate knowledge on critical emerging health and family welfare issues. The survey provides **state and national information** for India on:
  - Fertility
  - Infant and child mortality
  - The practice of family planning
  - Maternal and child health
  - Reproductive health
  - Nutrition
  - Anaemia
  - Utilization and quality of health and family planning services.

#### **Way Forward**

- We must conduct a thorough analysis of the situation and design and test a new system that integrates ICDS and health human resources from the village to the district and state levels.
- Creating an effective accountability system would solve the mismatch that occurs in focusing on the delivery of services in the first 1000 days of life for preventing child undernutrition.
- It is time to think outside the box and overcome structural issues as well as our reliance on the obsolete 1970s system that is slowing down procedures.
- Furthermore, mass media or television shows could organise care discourses in the first 1,000 days to reach moms outside of the public health system.

## INTERNATIONAL RELATIONS

### India's role in UN Peacekeeping Missions

#### **Context:**

- Two BSF personnel who were part of the UN Peacekeeping Mission in the Democratic Republic of the Congo (DRC), were among five people killed during a protest in an eastern town near the border with Uganda on Tuesday (July 26).
- A total 175 Indian peacekeepers have so far died while serving with the United Nations. India has lost more peacekeepers than any other UN Member State.

**Relevance:** GS III: International Relations

#### **Dimensions of the Article:**

- 1. UN Peacekeeping Forces
- 2. India's contribution to UN Peacekeeping
- 3. Role of women in Indian Peacekeeping



- 4. Medical care as part of India's Missions
- 5. India's views on UN Peacekeeping

### ***UN Peacekeeping Forces***

- UN Peacekeeping is a joint effort which deploys troops and police from around the world, integrating them with civilian peacekeepers to address a range of mandates set by the UN Security Council (UNSC) and the General Assembly.
- This joint effort between the Department of Peace Operations and the Department of Operational Support helps countries navigate the difficult path from conflict to peace.
- According to the UN Charter, every Member State is legally obligated to pay their respective share for peacekeeping.
- Since 1948, UN Peacekeepers have undertaken 71 Field Missions.
- There are approximately 81,820 personnel serving on 13 peace operations led by UNDP, in four continents currently.
- This represents a nine-fold increase since 1999.
- A total of 119 countries have contributed military and police personnel to UN peacekeeping.
- Currently, 72,930 of those serving are troops and military observers, and about 8,890 are police personnel.

### ***India's contribution to UN Peacekeeping***

- India has a long history of service in UN Peacekeeping, having contributed more personnel than any other country.
- To date, more than 2,53,000 Indians have served in 49 of the 71 UN Peacekeeping missions established around the world since 1948.
- Currently, there are around 5,500 troops and police from India who have been deployed to UN Peacekeeping missions, the fifth highest amongst troop-contributing countries.
- India has also provided, and continues to provide, eminent Force Commanders for UN Missions.
- ***India is the fifth largest troop contributor (TCC)*** with 5,323 personnel deployed in 8 out of 13 active UN Peacekeeping Missions, of which 166 are police personnel.
- India's contribution to UN Peacekeeping began with its participation in the ***UN operation in Korea in the 1950s***, where India's mediatory role in resolving the stalemate over prisoners of war in Korea led to the signing of the armistice that ended the Korean War. India chaired the five-member Neutral Nations Repatriation Commission, while the Indian Custodian Force supervised the process of interviews and repatriation that followed.
- The UN entrusted the Indian armed forces with subsequent peace missions in the Middle East, Cyprus, and the Congo (since 1971, Zaire).
- India also served as Chair of the three international commissions for supervision and control for Vietnam, Cambodia, and Laos established by the 1954 Geneva Accords on Indochina.

### ***Role of women in Indian Peacekeeping***

- India has been sending women personnel on UN Peacekeeping Missions.
- In 2007, India became the first country to deploy an all-women contingent to a UN Peacekeeping Mission.
- The Formed Police Unit in Liberia provided 24-hour guard duty and conducted night patrols in the capital Monrovia, and helped to build the capacity of the Liberian police.
- These women officers not only played a role in restoring security in the West African nation but also contributed to an increase in the number of women in Liberia's security sector.

### ***Medical care as part of India's Missions***

- In addition to their security role, the members of the Indian Formed Police Unit also organised medical camps for Liberians, many of whom have limited access to health care services.
- Medical care is among the many services Indian Peacekeepers provide to the communities in which they serve on behalf of the Organization. They also perform specialised tasks such as veterinary support and engineering services.
- Indian veterinarians serving with the UN Mission in South Sudan (UNMISS), stepped up to help cattle herders who were losing much of their stock to malnutrition and disease in the war-torn nation.
- The Indian contingent in South Sudan has provided vocational training and lifesaving medical assistance, as well as carrying out significant road repair work.
- In September 2020, based on an urgent request received from the UN Secretariat, India deployed two medical teams of 15 medical personnel each at Goma (DRC) and Juba (South Sudan).
- The Hospital by India in Goma, operational since January 2005, has 90 Indian nationals including 18 specialists.

## What is CAATSA?

### *Context:*

- Recently, US Democratic Representative said the US government must not impose sanctions on India under the Countering America's Adversaries through Sanctions Act (CAATSA) for its purchase of S-400 missile weapons system from Russia.

### *Relevance:*

- GS-II: International Relations (Foreign Policies affecting India's Interests)

### *Dimensions of the Article:*

- 1. What is the CAATSA, and could it apply to India?
- 2. Why has India not faced CAATSA sanctions yet?
- 3. About S-400 Triumph
- 4. About India's acquisition of S-400

### *What is the CAATSA, and could it apply to India?*

- CAATSA is a law that came into effect in the US in 2017, meant to punish countries having deep engagements with Russia, North Korea, and Iran using economic sanctions.
- It said countries having a "significant transaction" with Russian intelligence and military agents will be subject to at least five kinds of sanctions.
- Ordinary transactions will not invite sanctions, and the decision of who has sanctions imposed on them comes down to the interpretation of "significant transaction".
- This is one of the various waivers or exemptions mentioned, such as the transaction not affecting US strategic interests, not endangering the alliances it is a part of, etc.
- Section 231 of the law notifies 39 Russian entities, including all the major defence companies like Rosoboronexport, Sukhoi Aviation, Russian Aircraft Corporation MiG, transactions with whom could invite sanctions.
- Almaz-Antey Air and Space Defence Corporation JSC, who have made the S-400 system, are in this list.
- India has purchased the S-400 Triumph missile systems, which have advanced capabilities to judge the distance from a target and launch a surface-to-air missile attack.
- Five such systems were bought by India in 2018 for US\$ 5.5 billion and in November last year, their delivery began. They were deployed in Punjab.
- However, the application of CAATSA is not limited to the S-400, and may include other joint ventures for manufacturing or developing weapons in the future, or any other kinds of major deals with Russia.

***Why has India not faced CAATSA sanctions yet?***

- The US has never categorically stated whether CAATSA would apply to India.
- In March 2022, it was reported that President Biden was yet to decide on the matter.
- With the ongoing conflict in Ukraine and the US hardening its stance against Russia, India has continued its neutrality and not joined any of the sanctions against Russia imposed by Western countries.
- India has mentioned the need for the S-400 missiles for its border defence several times in the past.

***About S-400 Triumph***

- S-400 Triumph is one of the world's most advanced surface-to-air missile (SAM) systems designed by Russia.
- The system is a large complex of radars, control systems and different types of missiles, with the capability to simultaneously track numerous incoming objects in a radius of a few hundred kilometres.
- It can employ appropriate missile systems to launch the counter attack and to Neutralise the objects with the potential of ensuring a high success rate.
- It is the most dangerous operationally deployed modern long-range SAM (MLR SAM) in the world, considered much ahead of the US-developed Terminal High Altitude Area Defense system (THAAD).

***Issues with Acquisition of S-400***

- The acquisition of S-400 by countries has taken centre stage in the American diplomacy regarding Russia.
- U.S. believes that S-400 could access sensitive U.S. military technologies in service with the potential buyers.
- Russia has also deployed at least two S-400 systems in Syria, which is of much concern to observers who fear the system could contribute to a global conflict breaking out in Syria.
- Among the countries under pressure from the U.S. to not buy this weapon are India and Turkey.
- NATO countries objected strongly to reports of Russia giving its systems to Iran and Syria.

***About India's acquisition of S-400***

- Russia had offered its highly advanced Air Defence System to India, which agreed to purchase five of the S-400 Air Defence Systems.
- Before India, Russia had only sold this system to China even though Iran, Saudi Arabia, Qatar and Belarus were eyeing it as well.
- This is the first time that Russia is providing a different system to India, a departure from its tradition of supplying only attacking weapons.
- India needs high end weapons for very valid reasons. It is the only country in the world that is flanked by two nuclear armed neighbours– Pakistan and China and has fought wars with both of these countries.
- India maintains close military relations with both United States and Russia.
- But over the years, Russia has been the largest supplier of military weapons to India.
- In 2012-2016, Russia (68%), US (14%) and Israel (7.2%) were the major arms suppliers to India.
- India is the second largest market for Russia's defence industry and Russia is the chief supplier of defence equipment to India.

***About U.S. Objections***

- United States has raised concerns of India purchasing S-400 system on two counts:
- The official count is that US has a legal position where any country that is taking systems or military equipment from their adversaries, the US expects to put sanctions on that country.
- The other count is that US is planning to put F 16 factories in India and sell drones to it.

## The status of China's Belt and Road Initiative in South Asia

### • *Context:*

- At the recently concluded summit of G-7 leaders in Germany, U.S. President Joe Biden and his allies unveiled their \$600 billion plan called the Partnership for Global Infrastructure and Intelligence which is being seen as a counter to China's Belt and Road Initiative (BRI), valued at a trillion U.S. dollars by some experts.

### *Relevance:*

- GS II- International Relations

### *Dimensions of the Article:*

- 1. What is China's Belt and Road Initiative?
- 2. BRI's investments in Pakistan
- 3. What about Sri Lanka?
- 4. Are there projects in Afghanistan?
- 5. How have projects from India and China progressed in Maldives?
- 6. What about Bangladesh?

### *What is China's Belt and Road Initiative?*

- In 2013, Chinese President Xi Jinping, during his visits to Kazakhstan and Indonesia, expressed his vision to build a Silk Road Economic Belt and a 21st Century Maritime Silk Road, to break the "bottleneck" in Asian connectivity.
- This vision led to the birth of the BRI.
- The initiative envisioned a Chinese-led investment of over \$1 trillion in partner countries by 2025.
- More than 60 countries have now joined BRI agreements with China, with infrastructure projects under the initiative being planned or under construction in Asia, Africa, Europe, and Latin America.
- To finance BRI projects, China offers huge loans at commercial interest rates that countries have to pay within a fixed number of years.
- The west has accused China of debt-trapping by extending "predatory loans" that force countries to cede key assets to China.
- However, research indicates that low and middle-income countries are often the ones to approach China after not being able to secure loans from elsewhere.
- In recent years, the BRI seems to have experienced a slowing down as annual Chinese lending to countries under the initiative slimmed from its peak of \$125 billion in 2015 to around \$50 to 55 billion in 2021.

### *BRI's investments in Pakistan*

- On his 2015 visit to Pakistan, Mr. Xi and then Pakistan Prime Minister unveiled the BRI's flagship project and its biggest one in a single country — the China Pakistan Economic Corridor (CPEC).

### *China-Pakistan Economic Corridor (CPEC)*

- China-Pakistan Economic Corridor (CPEC) is a collection of infrastructure projects that are under construction throughout Pakistan since 2013.
- CPEC is intended to rapidly upgrade Pakistan's required infrastructure and strengthen its economy by the construction of modern transportation networks, numerous energy projects, and special economic zones.
- On 13 November 2016, CPEC became partly operational when Chinese cargo was transported overland to Gwadar Port for onward maritime shipment to Africa and West Asia.



- A vast network of highways and railways are to be built under the aegis of CPEC that will span the length and breadth of Pakistan.
- At the centre of the CPEC was the \$700 million development of the city of Gwadar into a smart port city that would become the “Singapore of Pakistan”.
- Gwadar is strategically important as it is an hour’s drive from Iran and less than 320 km from Oman.
- According to the master plan for Gwadar’s development under BRI, approved in 2020, it would increase the city’s GDP to \$30 billion by 2050 and create over a million jobs.
- CPEC passes through the disputed region of Kashmir where Indian and Pakistani border guards have occasionally exchanged fire across the Line of Control. The Government of India, which shares tense relations with Pakistan, objects to the CPEC project as upgrade works to the Karakoram Highway are taking place in Gilgit Baltistan; territory that India claims as its own.

### ***Coal plants***

- While coal plants set up and managed by Chinese firms did help improve the power situation in Pakistan, former Prime Minister Imran Khan sought renegotiation of payments to China in 2020 alleging that Chinese companies had overcharged the country by \$3 billion.
- In May 2022, Chinese power firms operating in Pakistan threatened to close down if the latter did not pay dues worth 300 billion in Pakistani rupees (approximately \$1.5 billion).

### ***What about Sri Lanka?***

- In Sri Lanka, multiple infrastructure projects that were being financed by China came under the fold of the BRI after it was launched in 2013.
- The island nation in the last couple of years has witnessed competition between India and China in port terminal and energy projects.
- In 2021, Colombo ejected India and Japan out of a deal to develop the East Container Terminal at the Colombo port and got China to take up the project.
- It then awarded the project for the Western Side of the Terminal to the Adani Group.

### ***Hambantota port:***

- Some BRI projects in Sri Lanka have been described as white elephants — such as the Hambantota port, a deep seaport on the world’s busiest east-west shipping lane, which was meant to spur industrial activity.
- The port had always been secondary to the busy Colombo port until the latter ran out of capacity.
- The Sri Lankan government took \$1.4 billion in Chinese loans for the port’s expansion.
- Unable to service the huge loan and incurring \$300 million in losses due to delays, the government handed Hambantota port to a Chinese state-owned company on a 99-year lease in 2017.
- Other key projects under BRI include the development of the Colombo International Container Terminal, the Central Expressway and the Hambantota International Airport among others.

### ***Are there projects in Afghanistan?***

- Afghanistan has not comprehensively been brought into the BRI, despite a Memorandum of Understanding (MoU) being signed with China in 2016.
- China had promised investments worth \$100 million in Afghanistan which is small in comparison to what it shelled out in other South Asian countries. The projects have not materialised so far and uncertainties have deepened after the Taliban takeover last year.

### ***How have projects from India and China progressed in Maldives?***

- Situated in the middle of the Indian Ocean, Maldives comprises two hundred islands, and both India and China have strategic interests there.

- One of the most prominent BRI projects undertaken in the Maldives is the two km long China-Maldives Friendship Bridge — a \$200 million four lane bridge.
- Most of China's investment in the Maldives happened under former President Abdullah Yameen, seen as pro-China.
- Over the years, opposition protests grew against the large borrowing from China and Mr. Yameen was defeated in 2018.
- The Maldives' current regime of President has tried to distance itself from the BRI, focusing more on its 'India First' policy.
- India has also in recent years sought greater ties with the Maldives under Prime Minister Narendra Modi's 'Neighbourhood First' policy.

### ***What about Bangladesh?***

- Bangladesh, which joined the BRI in 2016, has been promised the second highest investment (about \$40 billion) in South Asia after Pakistan.
- Multiple studies, including research by the Council on Foreign Relations, show that Bangladesh has been able to benefit from the BRI while maintaining diplomatic and strategic ties with both India and China.
- It has managed to not upset India by getting India to build infrastructure projects similar to BRI in the country.
- In 2016, when the Chinese government promised Dhaka BRI investment worth around \$40 billion, India followed up in 2017 by extending a \$5 billion line of credit and economic assistance.
- BRI projects include China-Bangladesh Friendship Bridges, special economic zones, the \$689.35 million-Karnaphuli River tunnel project, upgradation of the Chittagong port, and a rail line between the port and China's Yunnan province.
- However, multiple projects have been delayed owing to the slow release of funds by China.

## **Russia withdraws from Snake Island**

- **Context:**
- Ukrainian forces have taken control of Snake Island in the Black Sea, which was occupied by Russia very early in the war.

**Relevance:** GS II- International Relations

### ***Dimensions of the Article:***

- 1. About Snake Island
- 2. About the Black Sea
- 3. Russia and the Black Sea
- 4. Black Sea in the Ukraine war
- Zmiinyi Island, also known as Snake or Serpent Island, is a small piece of rock less than 700 metres from end to end, that has been described as being "Xshaped".
- It is located 35 km from the coast in the Black Sea, to the east of the mouth of the Danube and roughly southwest of the port city of Odessa.
- The island, which has been known since ancient times and is marked on the map by the tiny village of Bile that is located on it, belongs to Ukraine.
- On February 24, the day Russia launched its invasion, two warships from the Russian Black Sea Fleet, Vasily Bykov and Moskva, attacked Snake Island, followed by Russian troops landing on it.
- Ukraine has claimed to have launched several attacks on the Russian occupiers of Snake Island even before the latest ongoing operation.
- Recently, Ukraine said it had sunk a Russian naval tug called Spasatel Vasily Bekh, which was delivering personnel and military supplies to the island.

- Earlier in April, it had sunk the Moskva, the 600-foot flagship of the Black Sea Fleet, which had attacked the island on day 1 of the war.

### ***About the Black Sea***

- The Black Sea is a marginal sea of the Atlantic Ocean lying between Europe and Asia; east of the Balkans (Southeast Europe), south of the East European Plain in Eastern Europe, west of the Caucasus, and north of Anatolia in Western Asia.
- The Black Sea is bordered by Bulgaria, Georgia, Romania, Russia, Turkey, and Ukraine.
- The Black Sea ultimately drains into the Mediterranean Sea, via the Turkish Straits and the Aegean Sea.
- The Bosphorus Strait connects it to the small Sea of Marmara which in turn is connected to the Aegean Sea via the Strait of the Dardanelles. To the north, the Black Sea is connected to the Sea of Azov by the Kerch Strait.

### ***Russia and the Black Sea***

- The famed water body bound by Ukraine to the north and northwest, Russia and Georgia to the east, Turkey to the south, and Bulgaria and Romania to the west, which links to the Sea of Marmara through the Bosphorus and then to the Aegean through the Dardanelles, has traditionally been Russia's warm water gateway to Europe.
- For Russia, the Black Sea is both a stepping stone to the Mediterranean as well as a strategic buffer between NATO and itself.
- Domination of the Black Sea region is a geostrategic imperative for Moscow, both to project Russian power in the Mediterranean and to secure the economic gateway to key markets in southern Europe.

### ***Black Sea in the Ukraine war***

- Russia has been making efforts to gain complete control over the Black Sea since the Crimean crisis of 2014.
- During the ongoing invasion, the domination of the Black Sea has been a major Russian objective, along with the land bridge to connect Russia and Crimea.
- As such, there have been intense efforts to capture Mariupol, the Sea of Azov port in the breakaway eastern Ukrainian oblast of Donetsk.

## **India: The top remittance recipient**

- **Context**
- According to a recent World Health Organization report titled "World report on the health of refugees and migrants," India will receive USD 87 billion in remittances in 2021.

### ***Relevance***

- GS Paper – 2: Important International Institutions
- GS Paper – 3: Mobilization of Resources

### ***Mains Question***

- Discuss how the Indian diaspora can play a positive role in India's growth story. (150 Words)

### ***The Document***

- The report is the first to provide a global review of health and migration, and it calls for immediate and coordinated action to help refugees and migrants around the world gain access to health care services that are tailored to their specific needs.

### ***The report's findings***

- According to the report, "about one in every eight people worldwide are migrants." (A total of one billion migrants)
- The total number of international migrants increased from 153 million to 281 million between 1990 and 2020.
- Around 48 percent of international migrants are women, with 36 million being children.
- Europe and North America hosted the most international migrants as of 2020, followed by Northern Africa and Western Asia.
- During the first half of 2021, more than half of newly recognised refugees came from five countries:
  - CAR (Central African Republic)
  - South Sudanese
  - Arab Republic of Syria
  - Afghanistan
  - Nigeria
- In current US dollars, the top five remittance recipients (among low- and middleincome countries) in 2021 were:
  - India: 83 billion -Remittances to India increased by 4.8 percent in 2021. (In 2020, remittances will total USD 83 billion.)
  - China: 53 billion dollars
  - Mexico: 53 billion dollars
  - Philippines: 36 billion dollars
  - Egypt: 33 billion dollars
- The top five remittance recipients in 2021, in terms of GDP share, were smaller economies:
  - Tonga (44 percent)
  - 35 percent in Lebanon
  - 30 percent in Kyrgyzstan
  - Tajikistan has a 28% share.
  - Honduras has a 27% share.
- Remittances have recovered strongly in most other areas, with growth of 5-10 percent in Europe and Central Asia, the Middle East and northern Africa, Southern Asia, and Sub-Saharan Africa.
- However, excluding China, growth in Eastern Asia and the Pacific was 1.4 percent slower.

### ***The remittances***

- A remittance is money sent to another party, typically another country.
- Typically, the sender is an immigrant, and the recipient is a relative back home.
- Remittances are one of the most important sources of income for people in lowincome and developing countries.
- It frequently exceeds direct investment and official development assistance
- Remittances assist families in meeting their basic needs such as food and healthcare.
- India is the world's largest remittance recipient.
- Remittances help to replenish India's foreign exchange reserves and fund the country's current account deficit.

### ***Importance of Remittances***

- Remittances boost or maintain consumer spending and cushion the impact of economic hardships, such as the Covid-19 pandemic.
- Remittances account for a sizable portion of global money movement.
- Despite predictions that remittances would decline as a result of the Covid-19 pandemic (due in part to travel restrictions and the economic downturn), remittances proved resilient.



- Remittances are a "important and positive" economic outcome of migration for both migrants and family and friends who remain in their home countries.
- Remittances are now more than three times higher than official development assistance and more than 50 percent higher than foreign direct investment, excluding China.

### ***Negative Effects of Migration***

- Skilled labour movement may result in a so-called brain drain, typically from lower-income countries, and a brain gain in higher-income countries, in a process known more broadly as brain circulation.
- If highly skilled doctors and nurses leave lower-income countries in search of better economic opportunities, brain drain may exacerbate the availability of services such as health care.
- An estimated 193 million migrant workers' family members are left behind.
- Individuals migrating to high-income countries to work as caregivers for the host population may create a care deficit for their own families, particularly children and the elderly.
- Refugees and migrants may face discriminatory treatment or attitudes. The treatment of people as outsiders because of their language, culture, appearance, or place of birth is known as xenophobia.
- Xenophobia can expose refugees and migrants to discrimination, mistreatment, or violence in host countries, and it has serious public health consequences.
- While much migration occurs without breaking any laws or regulations, a significant but unquantifiable number of migrants are exploited by criminal networks.
- People smuggling and human trafficking, while legally distinct, share many similarities in how they are carried out and can be difficult to distinguish

## **The shadow war between Israel and Iran**

- **Context**
- Israel's goal now is to put an end to Iran's potential to produce nuclear weapons, despite the fact that in the past it was willing to sell Iran nuclear missiles.

### ***Relevance***

- **GS Paper 2: International Relations**
- Bilateral, regional and global groupings and agreements involving India and/or affecting the Indian interests
- Effect of policies and politics of developed and developing countries on India's interests, Indian diaspora

### ***Mains Question:***

- The Geopolitics in middle east is nothing but a puppet of Global superpowers. Comment.

### ***The 'Secret' Talks of the Past***

- In July 1977, Iran's Shah, Mohammad Reza Pahlavi, dispatched Lieutenant General Hassan Toufanian, his Deputy Minister of War and Armaments, to Israel to hold secret talks with Menachem Begin's newly formed Likud government.
- In April of that year, the Shah signed six "oil for arms" contracts with Shimon Peres, the previous Labor government's Defense Minister.
- One of the contracts, codenamed 'Flower,' asked Israel to modify and sell advanced surface-to-surface missiles to Iran.
- The mission of Gen. Toufanian was to ensure that the deal would not be jeopardised by an Israeli government change.

- He met with Major General Ezer Weizman, the Defence Minister in the Begin government, and the two agreed to establish a military co-production line, with Israel providing technical know-how and Iran providing finances and test sites.
- As part of the agreement, Israel promised to supply Iran with 700-kilometer-range ballistic surface-to-surface missiles capable of carrying a nuclear warhead.

### ***A Paradigm shift in West Asia***

- The 1979 revolution that deposed the Shah's monarchy and established Iran as a theocratic republic radically altered not only Iran, but the entire region.
- West Asia experienced a paradigm shift. The revolution transformed Iran, one of the region's natural powers in terms of resources, geography, and population, from an ally to a top adversary.
- A Shia theocratic republic across the Gulf waters posed not only geopolitical challenges, but also existential and ideological threats to the Sunni Gulf monarchies.
- For Israel, the region's sole nuclear power, its most prominent rival has only recently been born.
- Despite their shared concerns, these three pillars could not come together immediately because Israel and the Arab world had pre-existing contradictions.
- Four decades later, as Iran's regional profile rises despite American sanctions, Israel and the Arab world are banding together to counter their common foe under the auspices of the US.
- If Israel was willing to provide nuclear missiles to Tehran in the 1970s, its primary foreign policy goal today is to prevent Iran from acquiring nuclear capability.

### ***The Octopus Doctrine***

- Between Israel and Iran, a shadow war is already in progress.
- In what former Israeli Prime Minister Naftali Bennett referred to as the "Octopus doctrine," Israel carried out covert operations inside Iran targeting its nuclear and missile programmes — hit the octopus at its head, not just its tentacles.
- Iran has responded with drone strikes, claiming to have hit a compound used by Israeli operatives in northern Iraq.
- In recent years, Israel has carried out hundreds of air strikes inside Syria, targeting Iranian supplies and proxies, while a naval conflict between the countries has escalated, with ships linked to them being attacked in the Gulf, Arabian, and Mediterranean seas.

### ***The West Asian Consensus***

- There is agreement among West Asia's anti-Iran axis (the United States, Israel, and the Gulf monarchies) that Iran's nuclear programme should be halted.
- If Iran develops nuclear capabilities (even if it does not develop a bomb), it has the potential to shift the regional balance of power, which is currently favoured by Israel. However, there is no agreement on how to address this challenge.

### ***The US Tactics and Israel's Wish***

- In 2015, the Obama administration signed a nuclear agreement with Iran, effectively cutting off its path to nuclear capability.
- However, Israel and the Gulf monarchies were dissatisfied with the JCPOA (or Joint Comprehensive Plan of Action), because in exchange for limiting Iran's nuclear programme, the agreement promised economic benefits to the Islamic Republic, which could transform Iran into a non-nuclear conventional, mainstream power in West Asia.
- Not only does Israel want Iran's nuclear programme to be halted, but also its rise.
- When the Trump administration unilaterally exited the nuclear deal and reimposed sanctions on Iran in 2018, Israel's concerns were heard in Washington.

***Maximum Pressure Agenda***

- President Donald Trump believed that the administration's "maximum pressure" approach would cause Iran to flinch and return to the negotiating table to renegotiate the deal.
- Mr. Trump sought concessions from Iran on its nuclear programme and regional activism (support for non-state actors).

