

THE IAS GAZETTE

A House Journal of **APTI PLUS**

MARCH 2022



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**RUSSIA
UKRAINE**
CONFLICT

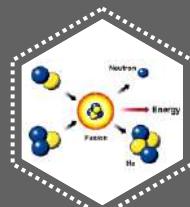
WILDFIRES



MARITAL RAPE



NUCLEAR FUSION



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A MONTHLY PERIODICAL FOR ASPIRANTS OF UPSC EXAMINATION

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GENERAL STUDIES - I

UNESCO WORLD HERITAGE SITES

GS-I CULTURE & HERITAGE

Context

- The Hoysala temples of Belur, Halebid and Somnathapura in Karnataka have been selected as India's nomination for UNESCO's list of World Heritage sites for the year 2022-23.
- The 'Sacred Ensembles of the Hoysala' have been on UNESCO's Tentative list since 15 April, 2014, and stand testimony to the rich historical and cultural heritage of this country.
- All the three Hoysala temples are protected monuments of the Archaeological Survey of India.

Hoysala style of architecture

- It is often referred to as an amalgamation between the Dravidian and Indo-Aryan forms.
- Main features of Hoysala architecture:**
 - Mandapa**, is a common feature of Hoysala architecture. It is the prayer hall that is entered through an intricately designed lintel known as the 'makaratorana.'
 - This open space is supported by several pillars.
 - The stone latticework is also a recurrent feature of Hoysala sculptures.
 - The pillars of the Hoysala temples have four brackets at the top and are further decorated with ornamented carvings.
 - The vimanams are the place where the principal deity resides. The