***Policy of Maximum Resistance***

- But, in response to Mr. Trump's maximum pressure, Iran launched attacks in Saudi Arabia and Gulf waters, increased support for its proxies, particularly the Houthis in Yemen, who now pose a direct security challenge to Saudi Arabia and the United Arab Emirates, and began enriching large amounts of uranium to higher purity and developing advanced centrifuges.
- As a result of this,
- The current situation is more complicated than it was in 2015.
- Iran is facing domestic pressure over its economic woes, but the regime, which is now controlled by hardliners in all branches, is unlikely to compromise on its nuclear programme or regional policy.
- The United States wants to address the nuclear programme, but it wants to do so through talks because it does not want to be drawn into another conflict in West Asia, especially now that its priorities are in Europe and the Indo-Pacific.

***Multi-pronged strategy***

- Different stakeholders in this geopolitical vortex have different ideas about how to resolve it.
- Iran wants the sanctions lifted in exchange for returning to its 2015 commitments.
- But it also wants to come out of the crisis stronger economically.
- The US wants to end Iran's nuclear programme through negotiations, but it wants a "stronger and longer" agreement that addresses not only Iran's nuclear programme but also its "destabilising" activities in the region.
- One of the reasons for the Vienna talks' failure was the Biden administration's refusal to reverse Trump's decision to designate the Islamic Revolutionary Guard Corps (IRGC) as a terrorist organisation.

***Israel's Objectives***

- Israel's (and its Gulf partners') goals are far more ambitious: it wants to scuttle Iran's nuclear programme, cripple its military programme, strengthen regional defences against its proxies, and contain its rise.
- Furthermore, it does not necessarily believe that Iran should be stopped through negotiations.
- While the US and Europe continue to hold talks with Iran, Israel has devised a multipronged strategy to escalate the shadow war with Iran and forge a stronger security partnership with the Gulf kingdoms, which could prepare them both for any future full-scale war.
- This strategy elevates Israel's role as a new Gulf security provider at a time when the US is preoccupied with other priorities.

***Conclusion***

- The Israeli strategy is fraught with danger.
- True, the rise of a more cohesive anti-Iran axis poses a significant threat to the Islamic Republic.
- Iran is clearly under pressure following the Israeli attacks, as evidenced by the recent firing of the powerful IRGC spy chief.
- The US assassination of Qassem Soleimani, the elite Quds Force commander, in January 2020 appears to have blunted Iran's clandestine operations abroad.
- Nonetheless, Israel's repeated sabotage attempts have not deterred Iran from enriching uranium, which is now a step away from weapons grade, or from building advanced centrifuges.

- Aside from a few setbacks, the attacks have not derailed Iran's ballistic missile or armed drone programmes.
- So, if the nuclear talks fail, Israel will be left with few options. To achieve its objectives, it would have to escalate its shadow war even further. It's a treacherous incline.

## Europe without Russian gas?

- **Context**
- After the EU imposed sanctions and sent weapons to Ukraine, Russia cut off gas supplies to six countries and reduced supplies to another six. This escalation may impede the region's gas pipeline issue.
- Bilateral, regional and global groupings

### *Mains Question*

- What are the two Nord Streams to make headlines? Are they a solid pillar of Russia's strategic significance in Europe? Comment. (150 Words)

### *The gas Crisis and beyond*

- Even before the drama surrounding the reopening of the Nord Stream 1 pipeline from Russia to Germany, Europe faced an energy crisis.
- While natural gas began flowing again recently following a 10-day maintenance shutdown of a major pipeline, Europe will still struggle to keep homes warm and industry running this winter.
- This is because Russia has already reduced the amount of natural gas used in Europe to power factories, generate electricity, and heat homes during the winter, and Russian President Vladimir Putin has warned that the supply may continue to dwindle.
- Deliveries through Nord Stream 1 were reduced by 60% before annual repairs began, and were expected to remain significantly below the pipeline's full capacity.
- Government officials had feared that the pipeline would never reopen, claiming that Putin is using energy as political leverage in his conflict with the European Union over the Ukraine war.

### *Did Russia cut off gas to Europe?*

- It has significantly reduced supplies.
- Russia was not selling gas on the short-term spot market even before the invasion of Ukraine.
- After the EU imposed sanctions on Russia's banks and businesses and began sending weapons to Ukraine, Russia cut off gas supplies to six countries and reduced supplies to another six.
- Flows into Germany, the EU's largest economy, were reduced by two-thirds, with Russia blaming a part that was sent to Canada for maintenance but was not returned due to sanctions.
- European leaders dismissed that claim, calling it a political manoeuvre designed to create uncertainty and drive up energy prices.
- It has forced the EU's 27 member states to scramble to fill gas storage ahead of winter, when demand rises and utility companies draw down reserves to keep homes warm and power plants running.
- The EU's goal is to use less gas now in order to build winter storage. Europe's gas reserves are only 65 percent full, compared to an 80 percent target by November 1.

### *Why is Russian gas so important?*

- Prior to the war, Russia supplied roughly 40% of Europe's natural gas; that figure has since dropped to around 15%, sending prices skyrocketing and putting a strain on energy-intensive industries.
- Gas is used in a variety of processes that most people are unaware of, such as forging steel to make automobiles, manufacturing glass bottles, and pasteurising milk and cheese.
- Companies warn that they frequently cannot switch to other energy sources such as fuel oil or electricity to produce heat overnight.



- In some cases, turning off the heat damages equipment that holds molten metal or glass.
- High energy prices are already threatening to cause a recession in Europe due to record inflation, with consumers having less money to spend as food, fuel, and utilities prices rise.
- A total shutdown could wreak even more havoc on an already troubled economy.

#### *What is the Nord Stream 1 pipeline?*

- It is a major European natural gas pipeline that runs from Russia to Germany under the Baltic Sea and is Germany's primary source of Russian gas.
- Klaus Mueller, the head of Germany's network regulator, tweeted on Thursday that gas deliveries could reach the pre-maintenance level of around 40%.
- Even if Nord Stream 1 resumed at a reduced capacity, Europe would need to save 12 billion cubic metres of gas, the equivalent of 120 LNG tankers, to fill its storage capacity by winter.
- Three other pipelines transport Russian gas to Europe, but one, which runs through Poland and Belarus, has been closed.
- Another, through Ukraine and Slovakia, is still bringing limited amounts of gas into Bulgaria despite the fighting, as is one through Turkey.
- Gas is also piped in from Norway, North Africa, and Azerbaijan.

#### *Importance of the pipelines:*

- Every year, Europe consumes more than **100 billion cubic metres (bcm)** of natural gas, with Russia accounting for roughly **40%** of that total.
- Europe has become more reliant on gas imports in recent years as domestic gas production has declined. It is difficult to reduce reliance on Russian gas because there are no easy replacements.
- Many European businesses have made significant investments in Nord Stream 2, putting pressure on governments. Finally, a reduction in Russian gas would raise already high domestic gas prices, which would be unpopular.
- In Russia, which has the **world's largest natural gas reserves**, gas and oil sales account for roughly 40% of the country's budget.
- **Nord Stream 2** is significant because it eliminates the risks associated with sending gas through transit countries, reduces operating costs by eliminating transit fees, and provides direct access to Germany, its most important European customer.
- It increases Europe's reliance on Russia while providing it with a reliable customer.

#### *What Putin's geopolitical desire?*

- According to the International Energy Agency, despite Russia's oil and gas exporters selling less energy, rising prices mean Putin's earnings have increased.
- Russia's revenue from exporting oil and gas to Europe has more than doubled since the invasion, to \$95 billion, according to the Paris-based IEA.
- Russia's energy revenue has increased threefold in the last five months, more than tripling what it typically makes by exporting gas to Europe over an entire winter. As a result, Putin has cash on hand and may calculate that high utility bills and an energy recession will erode public support for Ukraine in Europe and increase sentiment for a negotiated settlement in his favour.
- Canada has stated that it has granted permission to return the component that powers a compression station.

#### *What options do Europe have?*

- The EU has turned to less expensive liquefied natural gas, or LNG, imported by ship from countries such as the United States and Qatar.

- Germany is speeding up the construction of LNG import terminals along its North Sea coast, but it will take years.
- The first of four floating reception terminals is expected to be operational later this year. However, LNG alone will not fill the void.
- The world's LNG export facilities are at full capacity due to tight energy markets, and there is no more gas available.
- An explosion at a US terminal in Freeport, Texas, which shipped most of its gas to Europe, knocked out 2.5 percent of Europe's supply overnight. Conservation and alternative energy sources are critical.
- Germany, for example, is extending the life of coal plants, instituting a gas auction system to encourage conservation, and resetting thermostats in public buildings.
- The European Union recently proposed that member countries reduce their gas consumption by 15% in the coming months on their own initiative.
- The European Commission, the EU's executive arm, is attempting to gain the authority to impose mandatory reductions across the bloc in the event of a severe gas shortage or unusually high demand.
- The measures will be discussed by EU member states at an emergency meeting of energy ministers next Tuesday.
- Countries have been scrambling to secure alternative energy supplies, with leaders from Italy, France, and the European Union signing agreements this week with their counterparts in Algeria, Azerbaijan, and the United Arab Emirates.

#### ***Could people freeze this winter?***

- Because governments are required to impose rationing on businesses first, it is unlikely that homes, schools, and hospitals will lose heat.
- The German government could also allow gas suppliers to pass on price increases to customers right away.
- The options include destroying the industry and/or saddling consumers with even higher bills.
- The IEA recommends that European countries step up conservation campaigns at home and plan to share gas in an emergency. And time is running out.

### **What are EU's palm oil alternatives with Malaysia and Indonesia?**

- **Context**
- Indonesia and Malaysia claim the EU's palm oil restrictions are unfair and "discriminatory," and they are hoping for a WTO resolution.
- Meanwhile, the EU has imposed new restrictions on the use of palm oil as a fuel.

#### ***Relevance***

- **GS Paper 2:** Effect of policies and politics of developed and developing countries on India's interests
- **GS Paper 3:** Agricultural Resources, Food Security, Government Policies & Interventions

#### ***Mains Question***

- Palm oil easily accounts for more than two-thirds of India's burgeoning vegetable oil imports, and the sustainability of the palm oil industry in India faces numerous challenges. Analyse (150 Words)

#### ***The Import and the complaint***

- According to Indonesian government data, EU imports from Indonesia increased by 9 percent last year compared to 2020.
- The World Trade Organization (WTO) may soon rule on two cases filed against the European Union in connection with its decision to phase out the import of unsustainable palm oil by 2030.

- The complaints were lodged by Indonesia and Malaysia, the world's two largest palm oil producers, who denounced Brussels' Renewable Energy Directive II as unfair and "discriminatory."

### ***EU's Objection***

- On the contentious issue, the EU has sent mixed signals.
- On the one hand, its officials have stated unequivocally that oil production is a major cause of deforestation and thus cannot meet renewable energy targets.
- There is also the issue of pollution: palm oil diesel emits up to three times the amount of pollution as traditional petroleum-based fuel.
- The Ukraine war, which began in February of this year, increased pressure on Brussels to secure its fuel supply.

### ***ReFuelEU Initiative***

- Early in July, EU lawmakers approved draught rules for the ReFuelEU initiative, which would require that 85 percent of all used aviation fuel be "sustainable" by 2050. Byproducts of palm oil would be unacceptable.
- The European Parliament is now discussing bringing forward the final phase-out date for palm oil imports, which is currently set at 2030.
- Simultaneously, Brussels has attempted to engage with palm oil exporters in recent months, including at the ASEAN-EU Joint Cooperation Committee meeting in Jakarta in late June.

### ***EU's Import Data***

- And since the Renewable Energy Directive II was introduced in 2018, the EU's imports of palm oil have actually increased.
- In 2021, the EU imported €6.3 billion (\$6.4 billion) worth of palm oil and palm oil products, most used for biofuels.
- Indonesia and Malaysia accounted for 44.6% and 25.2% of those imports, respectively.
- EU imports from Indonesia were up 9% last year, compared to 2020, according to Indonesian government data.

### ***Malaysia decries 'crop apartheid'***

- The Malaysian and Indonesian governments have also tried to keep their options open in the EU row.
- Earlier this year, Malaysian Minister of Plantation Industries and Commodities Zuraida Kamaruddin slammed what she called "crop apartheid."
- And with the dispute ongoing, the Malaysian government is busy finding new markets.

### ***China's View***

- During his visit to Kuala Lumpur this month, China's Foreign Minister Wang Yi vowed that Beijing would increase imports of palm oil from the country.
- China is currently the world's second-largest importer of the product, after India.

### ***What if the WTO rules against the EU?***

- The WTO decision seems to be drawing near.
- The panel to decide Indonesia's case was formed in November 2020.
- A panel of the same members was formed for Malaysia's case in July 2021. Both are chaired by Manzoor Ahmad, Pakistan's former permanent representative to the WTO. Members are Sarah Paterson, of New Zealand, and Arie Reich, of Israel.
- If the WTO panels were to rule against in favor of Indonesia and Malaysia, Brussels has three options

- **First**, the EU could appeal against the panel report. But that could set back a final ruling by years, as any decision would have to come after new members are appointed to the WTO's Appellate Body. The body is currently not functioning due to the US blocking new appointees.
- **The second option**, Mayr noted, would be for the EU to comply with the WTO ruling and adapt the environmental policies established by the Renewable Energy Directive II. Whether the EU could make cosmetic changes to its palm oil phase-out, while keeping the essence of the policy, is unclear.
- **Lastly**, the EU could simply carry on regardless and accept any retaliatory measures imposed by Indonesia and Malaysia.
- This last option, however, doesn't seem too likely.

### ***Geopolitics and palm oil***

- If the EU was to ignore the ruling, Indonesia and Malaysia would struggle to retaliate economically, analysts reckon. According to European Commission data, Malaysia is only the EU's 20th largest trading partner in goods; Indonesia is 31st.
- Because of the energy crisis caused by the Ukraine war, the official also expects EU imports of palm oil to continue growing in the coming years.
- Moreover, Jakarta has one more card to play — it could limit the export of raw materials necessary for the production of stainless steel. (The EU brought a case against Indonesia to the WTO regarding this in November 2019.)

### ***Palm Oil and Its Uses***

- Palm oil is an edible vegetable oil derived from the mesocarp (reddish pulp) of oil palm fruit.
- It is used as a cooking oil as well as in cosmetics, processed foods, cakes, chocolates, spreads, soaps, shampoo, and cleaning products, as well as biofuel.
- The use of crude palm oil in the production of biodiesel is dubbed "green diesel."
- Indonesia and Malaysia account for nearly 90 percent of global palm oil production, with Indonesia producing the most, with over 45 million tonnes in 2021.
- The oil palm industry has come under fire for allegedly unsustainable production practises that lead to deforestation, as well as exploitative labour practises carried over from the colonial era.
- However, many people prefer palm oil because it is cheap, and oil palms produce more oil per hectare than other vegetable oil plants like soybean.

### ***What Role Does Palm Oil Play in Global Supply Chains?***

- According to the United States Department of Agriculture, palm oil is the world's most widely used vegetable oil, with a global production of over 73 Million Tonnes (MT) in 2020. (USDA).
- It is expected to be 77 MT for the fiscal year 2022-23.
- Reuters reports that palm oil accounts for 40% of the global supply of the four most widely used edible oils: palm, soybean, rapeseed (canola), and sunflower oil.
- Indonesia accounts for 60 percent of the global supply of palm oil.

### ***Why are edible oil prices rising?***

- India is the world's largest importer of palm oil. Palm oil prices rose this year as demand increased due to a scarcity of alternative vegetable oils.
- Soybean oil production, the second most-produced oil, is expected to fall this year due to a poor soybean season in major producer Argentina.
- Drought harmed canola oil production in Canada last year, and the ongoing conflict has harmed supplies of sunflower oil, 80-90 percent of which is produced by Russia and Ukraine.
- Global edible oil prices have risen significantly since the end of last year, owing to pandemic-induced labour shortages and global food inflation linked to the pandemic and the Ukraine crisis.



# INDIAN ECONOMY

## Exit of Foreign Portfolio Investors

### Context:

- June 2022 witnessed the worst Foreign Portfolio Investor (FPI) selloff since March 2020 when India announced a nationwide lockdown at Rs. 50,000 crore.
- June was also the ninth on the trot that FPIs had sold net of their assets i.e. sold more than they had purchased.

**Relevance:** GS III- Indian Economy (Capital Market)

### Dimensions of the Article:

- 1. What is FPI?
- 2. What are the categories of FPIs?
- 3. Significance of FPI
- 4. How Big are FPI In India?
- 5. Why have FPIs been selling India holdings?
- 6. What Impact Does an FPI Selloff Have?

### What is FPI?

- Foreign portfolio investors are those that invest funds in markets outside of their home turf.
- Examples of FPIs include stocks, bonds, mutual funds, exchange traded funds, American Depositary Receipts (ADRs), and Global Depositary Receipts (GDRs).
- FPI is part of a country's capital account and is shown on its Balance of Payments (BOP).
- The FPI system is regulated by SEBI.
- The Foreign Institutional Investor ('FII') and Qualified Foreign Investor ('QFI') regimes were merged into the FPI regime as a standardised path for foreign investment in India.
- FPI is often referred to as "hot money" because of its tendency to flee at the first signs of trouble in an economy. FPI is more liquid, volatile and therefore riskier than FDI.

### Regulations

- Permitted Instruments: Shares of listed Indian companies, non-convertible debt, units of domestic mutual funds, government securities, derivatives.
- A single FPI's investment must be less than 10% of the Indian investee company's post-issue paid-up share capital, and a collective investment must be less than 24%.
- An FPI's (including linked FPIs) investment in a corporate bond issue must be less than 50%.
- Minimum residual maturity of more than one year for corporate bonds, subject to the condition that short-term corporate bond investments (less than one year residual maturity) do not exceed 20% of that FPI's total corporate bond investment.

### What are the categories of FPIs?

- **Cat I:** Government and government related foreign investors such as Central Banks, Sovereign Wealth Funds.
- **Cat II:** Funds, which are broad based and (i) appropriately regulated, or (ii) whose investment manager is appropriately regulated. Includes mutual funds ('MF'), investment trusts, insurance / reinsurance

companies. Also includes banks, Asset Management Companies, investment managers / advisors, portfolio managers, broker dealers and swap dealers, University funds, and Pension funds.

- **Cat III:** Endowments, Charitable societies, Corporate bodies, Trusts, Family offices, Individuals\*\*
- **\*\*Non-resident Indians (NRIs)** are not permitted to register as FPIs, however they can invest in FPIs, subject to conditions

#### ***Significance of FPI:***

- Investors may be able to reach an increased amount of credit in foreign countries, enabling the investor to utilize more leverage and generate a higher return on their equity investment.
- As markets become more liquid, they become more profound and broader, and a more comprehensive range of investments can be financed.
- As a result, investors can invest with confidence knowing that they can promptly manage their portfolios or sell their financial securities if access to their savings is required.
- Increased competition for financing leads to rewarding superior performance, prospects, and corporate governance.
- As the market's liquidity and functionality evolve, equity prices will become value-relevant for investors, ultimately driving market efficiency.

#### ***How Big are FPI In India?***

- FPIs are the largest non-promoter shareholders in the Indian market and their investment decisions have a huge bearing on the stock prices and overall direction of the market.
- Holding of FPIs (in value terms) in companies listed on National Stock Exchange stood at Rs. 51.99 lakh crore as on 31st March 2022, a decrease of 3.36% from Rs. 53.80 lakh crore as on 31st December 2021 due to the sustained sell-off since October 2021.
- FPIs hold sizeable stakes in private banks, tech companies and big caps like Reliance Industries.
- The US accounts for a major chunk of FPI investments at Rs. 17.57 lakh crore as of May 2022, followed by Mauritius Rs. 5.24 lakh crore, Singapore Rs. 4.25 lakh crore and Luxembourg Rs. 3.58 lakh crore, according to data available from the National Securities Depository Ltd (NSDL).

#### ***Why have FPIs been selling India holdings?***

#### ***Effects of the Pandemic:***

- The recovery of the Indian economy following the Pandemic has been uneven.
- In 2021, the second Covid-19 pandemic wave wreaked havoc on people's lives and livelihoods.
- When a third, albeit less severe, wave began to spread early in 2021, the economy stumbled once more.
- As the pandemic abated, pent-up demand began to surface in economies all over the world, which caused problems as the speed of recovery caught suppliers off guard and led to supply-side shortages.
- Pent-up demand is the term used to describe a sudden rise in demand for a good or service, usually after a period of slow expenditure.

#### ***Russia Ukraine Conflict:***

- The availability of sunflower and wheat in these two countries was affected, which increased the price of these products globally.
- Globally constricted supply led to an increase in commodity prices and a quickening of inflation overall.
- The Reserve Bank's upper comfort level of 6 percent was consistently exceeded by the rate of price growth in India for five consecutive months, reaching a peak of 7.8 percent in April before declining to a somewhat less aggressive 7.04 percent the following month.
- The S&P Global India Manufacturing Purchasing Managers' Index (PMI) dropped from 54.6 in May to 53.9 in June, the lowest reading in nine months. According to survey data, this was caused by inflation pressures, which also caused business confidence to decline to its lowest level in 27 months in June.

***US Federal Reserve:***

- In its fight against surging inflation, the US Federal Reserve recently announced the most aggressive interest rate rise in in 30 years, raising the benchmark borrowing rate by 0.75 percentage points.
- The capacity of investors to obtain healthy returns is damaged when the difference between interest rates in the U.S. and other markets narrows, especially if such a development is accompanied by a strengthening of the dollar.
- An investor can earn fewer Dollars for a given amount of Rupee assets sold if the Dollar appreciates against the Rupee.
- Investors frequently sell off assets that are viewed as "risky," such those in developing nations like South Africa, India, or Brazil.
- The rupee has been falling in value against the dollar.
- The rupee touched its record low of 79.33 against the greenback in July 2022.

***What Impact Does an FPI Selloff Have?*****Local Currency:**

- The local currency suffers when FPIs sell their assets and repatriate money to their home markets.
- Investors exchange their home market currency for the sale of rupees.
- The rupee's value decreases as the amount available on the market increases.
- We have to spend more money to import the same amount of goods as a result.

***Regarding exports and imports:***

- India is one of the world's major consumers of crude oil.
- Crude oil imports become more expensive when the rupee depreciates against the dollar, which may cause cost-driven inflation to spread throughout the entire economy, particularly in sectors that are particularly vulnerable to changes in the price of crude oil.
- On the other hand, India's exports, particularly those related to IT and IT-enabled services, may somewhat gain from a stronger dollar relative to the rupee.
- Due to intense competition in the export industry, exporters might not completely benefit from the same thing.

***Reserves:***

- India's foreign exchange reserves have fallen USD46 billion in the last nine months to USD596.45 billion as on 10th June 2022, mainly due to the dollar appreciation and FPI withdrawals.

**Other Effects:**

- Foreign investors pulling out can result in a decline in stocks and equity mutual fund investments.
- Lowering the value of the rupee relative to the dollar keeps import costs higher, driving inflation even higher than it already is.
- Increased inflation is bad for the market as a whole. Another drawback is that FPI outflows would persist if the rupee does not rise.
- It will cost more rupees for travellers and students studying abroad to purchase dollars from banks.

**Critical Minerals**

- India and Australia have decided to strengthen their partnership in the field of projects and supply chains for critical minerals.
- **Relevance:** GS III- Indian Economy

***Dimensions of the Article:***

- 1. What are Critical Minerals?
- 2. Why is this resource critical?
- 3. What is China 'threat'?
- 4. What are countries around the world doing about it?

### ***What are Critical Minerals?***

- Critical minerals are elements that are the building blocks of essential modern-day technologies, and are at risk of supply chain disruptions.
- These minerals are now used everywhere from making mobile phones, computers to batteries, electric vehicles and green technologies like solar panels and wind turbines.
- Based on their individual needs and strategic considerations, different countries create their own lists.
- However, such lists mostly include graphite, lithium and cobalt, which are used for making EV batteries; rare earths that are used for making magnets and silicon which is a key mineral for making computer chips and solar panels.
- Aerospace, communications and defence industries also rely on several such minerals as they are used in manufacturing fighter jets, drones, radio sets and other critical equipment.

### ***Why is this resource critical?***

- As countries around the world scale up their transition towards clean energy and digital economy, these critical resources are key to the ecosystem that fuels this change.
- Any supply shock can severely imperil the economy and strategic autonomy of a country over-dependent on others to procure critical minerals.
- But these supply risks exist due to rare availability, growing demand and complex processing value chain.
- Many times the complex supply chain can be disrupted by hostile regimes, or due to politically unstable regions.
- They are critical as the world is fast shifting from a fossil fuel-intensive to a mineral-intensive energy system.

### ***What is China 'threat'?***

- China is the world's largest producer of 16 critical minerals.
- China alone is responsible for some 70% and 60% of global production of cobalt and rare earth elements, respectively, in 2019.
- The level of concentration is even higher for processing operations, where China has a strong presence across the board.
- China's share of refining is around 35% for nickel, 50-70% for lithium and cobalt, and nearly 90% for rare earth elements.
- It also controls cobalt mines in the Democratic Republic of Congo, from where 70% of this mineral is sourced.
- In 2010, China suspended rare earth exports to Japan for two months over a territorial dispute.

### ***What are countries around the world doing about it?***

- US has shifted its focus on expanding domestic mining, production, processing, and recycling of critical minerals and materials.
- India has set up KABIL or the Khanij Bidesh India Limited, a joint venture of three public sector companies, to "ensure a consistent supply of critical and strategic minerals to the Indian domestic market".
- Australia's Critical Minerals Facilitation Office (CMFO) and KABIL had recently signed an MoU aimed at ensuring reliable supply of critical minerals to India.



- The UK has unveiled its new Critical Minerals Intelligence Centre to study the future demand for and supply of these minerals

## Purchasing Managers Index

### Context:

- India's services firms saw growth in new business and output accelerate to a 11-year high in June, as per the survey-based S&P Global India Services Purchasing Managers Index (PMI).
- The index rose to 59.2 last month, from 58.9 in May, signalling a strengthening in demand across the services sector, which had borne the brunt of the COVID- 19 pandemic.

### Relevance:

- GS-III: Indian Economy (Growth and Development of Indian Economy, Mobilization of Resources)

### Dimensions of the Article:

- 1. What is Purchasing Managers' Index (PMI)?
- 2. Understanding PMI

### What is Purchasing Managers' Index (PMI)?

- The Purchasing Managers' Index (PMI) is an index of the prevailing direction of economic trends in the manufacturing and service sectors.
- It consists of a diffusion index that summarizes whether market conditions, as viewed by purchasing managers, are expanding, staying the same, or contracting.
- The purpose of the PMI is to provide information about current and future business conditions to company decision makers, analysts, and investors.
- In simple words, Purchasing Managers Index (PMI) is a measure of the prevailing direction of economic trends in manufacturing.
- PMI is a survey-based measure that asks the respondents about changes in their perception about key business variables as compared with the previous month.
- The purpose of the PMI is to provide information about current and future business conditions to company decision makers, analysts, and investors.
- It is calculated separately for the manufacturing and services sectors and then a composite index is also constructed.
- PMI is compiled by IHS Markit for more than 40 economies worldwide – HIS Markit is a global leader in information, analytics and solutions for the major industries and markets that drive economies worldwide.

### Understanding PMI

- The PMI is a number from 0 to 100.
- A print above 50 means expansion, while a score below that denotes contraction.
- A reading at 50 indicates no change.
- If PMI of the previous month is higher than the PMI of the current month, it represents that the economy is contracting.
- It is usually released at the start of every month. It is, therefore, considered a good leading indicator of economic activity.
- It is different from the Index of Industrial Production (IIP), which also gauges the level of activity in the economy.
- IIP covers the broader industrial sector compared to PMI.
- However, PMI is more dynamic compared to a standard industrial production index.

## G-Sec yields

### Context:

- Recently, the government said that it had decided to keep interest rates on small savings instruments unchanged for the July-September quarter, defying expectations of a hike in rates given the sharp rise in government security (G-sec) yields over the last three months.

### Relevance:

- GS III- Indian Economy

### Dimensions of the Article:

1. What are G-Sec yields?
2. How are G-sec yields calculated?
3. How do G-sec yields go up and down?
4. What do G-sec yields show?

### What are G-Sec yields?

- G-secs, or government securities or government bonds, are instruments that governments use to borrow money. Governments routinely keep running into deficits — that is, they spend more than they earn via taxes. That is why they need to borrow from the people.
- But G-secs are different from everyday lending between two private individuals or entities.
- For one, G-secs carry the lowest risk of all investments.
- After all, the chances of the government not paying back your money are almost zero. It is thus the safest investment one can make.
- The other ways in which G-Secs are different are in the manner in which they are structured, and how their effective interest rates (also called yields) are calculated.

### How are G-sec yields calculated?

- G-sec yields change over time; often several times during a single day. This happens because of the manner in which G-secs are structured.
- Every G-sec has a face value, a coupon payment and price. The price of the bond may or may not be equal to the face value of the bond.

### Example:

- Suppose the government floats a 10-year G-sec with a face value of Rs 100 and a coupon payment of Rs 5.
- If one were to buy this single G-sec from the government, it would mean that one will give Rs 100 to the government today and the government will promise to 1) return the sum of Rs 100 at the end of tenure (10 years), and 2) pay Rs 5 each year until the end of this tenure.
- At this point, the face value of this G-sec is equal to its price, and its yield (or the effective interest rate) is 5%.

### How do G-sec yields go up and down?

- Imagine a scenario in which the government floats just one G-sec, and two people want to buy it.
- Competitive bidding will ensue, and the price of the bond may rise from Rs 100 (its face value) to Rs 105. Now imagine another lender in the picture, which pushes the price further up to Rs 110.
- But here is the crucial thing: the coupon payment on the G-sec is still Rs 5.

- So, if you bought the bond at Rs 100, then the yield is 5% but if the price of the bond goes up to Rs 105 then the yield will fall; it will become 4.76% because the second person will be getting Rs 5 over an investment of Rs 105.
- Further, if bidding leads to the price going to Rs 110, then the third person (who finally bought the bond at Rs 110) will find that the yield has fallen further to 4.54%; because the third person would have invested Rs 110 for the same return of Rs 5.

### *What do G-sec yields show?*

- G-secs are the safest investments in any economy, and the G-sec yield is the lowest risk-free interest rate in any economy.
- As such, they are a good way to figure out the broader trend of interest rates in the economy.

### *If G-sec yields (say for a 10-year bond) are going up,*

- It would imply that lenders are demanding even more from private sector firms or individuals; that's because anyone else is riskier when compared to the government.
- It is also known that when it comes to lending, interest rates rise with the rise in risk profile. As such, if G-sec yields start going up, it means lending to the government is becoming riskier.
- If you read that the G-sec yields are going up, it suggests that the bond prices are falling.
- But the prices are falling because fewer people want to lend to the government.
- And that in turn happens when people are worried about the government's finances (or its ability to pay back).
- The government's finances may be in trouble because the economy is faltering and it is unlikely that the government will meet its expenses.
- By the reverse logic, if a government's finances are sorted, more and more people want to lend money to such a G-sec. This in turn, leads to bond prices going up and yields coming down.

## **The free fall of the rupee**

- **Context:**
- The Indian rupee hit an all-time low against the U.S. dollar this week weakening past the 79 rupees to a dollar mark and selling as low as 79.05 against the dollar.

**Relevance:** GS III- Indian Economy

### *Dimensions of the Article:*

- 1. What is happening with the rupee?
- 2. What determines the rupee's value?
- 3. What is Currency Depreciation and what are its causes?

### *What is happening with the rupee?*

- The Indian rupee has been witnessing a steady decline this year, losing more than 6% against the U.S. dollar since the beginning of 2022.

### *India's forex reserves:*

- It has also dropped below \$600 billion, plunging by more than \$50 billion since September, 2021, when forex reserves stood at an all-time high of \$642 billion.
- The drop in India's forex reserves is believed to be largely due to steps taken by the Reserve Bank of India to support the rupee.
- RBI officials, however, have noted that the drop in forex reserves is due to a fall in the dollar value of assets held as reserves by the RBI.

- **For instance**, if a portion of the reserves are in euros and the euro depreciates against the dollar, this would cause a drop in the value of forex reserves.

#### ***Aim of the RBI's policy:***

- To allow the rupee to find its natural value in the market but without undue volatility or causing unnecessary panic among investors.
- State-run banks are usually instructed by the RBI to sell dollars in order to offer some support to the rupee.
- By thus selling dollars in the open market in exchange for rupees, the RBI can improve demand for the rupee and cushion its fall.

#### ***What determines the rupee's value?***

- The value of any currency is determined by demand for the currency as well as its supply.
- When the supply of a currency increases, its value drops.
- On the other hand, when the demand for a currency increases, its value rises.

#### ***In the wider economy,***

- Central banks determine the supply of currencies, while the demand for currencies depends on the amount of goods and services produced in the economy.

#### ***In the forex market,***

- The supply of rupees is determined by the demand for imports and various foreign assets. So, if there is high demand to import oil, it can lead to an increase in the supply of rupees in the forex market and cause the rupee's value to drop.
- The demand for rupees in the forex market, on the other hand, depends on foreign demand for Indian exports and other domestic assets.
- So, for instance, when there is great enthusiasm among foreign investors to invest in India, it can lead to an increase in the supply of dollars in the forex market which in turn causes the rupee's value to rise against the dollar.

#### ***What is Currency Depreciation and what are its causes?***

- Currency depreciation is a fall in the value of a currency in terms of its exchange rate versus other currencies.
- Economic fundamentals, interest rate differentials, political instability, or risk aversion can cause currency depreciation.
- Orderly currency depreciation can increase a country's export activity as its products and services become cheaper to buy.
- Currency depreciation in one country can spread to other countries.
- Countries with weak economic fundamentals, such as chronic current account deficits and high rates of inflation, generally have depreciating currencies.
- Currency depreciation, if orderly and gradual, improves a nation's export competitiveness and may improve its trade deficit over time. But an abrupt and sizable currency depreciation may scare foreign investors who fear the currency may fall further, leading them to pull portfolio investments out of the country.
- These actions will put further downward pressure on the currency.
- Easy monetary policy and high inflation are two of the leading causes of currency depreciation. When interest rates are low, hundreds of billions of dollars chase the highest yield. Expected interest rate differentials can trigger a bout of currency depreciation.



- Central banks will increase interest rates to combat inflation as too much inflation can lead to currency depreciation.
- Additionally, inflation can lead to higher input costs for exports, which then makes a nation's exports less competitive in the global markets. This will widen the trade deficit and cause the currency to depreciate

### ***Impact of the drop***

- Depreciation in rupee is a double-edged sword for the Reserve Bank of India.
- While a weaker currency may support exports amid a nascent economic recovery from the pandemic, it poses risk of imported inflation, and may make it difficult for the central bank to maintain interest rates at a record low for longer.

## **Trade Infrastructure for Export Scheme**

- **Focus:** GS-III: Indian Economy

### ***Why in News?***

- Recently, the central government has released Rs 206 crore to states for the promotion of exports under the Trade Infrastructure for Export Scheme (TIES) initiative.
- Under the TIES, financial assistance for 27 export infrastructure projects have been approved during FY 2019-20 to 2022-23.

### ***About Trade Infrastructure for Export Scheme (TIES)***

- The Trade Infrastructure for Export Scheme (TIES) was introduced by the Union Ministry of Commerce and Industry in 2017.
- The State Governments have been requesting the Center's assistance in the development of export infrastructure ever since the Assistance to States for Development of Export Infrastructure and Allied Activities (ASIDE) Scheme was delinked in 2015.
- The scheme can be availed by States through their implementing agencies, for infrastructure projects with significant export linkages like Border Haats, Land customs stations, quality testing and certification labs, cold chains, trade promotion centres, export warehousing and packaging, SEZs and ports/airports cargo terminuses.
- The Central Government will provide grant-in-aid for infrastructure creation, typically not exceeding the equity contributed by the implementing agency or 50% of the project's total equity.
- This grant may make up to 80% of the total equity for projects in North Eastern and Himalayan States, including the UT of J&K and Ladakh.

### ***Negative List of Projects that will not be Considered under this Scheme:***

- Projects which are covered under sector specific schemes like textiles, electronics, IT.
- General infrastructure projects like highways, power etc.
- Projects where an overwhelming export linkage cannot be established.

### ***Objective:***

- To assist Central and State Government agencies in the creation of appropriate infrastructure for the growth of exports.

## **Foreign Direct Investment**

- **Focus:** GS-III: Indian Economy (Growth and Development of Indian Economy, External Sector)

### ***Why in News?***

- Singapore (27.01%) and USA (17.94%) have emerged as top 2 sourcing nations in equity flows into India in FY2021-22 followed by Mauritius (15.98%), Netherland (7.86%) and Switzerland (7.31%).

#### ***Details:***

- It may be noted that as per the UNCTAD World Investment Report (WIR) 2022, in its analysis of the global trends in FDI inflows, India has improved one position to 7th rank among the top 20 host economies for 2021.
- India is rapidly emerging as a preferred country for foreign investments in the manufacturing sector. FDI Equity inflow in Manufacturing Sectors have increased by 76% in FY 2021-22 (USD 21.34 billion) compared to previous FY 2020-21 (USD 12.09 billion).

#### ***About Foreign Direct Investment (FDI)***

- Foreign Direct Investment (FDI) is an investment in the form of a controlling ownership in a business in one country by an entity based in another country. It is thus distinguished from a Foreign Portfolio Investment by a notion of direct control.
- FDI may be made either “inorganically” by buying a company in the target country or “organically” by expanding the operations of an existing business in that country.
- Broadly, FDI includes “mergers and acquisitions, building new facilities, reinvesting profits earned from overseas operations, and intra company loans”.
- In a narrow sense, it refers just to building a new facility, and lasting management interest.

#### ***FDI in India***

- Foreign Direct Investment (FDI) is a major driver of economic growth and an important source of non-debt finance for the economic development of India.
- It has been the endeavor of the Government to put in place an enabling and investor friendly FDI policy. The intent all this while has been to make the FDI policy more investor friendly and remove the policy bottlenecks that have been hindering the investment inflows into the country.
- The steps taken in this direction during the last six years have borne fruit as is evident from the ever-increasing volumes of FDI inflows being received into the country. Continuing on the path of FDI liberalization and simplification, Government has carried out FDI reforms across various sectors.

#### ***FDI Routes in India***

- Foreign investment was introduced in 1991 under Foreign Exchange Management Act (FEMA), driven by then FM Manmohan Singh.
- There are three routes through which FDI flows into India. They are described in the following table:
- Automatic route: By this route, FDI is allowed without prior approval by Government or RBI.
- Government route: Prior approval by the government is needed via this route. The application needs to be made through Foreign Investment Facilitation Portal, which will facilitate the single-window clearance of FDI application under Approval Route.
- Global Depository Receipts – GDR
- Foreign Depository Receipts – FDR
- Foreign Currency Convertible Bonds – FCCB
- Foreign institutional investors – FII

#### ***Government Measures to Promote FDI***

- Factors such as favourable demographics, impressive mobile and internet penetration, massive consumption and technology uptake, played an important role in attracting the investments.
- Launch of Schemes attracting investments, such as, National technical Textile Mission, Production Linked Incentive Scheme, Pradhan Mantri Kisan SAMPADA Yojana, etc.

- The government has elaborated upon the initiatives under the Atmanirbhar Bharat to encourage investments in different sectors.
- As a part of its Make in India initiative to promote domestic manufacturing, India deregulated FDI rules for several sectors over the last few years.

## Ude Desh Ka Aam Naagrik (UDAN)

- Annual passenger traffic increased from 2.6 lakh to 33 lakh in five years under UDAN Scheme

### *About Ude Desh Ka Aam Naagrik (UDAN):*

- **Nodal:** Ministry of Civil Aviation (MoCA)
- It is an innovative scheme to develop the regional aviation market.

### *Objective:*

- To create affordable yet economically viable and profitable flights on regional routes so that flying becomes affordable to the common man even in small towns.
- To stimulate regional air connectivity and making air travel affordable to the masses.
- The scheme envisages providing connectivity to un-served and underserved airports of the country through the revival of existing air-strips and airports.
- The scheme is operational for a period of 10 years.
- UDAN is a market driven ongoing scheme where bidding rounds are conducted periodically for covering more destinations/stations and routes under the scheme.
- Interested airlines assess the demand on particular routes connecting these airports and submit their proposals at the time of bidding.

### *UDAN 1.0*

- Under this phase, 5 airlines companies were awarded 128 flight routes to 70 airports (including 36 newly made operational airports)

### *UDAN 2.0*

- In 2018, the Ministry of Civil Aviation announced 73 underserved and unserved airports. For the first time, helipads were also connected under phase 2 of UDAN scheme.

### *UDAN 3.0*

- Key Features of UDAN 3 included:
- Inclusion of Tourism Routes under UDAN 3 in coordination with the Ministry of Tourism.
- Inclusion of Seaplanes for connecting Water Aerodromes.
- Bringing in a number of routes in the North-East Region under the ambit of UDAN.

### *UDAN 4.0:*

- The 4th round of UDAN was launched in December 2019 with a special focus on North-Eastern Regions, Hilly States, and Islands.
- The airports that had already been developed by Airports Authority of India (AAI) are given higher priority for the award of VGF (Viability Gap Funding) under the Scheme.
- Under UDAN 4, the operation of helicopter and seaplanes is also been incorporated.

## RBI Seeks Ban on cryptocurrency

### *Context:*

- The Reserve Bank of India (RBI) has recommended a ban on cryptocurrencies citing 'destabilising effects' for the country's monetary and fiscal health.
- China has declared all cryptocurrency transactions illegal, effectively imposing a complete ban, whereas El Salvador has permitted Bitcoin as legal tender.

**Relevance:** GS III- Indian Economy

***Dimensions of the Article:***

- 1. What is the state of cryptocurrency right now?
- 2. What are the RBIs Concerns?
- 3. What are cryptocurrencies?
- 4. How are they different from actual currency?
- 5. How do cryptocurrencies derive their value?

***What is the state of cryptocurrency right now?***

- In India, there is currently no legislation that addresses cryptocurrency. Owning cryptocurrencies is still legal in India. The Reserve Bank of India's restriction on the trade of cryptocurrency in India was overturned by the Supreme Court in 2020.
- Since as early as 2013, the central bank has issued warnings against the use of virtual currencies.

***What are the RBIs Concerns?***

- Because every modern money must be issued by the government or the central bank, cryptocurrencies are not considered to be legal tender.
- While monetary policy and their status as legal tender serve as the foundation for the value of fiat currencies, the value of cryptocurrencies is solely based on speculation and unfounded expectations of high returns, which will have a destabilising effect on a nation's monetary and fiscal stability.

***What are cryptocurrencies?***

- Cryptocurrencies are e-currencies that are based on decentralized technology and operate on a distributed public ledger called the blockchain.
- Blockchain records all transactions updated and held by currency holders.
- The technology allows people to make payments and store money digitally without having to use their names or a financial intermediary such as banks.
- Cryptocurrency units such as Bitcoin are created through a 'mining' process which involves using a computer to solve numerical problems that generate coins.
- Bitcoin was one of the first cryptocurrencies to be launched and was created in 2009.

***How are they different from actual currency?***

- The Main difference is that unlike actual currencies cryptocurrencies are not issued by Governments.
- Actual money is created or printed by the government which has a monopoly in terms of issuing currency. Central banks across the world issue paper notes and therefore create money and assign paper notes their value.
- Money created through this process derives its value via government fiat, which is why the paper currency is also called fiat currency.
- In the case of cryptocurrencies, the process of creating the currency is not monopolized as anyone can create it through the mining process.

***How do cryptocurrencies derive their value?***

- Any currency has its value if it can be exchanged for goods or services and if it is a store of value (it can maintain purchasing power over time).



- Cryptocurrencies, in contrast to fiat currencies, derive their value from exchanges.

## The Pakistan and IMF talks

### • *Context:*

- Recently, the staff-level talks between Pakistan and the International Monetary Fund (IMF) concluded for the seventh and eighth review under Extended Fund Facility (EFF).

### *Relevance:*

- GS III- Indian Economy

### *Dimensions of the Article:*

- 1. About International Monetary Fund (IMF)
- 2. What was the Extended Fund Facility (EFF)?
- 3. How important is the IMF support to Pakistan?
- 4. Why have the Pakistan-IMF relations remained complicated?
- 5. What lies ahead for Pakistan and the IMF?

### *About International Monetary Fund (IMF)*

- The International Monetary Fund (IMF) is an international organization headquartered in Washington, D.C.
- It consists of 189 countries working to foster global monetary cooperation, secure financial stability, facilitate international trade, promote high employment and sustainable economic growth, and reduce poverty around the world.
- It periodically depends on the World Bank for its resources.
- Through the fund and other activities such as the gathering of statistics and analysis, surveillance of its members' economies, and the demand for particular policies, the IMF works to improve the economies of its member countries.

### *Functions of the IMF*

- To provide financial assistance to member countries with balance of payments problems, the IMF lends money to replenish international reserves, stabilize currencies and strengthen conditions for economic growth. Countries must embark on structural adjustment policies monitored by the IMF.
- It oversees the international monetary system and monitors the economic and financial policies of its 189 member countries. As part of this process, which takes place both at the global level and in individual countries, the IMF highlights possible risks to stability and advises on needed policy adjustments.
- It provides technical assistance and training to central banks, finance ministries, tax authorities, and other economic institutions. This helps countries raise public revenues, modernize banking systems, develop strong legal frameworks, improve governance, and enhance the reporting of macroeconomic and financial data. It also helps countries to make progress towards the Sustainable Development Goals (SDGs).

### *What was the Extended Fund Facility (EFF)?*

- The 39-month EFF between the two was signed in July 2019 to provide funds amounting to Self-Drawing Rights (SDR) — \$4,268 million.
- The EFF was signed by Pakistan to address the medium-term balance of payment problem, and work on structural impediments and increase per capita income.

- The IMF placed demands including fiscal consolidation to reduce debt and build resilience, the market-determined exchange rate to restore competitiveness, eliminate 'quasi-fiscal' losses in the energy sector and strengthened institutions with transparency.
- The decision to freeze the fuel prices by the then Pakistani President Imran Khan in February 2022 was considered a major deviation under the EFF benchmarks.
- Mr. Khan's government, that gave tax amnesties to the industrial sector, impacted the tax regime and a structural benchmark for fiscal consolidation.
- Loans under Kamyab Pakistan Program were another point of contention. The IMF insisted on its demands before approving any release of the tranche.

#### ***How important is the IMF support to Pakistan?***

- Pakistan's economic situation is dire. According to the Economic Survey of Pakistan 2022, the fiscal deficit in FY 22 was \$18.6 billion, and the net public debt at \$252 billion, which is 66.3% of the GDP.
- The power sector's circular debt is \$14 billion.
- According to the State Bank of Pakistan's latest report, the current account deficit has peaked to \$48.3 billion.
- The budgeted expenditure outlay for FY 23 states that 41% (\$19 billion) of total expenditure will be used in debt servicing.
- The IMF's support in addressing the above numbers is crucial. According to the latest quarterly report of the Economic Affairs Division, during the financial year 2021-22, the IMF's contribution to the total external debt (of \$9.4 billion), is only \$834 million.
- However, the IMF's support is not limited to fixing the balance sheet, but validates and provides economic confidence to other multilateral institutions.

#### ***Why have the Pakistan-IMF relations remained complicated?***

- Structural reforms require long-term commitment, which have been sacrificed due to Pakistan's short-sighted political goals; hence the urge to go to the IMF for fiscal stability has been repeated over time.
- Pakistan has signed various lending instruments with the IMF, and sought support from IMF around 22 times. However, only once has a programme been completed.
- Since the 1990s, the IMF has placed specific demands but were addressed by Pakistan in bits and pieces.
- For example, during the Pakistan People's Party (PPP) rule in 2008, Pakistan was to implement economic reforms, including improvements in tax administration, removal of tax exemptions as well structural reforms. However, successive governments kept domestic political calculations a priority, than the economic reforms.
- The latest EFF was on the verge of collapse, but the ruling coalition government continued its efforts to revive the discussions.
- To address the structural benchmarks of the IMF, the authorities have worked on specific legislations, for example, the State Bank of Pakistan (SBP) amendment act, and the Finance Bill 2022.

#### ***What lies ahead for Pakistan and the IMF?***

- Despite the latest agreement, the road ahead for the IMF and Pakistan is not an easy one.
- Political calculations and the elections ahead will play a role in Pakistan's economic decision-making.
- In 2019, the Director-General Debt Office of the Ministry of Finance revealed that Pakistan has to pay \$31 billion by 2026. Total public debt as a percentage of gross domestic product is expected to increase further.
- There is also a narrative that Pakistan has the fifth largest population with nuclear weapons that cannot be allowed to fail.
- A section within Pakistan also places the geo-strategic location of the country would provide an edge for cooperation, rather than coercion. Hence, this section believes, the IMF would continue to support.

- Given the IMF's increased assertion, Pakistan's political calculations and the elections ahead, the relationship between the two is likely to remain complicated.

## Increase in Current Account Deficit

- Context:**
- The Finance Ministry has asserted that the current account deficit (CAD) could, however, deteriorate this year mainly due to rising trade deficits.

### Relevance:

- GS III- Indian Economy (Growth and Development)

### Dimensions of the Article:

1. What is the Current Account Deficit?
2. What is Balance of Payments?
3. What has been the recent trend?
4. What are the reasons for the current account deficit?

### What is the Current Account Deficit?

- A current account deficit occurs when the total value of goods and services a country imports exceeds the total value of goods and services it exports.
- The balance of exports and imports of goods is referred to as the trade balance.
- Trade Balance is a part of 'Current Account Balance'.
- According to an earlier report of 2021, High Oil Imports, High Gold Imports are the major driving force, widening the CAD.

### What is Balance of Payments?

- BoP of a country can be defined as a systematic statement of all economic transactions of a country with the rest of the world during a specific period, usually one year.
- Purposes of Calculation of BoP:
- Provides information about a country's financial and economic situation.
- Can be used to evaluate whether the value of a country's currency is appreciating or depreciating.
- Assists the government in making budgetary and trade policy decisions.
- Provides crucial data for analysing and comprehending the economic dealings of a country with other countries.

### Components of the Balance of payments (BOP)

- Current account:** It includes the financial transactions dealing with the export and import of goods, services, unilateral transfers, investment income etc.
- Capital account:** It includes the financial transactions dealing with assets such as foreign direct investment, foreign portfolio investment, foreign loans etc.
- Official reserve transactions:** It conducted by the central bank in case of the BOP deficit or BOP surplus.
- Errors and omissions:** It is the element of BOP (other than the current account and the capital account) which refers to the balancing items reflecting the inability to record all the international financial transactions.

### What has been the recent trend?

- In Q4 FY 2021-22, CAD improved to 1.5% of GDP or \$13.4 billion from 2.6% of GDP in Q3 FY 2021-22 (\$22.2 billion).

- The difference between the value of goods imported and exported fell to \$54.48 million in Q4FY 2021-22 from \$59.75 million in Q3 FY2021-22.
- However, based on robust performance by computer and business services, net service receipts rose both sequentially and on a year-on-year basis.
- Remittances by Indians abroad also rose.

***What are the reasons for the current account deficit?***

- Intensifying geopolitical tensions and supply chain disruptions leading to crude oil and commodity prices soaring globally have been exerting upward pressure on the import bill.
- A rise in prices of coal, natural gas, fertilizers, and edible oils have added to the pressure on trade deficit.
- However, with global demand picking up, merchandise exports have also been rising.

## **The DESH Bill: Overhauling machinery for SEZ's**

- **Context**
- The Centre intends to introduce the Development of Enterprise and Service Hubs (DESH) Bill in the Parliament's monsoon session, which will overhaul the special economic zones (SEZ) legislation.

***Relevance:***

- Mains Paper 3: Effects of Liberalization on The Economy, Changes in Industrial Policy and their effects on Industrial Growth

***Mains Question:***

- What are the current challenges to SEZs in India? What are the issues these zones has with WTO, comment? How does the new proposed DESH bill can enhance the working and productivity of SEZs?

***Special Economic Zones***

- An SEZ is a territory within a country that is typically duty-free (Fiscal Concession) and has distinct business and commercial laws, with the primary goal of encouraging investment and job creation.
- SEZs are also established to improve the administration of these areas, thereby increasing the ease of doing business.

***India's Special Economic Zones:***

- Kandla, Gujarat, became Asia's first EPZ (Export Processing Zone) in 1965.
- While these EPZs had a similar structure to SEZs, the government began to establish SEZs under the Foreign Trade Policy in 2000 to address the infrastructural and bureaucratic challenges that were seen as limiting the success of EPZs.
- In 2005, the Special Economic Zones Act was passed. The Act, along with the SEZ Rules, went into effect in 2006.
- SEZs were, however, operational in India from 2000 to 2006. (under the Foreign Trade Policy).
- India's SEZs were designed to closely resemble China's successful model.
- Currently, 379 SEZs have been notified, with 265 of them operational. SEZs are concentrated in five states: Tamil Nadu, Telangana, Karnataka, Andhra Pradesh, and Maharashtra.
- The apex body is the Board of Approval, which is led by the Secretary of Commerce (Ministry of Commerce and Industry).
- The Ministry of Commerce and Industry formed the Baba Kalyani-led committee to study India's existing SEZ policy, and it submitted its recommendations in November 2018.



- It was established with the broad goal of evaluating SEZ policy in order to make it WTO (World Trade Organization) compatible, as well as bringing in global best practises to maximise capacity utilisation and potential output of SEZs.

### ***Challenges to SEZs***

- Unutilized Land in SEZs: Due to a lack of demand for SEZ space as well as disruptions caused by the pandemic.
- Existence of Several Models: There are numerous economic zone models, including SEZs, coastal economic zones, the Delhi-Mumbai Industrial Corridor, the National Investment and Manufacturing Zone, food parks, and textile parks, all of which present challenges in integrating the various models.
- ASEAN Countries Competitors: Many ASEAN countries have tweaked their policies in recent years in order to attract global players to invest in their SEZs, and they have also worked on a set of skill development initiatives.
- As a result, Indian SEZs have lost some of their global competitive advantages and require new policies.

### ***Why should the existing SEZ Act be replaced?***

- The World Trade Organization's dispute settlement panel ruled that India's export-related programmes, including the SEZ Scheme, were in violation of WTO rules.
- India has been accused of providing tax breaks to exports via SEZs.
- Countries are not permitted to directly subsidise exports because it distorts market prices.
- SEZs also began to lose their allure following the implementation of a minimum alternate tax and a sunset clause to eliminate tax breaks.

### ***What distinguishes the DESH Bill?***

- The DESH legislation goes beyond simply encouraging exports.
- It has a much broader goal of increasing domestic manufacturing and job creation through 'development hubs.'
- As mandated by the SEZ regime, these hubs will no longer be required to be net foreign exchange positive cumulatively in five years (i.e., export more than they import).
- They will be able to sell more easily in the domestic market. As a result, the hubs will be WTO-compliant.
- The DESH legislation also includes an online single-window portal for granting time-bound approvals for the establishment and operation of the hubs.

### ***Will these hubs provide any tax breaks?***

- It's still unclear yet The Draft Bill does state, however, that states and the Centre will be permitted to provide additional incentives in the form of tax rebates, incentives, exemptions, and duty drawbacks.
- Subsidy schemes for goods and services may be offered at these hubs.
- States and the federal government may take new steps to expedite clearances and simplify compliance.

### ***Will selling in the domestic market be easier?***

- Companies can sell in the domestic market with duties only on imported inputs and raw materials rather than the finished product.
- In the current SEZ regime, duty is paid on the final product when a product is sold in the domestic market; additionally, unlike in the case of SEZs, there is no mandatory payment requirement in forex.
- However, the government may levy an equalisation tax on goods or services supplied to the domestic market in order to bring taxes in line with those provided by units outside the country.

### ***How will states participate in DESH?***

- DESH will undoubtedly play a larger role.
- The commerce department at the Centre made the majority of decisions during the SEZ regime.
- States can now participate and even send recommendations for development hubs directly to a central board for approval.
- Furthermore, state boards would be established to oversee the operation of the hubs.
- They would be able to approve imports or procure goods, as well as monitor the use of goods or services, warehousing, and trading in the development hub.

#### *The way forward*

- If India truly requires special hubs, the government must address critical gaps in existing SEZ law through the DESH bill, which must be thoroughly considered before being introduced to Parliament.
- The law's effective implementation could act as a growth driver in India.

## AGRICULTURE

### Direct Seeding of Rice

#### *Context:*

- Recently, the state of Punjab was unable to achieve its target in the water-saving method (direct-seeded rice).

#### *Relevance:*

- GS III- Agriculture

#### *Dimensions of the Article:*

- 1. What is DSR?
- 2. How much water can DSR help save?
- 3. Advantages of DSR tech
- 4. Disadvantages of DSR tech

#### *What is DSR?*

- **Direct Seeding of Rice (DRS):**
- Direct Seeded Rice (DSR), also known as the 'broadcasting seed technique,' is a water-saving method of sowing paddy.
- In DSR, a tractor-powered machine drills the pre-germinated seeds straight into the field.
- This procedure does not require nursery preparation or transplantation.
- Farmers only need to level their soil and apply pre-sowing irrigation once.

#### **Normal Paddy Transplanting:**

- Farmers create nurseries where paddy seeds are first sowed and nurtured into young plants before transplanting paddy.
- The nursery seed bed takes up 5-10% of the transplanted area.
- These seedlings are then pulled and transplanted on the puddled land 25-35 days later.

#### *How much water can DSR help save?*

- According to an analysis by the Punjab Agriculture University, DSR technique can help save 15% to 20% water. In some cases, water saving can reach 22% to 23%.
- With DSR, 15-18 irrigation rounds are required against 25 to 27 irrigation rounds in traditional method.

- Since area under rice in Punjab is almost stagnant around 3 million hectares for the last three to four years, DSR can save 810 to 1,080 billion litres water every year if entire rice crop is brought under the technique.

#### ***Advantages of DSR tech:***

- Solve labour shortage problem: Like the traditional method it does not require a paddy nursery and transplantation of 30 days old paddy nursery into the main puddled field. With DSR, paddy seeds are sown directly with machine.
- Offers avenues for ground water recharge: It prevents the development of hard crust just beneath the plough layer due to puddled transplanting and it matures 7-10 days earlier than puddle transplanted crop, therefore giving more time for management of paddy straw.
- Higher yield: A PAU study said that results from research trials and farmers' field survey have also indicated that yield, after DSR, are one to two quintals per acre higher than puddled transplanted rice.

#### ***Disadvantages of DSR tech:***

- **Suitability:** This is the most significant element since farmers must not seed it in light textured soils because this approach is only suitable for medium to heavy textured soils such as sandy loam, loam, clay loam, and silt loam, which make up around 80% of the state's land.
- Avoid using this approach in fields that were previously planted with crops other than rice (such as cotton, maize, or sugarcane), as DSR on these soils is more likely to suffer from iron deficiency and weed problems.
- **Compulsory Laser and Leveling:** The field should be levelled with a laser.
- **Herbicide Spraying:** Herbicide spraying must be done at the same time as sowing and the initial irrigation.

### **Is there a rice shortage?**

- **Context**
- While overall crop coverage has increased since last year, rice crop coverage has decreased. One of the causes is a lack of rainfall in Uttar Pradesh and Bihar. However, adequate stocks and widespread cultivation indicate that there should be no cause for concern.

**Relevance GS Paper 3: Agriculture-** Major cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints

- **Mains Question**
- How has the recent climate change affected cropping patterns? Explain the benefits and drawbacks of climate-resilient crops in the context of climate change. (250 Words)

#### ***Facts about Crops***

- The revival of the southwest monsoon this month has resulted in the total area sown under kharif crops not only recovering, but even exceeding last year's coverage from June to mid-July.
- However, paddy (rice) acreage was 12.50 lakh hectares (lh) as of July 15, down 17.4 percent from 155.53 lh the previous year.

#### ***Is this cause for concern?***

- On the surface, not much, as government godowns held more than 47.2 million tonnes (mt) of rice as of July 1. These were nearly three-and-a-half times the minimum level of stocks required to meet the quarter's "operational" (public distribution system) and "strategic reserve" (exigency) requirements. Rice stocks are still close to last year's highs.

- That comfort does not extend to wheat, where public stocks have fallen from alltime highs to 14-year lows in less than a year.
- Inflation-affected policymakers would fear a repeat of the wheat story in rice.
- In wheat, a single bad crop — the one scorched by the March-April 2022 heat wave — caused all of the damage, reducing stocks to just above the minimum buffer.

#### ***The stakes are higher in rice:***

- it is India's largest agricultural crop (accounting for more than 40% of total foodgrain output), and the country is also the world's largest exporter (a record 21.21 mt valued at \$9.66 billion was shipped out during the fiscal year ended March 2022).
- Unlike wheat, import options for rice are limited due to any production shortfall, despite India's own share of global trade in the cereal being more than 40%.

#### ***Why has acreage decreased?***

- Farmers start by planting paddy seeds in nurseries, where they grow into young plants.
- These seedlings are then uprooted and replanted in the main field, which is typically 10 times the size of the nursery seed bed, 25-35 days later.
- Nursery sowing is typically done prior to the monsoon rains. Farmers must wait for their arrival before beginning transplantation, which necessitates the field being "puddled," or tilled in standing water.
- To control weed growth in the early stages of the crop, the water depth must be maintained at 4-5 cm for the first three weeks or so after transplanting.
- All of this would be impossible without the monsoon, which has been exceptionally good this year. From June 1 to July 17, the country received 353.7 mm of rain, 12.7 percent more than the "normal" historical average for this period.
- Despite this, a vast paddy-growing belt stretching from Uttar Pradesh to West Bengal has received very little rain.
- Cumulative rainfall in West UP has been 55.5 percent below the long-term average, and in East UP, Bihar, Jharkhand, and Gangetic West Bengal, it has been 70 percent, 45.8 percent, 48.9 percent, and 45.1 percent, respectively.
- Due to insufficient rainfall, farmers in UP had planted only 26.98 lh of paddy by July 15, compared to 35.29 lh at the same time last season.
- Farmers in Bihar (from 8.77 lh to 6.06 lh), West Bengal (4.68 lh to 3.94 lh), and Jharkhand (2.93 lh to 1.02 lh) reported lower acreages as well. Those in Odisha, Chhattisgarh, and eastern Madhya Pradesh have also been affected, though the gap should narrow as the monsoon season approaches.

#### ***What is the gravity of the situation?***

- It certainly appears so in UP, where the western and eastern subdivisions have received only 90 mm and 79.6 mm of rain, respectively.
- In his area, paddy nursery sowing takes place from June 1 to June 10, and transplanting takes place from July 1 to July 10.
- This time, there was some rain near the end of June, but not much after that. "The seedlings should leave the nurseries in 25-35 days, after which they will age and have insufficient time to grow in the main field." "How will farmers transplant if there is no water?" he asked.
- Interestingly, farmers with access to basic irrigation in eastern Uttar Pradesh use the 'Sanda' double-transplanting method of paddy cultivation under delayed rainfall conditions.
- In this case, after 25 days in the nursery, the seedlings are uprooted and replanted in a puddled field that is only about twice the size of the former.
- After establishment, the plants begin tillering and are thus rejuvenated for the next 10-15 days. When it rains, they are uprooted and replanted in the main field, which is ten times the size of the original nursery.



- Sanda paddy yields are said to be higher than regular one-step transplanting. Because the Sanda plants have already tillered, their establishment in the main field would be near 100 percent with little mortality.

### *So, is there going to be a rice crisis?*

- Not right now. To begin, the India Meteorological Department predicts that the current monsoon trough, which is active and south of its normal position, will "very likely gradually shift northwards from tonight (Sunday)". This should provide much-needed relief to farmers in the Gangetic plains in the coming days.
- Second, unlike wheat, which is grown only in a few states north of the Vindhyas, paddy cultivation occurs across a larger geographical area. Rice is also a kharif (monsoon) and rabi (winter-spring) crop.
- As a result, losses in one area or season may be offset by gains in another. Everyone in wheat, from farmers to traders to policymakers, was caught off guard by the sudden rise in temperatures after mid-March, which reduced grain yields by a fifth or more.
- Rice is less likely to reveal major negative surprises. And with current stocks, it should be doable.

## Direct Seeding of Rice

- **Context:**
- Punjab is not only a long way away from its target of Direct Seeding of Rice (DSR) for this year (as it could only achieve 6.7% of the total target) but also the state has seen 85.7% decline in DSR area from the last season.

### *Relevance:*

- GS III- Agriculture

### *Dimensions of the Article:*

- 1. What is DSR?
- 2. How much water can DSR help save?
- 3. Advantages of DSR tech
- 4. Disadvantages of DSR tech

### *What is DSR?*

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- ***Offers avenues for ground water recharge:*** It prevents the development of hard crust just beneath the plough layer due to puddled transplanting and it matures 7-10 days earlier than puddle transplanted crop, therefore giving more time for management of paddy straw.
- ***Higher yield:*** A PAU study said that results from research trials and farmers' field survey have also indicated that yield, after DSR, are one to two quintals per acre higher than puddled transplanted rice.

#### ***Disadvantages of DSR tech:***

- ***Suitability:*** This is the most significant element since farmers must not seed it in light textured soils because this approach is only suitable for medium to heavy textured soils such as sandy loam, loam, clay loam, and silt loam, which make up around 80% of the state's land.
- Avoid using this approach in fields that were previously planted with crops other than rice (such as cotton, maize, or sugarcane), as DSR on these soils is more likely to suffer from iron deficiency and weed problems.
- ***Compulsory Laser and Leveling:*** The field should be levelled with a laser.
- ***Herbicide Spraying:*** Herbicide spraying must be done at the same time as sowing and the initial irrigation.

## INDUSTRY AND INFRASTRUCTURE

#### ***Context:***

- Recently, the final 20 MW of the 100 MW Ramagundam floating solar PV project's commercial operation date was recently announced.
- With this, the 100 MW Ramagundam floating solar PV project in Telangana is declared operational from 1st July 2022.
- It is the largest project of its kind in India.

***Relevance:*** GS III- Renewable energy, Infrastructure

#### ***Dimensions of the Article:***

- **1.** What are Floating Solar Panels?
- **2.** Key Highlights of Ramagundam Project
- **3.** Environment Benefits of the Project
- **4.** Challenges

#### ***What are Floating Solar Panels?***

- These are platforms with photovoltaic (PV) modules attached on them that float on lakes, reservoirs, and, under the right circumstances, oceans and seas. The majority of the time, these platforms are moored on calmer bodies of water, including ponds, lakes, or reservoirs.
- These systems don't require land levelling or vegetation removal, are relatively quick to build, and operate quietly.

#### ***Key Highlights of Ramagundam Project***

- It is endowed with advanced technology and Environment-friendly features.
- The project spreads over 500 acres of the reservoir. Divided into 40 blocks, each having 2.5 MW.
- Each block consists of one floating platform and an array of 11,200 solar modules.
- The solar modules are placed on floaters manufactured with HDPE (High- Density Polyethylene) material.
- The entire floating system is anchored through special HMPE (High Modulus Polyethylene) rope to the dead weights placed in the balancing reservoir bed.
- This project is unique in the sense that all the electrical equipment including inverter, transformer, HT panel, and SCADA (Supervisory Control and Data Acquisition) are also on floating Ferro cement platforms.

### ***Environment Benefits of the Project***

- The least amount of land needed for associated evacuation plans is the most evident benefit from an environmental standpoint.
- Additionally, the presence of floating solar panels reduces the rate of water evaporation, aiding in water conservation.
- The water body beneath the solar modules helps to maintain their ambient temperature, hence boosting their efficiency and generation.
- Water evaporation of about 32.5 lakh cubic metres per year can be prevented. Similar to how 1,65,000 tonnes of coal use may be reduced annually, 2,10,000 tonnes of CO<sub>2</sub> emissions can be reduced as well.

### ***Challenges***

- The ***cost of installing floating solar panels is more*** than that of a conventional PV system for a number of reasons, including the fact that the technology is still in its infancy and hence necessitates the use of specialist knowledge and tools.
- Choosing rooftop installation or ground-mounted solar is more practical because many floating solar projects are big-scale and offer electricity to huge communities, businesses, or utility corporations.
- ***Understanding the geography*** of the waterbed and whether it is suitable for setting up float anchors is essential for developing floating solar systems.

## **Orderly transition from coal to renewables**

- ***Context***
- Following the Ukraine-Russia war, commodity prices, particularly energy prices, have risen globally, raising concerns about energy security.
- Additionally, in 2021, India's thermal power plants had an average of four days' worth of coal stock against a recommended level of 15-30 days, with a number of states expressing concerns about blackouts due to the coal shortage.
- In addition, for the first time since 2015, Coal India imported the fuel in 2021 for use by state and private power generation companies.

### ***Relevance***

- ***GS Paper – 3***- Mineral & Energy Resource, Energy Security, Location & Distribution of the Industries, Distribution of Key Natural Resources

### ***Mains Question***

- What are the main types of coal in India? Discuss various issues concerning coal mining in India.

### ***India's coal scenario***

- India has the fourth-largest coal reserve in the world. It is the world's secondlargest producer of fossil fuel after China, and it is home to Coal India, the world's largest coal miner, which accounts for 80 percent of the country's domestic output.
- The country generates more than 75% of its power from coal and is the world's third-largest electricity producer.
- The annual power demand will grow at the fastest rate in at least 38 years, according to the Ministry of Power.
- The mineable capacity of already allocated coal blocks is approximately 15% to 20% greater than the expected demand in 2030. Coal India, the state-owned company, has stated that it intends to increase domestic production to 1 billion mt coal by fiscal year 2023-24.

### *India's coal industry has a long history*

- The East India Company began commercial exploitation of the Raniganj Coalfield in West Bengal in 1774, launching the Indian coal industry.
- The National Coal Development Corporation was established in 1956 to further improve the sector.
- The Coal Mines (Nationalization) Act of 1973 was passed in order to nationalise all coal mines in India. In 2018, it was repealed.
- The Coal Mines (Special Provisions) Act, 2015, allowed private players to re-enter the sector. It allowed for the auctioning of coal mines based on the highest bid per tonne.

### *Coal Classification*

- Coal is derived from organic matter such as wood. When large areas of forest are buried beneath sediments, the wood burns and decomposes as a result of heat from below and pressure from above. The process produces coal but takes centuries to complete.
- Coal can be classified according to its carbon content and time period.
- It can be classified into following types based on its carbon content:
- **Anthracite** is the highest quality coal with the highest calorific value and contains 80 to 95 percent carbon. It has a slow blue flame and is found in small quantities in Jammu and Kashmir.
- **Bituminous**: It has a low moisture content, a carbon content of 60 to 80 percent, and a high calorific value. Bituminous deposits can be found in Jharkhand, West Bengal, Odisha, Chhattisgarh, and Madhya Pradesh.
- **Lignite** contains 40 to 55 percent carbon and is often brown in colour with a high moisture content, producing smoke when burned. Lignite deposits can be found in Rajasthan, Lakhimpur (Assam), and Tamil Nadu.
- Peat is the first stage of the wood-to-coal conversion process, with a low calorific value and less than 40% carbon content.

### *Policy Initiatives in India's Coal Sector*

- Policy declaration: The Coal Minister announced in February 2020 that the country would stop importing thermal coal in 2023-24.
- NCI (National Coal Index): This index was launched in 2020 to serve as a benchmark for revenue-sharing contracts that are executed following coal auctions. It reflects the change in coal price level in a given month relative to the fixed base year (2017-18).
- Reason for initiating NCI: The NCI was required because the wholesale price index (WPI) for coal does not include imported coal.
- Involving the private sector: A significant effort has been made to allow commercial mining in order to encourage the private sector to produce more coal. In the last two years, approximately 50 contracts have been finalised following preparatory action.

### *Increased domestic coal production is critical*



- Global price increase: The WPI for coal has been stable at around 131 for the last six months. During the same time period, the NCI increased from around 165 to around 238, reflecting the sharp rise in international coal prices.
- Reducing inflationary pressures: In response to global coal price increases, the domestic coal industry increased coal production by more than 30% from April to June 2022, helping to reduce inflationary pressures in the economy.
- Protecting the domestic economy: Increasing domestic coal production may help reduce the domestic economy's exposure to price volatility in international markets.
- Lower costs: Imported coal is five times more expensive than domestic coal.
- Ripple effect: Oil and gas account for more than 80% of India's total energy revenue of approximately \$94 billion, primarily in the form of taxes and duties, with coal and electricity accounting for approximately 16% and renewable energy accounting for less than 1%.
- As a result, coal mine closures will have a knock-on effect on local economies and services like health and education.

### ***Ineffective single point of view***

- Excessive emphasis on renewables: India, the world's second-largest coal producer, aims to build 500 gigatonnes (GW) of renewable energy capacity by 2030, up from about 150GW currently, and has pledged to achieve net-zero climate emissions by 2070.
- Increased fiscal burden: According to the renewable energy ministry, India needs to invest \$20 billion to \$27 billion per year in renewable energy to meet its 2030 target.
- Structured path: As coal is unavoidable in the near future, the path to 500 GW of renewables must be gradual, ensuring an orderly transition. Looking at coal solely through the lens of GHG emissions will provide a myopic view of energy requirements for a growing economy like India.

### ***Increasing domestic coal production much more***

- Sensitization: To meet rising energy demand, the financial community must be made aware of the importance of increasing domestic coal production.
- Specific policy instructions: The Ministry of Power recognised the need to increase coal-based generation in the country in its draught National Electricity Policy, which was released in May 2021. However, the significance of domestic coal-fired generation was not articulated clearly, and the policy has not yet been finalised.
- The requirement for a regulator: Due to the fact that current arrangements only apply to the public sector, a regulator acting as a single point of contact for the industry is required to address the issues and assist new private commercial miners in overcoming future problems.
- Diversification and quality: It is necessary to increase domestic coal production while also diversifying the production base. This must be accompanied by efforts to improve coal production quality.
- Addressing cross-subsidization: The undue financial burden placed on the coal sector as a result of various cross subsidies must be addressed, as high coal and coal-based generation prices will only encourage imported coal and expose the country to price risks posed by international energy prices.
- In order to increase coal production, a more holistic approach to environmental, social, and governance (ESG) criteria is required.

## **India's future economic and financial centre**

- **Context**
- Gujarat International Finance Tech-City (GIFT City), which was once barren land along the Sabarmati River, has emerged as the country's first Greenfield integrated city. It is the country's first and only International Financial Services Centre (IFSC), where banks, stock exchanges, and financial services firms have established global operations.

**Relevance**

- GS Paper – 3: Industrial Policy, Industrial Growth

**Mains question**

- As more companies join to establish their businesses and operations in the rapidly developing city, the GIFT City is likely to grow in importance in the coming years. Comment. (250 Words)

**Gift City**

- GIFT City is a greenfield central business district and integrated hub in Gujarat with the promise of world-class infrastructure to attract top global players.
- GIFT City is a multi-service Special Economic Zone (SEZ, 261 acres) in Gandhinagar that houses India's first IFSC and an exclusive Domestic Tariff Area (DTA, 625 acres).
- **Demarcation:** The plan is to develop 62 million square feet of built-up area, with commercial space accounting for 67%, residential space accounting for 22%, and social space accounting for 11%.
- **Evolution:** As Chief Minister of Gujarat in 2007, Prime Minister Narendra Modi conceived of GIFT City.
- **Long-term vision:** PM's vision was to build a globally-recognized financial centre capable of competing with the world's leading financial centres in London, Tokyo, Shanghai, Paris, Singapore, and Dubai.
- **GIFT City services:** GIFT IFSC offers capital market, offshore insurance, offshore banking and asset management, aircraft and ship leasing, and ancillary services.
- It also engages in cross-border merger and acquisition activities, risk management operations such as insurance and reinsurance, global tax management and cross-border tax liability optimization, and so on.
- It is home to two international stock exchanges with a combined daily trading volume of more than \$11 billion.
- On July 29, 2022, an international bullion exchange will also be launched.
- Smart infrastructure: The city's social infrastructure consists of a school, medical facilities, a proposed hospital, and the GIFT City business club, which includes indoor and outdoor sports facilities.
- GIFT City is the country's primary functional smart city, with a sustainable master plan and world-class infrastructure.

**Benefits of GIFT City**

- The proactive support of the Central Government in developing the country as a hub of international financial services, the GIFT City, has emerged as the preferred location for national and multinational firms.
- Tax breaks make it more appealing to invest.
- There will be a massive increase in job creation. According to a 2007 study conducted by M/s McKinsey & Co, the GIFT City project will generate 10 lakh direct jobs by 2020.
- Infrastructure is critical to the success of GIFT City's business environment and quality of life. A careful blend of cutting-edge technology and global best practises in infrastructure service delivery is in place. All of this contributes to an international standard of working and living.

**The International Bullion Exchange of India (IIBX)**

- **Concerning bullion exchange:** Buyers and sellers can trade gold and silver, as well as related derivatives, on a bullion exchange.
- **IIBX description:** IIBX will enable efficient price discovery while also ensuring responsible sourcing and quality. It has not only registered jewellers to trade on the exchange, but it has also established the infrastructure required to store physical gold and silver.
- **Import gateway:** The IIBX will serve as the gateway for gold imports into India.
- **Regulator:** The International Financial Services Centres Authority (IFSCA) oversees IIBX.

- **IIBX Importance:** It provides a diverse portfolio of products and technology services at a lower cost than Indian exchanges as well as other global exchanges in Hong Kong, Singapore, Dubai, London, and New York.
- It will accelerate the financialization of gold across the country and enable India to reclaim its rightful place in the global bullion market.
- With the launch of the IIBX, India will be able to influence international bullion prices as a major consumer.

### **GIFT CITY IS REQUIRED**

- **Importance:** As one of the world's fastest-growing economies, India needs to expand its economic and strategic activities globally through GIFT City.
- **Develop Indian Financial Markets:** An IFSC in GIFT City would facilitate Indian corporations' access to global financial markets while also complementing and promoting further development of Indian financial markets.
- It thus allows Indian corporate entities and overseas branches/subsidiaries of financial institutions (FIs) to return financial services and transactions that are currently carried out in offshore financial centres to India.
- **Encourage business sentiments:** GIFT City's pro-business regulatory regime and hospitable ecosystem have made it an ideal location for investment, with over 300 units already operational in the GIFT SEZ and DTA.
- **Foreign university entry:** The Union Budget 2022 established a new route for the establishment of foreign universities in India, freeing them from 'domestic regulations' via GIFT IFSC.
- Many universities in Australia, the United Kingdom, and the United States have expressed an interest in establishing a presence in GIFT IFSC. This will help India's 'internationalisation of higher education.'

### **GIFT City's regulatory standards**

- **Unified regulator:** The International Financial Services Commission (IFSCA) has been established as a unified regulator with a holistic vision.
- The IFSCA Act of 2019 established IFSCA.
- Prior to the establishment of IFSCA, domestic financial regulators such as the RBI, SEBI, PFRDA, and IRDA regulated IFSC transactions.
- IFSCA will also regulate/recommend any other financial products, financial services, or financial institutions in an IFSC that the central government may notify.
- **Dispute Resolution:** Because GIFT City is a hub of international financial services, an International Arbitration Centre, similar to the Singapore International Arbitration Centre or the London Commercial Arbitration Centre, has been established for dispute resolution.
- GIFT City continued to attract domestic and international players despite the global challenges posed by the Covid-19 pandemic. GIFT City will be a force to be reckoned with in the fields of financial technology, data security, and finance in the coming years.

## **SCIENCE AND TECHNOLOGY**

### **What is Fields Medal?**

- **Context:**
- Ukrainian mathematician Maryna Viazovska was named as one of four recipients of the prestigious Fields Medal, which is often described as the Nobel Prize in mathematics.

### **Relevance:**

- GS III- Science and Technology

#### *Dimensions of the Article:*

- 1. What is Fields Medal?
- 2. History of the Medal
- 3. Indian-origin winners

#### *What is Fields Medal?*

- The Fields Medal is awarded by the International Mathematical Union (IMU), an international non-governmental and non-profit scientific organisation.
- It is awarded every four years to one or more mathematicians under the age of 40 in recognition of “outstanding mathematical achievement for existing work and for the promise of future achievement”.
- The winners are announced at the International Congress of Mathematicians (ICM), which was supposed to be held in Russia this year, but was moved to Helsinki.
- The honour carries a physical medal of 14K gold, 63.5 mm in diameter and weighing 169 g, and with a unit price of approximately 5,500 Canadian dollars.
- There is also a cash award of CAD 15,000.
- The obverse of the medal is embossed with the head of Archimedes facing right, and some Latin quotes.

#### *History of the Medal*

- According to the IMU website, the 1924 ICM in Toronto adopted a resolution that at each conference, two gold medals would be awarded to recognise outstanding mathematical achievement.
- The Canadian mathematician Prof J C Fields, who was secretary of the 1924 Congress, later donated funds to establish the medals, which were named in his honour.
- In 1966, it was agreed that, in light of the great expansion of mathematical research, up to four medals could be awarded at each Congress.

#### *Indian-origin winners*

- Among the more than 60 mathematicians who have been awarded the Fields Medal since 1936, there are two of Indian origin.
- Akshay Venkatesh of the Institute for Advanced Study at Princeton, won in 2018, the last time the honour was announced.
- Manjul Bhargava of the Department of Mathematics at Princeton University was awarded in 2014.

## **Nitrate absorption in plants**

#### *Context:*

- Researchers led by those from the National Centre of Biological Sciences, Tata Institute of Fundamental Research, Bengaluru (NCBS-TIFR), have found a new pathway that regulates nitrate absorption in plants.

#### *Relevance:*

- GS III- Science and Technology

#### *Dimensions of the Article:*

- 1. About gene MADS27
- 2. About Nitrogen importance in plants:
- 3. Nitrate overuse
- 4. Regulatory switches
- 5. Three-pronged effect



**About gene MADS27:**

- The gene MADS27, which regulates nitrate absorption, root development and stress tolerance, is activated by the micro-RNA, miR444, therefore offers a way to control these properties of the plant.
- The researchers studied this mechanism in both rice (monocot) and tobacco (dicot) plants.
- According to the researchers, the gene MADS27 appears to be an excellent candidate to modify, in order to develop nitrogen use efficiency, which is something that helps the plant absorb more nitrates, and to engineer abiotic stress tolerance.
- The larger goal of this study is to understand how epigenetics plays a role in regulating expression of such important genes.

**About Nitrogen importance in plants:**

- Nitrogen is one of the most important macronutrients needed for development of a plant.
- The presence of nitrates is important for the plant development and also for grain production.
- It is a part of chlorophyll, amino acids and nucleic acids, among others.
- It is mostly sourced from the soil where it is mainly absorbed in the form of nitrates and ammonium by the roots.
- Nitrates also play a role in controlling genome-wide gene expression that in turn regulates root system architecture, flowering time, leaf development, etc.
- Thus, while a lot of action takes place in the roots to absorb and convert nitrogen into useful nitrates, the absorbed nitrates in turn regulate plant development apart from being useful as a macronutrient.

**Nitrate overuse**

- The overuse of nitrates in fertilizers, for instance, can lead to the dumping of nitrates in the soil which leads to accumulation of nitrates in water and soil.
- This accumulation adds to soil and water pollution and increased contribution to greenhouse gases.
- To avoid this, there should be optimal use of nitrates.
- Also, since the whole process of nitrate absorption takes place in the roots, a well-developed root system is needed for this to take place optimally.
- At one level, it is known that the hormone auxin is responsible for welldeveloped roots across all plants.
- A number of genes are known to help with auxin production, improved nitrate transport and assimilation in plants.

**Regulatory switches**

- In addition to this route, several gene regulatory switches that regulate nitrate absorption and root development, such as the micro-RNA, miR444, are known in monocot plants, such as rice.
- "The micro-RNA 'miR444' is specific to monocots.
- When this is not made, its target, MADS27, is produced in higher abundance, and it improves biosynthesis and transport of the hormone auxin, which is key for root development and its branching,
- This regulatory miR444 switch is known to turn off at least five genes called MADS box transcription factor genes.
- The speciality of the MADS box transcription factors is that they function like switch boxes of their own.
- They bind to their favourite specific DNA sequences and they switch the neighbouring genes "on."

**Three-pronged effect**

- The researchers have studied a target gene of miR444 called MADS27, a transcription factor which hasn't been studied well before.
- They have found that this transcription factor has a three-pronged effect on the plant.
- It regulates nitrate absorption by switching "on" proteins involved in this process.
- It leads to better development of the roots by regulating auxin hormone production and transport.

- Somewhat surprisingly to the researchers, it helps in the abiotic stress tolerance by keeping the main stress player proteins “on.”

## ISRO's 'POEM' platform

- **Context:**
- Besides placing three Singaporean satellites in precise orbit, the Indian Space Research Organisation (ISRO) also achieved the feat of successfully launching the PSLV Orbital Experimental Module or 'POEM'.

**Relevance:** GS III- Science and Technology

### *Dimensions of the Article:*

- 1. What is POEM?
- 2. How will ISRO keep POEM 'alive and stable' in orbit?
- 3. Has ISRO repurposed and used PS4 rocket junk earlier?

#### ***What is POEM?***

- The PSLV Orbital Experimental Module is a platform that will help perform inorbit experiments using the final, and otherwise discarded, stage of ISRO's workhorse rocket, the Polar Satellite Launch Vehicle (PSLV).
- The PSLV is a four-stage rocket where the first three spent stages fall back into the ocean, and the final stage (PS4) — after launching the satellite into orbit — ends up as space junk.
- However, in PSLV-C53 mission, the spent final stage will be utilised as a “stabilised platform” to perform experiments.
- POEM is carrying six payloads, including two from Indian space start-ups Digantara and Dhruva Space.

#### ***How will ISRO keep POEM 'alive and stable' in orbit?***

- According to ISRO, POEM has a dedicated Navigation Guidance and Control (NGC) system for attitude stabilisation, which stands for controlling the orientation of any aerospace vehicle within permitted limits.
- The NGC will act as the platform's brain to stabilize it with specified accuracy.
- POEM will derive its power from solar panels mounted around the PS4 tank, and a Li-Ion battery. It will navigate using “four sun sensors, a magnetometer, gyros & NavIC”.
- It carries dedicated control thrusters using Helium gas storage. It is enabled with a telecommand feature

#### ***Has ISRO repurposed and used PS4 rocket junk earlier?***

- The Indian space agency first demonstrated the capability of using PS4 as an orbital platform in 2019 with the PSLV-C44 mission that injected Microsat-R and Kalamsat-V2 satellites into their designated orbits.
- The fourth stage in that mission was kept alive as an orbital platform for spacebased experiments.
- While in that mission, the fourth stage had Li-Ion batteries, solar panels are an addition this time.
- The latest repurposing and upgrade of the fourth stage of the PSLV rocket involves stabilization of the orbital platform.

## The three new 'exotic' sub-atomic particles

- **Context:**

- The Large Hadron Collider beauty (LHCb) experiment, which is looking at the distinctions between matter and antimatter by researching a type of particle known as the "beauty quark," or "b quark," has discovered three previously unseen particles.

#### **Relevance:**

- GS Paper3: Science and Technology (Recent developments and their applications and effects in everyday life, Achievements of Indians in science & technology.)
- **Mains Questions:** Give a brief account of Quarks and Leptons and also comment on new discoveries in Particle physics around the world.

#### **Dimension of the article:**

- The extent of Particle Physics
- Quarks, Leptons

#### **Three New Exotic Additions:**

- The three "exotic" additions to the increasing list of new hadrons discovered at the LHC — a new type of "pentaquark" and the first-ever pair of "tetraquarks" — will help physicists better grasp how quarks bond together to form these composite particles, CERN said in a release.

#### **What are quarks?**

- Quarks and leptons are the two main types of elementary particles. There are six types of Quarks and six types of Leptons, that can be classified into six "flavours": up, down, charm, weird, top, and bottom.
- Quarks and Leptons are members of a broader class known as Fermions. Fermions have spins such as  $1/2$ ,  $3/2$ ,  $5/2$ , and so on. Quarks and Leptons are Fermions with  $1/2$  spin.
- The six quarks are paired in three generations, beginning with the "up quark" and "down quark," followed by the "charm quark" and "strange quark," then the "top quark" and "bottom (or beauty) quark." The first generation consists of the lightest and most stable particles, whereas the second and third generations consist of heavier and less stable particles.
- All stable matter in the universe is composed of particles from the first generation; heavier particles swiftly decay to the next most stable level.
- Quarks frequently combine in groups of twos and threes to form hadrons, which are composed of protons and neutrons to form atomic nuclei.
- They can, however, combine to generate tetraquarks and pentaquarks, which are four- and five-quark particles.
- These exotic hadrons were predicted by theorists around six decades ago — around the same time as conventional hadrons were found — but they were only recently discovered by LHCb and other experiments.

#### **Bosons:**

- All bosons have a zero or an integer spin.
- Bosons can be in the same quantum state as other bosons, as in laser light, which is made up of coherent, overlapping photons.
- Indeed, the more bosons in a state, the more likely it is that another boson will join that state (Bose condensation).
- Fermions are typically connected with matter, whereas Bosons are related with force.
- Fundamental particles such as photons, gluons, W and Z bosons (the four forcecarrying gauge bosons of the Standard Model), and the Higgs boson are examples of bosons.

#### **Tetraquarks and Pentaquarks**

- The most exotic hadrons discovered in the last two decades, according to CERN, are tetraquarks or pentaquarks having a charm quark and a charm antiquark, with the remaining two or three quarks being an up, down, or strange quark or their antiquarks.
- However, the LHCb experiment discovered an unusual tetraquark composed of two charm quarks and two charm antiquarks, as well as two "open-charm" tetraquarks composed of a charm antiquark, an up quark, a down quark, and a weird antiquark two years ago.
- CERN also announced last year that it discovered the first-ever instance of a "double open-charm" tetraquark with two charm quarks and an up and a down antiquark.
- The particle is said to be open charm if it contains a charm quark but no antiquark.

### ***Exotic Hadrons***

- The first type was discovered while studying "decays" of negatively charged B mesons.
- According to CERN, it is a pentaquark composed of a charm quark and a charm antiquark, as well as an up, a down, and a strange quark.
- It is the first pentaquark discovered to include an unusual quark.
- According to the statement, the discovery has a statistical significance of 15 standard deviations, significantly exceeding the 5 standard deviations required to claim the observation of a particle in particle physics.
- A doubly electrically charged tetraquark is the second type. It's an open-charm tetraquark made up of a charm quark, an odd antiquark, an up quark, and a down antiquark.
- According to the CERN statement, it was discovered alongside its neutral counterpart in a joint examination of decays of positively charged and neutral B mesons.
- **Mesons:** Mesons are a form of hadron that is related to the proton. Instead of three quarks in a stable structure under strong interactions, they are made up of only two, a quark and an anti-quark.
- **Beauty Meson:** The beauty meson is made up of a down quark and a bottom anti-quark. According to the Standard Model, the decay of a b-meson must create pairs of electrons and positrons, or electron-like muons and their inverses, anti-muons.
- **Anti-matter:** Every known matter has an antimatter with the same mass and volume; the only variation is the intrinsic charge. When compared to matter, antimatter has the opposite charge. While the antimatter of a proton is referred to as Anti-Proton, the antimatter of an electron is referred to as Positron.

## **Monkeypox**

- **Context:**
- Recently, Study finds three asymptomatic monkeypox cases.

**Relevance:**GS II-Health

### ***Dimensions of the Article:***

- 1. Details
- 2. About Monkeypox virus
- 3. Zoonotic disease
- 4. Symptoms and treatment
- 5. What did the study find?

### ***About Monkeypox virus***

- The monkeypox virus is an orthopoxvirus, which is a genus of viruses that also includes the variola virus, which causes smallpox, and vaccinia virus, which was used in the smallpox vaccine.
- Monkeypox causes symptoms similar to smallpox, although they are less severe.



- While vaccination eradicated smallpox worldwide in 1980, monkeypox continues to occur in a swathe of countries in Central and West Africa, and has on occasion showed up elsewhere.
- According to the World Health Organisation (WHO), two distinct clade are identified: the West African clade and the Congo Basin clade, also known as the Central African clade.

### ***Zoonotic disease***

- Monkeypox is a zoonosis, that is, a disease that is transmitted from infected animals to humans.
- According to the WHO, cases occur close to tropical rainforests inhabited by animals that carry the virus.
- Monkeypox virus infection has been detected in squirrels, Gambian poached rats, dormice, and some species of monkeys.
- Human-to-human transmission is, however, limited — the longest documented chain of transmission is six generations, meaning the last person to be infected in this chain was six links away from the original sick person, the WHO says.

### ***Transmission:***

- Transmission, when it occurs, can be through contact with bodily fluids, lesions on the skin or on internal mucosal surfaces, such as in the mouth or throat, respiratory droplets and contaminated objects.

### ***Symptoms and treatment***

- According to the US Centers for Disease Control and Prevention (CDC), monkeypox begins with a fever, headache, muscle aches, back ache, and exhaustion.
- It also causes the lymph nodes to swell (lymphadenopathy), which smallpox does not.
- The WHO underlines that it is important to not confuse monkeypox with chickenpox, measles, bacterial skin infections, scabies, syphilis and medication-associated allergies.
- The incubation period (time from infection to symptoms) for monkeypox is usually 7-14 days but can range from 5-21 days.
- Usually within a day to 3 days of the onset of fever, the patient develops a rash that begins on the face and spreads to other parts of the body.
- The skin eruption stage can last between 2 and 4 weeks, during which the lesions harden and become painful, fill up first with a clear fluid and then pus, and then develop scabs or crusts.
- According to the WHO, the proportion of patients who die has varied between 0 and 11% in documented cases, and has been higher among young children.

### ***Treatment:***

- There is no safe, proven treatment for monkeypox yet.
- The WHO recommends supportive treatment depending on the symptoms.

## **Dark matter**

- Many physicists strongly believe that the entire visible part of the universe forms only 5% of all matter in it. They believe the rest is made up of dark matter and dark energy.
- The latest to hit the news in the field of dark matter is a dark matter detector experiment named LUX-ZEPLIN (LZ) in South Dakota in the U.S. As of today this is the most sensitive dark matter detector in the world.

### ***Relevance:***

- GS III- Science and Technology

***Dimensions of the Article:***

- 1. Details
- 2. What is dark matter and why is it so elusive?
- 3. Why do physicists believe strongly that dark matter exists?
- 4. What are the evidences from other distance scales?

***Details:***

- To give an idea of the degree of difficulty in measuring evidence of a dark particle, it is said that the chamber of this LZ detector, can contain only one gram of dust if it is to detect a dark matter particle.
- This is the extent to which researchers have to go to rule out unwanted signals coming from other entities.

***What is dark matter and why is it so elusive?***

- All interactions in the universe are a result of four fundamental forces acting on particles —
  - o Strong nuclear force
  - o Weak nuclear force
  - o Electromagnetic force
  - o Gravitation
- Dark matter is made up of particles that do not have a charge — which means they do not interact through electromagnetic interactions.
- So, these are particles that are “dark”, namely because they do not emit light, which is an electromagnetic phenomenon, and “matter” because they possess mass like normal matter and hence interact through gravity.
- Gravitational force, besides not being fully integrated and understood by particle physicists, is extremely weak.
- For one thing, a particle that interacts so weakly becomes rather elusive to detect.
- This is because interactions from other known particles could drown out signals of dark matter particles.

***Why do physicists believe strongly that dark matter exists?***

- There is strong indirect evidence for dark matter, and this evidence is reflected at various levels. At the shortest distance scale, consider the rotation of galaxies.
- If you look at stars all the way from the centre of any galaxy to its rim, the way the velocities of the observed stars change may be plotted.
- In the lab this same function may be plotted on a graph by assuming the visible matter is all that exists.
- There is a marked difference between the observed plot of star speeds and the calculated value as you move from the inner part of the galaxy towards its rim.
- Now if you assume there is a certain fraction of matter which exerts a gravitational pull on the rest of the stars in the galaxy, for it cannot be seen in any other way, and recalculate the plot, it fits in with the observed value.
- This means that there is a definite amount of dark matter in the galaxy.
- One may argue that it is the model that is at fault and there is some other way to reconcile this discrepancy between the calculated and observed value of velocities in rotating galaxies. This is where evidence from other distance scales comes up.

***What are the evidences from other distance scales?***

- The universe can be observed at various levels — at the level of electrons and nuclei or atoms, or galaxies, or galaxy clusters, or even larger distances where the entire universe can be mapped and studied.

- Cosmologists, people who study the physics of the universe, typically work in the last mentioned three scales, and particle physicists study the lowest and even smaller scales.
- In this context, the second evidence came from observations of the so-called Bullet cluster of galaxies.
- The Bullet cluster is formed through the merging of two galaxy clusters.
- Physicists found from their calculations that the way these mergers took place could not be fully explained if we believed that the visible universe were all that existed.
- Therefore, there should be something like dark matter as well as an estimate of how much dark matter there should be in the universe.
- Similar arguments exist from mappings of the universe such as the Sloan Digital Sky Survey and studies of the filamentous nature of the universe at a closer look.
- While fixing the model could help explain away one of these discrepancies, not all of them can be explained in the same manner. Hence physicists now take the concept of dark matter very seriously.

## Metaverse Standards Forum

- **Context:**
- Recently, various brands gathered for the founding of the Metaverse Standards Forum for the development of interoperability standards to drive the growth of the metaverse.

### **Relevance:**

- GS III- Science and technology

### **Dimensions of the Article:**

- 1. What is Metaverse?
- 2. What is the Metaverse Standards Forum?
- 3. What is the Need of Interoperability of Metaverse?

### **What is Metaverse?**

- It is a **network of always-on virtual environments** in which many people can interact with one another and digital objects through virtual representations of themselves.
- The term may also refer to digital spaces which are made more lifelike by the use of **virtual reality (VR) or augmented reality (AR)**.
- There is also a specific type of metaverse which uses blockchain technology. In these, users can buy virtual land and other digital assets using cryptocurrencies.

### **What are the key aspects of a Metaverse?**

There are three key aspects of a metaverse:

- **Presence** is the feeling of actually being in a virtual space, with virtual others.
- This sense of presence is achieved through virtual reality (VR) technologies such as head-mounted displays. It improves the quality of online interactions.
- **Interoperability** means being able to seamlessly travel between virtual spaces with the same virtual assets. That is, one virtual representation created, can be used in different virtual worlds.
- **Standardization**- These are common technological standards that are essential for widespread adoption. This enables interoperability of platforms and services across the metaverse.

### **What is the Metaverse Standards Forum?**

- The concept of the metaverse has yet to be fully established, but interest in virtual and augmented realities fast-tracks the growth of various metaverse projects.

- In light of the growing anticipation for the metaverse, Metaverse Standards Forum was established “to foster the development of open standards for the metaverse”.
- "Open Standards" are standards made available to the general public and are developed (or approved) and maintained via a collaborative and consensus driven process. "Open Standards" facilitate interoperability and data exchange among different products or services and are intended for widespread adoption.
- The internet is interoperable through the power of HTML, the metaverse also requires a similar interface for users to navigate between virtual worlds freely.

#### ***Objectives:***

- It aims to analyze the interoperability necessary for running the metaverse.
- Interoperability is the driving force for the growth and adoption of the open metaverse.
- It will focus on pragmatic, action-based projects such as implementation prototyping, hackathons, plugfests, and open-source tooling to accelerate the testing and adoption of metaverse standards.
- It will also develop consistent language and deployment guidelines to expand the online universe.

#### ***What is the Need of Interoperability of Metaverse?***

- Interoperability equips the metaverse with support for the different features and activities across projects.
- This continuity is essential in generating a fluid user experience from one metaverse project to another.
- With open interoperability standards and guidelines to follow, companies can launch fully interoperable projects, allowing them to integrate their programming interfaces with other projects.
- There has to be a set of commonly agreed upon protocols to make the metaverse work, just like how Transfer Control Protocol/Internet Protocol (TCP/IP) enabled the Internet to go live four decades ago.
- Such protocols help us in connecting to a WiFi network from home and office without changing our devices.
- They are a result of open standards. The potential of the metaverse will be best realised only if it is built on open standards.
- Proponents of the metaverse call it the future of the Internet with 3D at its core. And to fully simulate the digital world, 3D interoperability has to be met.

### **Section 69 (A) of the Information Technology Act, 2000**

- ***Context:***
- Ministry of Electronics & Information Technology (MeitY) issued orders under Section 69 (A) of the Information Technology Act, 2000 to take down certain posts from Twitter (Microblogging Site).
- Twitter has moved to Karnataka High Court, claiming that many of the blocking orders are procedurally and substantively deficient under Section 69 (A) of the Act.

#### ***Relevance:***

- GS III- Science and Technology

#### ***Dimensions of the Article:***

1. What is the Current Issue?
2. What is the IT Act?
3. Section 69 of the IT Act
4. What is the Reason for Intermediaries to Show Compliance to IT Act?

#### ***What is the Current Issue?***



- According to Section 69(A) of the IT Act, the company "failed to comply with the orders on numerous occasions," according to the Ministry.
- In response to a request from the government in 2021, Twitter provided a list of more than 80 accounts and tweets that it had previously disabled.
- Twitter asserts that the reasons why the Ministry flagged several accounts and posts are either "overbroad and arbitrary" or "disproportionate."
- According to Twitter, some of the ministry's flagged content may relate to official political party accounts, and removing them might violate their Right to Free Speech.

### ***What is the IT Act?***

- The year 2000 saw the rise of IT Bill which it received assent of President and hence came to be the Information Technology (IT) act in which Cyber laws are contained.
- The Aim of the Act was to provide legal infrastructure for e-commerce in India.
- The Information Technology Act, 2000 also aims to provide for the legal framework so that legal sanctity is accorded to all electronic records and other activities carried out by electronic means. The Act states that unless otherwise agreed, an acceptance of contract may be expressed by electronic means of communication and the same shall have legal validity and enforceability.
- In India, the Information Technology (IT) Act, 2000, as amended from time to time, governs all activities related to the use of computer resources.
- It covers all 'intermediaries' who play a role in the use of computer resources and electronic records.
- The role of the intermediaries has been spelt out in separate rules framed for the purpose in 2011- The Information Technology (Intermediaries Guidelines) Rules, 2011.

### ***Amendment to the IT Act***

- The Information Technology (Amendment) Act, 2008 – An act to amend the IT Act 2000 received the assent of the President on 5th February 2009.

### ***It dealt with various changes such as:***

- **Data Protection** –with no specific reference to Data Protection in 2000 Act, the ITA 2008 introduced two sections addressing Data Protection, Section 43A (Compensation for failure to protect data), and Section 72A (Punishment for disclosure of information in breach of lawful contract).
- **Information Preservation** – Section 67C refers to the Preservation and Retention of Information by Intermediaries. According to Central Government, any intermediary who intentionally or knowingly contravenes the provisions shall be punished with an imprisonment for a term which may extend to 3 years and shall not be liable to fine.
- **Section 69** gives power to issue directions for interception or monitoring or decryption of any information through any computer source.
- Section 69B authorizes to monitor and collect traffic data or information through any computer resource for Cyber security.

### ***Section 69 of the IT Act***

- It confers on the Central and State governments the power to issue directions "to intercept, monitor or decrypt any information generated, transmitted, received or stored in any computer resource".

### ***The grounds on which these powers may be exercised are:***

- In the interest of the sovereignty or integrity of India, defence of India, the security of the state.
- Friendly relations with foreign states.
- Public order, or for preventing incitement to the commission of any cognizable offence relating to these.
- For investigating any offence.

***Process of Blocking Internet Websites:***

- **Section 69A**, for similar reasons and grounds (as stated above), enables the Centre to ask any agency of the government, or any intermediary, to block access to the public of any information generated, transmitted, received or stored or hosted on any computer resource.
- The term ‘intermediaries’ includes providers of telecom service, network service, Internet service and web hosting, besides search engines, online payment and auction sites, online marketplaces and cyber cafes.
- Any such request for blocking access must be based on reasons given in writing.

***Intermediaries and their obligation as per the IT Act***

- The term ‘intermediaries’ includes providers of telecom service, network service, Internet service and web hosting, besides search engines, online payment and auction sites, online marketplaces and cyber cafes.
- It includes any person who, on behalf of another, “receives, stores or transmits” any electronic record. Social media platforms would fall under this definition.
- Intermediaries are required to preserve and retain specified information in a manner and format prescribed by the Centre for a specified duration.
- Contravention of this provision may attract a prison term that may go up to three years, besides a fine.
- When a direction is given for monitoring, the intermediary and any person in charge of a computer resource should extend technical assistance in the form of giving access or securing access to the resource involved.
- Failure to extend such assistance may entail a prison term of up to seven years, besides a fine.
- Failure to comply with a direction to block access to the public on a government’s written request also attracts a prison term of up to seven years, besides a fine.

**NASA’s James Webb Space Telescope*****Context:***

- Recently, The United States space research agency NASA said in a release that its James Webb Space Telescope (JWST) has produced the deepest and sharpest infrared image of the distant universe that has ever been seen, heralding a major event in astronomy. The JWST is the largest and most powerful telescope ever built.

***Relevance:*** GS III- Science and Technology***Dimensions of the Article:***

- 1. What is NASA’s James Webb Telescope?
- 2. What is the mission of the James Webb Space Telescope?
- 3. How is the James Webb better than the Hubble?

***What is NASA’s James Webb Telescope?***

- The telescope has been in the works for years. NASA led its development with the **European Space Agency (ESA) and the Canadian Space Agency**.
- It was launched aboard a rocket on December 25, 2021, and is currently at a point in space known as the **Sun-Earth L2 Lagrange point**, approximately 1.5 million km beyond Earth’s orbit around the Sun.
- Lagrange Point 2 is one of the five points in the orbital plane of the Earth-Sun system.
- Named after Italian- French mathematician Josephy-Louis Lagrange, the points are in any revolving two-body system like Earth and Sun, marking where the gravitational forces of the two large bodies cancel each other out.

- Objects placed at these positions are relatively stable and require minimal external energy or fuel to keep themselves there, and so many instruments are positioned here.
- L2 is a position directly behind Earth in the line joining the Sun and the Earth. It would be shielded from the Sun by the Earth as it goes around the Sun, in sync with the Earth.

#### ***What is the mission of the James Webb Space Telescope?***

- NASA says the James Webb Space Telescope will be “a giant leap forward in our quest to understand the Universe and our origins”, as it will examine every phase of cosmic history: from the Big Bang to the formation of galaxies, stars, and planets to the evolution of our own Solar System.

#### **The science goals for the Webb can be grouped into four themes.**

- To look back around 13.5 billion years to see the first stars and galaxies forming out of the darkness of the early universe.
- To compare the faintest, earliest galaxies to today’s grand spirals and understand how galaxies assemble over billions of years.
- To see where stars and planetary systems are being born.
- To observe the atmospheres of extrasolar planets (beyond our solar system), and perhaps find the building blocks of life elsewhere in the universe. The telescope will also study objects within our own Solar System.

#### ***How is the James Webb better than the Hubble?***

- JWST is much more powerful and has the ability to look in the infrared spectrum, which will allow it to peer through much deeper into the universe, and see-through obstructions such as gas clouds.
- As electromagnetic waves travel for long distances, they lose energy, resulting in an increase in their wavelength. An ultraviolet wave, for example, can slowly move into the visible light spectrum and the infrared spectrum, and further weaken to microwaves or radio waves, as it loses energy.
- Hubble was designed to look mainly into the ultraviolet and visible regions of the electromagnetic spectrum. JWST is primarily an infrared telescope, the first of its kind.

## **Forest Conservation Rules 2022**

- **Context:**
- Recently, the Ministry of Environment, Forest and Climate Change (MoEFCC) has issued the Forest (Conservation) Rules, 2022.

#### ***Relevance:***

- GS III- Science and Technology

#### ***Dimensions of the Article:***

- 1. What are the Forest Conservation Rules?
- 2. What do the updated rules say?
- 3. Other Provisions of Forest (Conservation) Rules, 2022

#### ***What are the Forest Conservation Rules?***

- The Forest Conservation Rules deal with the implementation of the Forest Conservation Act (FCA), 1980.
- They prescribe the procedure to be followed for forest land to be diverted for non-forestry uses such as road construction, highway development, railway lines, and mining.

- The broad aims of the Forest Conservation Act are to protect forest and wildlife, put brakes on State governments' attempts to hive off forest land for commercial projects and striving to increase the area under forests.

#### ***Forest Advisory Committee (FAC):***

- For forest land beyond five hectares, approval for diverting land must be given by the Central government. This is via a specially constituted committee, called the Forest Advisory Committee (FAC).
- This committee examines whether the user agency, or those who have requested forest land, have made a convincing case for the upheaval of that specific parcel of land, whether they have a plan in place to ensure that the ensuing damage — from felling of trees in that area, denuding the local landscape — will be minimal and the said piece of land doesn't cause damage to wildlife habitat.
- Once the FAC is convinced and approves (or rejects a proposal), it is forwarded to the concerned State government where the land is located, who then has to ensure that provisions of the Forest Right Act, 2006, a separate Act that protects the rights of forest dwellers and tribals over their land, are complied with.
- The FAC approval also means that the future users of the land must provide compensatory land for afforestation as well as pay the net present value (ranging between ₹10-15 lakh per hectare.)

#### ***What do the updated rules say?***

- The rules make a provision for private parties to cultivate plantations and sell them as land to companies who need to meet compensatory forestation targets.
- This, according to the government, will help India increase forest cover as well as solve the problems of the States of not finding land within their jurisdiction for compensatory purposes.
- While this has invited its own controversy, the latest point of contention is the absence of wording, in the updated Forest Conservation Rules, of what happens to tribals and forest-dwelling communities whose land would be hived off for developmental work.

#### ***Prior to the updated rules***

- State bodies would forward documents to the FAC that would also include information on the status of whether the forest rights of locals in the area were settled.
- After 2009, the Environment Ministry passed an order mandating that proposals would not be entertained by the FAC unless there was a letter from the State specifying that the forest rights in the place had been "settled" and the gram sabha, or the governing body in villages in the area, had given their written consent to the diversion of forest.
- However, there have been a series of orders by the Environment Ministry over the years, and frequently opposed by the Ministry of Tribal Affairs, that have sought to skirt the necessity for consent from the gram sabha.

#### ***New Rules***

- It formally codify this and say that a project, once approved by the FAC, will then be passed on to the State authorities who will collect the compensatory fund and land, and process it for final approval.
- Only in passing, is it mentioned that the States will ensure "settlement" of Forest Rights Acts applicable.

#### ***Other Provisions of Forest (Conservation) Rules, 2022***

##### ***It constituted an***

- Advisory Committee
- Regional empowered committee at each of the integrated regional offices
- Screening committee at State/Union Territory (UT) government-level.

#### ***Advisory Committee:***



- The Advisory Committee's role is limited to providing advice or making recommendations regarding the grant of approval under applicable sections with regard to proposals that have been referred to it as well as any matter relating to the conservation of forests that has been referred to it by the Central government.

#### ***Project Screening Committee:***

- For an initial examination of plans including the diversion of forest land, the MoEFCC has directed the establishment of project screening committees in each state and the UT. The five-member committee will meet at least twice a month and provide time-bound project advice to the state governments.
- Within 60 days for all non-mining projects with a size of 5 to 40 hectares, and within 75 days for all such mining projects.
- The committee is given greater time for projects covering larger areas: 150 days for mining projects and 120 days for non-mining projects involving more than 100 hectares.

#### ***Regional Empowered Committees:***

- All linear projects (roads, highways, etc), projects involving forest land up to 40 hectares and those that have projected a use of forest land having a canopy density up to 0.7 — irrespective of their extent for the purpose of survey — shall be examined in the Integrated Regional Office.

#### ***Compensatory Afforestation:***

- 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%.

## **FAST RADIO BURSTS:**

- ***Context:***
- A strange radio signal (called Fast Radio Bursts) has been detected in a galaxy several billion light-years from Earth, a recent study claimed.

#### ***Relevance:***

- GS III- Science and Technology

#### ***Dimensions of the Article:***

- 1. What is an FRB?
- 2. Why are they significant?

#### ***What is an FRB?***

- Since the first FRB was spotted in 2007, researchers have been trying to determine where they came from.
- FRBs are essentially brilliant radio wave bursts (radio waves can be produced by astronomical objects with changing magnetic fields).
- The X-ray component of the simultaneous bursts was detected by several satellites, including NASA's Wind mission; in addition, a NASA-funded project called Survey for Transient Astronomical Radio Emission 2 (STARE2) also detected the radio burst;
- However, because of their millisecond durations, it is challenging to detect them and determine their position in the sky.

#### ***Why are they significant?***

- First noticed in 2018 by the Canadian observatory the waves have created ripples across the globe for one reason — they arrive in a pattern.
- This gave birth to theories that they could be from an alien civilization.
- Initially, it was believed that the collision of black holes or neutron stars triggers them.
- But the discovery of repeating FRBs debunked the theory of colliding objects.

## Synthetic Biology

- **Context:**
- As per study by USA, due to climate change one-third of all animal and plant species on the planet could face extinction by 2070.
- Environmentalists consider synthetic biology or 'synbio' as a potential tool to preserve biodiversity and restore the natural ecosystem.

**Relevance:** GS III- Science and Technology

### *Dimensions of the Article:*

- 1. What is Synthetic Biology?
- 2. Difference between synthetic biology and genome editing:
- 3. Applications of synthetic biology

### *What is Synthetic Biology?*

- Synthetic biology is a field of science that involves redesigning organisms for useful purposes by engineering them to have new abilities.
- Synthetic biology researchers and companies around the world are harnessing the power of nature to solve problems in medicine, manufacturing and agriculture.

### *What can synthetic biology do?*

- Redesigning organisms so that they produce a substance, such as a medicine or fuel, or gain a new ability, such as sensing something in the environment, are common goals of synthetic biology projects. Some examples of what scientists are producing with synthetic biology are:
- **Microorganisms harnessed for bioremediation** to clean pollutants from our water, soil and air.
- **Rice modified to produce beta-carotene**, a nutrient usually associated with carrots, that prevents vitamin A deficiency.
- Vitamin A deficiency causes blindness in 250,000 - 500,000 children every year and greatly increases a child's risk of death from infectious diseases.
- **Yeast engineered to produce rose oil** as an eco-friendly and sustainable substitute for real roses that perfumers use to make luxury scents.

### *Difference between synthetic biology and genome editing:*

- In some ways, synthetic biology is similar to another approach called "**genome editing**" because both involve changing an organism's genetic code; however, some people draw a distinction between these two approaches based on how that change is made.

### *Synthetic biology:*

- In synthetic biology, scientists typically stitch together long stretches of DNA and insert them into an organism's genome.
- These synthesized pieces of DNA could be genes that are found in other organisms or they could be entirely novel.

### *Genome editing:*

- In genome editing, scientists typically use tools to make smaller changes to the organism's own DNA.
- Genome editing tools can also be used to delete or add small stretches of DNA in the genome.

### *Applications of synthetic biology*

- The application of synthetic biology varies from life sciences in quest to the research of biofuels. The potential of synthetic biology is quite vast and stirring.
- **Industrial Enzymes** – the manufactory of industrial enzymes in quest of supportable processes that facilitates greater yield, expanded enzymes, higher efficiency etc.
- **Biofuels** – accumulation genes, microbes and plants for effective transformation of feedstock as biofuels.
- **Antibody prolongation and vaccine** – stimulates in industry to enhance the therapeutic pipeline and increase the progress rate of practices. Vaccines spotlights on prevention of diseases and illness.
- **Bio-based chemicals** – accredits the quick fix from nature. Implies sustainable advances to plastic, chemicals, textiles with minimal effect on the environment.
- **Plant science** – combined ways and automations to facilitate sequence-to-function scrutiny of plants.

## Cryptojacking

- **Context:**
- 'Cryptojacking' attacks on computer systems have gone up by 30% to 66.7 million in the first half of 2022 compared to the first half of last year, according to a report by SonicWall, a US-based cybersecurity firm.

### *Relevance:*

- GS III: Science and Technology

### *Dimensions of the Article:*

- 1. What is cryptojacking?
- 2. Why is cryptojacking done?
- 3. Why have cryptojacking incidents gone up?
- 4. Why should this be a concern?

### *What is cryptojacking?*

- Cryptojacking is a cyber attack wherein a computing device is hijacked and controlled by the attacker, and its resources are used to illicitly mine cryptocurrency.
- In most cases, the malicious programme is installed when the user clicks on an unsafe link, or visits an infected website — and unknowingly provides access to their Internet-connected device.

### *Why is cryptojacking done?*

- Coin mining is a legitimate, competitive process used to release new crypto coins into circulation or to verify new transactions.
- It involves solving complex computational problems to generate blocks of verified transactions that get added to the blockchain.
- The reward for the first miner who successfully manages to update the crypto ledger through this route is crypto coins.
- But the race to crack this 64-digit hexadecimal number code needs considerable computing power involving state-of-the-art hardware, and electrical power to keep the systems involved up and running.
- Cryptojackers co-opt devices, servers, and cloud infrastructure, and use their resources for mining. The use of 'stolen' or cryptojacked resources slashes the cost involved in mining.

### *Why have cryptojacking incidents gone up?*

- According to the SonicWall's Cyber Threat Report, the crackdown on ransomware attacks is forcing cybercriminals to look for alternative methods.
- Cryptojacking involves "lower risk", and promises "potentially higher payday".
- Unlike ransomware, which announces its presence and relies heavily on communication with victims, cryptojacking can succeed without the victim ever being aware of it.

#### ***Why should this be a concern?***

- Cryptojacking is hard to detect and the victims of these attacks mostly remain unaware that their systems have been compromised.
- Some telltale signs are the device slowing down, heating up, or the battery getting drained faster than usual.
- Apart from individuals, businesses too are on the target list of cryptojackers.
- According to the report, cryptojacking incidents targeting the retail industry rose by 63% year-to-date, while similar attacks on the financial industry skyrocketed 269%.
- The primary impact of cryptojacking is performance-related, though it can also increase costs for the individuals and businesses affected because coin mining uses high levels of electricity and computing power.

## **Serotonin theory of depression**

#### ***Context:***

- For decades, a "chemical imbalance" in the brain, especially that of a chemical called serotonin, has been widely seen to be responsible for depression — a view that has promoted the use of antidepressants as part of the treatment for the condition.
- Researchers from University College London who carried out a "comprehensive review of the major strands of research on serotonin" have now reported that "there is no convincing evidence that depression is associated with, or caused by, lower serotonin concentrations or activity".

#### ***Relevance:***

- GS III- Science and Technology

#### ***Dimensions of the Article:***

- 1. What is the serotonin theory of depression?
- 2. What exactly is serotonin?
- 3. What is the conclusion of the new research?

#### ***What is the serotonin theory of depression?***

- "The idea that depression is the result of abnormalities in brain chemicals, particularly serotonin (5-hydroxytryptamine or 5-HT), has been influential for decades, and provides an important justification for the use of antidepressants,"
- Depression was first linked to lowered serotonin levels in the 1960s, and the theory gained wide acceptance in the 1990s with the advent of Selective Serotonin Reuptake Inhibitor (SSRI) antidepressants, which temporarily increase the availability of serotonin in the brain.
- The idea is endorsed by official institutions like the American Psychiatric Association, which says "differences in certain chemicals in the brain may contribute to symptoms of depression".

#### ***What exactly is serotonin?***

- It is a kind of neurotransmitter, a chemical that helps transmit messages or signals from one nerve cell to another for communicating.



- Serotonin helps regulate mood, sleep, appetite, and other major aspects of daily functioning.

***What is the conclusion of the new research?***

- Over the years, several studies have questioned the serotonin theory.
- The new study conducted an “umbrella review”, collating existing overviews of the principal areas of relevant research on serotonin and depression.
- The intention was to establish “whether the current evidence supports a role for serotonin in the aetiology of depression, and specifically whether depression is associated with indications of lowered serotonin concentrations or activity”.
- The conclusion of the study: “The serotonin theory of depression has been one of the most influential and extensively researched biological theories of the origins of depression. Our study shows that this view is not supported by scientific evidence. It also calls into question the basis for the use of antidepressants.”
- People who were taking or had previously taken antidepressants showed evidence that these drugs may actually lower the concentration or activity of serotonin, the study showed.
- “Although viewing depression as a biological disorder may seem like it would reduce stigma, in fact, research has shown the opposite, and also that people who believe their own depression is due to a chemical imbalance are more pessimistic about their chances of recovery,”
- According to the researchers, there are other explanations for the effect that antidepressants have on a person.
- Drug trials show they are “barely distinguishable from a placebo (dummy pill) when it comes to treating depression,” and antidepressants appear to have more of a generalised emotion-numbing effect on people’s moods.

## Cervavac

- ***Context:***
- The Serum Institute of India (SII)’s vaccine Cervavac recently received the Drugs Controller General of India’s (DGCI) approval for market authorisation.

***Relevance:***

- GS III- Science and Technology

***Dimensions of the Article:***

- 1. About Cervavac
- 2. About Cervical cancer

***About Cervavac:***

- Cervavac is India’s first quadrivalent human papillomavirus vaccine (qHPV) vaccine, and intended to protect women against cervical cancer.
- Experts see this as a real opportunity to eliminate cervical cancer, and have expressed the hope that it will be rolled out in national HPV vaccination strategies, and be available at a cost more affordable than existing vaccines.
- The vaccine is based on VLP (virus like particles), similar to the hepatitis B vaccine, and provides protection by generating antibodies against the HPV virus’s L1 protein.
- Experts have expressed hope that the DGCI approval will allow the government to procure enough HPV vaccines at a special price to vaccinate nearly 50 million girls aged 9–14 years in India who are waiting to receive the vaccine.
- This will be a huge step to accelerate cervical cancer elimination in India and globally, a statement from IARC-WHO has said.

**About Cervical cancer:**

- Cervical cancer is preventable, but kills one woman every eight minutes in the country.
- It is preventable as long as it is detected early and managed effectively.
- Cervical cancer is a common sexually transmitted infection.
- Long-lasting infection with certain types of HPV is the main cause of cervical cancer.
- Worldwide, cervical cancer is the second most common cancer type and the second most common cause of cancer death in women of reproductive age (15– 44).
- India accounts for about a fifth of the global burden, with 1.23 lakh cases and around 67,000 deaths per year according to the World Health Organization's International Agency for Research on Cancer (IARC-WHO).

**Existing vaccines**

- Two vaccines licensed globally are available in India — a quadrivalent vaccine (Gardasil, from Merck) and a bivalent vaccine (Cervarix, from GlaxoSmithKline).
- Although HPV vaccination was introduced in 2008, it has yet to be included in the national immunisation programme.

**LHC: New Answers to old Fundamental Questions**

- **Context:**
- The world's most powerful particle collider, the Large Hadron Collider (LHC), will begin smashing protons into each other at unprecedented levels of energy **beginning July 5**.
- Scientists will record and analyse the data, which are expected to throw up evidence of "new physics" — or physics beyond the Standard Model of Particle Physics, which explains how the basic building blocks of matter interact, governed by four fundamental forces.

**Relevance:**

- **GS Paper3: Science and Technology** (Recent developments and their applications and effects in everyday life, Achievements of Indians in science & technology.)
- **Mains Questions:** The third run of the Large Hadron Collider, which discovered an elementary particle earlier in investigations, has begun. In 2013, the scientist who predicted this particle in 1964 was given the Nobel Prize. What exactly is this discovery?

**Dimension of the article:**

- The extent of Particle Physics
- Existence of God's Particle
- Mechanism of LHC
- India's presence in Global S&T Projects

**The Large Hadron Collider (LHC)**

- The Large Hadron Collider is massive, sophisticated equipment designed to explore the smallest known building blocks of all things, particles.
- It is a 27-kilometre-long track-loop buried 100 metres underground on the Swiss- French border.
- The particle accelerator complex that houses the LHC runs by the European Organisation for Nuclear Research (originally Conseil Européen pour la Recherche Nucléaire, or CERN, in French).
- CERN is the world's largest nuclear and particle physics laboratory.

**The Mechanism**

- In its operational state, it discharges **two beams of protons** in **opposite directions** virtually at the speed of light inside a ring of superconducting electromagnets.
- The magnetic field formed by the superconducting electromagnets holds the protons in a tight beam and guides them through-beam pipes before colliding.
- **"Just before the collision, another sort of magnet is employed to squeeze the particles closer together, increasing the likelihood of collisions."** The particles are so small that getting them to collide is like firing two needles **10 kilometres** apart with such precision that they meet halfway."
- The LHC's enormous electromagnets must be maintained cold since they carry nearly as much current as a bolt of lightning.
- The LHC employs a liquid helium distribution system to maintain its key components ultracold at minus **271.3 degrees Celsius**, which is colder than interstellar space. Given these constraints, it is difficult to warm up or cool down the massive machine.

### *The New Start*

- The collider was restarted in April, three years after it had been shut down for maintenance and improvements. This is the LHC's third run, and beginning on **July 5**, it will run continuously for four years at unprecedented energy levels of **13 tera electron volts (TeV)**.
- "It is hoped that the ATLAS and CMS experiments will deliver 1.6 billion protonproton collisions per second."
- To boost the collision rate, the proton beams will be shrunk to less than 10 microns — a human hair is about 70 microns thick — he said.
- (A **TeV** is 100 billion, or **10-to-the-power-of-12**, electron volts. An electron volt is an energy given to an electron by accelerating it through 1 volt of electric potential difference.)
- (ATLAS is the **largest general-purpose particle detector experiment** at the LHC; the Compact Muon Solenoid (CMS) experiment is one of the largest international scientific collaborations in history, with the same goals as ATLAS, but which uses a different magnetsystem design.)

### *Previous runs & discovery of 'God Particle'*

- **On July 4, 2012**, scientists at CERN announced to the world the finding of the Higgs boson, also known as the "God Particle," during the first run of the LHC.
- The discovery ended a decades-long search for the 'force-carrying' subatomic particle and established the existence of the Higgs mechanism, a theory proposed in the mid-1960s.
- This resulted in Peter Higgs and his partner François Englert receiving the **Nobel Prize in Physics in 2013**.
- The Higgs boson and its associated energy field are thought to have played an important role in the formation of the cosmos.
- The **second run (Run 2) of the LHC began in 2015 and lasted until 2018**. The second season of data collection provided five times as much data as Run 1.
- When compared to Run 1, the third run will have **20 times more collisions**. **'New Physics'**
- Following the discovery of the **Higgs boson**, scientists began to use the data gathered as a tool to investigate beyond the **Standard Model**, which is currently the best theory of the universe's most elementary building elements and their interactions.
- CERN scientists said they have no idea what Run 3 will show; the hope is that the collisions will help them grasp so-called "dark matter."
- This elusive, hoped-for particle is thought to make up the majority of the universe, but it is absolutely invisible because it does not **absorb, reflect, or emit light**.

### *India and CERN*

- India joined the European Organisation for Nuclear Research as an **associate member in 2016**. (CERN).

- India has a long history with CERN, having actively participated in the construction of the **Large Hadron Collider (LHC)** in the fields of design, development, and supply of hardware accelerator components/systems, as well as **commissioning and software development and deployment** in the machine.
- In 2004, India was admitted as an '**Observer**' at CERN. Its promotion to associate member status enables Indian companies to compete for lucrative engineering contracts and Indians to apply for staff positions within the organisation.
- Indian scientists were instrumental in the **A Large Ion Collider Experiment (ALICE)** and **Compact Muon Solenoid Experiment (CMS)** investigations that contributed to the discovery of the Higgs Boson.

#### *Way forward:*

- Particle physics investigates nature at extreme scales in order to comprehend the fundamental elements of matter. Particles communicate with one other in line with interactions through fundamental forces, just as language and vocabulary guide (and constrain) our speech.
- The patterns in the emission of these particles help us understand their properties and structure.
- The prediction must be tested because the outcome will either support the Standard Model — which is based on the idea that the Higgs field gives quarks and other fundamental particles mass — or shake its foundations and point to new physics. Experiments like these allow physicists to not only validate but also dispute what the Standard Model predicts about the Higgs boson and bottom quarks.

## Weapons of Mass Destruction

- **Context**
- External Affairs Minister introduced the Weapons of Mass Destruction and Their Delivery Systems (Prohibition of Unlawful Activities) Amendment Bill, 2022, which amends the 2005 Act.

#### *Relevance*

- **GS Paper 2:** Laws, Institutions & Bodies Constituted For The Vulnerable Sections

#### *Mains Question*

- Examine the Weapons of Mass Destruction and Their Delivery Systems (Prohibition of Unlawful Activities) Amendment Bill, 2022, critically. (250 words)

#### *What exactly is the WMD Bill?*

- The Bill amends the WMD and their Delivery Systems (Prohibition of Unlawful Activities) Act, 2005, which prohibits the unlawful manufacture, transport, or transfer of WMD (chemical, biological, and nuclear weapons) and their delivery systems.
- It is colloquially known as the WMD Act.
- In July 2005, the WMD and their Delivery Systems (Prohibition of Unlawful Activities) Act was enacted.

#### *Definition*

- The 2005 WMD Act in India defines biological weapons as "microbial or other biological agents, or toxins of types and quantities that have no justification for prophylactic, protective, or other peaceful purposes; and weapons, equipment, or delivery systems specially designed to use such agents or toxins for hostile purposes or in armed conflict"; and chemical weapons as "toxic chemicals and their precursors" except where used for peaceful, protective, and certified purposes.

#### *What was the original WMD Act's purpose?*



- Its primary goal was to provide integrated and overarching legislation prohibiting unlawful activities in relation to all three types of WMD, their delivery systems, and related materials, equipment, and technologies.
- It instituted penalties for violations of these provisions, including imprisonment for a term not less than five years (extendable for life) and fines.
- The Act was enacted to fulfil an international obligation imposed by UN Security Council Resolution 1540 of 2004.

#### ***What exactly is UNSCR 1540?***

- In April 2004, the United Nations Security Council passed Resolution 1540 to address the growing threat of non-state actors obtaining WMD material, equipment, or technology in order to commit terrorist acts.
- To address this threat to international peace and security, UNSCR 1540 imposed binding obligations on all UN member states in accordance with Chapter VII of the UN Charter.
- Nations were tasked with taking and enforcing effective measures to prevent the spread of WMD, their delivery systems, and related materials to non-state actors.
- It became necessary to punish the illegal and unauthorised manufacture, acquisition, possession, development, and transportation of WMD.
- UNSCR 1540 imposed three primary obligations on nation states: 1. not providing any form of support to non-state actors seeking to acquire WMD, related materials, or their means of delivery; 2. adopting and enforcing laws criminalising the possession and acquisition of such items by non-state actors; and 3. adopting and enforcing domestic controls over relevant materials to prevent their proliferation.
- What does the Amendment add to the current Act?
- The Amendment broadens the prohibition on financing any activity related to WMD and their delivery systems.
- The Central Government shall have the authority to freeze, seize, or attach funds, financial assets, or economic resources of suspected individuals in order to prevent such financing (whether owned, held, or controlled directly or indirectly).
- It also prohibits people from making money or providing related services to others who are engaging in such behaviour.

#### ***Why was this Amendment required?***

- India applauds these developments for necessitating the Amendment.
- Two distinct gaps are being addressed:
  - a. As relevant international organisations, such as the Financial Action Task Force, have broadened the scope of targeted financial sanctions, India's domestic legislation has been harmonised to align with international benchmarks.
  - b. As technology advances, new types of threats emerge that are not adequately addressed by existing legislation.
- Examples include advancements in the field of drones and unauthorised work in biomedical labs that could be used maliciously for terrorist activity.
- As a result, the Amendment keeps up with evolving threats.

#### ***What else can India do?***

- India's responsible behaviour and non-proliferation actions are widely acknowledged.
- It has a strong statutory national export control system in place and is committed to preventing the proliferation of WMD, which includes transit and trans-shipment controls, retransfer controls, technology transfer controls, brokering controls, and end-use controls.
- Every time India takes additional steps to meet new obligations, it must demonstrate to the international community its legislative, regulatory, and enforcement frameworks.

- It is also critical that India maintains international attention on WMD security.

### *Creating a precedent*

- Even countries without WMD technology must be made aware of their role in the control framework in order to avoid weak links in the global control system.
- Through the IAEA (International Atomic Energy Agency) or on a bilateral basis, India can assist other countries in developing national legislation, institutions, and regulatory frameworks.
- Could the Amendment cause problems for people due to mistaken identity?
- During the Bill's debate in Parliament, some members expressed concern that the new legislation could expose existing business entities or people in the specific sector to a case of mistaken identity.
- However, the External Affairs Minister assured the House that such chances were slim because identification of concerned individuals/entities would be based on a long list of specifics.
- What are the international implications of these laws?
- Preventing terrorist acts involving WMD or their delivery systems necessitates the development of a network of national and international measures in which all nation states are equally invested.
- Such actions are required to strengthen global enforcement of standards governing the export of sensitive items, as well as to prohibit the financing of such activities.

### *The way forward*

- Sharing best practises on legislation and implementation can help to harmonise global WMD controls.
- India initially expressed reservations about enacting laws mandated by the UNSCR, believing that this is not the appropriate body to make such a demand.
- However, given the threat of WMD terrorism that India faces as a result of its difficult neighbourhood, the country supported the Resolution and met its requirements.

### Conclusion

- It is in India's best interests to facilitate strictest controls at the international level and to implement them at home.
- Now that its own legislation has been updated, India can demand the same of others, particularly those in its neighbourhood with a history of proliferation and support for terrorist organisations.
- law has resulted in financial system stability.

### *Conclusion*

- To be fair, the Supreme Court's interpretation and application of the IBC has been extremely pragmatic. Even in the most recent ruling, the court correctly cautioned that the NCLT's discretionary power should not be used arbitrarily.
- However, this choice may have opened a Pandora's box. Policymakers would be wise to take notice before history repeats itself.
- Furthermore, the law must clearly state the grounds for admitting an insolvency application against a corporate debtor.
- This could reduce litigation and speed up the resolution of the distressed business. Clearly, objective legal admission criteria are essential for an effective corporate insolvency law.

## Optical Fibers and the 5G Spring

- *Context*
- India is preparing to auction off airwaves in order to launch 5G services across the country. The infrastructure required for such a rollout necessitates the connection of existing radio towers via optical-fibre cables.

**Relevance**

- GS Paper: 2 Government Policies & Interventions
- GS Paper: 3 IT & Computers, Indigenization of Technology, Scientific Innovations & Discoveries

**Mains Question:**

- The Fourth Industrial Revolution (Digital Revolution) has ushered in e-Government as an essential component of government. Discuss. (150 Words)

**Optical Fibre:**

- The backbone of the digital infrastructure is optical fibre, which transmits data via light pulses travelling through long strands of thin fibre.
- Metal wires are preferred for optical fibre communication transmission because signals travel with less damage.
- The optical fibre operates on the total internal reflection principle (TIR).
- Light rays can transmit massive amounts of data (In case of long straight wire without any bend).
- In the event of a bend, the optical cables are designed to bend all light rays inwards (using TIR).
- Fiber has more bandwidth and standardised performance up to 10 Gbps and beyond, which is impossible to achieve with copper.
- Because fibre has more bandwidth, it can carry more information with far greater efficiency than copper wire.
- Because data travels in the form of light in fiber-optic cables, there is very little signal loss during transmission, allowing data to move at higher speeds and over longer distances.
- In addition, fiber-optic cable is less susceptible to noise and electromagnetic interference than copper wire.
- In fact, it is so efficient that in most cases, 99.7 percent of the signal reaches the router.
- Many environmental factors that affect copper cable do not affect fiber-optic cable.
- Because the core is made of glass, an insulator, no electric current can pass through.
- The backhaul is a component of the larger transport system that is in charge of transporting data across the network.
- It is the network segment that connects the network's core to the network's edge.
- To provide better coverage to consumers and businesses, the density of mobile towers must be increased.

**Challenges in Fiberisation:**

- To achieve the desired level of fiberisation, India requires approximately Rs 2.2 lakh crore of investment to fiberise 70% of towers.
- In the next four years, approximately Rs 2.5 lakh crore will be required to build 15 lakh towers.
- Government initiatives such as BharatNet and Smart Cities increase the demand for fibre deployment, necessitating complete tower fiberisation.
- In 2020, India set a goal of connecting every village in the country with optical fibre cable (OFC) in 1,000 days.
- To realise that vision, cables must be laid at a rate of 1,251 km per day, which is approximately 3.6 times the current average speed of 350 km per day.

**Right to Way (RoW) Rules:**

- In 2016, the Department of Telecommunications (DoT), Government of India, published the Indian Telegraph RoW Rules 2016.
- The rules are intended to include a nominal one-time payment and a uniform procedure for establishing an Overground Telegraph Line (OTL) anywhere in the country.

- While all states and territories are required to implement these rules, they are not fully aligned and require certain amendments to do so.
- Several districts and local bodies have not agreed to the RoW policies as announced in their respective states and are instead enforcing their own bylaws that override the State RoW policies aligned with the RoW rules, 2016.

### *India's Status in Fiberisation*

- According to STL, a technology company specialising in optical fibres and cables, India requires at least 16 times more fibre to transition to 5G.
- India currently connects only 30% of its telecom towers.
- Between April 2020 and November 2021, India exported optical fibre worth USD138 million to over 132 countries.
- The consumption of optical fibre cable in India is expected to increase to 33 million fibre kilometres by 2026, up from 17 million fibre kilometres in 2021.
- A little more than 30% of mobile towers have fibre connectivity; this must be increased to at least 80%.
- India has a lower fibre kilometre (fkm) per capita than other key markets.
- To ensure good fiberisation, a country should have 1.3 km of fibre per capita.
- India has a fkm of 0.09, compared to 1.35 in Japan, 1.34 in the United States, and 1.3 in China.
- These fiber-connected tower sites are known as fibre points of presence (POP).
- Currently, these fibre POPs at a tower site can handle data at speeds ranging from one to five Gbps.

## ENVIRONMENT AND ECOLOGY

### Single use plastic

- A ban on the use of single-use plastics that was notified by the Union Environment Ministry on August 2021 came into effect on July 1 this year.

#### *Relevance:*

- GS III- Environment and Ecology

#### *Dimensions of the Article*

- 1. About Single use plastic
- 2. What are the items being banned?
- 3. How will the ban be enforced?
- 4. Impacts of Single Use Plastic (SUP)
- 5. Challenges with banning single use plastic
- 6. Measures taken so far in India

#### *Details*

- The national and State-level control rooms would be set up to check illegal manufacture, import, stocking, distribution, sale and use of banned single use plastic items.
- The **Plastic Waste Management Amendment Rules, 2021**, will also prohibit manufacture, import, stocking, distribution, sale and use of plastic carry bags.
- This is for plastics having **thickness less than 120 microns** with effect from December 31, 2022.

#### *About Single use plastic*



- Single-use plastics, often also referred to as disposable plastics, are commonly used for plastic packaging and include items intended to be used only once before they are thrown away or recycled.
- These include, among other items, grocery bags, food packaging, bottles, straws, containers, stirrers, styrofoam cups or plates etc.

#### *What are the items being banned?*

- The items on which the Central Pollution Control Board (CPCB) have announced a ban are earbuds; balloon sticks; candy and ice-cream sticks; cutlery items including plates, cups, glasses, forks, spoons, knives, trays; sweet boxes; invitation cards; cigarette packs; PVC banners measuring under 100 microns; and polystyrene for decoration.
- The Ministry had already banned polythene bags under 75 microns in September 2021, expanding the limit from the earlier 50 microns.
- From December, the ban will be extended to polythene bags under 120 microns.
- Ministry officials have explained that the ban is being introduced in phases to give manufacturers time to shift to thicker polythene bags that are easier to recycle.
- While manufacturers can use the same machine for 50- and 75-micron bags, the machinery will need to be upgraded for 120 microns.
- According to the Plastic Waste Management Rules, 2016, there is also a complete ban on sachets using plastic material for storing, packing or selling gutkha, tobacco and pan masala.

#### *How will the ban be enforced?*

- The ban will be monitored by the CPCB from the Centre, and by the State Pollution Control Boards (SPCBs) that will report to the Centre regularly.
- Directions have been issued at national, state and local levels — for example, to all petrochemical industries — to not supply raw materials to industries engaged in the banned items.
- Directions have also been issued to SPCBs and Pollution Control Committees to modify or revoke consent to operate issued under the Air/Water Act to industries engaged in single-use plastic items.
- Local authorities have been directed to issue fresh commercial licenses with the condition that SUP items will not be sold on their premises, and existing commercial licences will be cancelled if they are found to be selling these items.

#### *Punishment:*

- Those found violating the ban can be penalised under the Environment Protection Act 1986 – which allows for imprisonment up to 5 years, or a penalty up to Rs 1 lakh, or both.
- Violators can also be asked to pay Environmental Damage Compensation by the SPCB. In addition, there are municipal laws on plastic waste, with their own penal codes.

#### *Impacts of Single Use Plastic (SUP)*

- **Environmental pollution:** A staggering total of it remains uncollected causing choking of drainage and river systems, littering of the marine ecosystem, soil and water pollution, ingestion by stray animals, and open air burning leading to adverse impact on environment.
- **Disposal issue:** They do not biodegrade instead they slowly break down into smaller pieces of plastic called microplastics which again causes more issues. It can take up to thousands of years for plastic bags and Styrofoam containers to decompose.
- **Human health:** The toxins, poisons and persistent pollutants present in some of these plastic products leach and enter human bodies where they cause several diseases, including cancer and can damage nervous systems, lungs and reproductive organs. Humans may be consuming anywhere from 39,000 to 52,000 microplastic particles a year through fish (contaminated with microplastics) alone.
- **Marine life & climate change:** Plastic waste is at epidemic proportions in the world's oceans with an estimated 100 million tonnes dumped there to date. 0 Plastic kills an estimated 1 million sea birds

every year and affects around 700 species which get infected by ingesting plastics. Single-use plastics make up on average 49% of beach litter.

- **Increasing Carbon dioxide:** If the production, disposal and incineration of plastic continues on its present-day growth trajectory, by 2030 these global emissions could reach 1.34 gigatonne per year — equivalent to more than 295 coal-based power plants of 500-MW capacity.
- **More impact on developing countries:** The ubiquitous plastic seems to be a curse for the third world countries, because poor countries, especially in Asia, not only have their own plastic dump to deal with but also the plastic trash that lands on their shores from developed countries.

### *Challenges with banning single use plastic*

- **No immediate alternatives:** It is difficult to ban the product which is of immense use to the public, without thinking of a sustainable and equally utilitarian alternative product.
- For e.g. Single-use plastic helps keep medical equipment sterile and safe to use.
- There is no alternative to plastic yet and sectors like pharmaceuticals, hardware, toys, food processing, food delivery will be in total chaos.
- While there is increased awareness in urban area, the challenge will be to find a suitable cost effective alternatives in tier II and tier III towns and remote locations.
- **Impact on packaging industry:** It impacts most industries since SUP forms part of packaging and hence is linked to all industries directly or indirectly.
- If plastic sachets made from multi-layered packaging are banned, it can disrupt supplies of key products such as biscuits, salt and milk etc which has made life easier for the poor in terms of affordable small packs and convenience.
- Ban will increase the price of most FMCG products as manufacturers would try and shift to alternative packaging (which can be costlier).
- **Loss of jobs and revenue:** Ban can lead to loss of revenue as well as job loss in the plastic manufacturing industry.
- India's plastic industry officially employs around 4 million people across 30,000 processing units, out of which 90% are small to medium-sized businesses.
- Plastics also support thousands employed informally such as ragpickers as well as street food and market vendors who are reliant on single-use plastic.
- **Attitudinal change:** It is difficult as no one takes the responsibility for the single use plastic thrown by them and behaviour change towards the shift from non-using of single use plastic is difficult.

### *Measures taken so far in India*

- Plastic Waste Management Rules, 2016 state that every local body has to be responsible for setting up infrastructure for segregation, collection, processing, and disposal of plastic waste.
- Plastic Waste Management (Amendment) Rules 2018 introduced the concept of Extended Producer Responsibility (EPR).
- Ban on Single-Use Plastics in a bid to free India of single-use plastics by 2022.
- World Environment Day, 2018 hosted in India, the world leaders vowed to "Beat Plastic Pollution" & eliminate its use completely.

## **Draft norms for Western Ghats**

- **Context**
- The latest draught notification on Ecologically Sensitive Areas (ESA) in the Western Ghats from the Union Environment Ministry is facing stiff opposition in Karnataka.
- The Ministry of Environment, Forests, and Climate Change (MoEF&CC) issued a draught notification designating large portions of Karnataka, Tamil Nadu, Gujarat, and Maharashtra as eco-sensitive areas.

Karnataka, with 20,668 square kilometres of notified areas in the Western Ghats, is the largest of these states. In Karnataka, there is strong opposition to this notification.

**Relevance:** GS Paper 3: Environmental impact assessment

### ***Mains Question***

- Explain the significance of India's Eastern Ghats. Suggest actions that can be taken to protect the region's biodiversity. (250 words)

### ***The Karnataka's Oppose***

- The Kasturirangan committee submitted a report in 2013 recommending that 37 percent of the Western Ghats, covering an area of 59,940 square kilometres, be designated as ESA.
- On this basis, several draughts were introduced, which were later rejected by neighbouring states, including Karnataka.
- Since 2014, the Union government has issued several draught notifications to the Karnataka government in order to finalise the eco-sensitive areas in the Western Ghats, but the government has been steadfast in its refusal to implement the same.

### ***The new draft notification for the Western Ghats***

- The draught notification designates 46,832 square kilometres as ESA in the Western Ghats across five states: Gujarat, Maharashtra, Karnataka, Goa, and Tamil Nadu.
- Kerala is excluded from the draught notification, and it had previously undertaken the exercise of physically demarcating ESA in the state.
- The ESA recommended by the Kerala state government covers an area of 9,993.7 square kilometres, as opposed to the 13,108 square kilometres recommended by the K Kasturirangan panel in its 2013 report.
- The ESA covers 20,668 square kilometres in Karnataka, 1,461 square kilometres in Goa, 17,340 square kilometres in Maharashtra, 6,914 square kilometres in Tamil Nadu, and 449 square kilometres in Gujarat.
- The notification states that the concerned state governments are responsible for monitoring and enforcing the notification's provisions.

### ***Curbs that the state have to implement as per the notification***

- According to the draught notification, mining, quarrying, and sand mining will be prohibited in the ESA. All existing mines must be closed within five years of the final notification date or the expiration of the existing mining lease.
- It also prohibits the establishment of new thermal power projects and the expansion of existing plants in the sensitive area, as well as the establishment of any new 'Red' category industries.
- These are activities, such as petrochemical manufacturing and coal liquefaction, that have a Pollution Index score of 60 or higher.
- New townships and area development projects will also be prohibited in the zones.
- All existing health care facilities, however, will remain in ESA, as will new hydropower projects based on the Environmental Impact Assessment notification.
- Industries in the 'Orange' category, with a pollution index score of 41-59, such as jute processing, and industries in the 'White' category, which are considered nonpolluting, such as chalk making, will also "be allowed with strict compliance of environmental regulation."

### ***Ensuring the implementation of these norms***

- The Environment Ministry will establish a Decision Support and Monitoring Centre for the Western Ghats in collaboration with the state governments of the region.

- This will assess and report on the status of the ecology of the Western Ghats on a regular basis, as well as provide a decision support facility in the implementation of the notification's provisions.
- The concerned state government, the State Pollution Control Board, and the Ministry's regional office will monitor projects and activities permitted under the ESA after they have been cleared.
- All projects in the Eco-sensitive Area that have received environmental or forest clearance will be monitored at least once a year by the Union Environment Ministry's concerned regional office.
- The state governments will also prepare an annual 'State of Health Report' for the Western Ghats region under their jurisdiction, detailing the steps taken to monitor and enforce the notification's provisions.

#### ***Suggestions by the Kasturirangan panel***

- The panel, established in 2012, was tasked with taking a "holistic view of the issue and bringing synergy" between the goals of protecting the environment and biodiversity, while also meeting the needs and aspirations of local and indigenous people, as well as ensuring the region's sustainable development and environmental integrity.
- This high-level working group recommended future steps to prevent further degradation of the Ghats' fragile ecology.
- The report advocated for a total ban on mining, quarrying, red-list industries, and thermal power projects. It also stated that before granting permission, the impact of infrastructure projects on the forest and wildlife should be studied.

#### ***Gadgil Committee Report, 2011***

- In 2010, the Ministry of Environment and Forests established the Western Ghats Ecology Expert Panel (WGEEP), chaired by Prof Madhav Gadgil, to primarily demarcate ecologically sensitive areas in the Western Ghats and recommend management measures for these ecologically sensitive areas.
- WGEEP designated the entire Western Ghats as an Ecologically Sensitive Area (ESA) and assigned different regions three levels of Ecological Sensitivity.
- When it is established, establishing a Western Ghats Ecology Authority through a broad-based participatory process.
- It recommended that no new dams based on large-scale storage be permitted in the Panel's Ecologically Sensitive Zone 1.
- In Goa, WGEEP proposed an indefinite moratorium on new environmental clearances for mining in Ecologically Sensitive Zones 1 and 2, phasing out mining in Ecologically Sensitive Zone 1 by 2016, and continuing existing mining in Ecologically Sensitive Zone 2 under strict regulation and an effective social audit system.
- It proposed the establishment of a Western Ghats Ecology Authority (WGEA) as a statutory authority under the Ministry of Environment and Forests, with powers granted under Section 3 of the Environment (Protection) Act, 1986.
- It outlined a bottom-up approach to environmental governance. It also advocated for the formation of fully empowered Biodiversity Management Committees in all local governments.

#### ***What are Eco Sensitive Areas?***

- ESAs are defined as areas "that are ecologically and economically significant, but vulnerable to even minor disturbances, and thus require careful management."
- As a result, 'ecologically and economically significant' areas are those that are biologically and ecologically 'rich,' 'valuable,' and/or 'unique,' and are largely irreplaceable if destroyed.
- Furthermore, because of their biological richness, they have the potential to be of high value to human societies, contribute to the area's ecological stability, and play an important role in conserving biological diversity.



- Similarly, their 'uniqueness' can be recognised by the scarcity of the living systems they harbour, which are difficult to replace if they are lost, or by the uniqueness of the services they provide to human society.
- Their 'vulnerability' could be determined by physiographic features prone to erosion or degradation as a result of human and other influences such as erratic climate, as well as historical experience.
- They are within ten kilometres of Protected Areas, National Parks, and Wildlife Sanctuaries.

#### *Significance of Western Ghats:*

- **Ecosystem diversity:** The Western Ghats contain a wide range of ecosystems, from tropical wet evergreen forests to montane grasslands, which contain numerous medicinal plants and important genetic resources such as wild relatives of grains, fruit, and spices. They also include the distinctive shola ecosystem, which consists of montane grasslands interspersed with patches of evergreen forest.
- **An important source of water:** The Western Ghats serve important hydrological and watershed functions. Approximately 245 million people live in peninsular Indian states that get the majority of their water from rivers that flow from the Western Ghats.
- **Sustaining livelihoods:** This region's soil and water support the livelihoods of millions of people.
- **Weather pattern influencer:** The Western Ghats mountains and their distinctive montane forest ecosystems influence Indian monsoon weather patterns, which mediate the region's warm tropical climate, presenting one of the best examples of the tropical monsoon system on the planet.
- **Natural barrier:** The Ghats serve as an important natural barrier, intercepting rainladen monsoon winds that blow in from the south-west in late summer..

#### *Threats to Western Ghats:*

- With a sharp increase in iron ore prices and demand for lower grade ores, mining activities have expanded rapidly, particularly in Goa, and frequently in violation of all laws, resulting in serious environmental damage and social disruption.
- In Kerala, sand mining has emerged as a major threat. Unsustainable mining has increased landslide vulnerability, harmed water sources, and harmed agriculture, all of which have harmed the livelihoods of those who live in those areas.
- **Livestock Grazing:** High densities of livestock (cattle and goats) grazing within and bordering protected areas is a serious problem that is causing habitat degradation throughout the Western Ghats.
- **Human-wildlife conflict:** Because the Western Ghats are located in an intensely human-dominated landscape, human-wildlife conflicts are common. For example, in the state of Karnataka, villagers living near the Bhadra Wildlife Sanctuary lose approximately 11% of their annual grain production to raiding elephants (CEPF).
- **Forest produce extraction:** Human communities living within and adjacent to protected areas in the Western Ghats are frequently reliant on NTFP extraction to meet a variety of subsistence and commercial needs. With a growing population and shifting consumption patterns, the sustainability of NTFP is critical.
- **Plantations:** Plantations owned by private individuals and corporations continue to expand in the Western Ghats, contributing significantly to habitat fragmentation.
- **Human settlement encroachment:** Human settlements with legal and/or traditional rights of land ownership occur both within and outside protected areas throughout the Western Ghats, posing a significant landscape level threat.
- **Pollution:** The unrestricted use of agrochemicals near forests, particularly in tea and coffee estates, causes significant harm to aquatic and forest ecosystems.
- **Hydropower projects and large dams:** Despite cost-benefit analyses and environmental impact assessments conducted by the government and companies, large dam projects in the Western Ghats have caused environmental and social disruption.

- **Deforestation:** The conversion of forest land to agricultural land or for commercial purposes such as tourism, as well as illegal logging for timber, has had a significant negative impact on biodiversity.
- **Climate change:** Changes in land use and deforestation have resulted in large variations in rainfall duration and intensity. In recent years, climate change has been blamed for floods in many areas.

#### *Way forward:*

- 1. There is an urgent need to investigate the mechanisms by which land use change affects biodiversity, which will improve our understanding of how human-modified landscapes must be managed in order to sustain and improve their conservation value.
- 2. A better understanding of the role of biodiversity in ecosystem functions and related ecosystem services is required. This would also contribute to increased civil society support and political will to protect the Western Ghats.

## Manas Tiger Reserve

- **Context:**
- The Manas Tiger Reserve in Assam has 2.4 tigresses for every tiger, the annual wildlife monitoring results of the trans-boundary wildlife preserve has revealed.
- According to the latest camera trapping assessment stipulated by the National Tiger Conservation Authority (NTCA), the 2,837.31 sq. km reserve with a critical tiger habitat area of 536.22 sq. km has 52 adult tigers along with eight cubs.

#### *Relevance:*

- GS III- Environment and Ecology

#### *Dimensions of the Article:*

- 1. About Manas Tiger Reserve
- 2. About the National Tiger Conservation Authority (NTCA)

#### *About Manas Tiger Reserve*

- Manas Tiger Reserve ( MTR ) is a very old animal habitat in India. More than a century ago, in 1905 it was proposed to be a Reserve Forest and later in 1907, it became Reserve Forest. Then in 1928, Manas became Wildlife Sanctuary (with 360 sq. km).
- In 1973, Manas was declared among Indis's First Tigere Reserves under Project Tiger of Govt. of India. ie., Manas Tiger Reserve.
- Thereafter in 1985, Manas was declared a World Heritage Site (Natural) by UNESCO for Outstanding Universal Conservation Value.
- Manas with a large area of 2837.12 sq.kms was declared as a Biosphere Reserve in 1989.
- In 1990, Manas was declared a National Park with a core area of 500 sq.kms.. ie. Manas National Park
- Manas was also famous for its elephants and therefore in 2003, it was declared as an Elephant Reserve.
- Under Indian Rhino Vision 2020, Manas was re-introduced with famous One Horned Rhinoceros in 2006.
- Manas, being a strategic location for tiger corridor of the Eastern Himalayas, the Tiger Reserve was marked as its Critical Tiger Habitat for 804.04 Sq.Kms in 2008.
- Manas is also recognised as a Tiger Source Site for Conservation in 2014.
- The First Addition Area of 350.00 Sq.Kms was added to Manas National Park in 2016.
- Manas is also know to be a outstanding landscape variations within its territory which joins Bhutan in the north. **About the National Tiger Conservation Authority (NTCA)**

- The National Tiger Conservation Authority (NTCA) was established in December 2005 following a recommendation of the Tiger Task Force, constituted by the Prime Minister of India for reorganised management of Project Tiger and the many Tiger Reserves in India.
- The **Wildlife Protection Act of 1972** was amended in 2006 to provide for constituting the National Tiger Conservation Authority responsible for implementation of the Project Tiger plan to protect endangered tigers.
- The National Tiger Conservation Authority is set up under the **Chairmanship of the Minister for Environment and Forests**.
- The Authority will have eight experts or professionals having qualifications and experience in wildlife conservation and welfare of people including tribals, apart from three Members of Parliament of whom two will be elected by the House of the People and one by the Council of States.
- The Authority, inter alia, would lay down normative standards, guidelines for tiger conservation in the Tiger Reserves, apart from National Parks and Sanctuaries.
- It would provide information on protection measures including future conservation plan, tiger estimation, disease surveillance, mortality survey, patrolling, report on untoward happenings and such other management aspects as it may deem fit, including future plan for conservation.
- The Authority would also facilitate and support tiger reserve management in the States through eco-development and people's participation as per approved management plans, and support similar initiatives in adjoining areas consistent with the Central and state laws.
- The Tiger Conservation Authority would be required to prepare an Annual Report, which would be laid in the Parliament along with the Audit Report.
- **Every 4 years the National Tiger Conservation Authority (NTCA) conducts a tiger census across India**

## Ramsar Site

- **Context:**
- India has added five more Ramsar sites, or wetlands of international importance, bringing the number of such sites in the country to 54
- These are the Karikili Bird Sanctuary, Pallikaranai Marsh Reserve Forest and Pichavaram Mangrove in Tamil Nadu, the Sakhya Sagar in Madhya Pradesh and the Pala Wetlands in Mizoram.

### Relevance:

- GS III- Environment and Ecology

### Dimensions of the Article:

- 1. What is a Ramsar Site?
- 2. Ramsar Convention
- 3. What are wetlands?

### What is a Ramsar Site?

- A Ramsar site is a wetland site designated to be of international importance under the Ramsar Convention.
- Ramsar sites are recorded on the List of Ramsar wetlands of international importance.
- The Ramsar Classification System for Wetland Type is a wetland classification developed within the Ramsar Convention intended as a means for fast identification of the main types of wetlands for the purposes of the Convention.
- The countries with most sites are the United Kingdom with 175 and Mexico with 142.
- The country with the greatest area of listed wetlands is Bolivia.

### Ramsar Convention

- The Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat is an international treaty for the conservation and sustainable use of wetlands.
- It is named after the city of Ramsar in Iran, where the Convention was signed in 1971.
- The 2nd of February each year is World Wetlands Day, marking the date of the adoption of the Convention on Wetlands.
- The Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".
- Every three years, representatives of the Contracting Parties meet as the Conference of the Contracting Parties (COP), the policy-making organ of the Convention which adopts decisions (Resolutions and Recommendations) to administer the work of the Convention and improve the way in which the Parties are able to implement its objectives.

### ***What are wetlands?***

- A wetland is a distinct ecosystem that is flooded by water, either permanently or seasonally, where oxygen-free processes prevail.
- The primary factor that distinguishes wetlands from other land forms or water bodies is the characteristic vegetation of aquatic plants, adapted to the unique hydric soil.
- The main wetland types are swamp, marsh, bog, and fen; sub-types include mangrove forest, carr, pocosin, floodplains, mire, vernal pool, sink, and many others.
- The largest wetlands include the Amazon River basin, the West Siberian Plain, the Pantanal in South America, and the Sundarbans in the Ganges-Brahmaputra delta.

### ***Importance of Wetlands***

Wetlands play a number of functions such as:

- Water storage (flood control)
- Groundwater replenishment
- Shoreline stabilisation and storm protection
- Water purification
- Reservoirs of biodiversity
- Pollination
- Wetland products
- Cultural values
- Recreation and tourism
- Climate change mitigation and adaptation
- Wetlands are also considered the most biologically diverse of all ecosystems, serving as home to a wide range of plant and animal life.

### ***Wetland disturbances***

- Wetlands, the functions and services they provide as well as their flora and fauna, can be affected by several types of disturbances - the predominant ones include the following:
- Enrichment/eutrophication
- Organic loading and reduced dissolved oxygen
- Contaminant toxicity
- Acidification
- Salinization
- Sedimentation
- Altered solar input (turbidity/shade)
- Vegetation removal



- Thermal alteration
- Dehydration/aridification
- Inundation/flooding
- Habitat fragmentation
- Other human presence

#### ***Human Activities that affect Wetlands:***

- Drainage
- Development
- Over-grazing
- Mining
- Unsustainable water use
- Wetlands have historically been the victim of large draining efforts for real estate development, or flooding for use as recreational lakes or hydropower generation.

## **Environmental Impact Assessment**

- ***Context:***
- The Ministry of Environment, Forests and Climate Change (MoEF&CC) has notified amendments to the Environmental Impact Assessment (EIA) Rules, making several exemptions to gaining environmental clearance.
- In order to analyse (and subsequently mitigate) a project or activity's possible negative consequences on the ecology of a region, the MoEF&CC promulgated a new EIA Notification in 2006. This notification requires review of all pertinent facts concerning a project or activity. The years 2016, 2020, and 2021 saw amendments.

#### ***Relevance:***

- GS III- Environment and Ecology

#### ***Dimensions of the Article:***

- What are the Exemptions?
- What is Environment Impact Assessment?
- Importance of Environment Impact Assessment:
- Expert Appraisal Committee (EAC)

#### ***What are the Exemptions?***

#### ***Strategic and Defence Projects:***

- Exempts strategic and defense-related highway projects, including those located 100 km from the Line of Control, from the need for an environmental review before construction.
- The exemption to be granted to highways of strategic importance does away with the requirement for green clearance for construction of the contentious Char Dham project, which includes widening of 899 km roads in ecologically sensitive areas of Uttarakhand to I
- The case is presently being heard in Supreme Court, which has set up a highpowered committee to look into the matter.

#### ***Biomass Based Power Plants:***

- Thermal power plants up to 15 MW based on biomass or non-hazardous municipal solid waste using auxiliary fuel such as coal, lignite or petroleum products up to 15% have also been exempted — as long as the fuel mix is ecofriendly.

***Ports and Harbour dealing in Fish:***

- Fish handling ports and harbours with less pollution potential compared to others, and caters to small fishermen, are exempted from environmental clearance.

***Two other projects are exempted:***

- Toll plazas that require additional width for the installation of toll collection booths to accommodate a large number of vehicles,
- Expansion activities at existing airports related to the expansion of terminal buildings without increasing the airport's current area rather than the expansion of runways, etc.

***What is Environment Impact Assessment?***

- Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.
- UNEP defines Environmental Impact Assessment (EIA) as a tool used to identify the environmental, social and economic impacts of a project prior to decisionmaking.
- It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decisionmakers.
- Environment Impact Assessment in India is statutorily backed by the Environment Protection Act, 1986 which contains various provisions on EIA methodology and process.

***Stages of Environment Impact Assessment:***

- ***Project screening:*** This entails the application of EIA to those projects that may have significant environmental impacts.
- ***Scoping:*** This step seeks to identify, at an early stage, the key, significant environmental issues from among a host of possible impacts of a project and all the available alternatives.
- ***Consideration of alternatives***
- ***Description of the project/development action:*** This step seeks to clarify the purpose and rationale of the project and understand its various characteristics, including the stages of development, location and processes.
- ***Description of the environmental baseline:*** This includes the establishment of both the present and future state of the environment, in the absence of the project, taking into account the changes resulting from natural events and from other human activities.
- ***The prediction of impacts:*** This step aims to identify the likely magnitude of the change (i.e., impact) in the environment when the project is implemented in comparison with the situation when the project is not carried out.
- ***Evaluation and assessment of significance:*** This seeks to assess the relative significance of the predicted impacts to allow a focus on key adverse impacts.
- ***Mitigation:*** This involves the introduction of measures to avoid, reduce, remedy or compensate for any significant adverse impacts.
- ***Public consultation and participation:*** This aims to assure the quality, comprehensiveness and effectiveness of the EIA, as well as to ensure that the public's views are adequately taken into consideration in the decision-making process.
- ***EIS presentation:*** This is a vital step in the process. If done badly, much good work in the EIA may be negated.
- ***Review:*** This involves a systematic appraisal of the quality of the EIS, as a contribution to the decision-making process.

Decision-making:

- **Post-decision monitoring:** This involves the recording of outcomes associated with development impacts, after the decision to proceed with the project.

#### **Importance of Environment Impact Assessment:**

- Reduced cost and time of project implementation and design,
- Avoided treatment/clean-up costs and impacts of laws and regulations.
- Lays base for environmentally sound projects;
- Greater awareness of environmental legislation;
- Protection of Environment
- Optimum utilization of resources (balance between development and Environmental protection)

#### **Expert Appraisal Committee (EAC)**

- The EAC is a multidisciplinary sectoral appraisal committee comprising of various subject matter experts for appraisal of sector-specific projects. The EAC is the recommendatory body. Based on the recommendations of the Expert Appraisal Committee, environmental clearance is accorded or rejected to the project by MoEF&CC.

After 2006 Amendment the EIA cycle comprises of four stages:

- Screening
- Scoping
- Public hearing
- Appraisal
- 1. Category A projects require mandatory environmental clearance and thus they do not undergo the screening process.
- 2. Category B projects undergoes screening process and they are classified into two types.
- 3. Category B1 projects (Mandatorily requires EIA).
- 4. Category B2 projects (Do not require EIA).

Thus, Category A projects and Category B, projects undergo the complete EIA

## **One Sun One World One Grid**

- **Context:**
- India and UK, jointly announced a declaration on “one sun, one world, one grid” — or OSOWOG at the Conference of Parties (COP26), held in Glasgow, UK

#### **Relevance:**

- GS-III: Environment and Ecology (Conservation of the Environment, International Treaties and Agreements), GS-II: International Relations (India's neighbors, Foreign Policies affecting India's Interests), GS-III: Industry and Infrastructure (Solar Energy, Renewable Energy), GS-III: Science and Technology (Indigenization of Technology)

#### **Dimensions of the Article:**

- 1. One Sun One World One Grid (OSOWOG)
- 2. How would the OSOWOG work?
- 3. What are the challenges to the OSOWOG project?

#### **One Sun One World One Grid (OSOWOG)**

- The One Sun One World One Grid (OSOWOG) aims to connect energy grids across borders to facilitate a faster transition to the use of renewable energy.

- India had first proposed connecting solar energy supply across borders at the International Solar Alliance in 2018 to allow parts of the world with excess renewable power to send power to other countries.
- The proposal is aimed at addressing the issue of reliability of supply from solar power plants, which do not generate electricity after the sun has set.
- OSOWOG is also aimed at addressing the issue of high cost of energy storage.
- The new Global Green Grids Initiative One Sun One World One Grid (GGIOSOWOG) is an evolution of the International Solar Alliance's OSOWOG multilateral drive to foster interconnected solar energy infrastructure at a global scale.
- India, Bhutan, Bangladesh, Myanmar and Nepal already share transmission capacity for energy transfer across borders which can be expanded further and utilised for the transfer of solar power between these countries.

#### *How would the OSOWOG work?*

- This initiative aims to tap solar energy and have it travel seamlessly across borders. The initiative will work towards accelerating the making of large solar power stations and wind farms in the best locations, linked together by continental-scale grids crossing national borders.
- The sun offers a huge source of energy for mankind. All the energy humanity uses in a year is equal to the energy that reaches the earth from the sun in a single hour.
- Given that the sun never sets and that half the planet is always receiving sunlight, there is the potential to harness solar energy continuously across the globe and trade this energy across borders to ensure adequate energy supply to meet the needs of everyone on earth.
- A transnational grid would allow countries to source solar power from regions where it is daytime to meet their green energy needs even when their own installed solar capacity is not generating energy.
- This initiative will bring together an international coalition of national governments, financial organisations, and power system operators.

#### *OSOWOG can help to:*

- Prevent dangerous climate change
- Meet the targets of the Paris Agreement
- Accelerate the clean energy transition
- Achieve the Sustainable Development Goals
- Stimulate green investments
- Create millions of good jobs

#### *What are the challenges to the OSOWOG project?*

- The project is seen as an Indian endeavour for world leadership but under Covid-19 uncertainties, the geopolitical implications of projects like OSOWOG are hard to decipher.
- The mechanism of cost-sharing will be challenging, given the varied priorities of participating countries depending on their socio-economic orders.
- In India, the major issue of renewable energy developers is to deal with different state governments and hence, different laws and regulations.
- The transmission of power across vast distances would require large capital investment to set up long transmission lines.
- Experts have pointed out that transmission across great distances can potentially be very expensive.
- There is a difference in voltage, frequency and specifications of the grid in most regions. Maintaining grid stability with just renewable generation would be technically difficult.

## Great Indian Bustard



- **Context:**

- Only four Female Great Indian Bustards (GIB) are left in Gujarat.
- According to a 2018 count, India has fewer than 150 GIBs, of which 122 are in Rajasthan.

- **Relevance:**

- Prelims, GS-III: Environment and Ecology (Species in News, Conservation of Biodiversity)

- **Dimensions of the Article:**

- 1. About the Great Indian Bustard
- 2. About the Habitat of Great Indian Bustard
- 3. On the brink of extinction
- 4. SC's recent hearing on Power Lines threatening the GIB

- **About the Great Indian Bustard**

- The Great Indian Bustard is one of the heaviest flying birds in the world often found associated in the same habitat as blackbuck.
- GIBs are the largest among the four bustard species found in India, the other three being MacQueen's bustard, lesser florican and the Bengal florican.
- The GIB is Critically Endangered on the IUCN Red List, and comes under the Appendix I of CITES, and Schedule I of the Indian Wildlife (Protection) Act, 1972.
- Threats to the GIB include widespread hunting for sport and food, and activities such as mining, stone quarrying, excess use of pesticides, grassland conversion and power projects along with the expansion of roads and infrastructures such as wind-turbines and power cables.

- **About the Habitat of Great Indian Bustard**

- The Great Indian Bustard's habitat includes Arid and semi-arid grasslands with scattered short scrub, bushes and low intensity cultivation in flat or gently undulating terrain. It avoids irrigated areas.
- GIBs' historic range included much of the Indian sub-continent but it has now shrunk to just 10 per cent of it.
- Among the heaviest birds with flight, GIBs prefer grasslands as their habitats.
- Being terrestrial birds, they spend most of their time on the ground with occasional flights to go from one part of their habitat to the other.
- GIBs are considered the flagship bird species of grassland and hence barometers of the health of grassland ecosystems.
- They feed on insects, lizards, grass seeds etc.

- **On the brink of extinction**

- In 2020, the Central government had told the 13th Conference of Parties to the United Nations Convention on Migratory Species of Wild Animals (CMS) held in Gandhinagar, that the GIB population in India had fallen to just 150.
- Of the 150 birds in 2020, over 120 birds were in Rajasthan, some were in Kutch district of Gujarat and a few in Maharashtra, Karnataka and Andhra Pradesh.
- Pakistan is also believed to host a few GIBs.
- Due to the species' smaller population size, the International Union for Conservation of Nature (IUCN) has categorised GIBs as critically endangered, thus on the brink of extinction from the wild.
- Scientists of Wildlife Institute of India (WII) have been pointing out overhead power transmission lines as the biggest threat to the GIBs.

- **SC's recent hearing on Power Lines threatening the GIB**

- A bench of the Supreme Court will examine on a priority basis whether overhead power cables can be replaced with underground ones to save one of the heaviest flying birds on the planet.
- The CJI suggested that: wherever there is high voltage power lines, they can use flight bird divertors even if the recurring costs are high, and wherever there are overhead low voltage lines, these lines can be placed underground.
- The SC was informed that only low voltage lines can go underground but not the high voltage ones.
- The court found further that an alternative mechanism — to install flight bird divertors — to guide the birds away from the power lines would be expensive.
- In fact, the court discovered that the divertors, with their recurring costs, would end costing more than installing and maintaining underground lines.

## Snow leopard

- **Context:**
- A recent study by the Zoological Survey of India (ZSI) on snow leopard (*Panthera uncia*) has thrown up interesting insights on the elusive mountain cat and its prey species.
- The study under the National Mission on Himalayan Studies revealed a strong link between habitat use by snow leopard and its prey species Siberian ibex and blue sheep.

### **Relevance:**

- GS III- Environment and Ecology

### **Dimensions of the Article:**

- About the Snow leopard
- Snow Leopards in India and their conservation

### **About the Snow leopard**

- The snow leopard is a large cat native to the mountain ranges of Central and South Asia.
- It is listed as Vulnerable on the IUCN Red List.
- The snow leopard, like all big cats, is listed on Appendix I of the Convention on International Trade of Endangered Species (CITES), which makes trading of animal body parts (i.e., fur, bones and meat) illegal in CITES signatory countries.
- Global population is estimated to number less than 10,000 mature Snow Leopards.
- It inhabits alpine and subalpine zones at elevations from 3,000 to 4,500 m.
- It is threatened by poaching and habitat destruction following infrastructural developments.

### **Snow Leopards in India and their conservation**

- In India, their geographical range encompasses a large part of the western Himalayas including the states of Jammu and Kashmir, Himachal Pradesh, Uttarakhand and Sikkim and Arunachal Pradesh in the eastern Himalayas. The last three states form part of the Eastern Himalayas – a priority global region of WWF and the Living Himalayas Network Initiative.
- Project Snow Leopard (PSL): It promotes an inclusive and participatory approach to conservation that fully involves local communities.
- SECURE Himalaya: Global Environment Facility (GEF)-United Nations Development Programme (UNDP) funded the project on conservation of high-altitude biodiversity and reducing the dependency of local communities on the natural ecosystem. This project is now operational in four snow leopard range states, namely, Jammu and Kashmir, Himachal Pradesh, Uttarakhand, and Sikkim.

## Draft eco-sensitive area norms for Western Ghats

- **Context:**

- The Union Environment Ministry's latest draft notification on Ecologically Sensitive Areas (ESA) in the Western Ghats is facing stiff opposition in Karnataka.
- The Ministry of Environment, Forests and Climate Change (MoEF&CC) had issued a draft notification, which demarcated large parts of Karnataka, Tamil Nadu, Gujarat, Maharashtra and as eco-sensitive areas.
- Among these states, Karnataka contains the lion share of the notified areas in the Western Ghats, at 20,668 sq km.

**Relevance:** GS III- Environment and Ecology

***Dimensions of the Article:***

- 1. What are Eco-Sensitive Zones?
- 2. What does the new draft notification for the Western Ghats say?
- 3. What are the curbs that the state governments will have to implement as per the notification?
- 4. Suggestions by the Kasturirangan panel

***What are Eco-Sensitive Zones?***

- Eco Sensitive Zones are fragile areas around protected areas declared by the Ministry of Environment, Forest, and Climate Change (MoEFCC).
- They are areas notified by the MoEFCC around Protected Areas, National Parks and Wildlife Sanctuaries.
- The purpose of declaring ESZs is to create some kind of "shock absorbers" to the protected areas by regulating and managing the activities around such areas.
- Among activities prohibited in the eco-sensitive zone are hydroelectric projects, brick kilns, commercial use of firewood and discharge of untreated effluents in natural water bodies or land areas.
- No new commercial hotels and resorts shall be permitted within 1 km of the boundary of the protected area or up to the extent of the eco-sensitive zone, whichever is nearer, except for small temporary structures for eco-tourism activities.

***What does the new draft notification for the Western Ghats say?***

- The draft notification demarcates 46,832 sq km in the five states Gujarat, Maharashtra, Karnataka, Goa and Tamil Nadu as ESA in the Western Ghats.
- Kerala is excluded from the draft notification and it had earlier undertaken the exercise of demarcating ESA in the state by physical verification.
- The ESA recommended by the Kerala state government is spread over an area of 9,993.7 square kilometers, in contrast to the 13,108 sq km recommended by the K Kasturirangan panel that gave its report in 2013.
- Among the five states, 20,668 sq km of the ESA lies in Karnataka, 1,461 sq km in Goa, 17,340 sq km in Maharashtra, 6,914 sq km in Tamil Nadu and 449 sq km in Gujarat.
- According to the notification, the concerned state governments are responsible for monitoring and enforcing the provisions of the notification.

***What are the curbs that the state governments will have to implement as per the notification?***

- The draft notification states there shall be a complete ban on mining, quarrying and sand mining in the ESA.
- All existing mines are to be phased out within five years from the date of issue of the final notification or on the expiry of the existing mining lease.
- It also bars setting up of new thermal power projects and expansion of existing plants in the sensitive area, and the banning of all new 'Red' category industries.

- These are activities that have a Pollution Index score of 60 and above, such as petrochemical manufacturing, and coal liquefaction.
- The construction of new townships and area development projects will also be prohibited in the areas.
- However, all existing health care establishments shall continue in ESA and so will new hydropower projects on the basis of the Environmental Impact Assessment notification.
- 'Orange' category industries, with a pollution index score of 41-59, such as jute processing and 'White' industries that are considered non-polluting, like chalk making, will also be allowed with strict compliance of environmental regulation.

#### ***How will the Centre ensure the implementation of these norms?***

- A Decision Support and Monitoring Centre for Western Ghats shall be established by the Environment Ministry in collaboration with the state governments of the Western Ghats region.
- This will assess and report on the status of ecology of Western Ghats on a regular basis, and provide a decision support facility in the implementation of the provisions of the notification.
- The post clearance monitoring of projects and activities allowed in the ESA will be carried out by the concerned state government, the State Pollution Control Board and the regional office of the Ministry.
- All projects in the Eco-sensitive Area which have been given an environmental clearance or forest clearance will be monitored at least once a year by the concerned regional office of the Union Environment Ministry.
- On an annual basis, the state governments will also prepare a 'State of Health Report' of the Western Ghats region within their jurisdiction, and provide details of the steps taken to monitor and enforce the provisions of the notification.

#### ***Suggestions by the Kasturirangan panel***

- The panel, formed in 2012, was tasked with the mandate of taking a "holistic view of the issue, and to bring synergy" between the aims of protecting the environment and biodiversity, while maintaining the needs and aspirations of the local and indigenous people, of sustainable development and environmental integrity of the region.
- This high-level working group had suggested future steps to be taken to prevent further degradation of the fragile ecology of the Ghats.
- The report had recommended a blanket ban on mining, quarrying, red category industries and thermal power projects.
- It also stated that the impact of infrastructural projects on the forest and wildlife should be studied before permission is given.

## **Red Panda**

- **Context:**
- The Singalila National Park, the highest protected area in West Bengal, will soon wild Red Panda.

**Relevance:** GS III- Environment and Ecology

#### ***Dimensions of the Article:***

- 1. About Red Panda
- 2. About Singalila National Park
- 3. Why introduce Red Panda?

#### ***About Red Panda***

- The Giant Panda and the Red Panda are the only two distinct panda species found in the world.
- It serves as Sikkim's official animal as well.



- Red pandas are timid, lonely, arboreal creatures that are used as indicators of ecological change.
- Both (sub)species are found in India.
- Himalayan red panda (*Ailurus fulgens*)
- Chinese red panda (*Ailurus styani*)
- The two phylogenetic species are split by the Siang River in Arunachal Pradesh.
- It can be discovered in the jungles of India, Nepal, Bhutan, as well as the northern mountains of Myanmar and the southern provinces of China.

#### Protection Status:

##### *Red Pandas:*

- **IUCN Red List:** Endangered
- **CITES:** Appendix I
- **Wildlife Protection Act 1972:** Schedule I

##### *Giant Pandas:*

- **IUCN Red List:** Vulnerable
- **CITES:** Appendix I

##### *About Singalila National Park*

- Singalila National Park is located on the Singalila Ridge at an altitude of more than 7000 feet above sea level, in the Darjeeling district of West Bengal.
- It is well known for the trekking route to Sandakphu that runs through it.
- The Singalila area in Darjeeling was purchased by the British Government from Sikkim Durbar in 1882, and notified a Reserve Forest under the Indian Forest Act 1878.
- It was notified as a National Park in 1992 and was also officially opened up for tourism.

##### *Why introduce Red Panda?*

- Even in Singalila and Neora Valley National Parks, the two protected locations in West Bengal where the mammal is found in the wild, the number of red pandas has been falling.
- According to recent surveys, there are 32 in Neora and 38 in Singalila.
- The Red Panda Augmentation Programme is centred on the zoological park.
- Red panda conservation breeding is just one aspect of the approach.

## Environment Protection Act 1986

#### *Context:*

- The Union Environment Ministry proposes to soften the provisions of the EP Act (EPA) by replacing a clause that provides for imprisoning violators with one that only requires them to pay a fine.

#### *Relevance:*

- GS III- Environment and Ecology

#### *Dimensions of the Article:*

- 1. About Environment (Protection) Act 1986
- 2. Objectives of the Environment Protection Act
- 3. Main Provisions of the Environment Protection Act

#### *About Environment (Protection) Act 1986*

- The original constitution of India did not have any provisions related to natural environment conservation. However, by the 42nd amendment to the constitution, fundamental duties were added describing the protection of the natural environment that includes lakes, forests, wildlife, and rivers as the fundamental duty of all citizens.
- EP Act was passed under Article 253 of the Constitution, which empowers the Centre to enact laws to give effect to international agreements signed by the country.
- After the United Nations Conference on the Human Environment was held in Stockholm, in 1972, measures were taken for improving the environmental condition.
- The Wildlife Protection Act 1972, Water (Prevention and Control of Pollution) Act 1974, and the Air (Prevention and Control of Pollution) Act 1981 were enacted followed by the Environment Protection Act 1986, passed by the Indian government for safeguarding the environment after the Bhopal Gas Tragedy on 2 December 1984, which emphasized on the need and measures for the protection of the environment.

### ***Objectives of the Environment Protection Act***

- To protect the environment from degradation and take actions to improve the current condition.
- To implement the decisions made at the UN Conference on the Human Environment held in Stockholm in 1972.
- To set up a government body to look after the industries and regulate the effect they have on the environment, and also issue direct orders such as for closure of industries.
- To punish and penalize those posing a danger to the environment, health, and safety.
- For each failure, a fine of up to 1 Lakh, a prison term of five years, or both can be included. In certain cases, the term can be extended up to seven years.
- To coordinate the work of the agencies for the protection of the environment under existing laws.
- To enforce this law in all regions, including the places earlier exempted under previous laws.
- To encourage and work towards sustainable development of the environment.

### ***Main Provisions of the Environment Protection Act***

- Under this act, protection of the environment against all forms of pollution is covered, including air, water, soil, and noise.
- The Centre can carry out various activities and programmes to further environmental protection.
- The discharge or emission of environmental pollutants by industries will be regulated by safe standards, set by the Centre.
- Any citizen, except the authorized government officers, can file a complaint regarding a breach of any of the provisions of the EPA.
- Restrictions on certain locations for the establishment of a business or personal property can be imposed under this act if they seem to endanger the environment.
- Under this act, samples of air, water, or soil from any place can be tested and analyzed by the authorized party.
- The discharge of hazardous pollutants beyond safety standards by any individual or organization makes them liable for punishment and even a complete ban on their activity.
- Management of hazardous substances should be done as per the regulatory norms of the government.

## **Nairobi flies**

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

**Relevance:** GS III- Environment and Ecology

**Dimensions of the Article:**

- 1. What are Nairobi flies?
- 2. How are humans affected by them?
- 3. Have there been outbreaks of the disease?

#### ***What are Nairobi flies?***

- Nairobi flies, also called Kenyan flies or dragon bugs, are small, beetle-like insects that belong to two species, *Paederus eximius* and *Paederus sabaeus*.
- They are orange and black in colour, and thrive in areas with high rainfall, as has been witnessed in Sikkim in the past few weeks.
- Like most insects, the beetles are attracted by bright light.

#### ***How are humans affected by them?***

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

#### ***Have there been outbreaks of the disease?***

- Major outbreaks have happened in Kenya and other parts of eastern Africa.
- In 1998, unusually heavy rain caused a large number of insects to come into the region, reported the Associated Press.
- Outside Africa, outbreaks have happened in India, Japan, Israel, and Paraguay in the past.

## **INTERNAL SECURITY**

### **Prevention of Money Laundering Act (PMLA)**

- ***Context:***
- Recently, The Supreme Court upheld the core amendments made to the Prevention of Money Laundering Act (PMLA), which gives the government and the Enforcement Directorate (ED) virtually unbridled powers of summons, arrest, and raids, and makes bail nearly impossible while shifting the burden of proof of innocence on to the accused rather than the prosecution.

#### ***Relevance:***

- GS-III: Internal Security Challenges (Money Laundering), GS II: Governance

#### ***Dimensions of the Article:***

- 1. Details
- 2. Prevention of Money Laundering Act (PMLA), 2002
- 3. Enforcement Directorate
- 4. Functions of Enforcement Directorate

#### ***Details:***

- The top court called the PMLA a law against the “scourge of money laundering” and not a hatchet wielded against rival politicians and dissenters.

- “Money laundering is an offence against the sovereignty and integrity of the country,” the court noted. “It is no less a heinous offence than the offence of terrorism,”
- The verdict came on an extensive challenge raised against the amendments introduced to the 2002 Act by way of Finance Acts.
- The three-judge Bench said the method of introduction of the amendments through Money Bills would be separately examined by a larger Bench of the top court.

### ***Prevention of Money Laundering Act (PMLA), 2002***

- According to the Prevention of Money Laundering Act (PMLA) 2002, **Money laundering** is concealing or disguising the identity of illegally obtained proceeds so that they appear to have originated from legitimate sources.
- It is frequently a component of other, much more serious, crimes such as drug trafficking, robbery or extortion.
- Money laundering is punishable with rigorous imprisonment for a minimum of 3 years and a maximum of 7 years and Fine under the PMLA.
- The **Enforcement Directorate (ED)** is responsible for investigating offences under the PMLA.
- The **Financial Intelligence Unit – India (FIU-IND) is the national agency** that receives, processes, analyses and disseminates information related to suspect financial transactions.
- After hearing the application, a special court (designated under the Prevention of Money Laundering Act PMLA, 2002) may declare an individual as a fugitive economic offender and also confiscate properties which are proceeds of crime, Benami properties and any other property, in India or abroad.
- The authorities under the PMLA, 2002 will exercise powers given to them under the **Fugitive Economic Offenders Act**.
- These powers will be similar to those of a **civil court**, including the search of persons in possession of records or proceeds of crime, the search of premises on the belief that a person is an FEO and seizure of documents.

### ***Enforcement Directorate***

- The Directorate of Enforcement (ED) is a law enforcement agency and economic intelligence agency responsible for enforcing economic laws and fighting economic crime in India.
- It is part of the Department of Revenue, Ministry of Finance, Government Of India.
- It is composed of officers from the **Indian Revenue Service**, Indian Corporate Law Service, Indian Police Service and the Indian Administrative Service.
- The origin of this Directorate goes back to 1 May 1956, when an ‘Enforcement Unit’ was formed, in Department of Economic Affairs, for handling Exchange Control Laws violations under Foreign Exchange Regulation Act, 1947.
- In the year 1957, this Unit was renamed as ‘Enforcement Directorate’.

### ***Functions of Enforcement Directorate***

- The prime objective of the Enforcement Directorate is the enforcement of two key Acts of the Government of India namely, the
- Foreign Exchange Management Act 1999 (FEMA)
- the Prevention of Money Laundering Act 2002 (PMLA).
- The ED's (Enforcement Directorate) official website enlists its other objectives which are primarily linked to checking money laundering in India.
- In fact this is an investigation agency so providing the complete details on public domain is against the rules of GOI.
- ED; investigates suspected violations of the provisions of the FEMA.



- ***Suspected violations includes***, non-realization of export proceeds, “hawala transactions”, purchase of assets abroad, possession of foreign currency in huge amount, non-repatriation of foreign exchange, foreign exchange violations and other forms of violations under FEMA.
- ED collects, develops and disseminates intelligence information related to violations of FEMA, 1999. The ED receives the intelligence inputs from Central and State Intelligence agencies, complaints etc.
- ED has the power to attach the asset of the culprits found guilty of violation of FEMA.
- ***“Attachment of the assets”*** means prohibition of transfer, conversion, disposition or movement of property by an order issued under Chapter III of the Money Laundering Act [Section 2(1) (d)].
- To undertake, search, seizure, arrest, prosecution action and survey etc. against offender of PMLA offence.
- To provide and seek mutual legal assistance to/from respective states in respect of attachment/confiscation of proceeds of crime and handed over the transfer of accused persons under Money Laundering Act.
- To settle cases of violations of the erstwhile FERA, 1973 and FEMA, 1999 and to decide penalties imposed on conclusion of settlement proceedings.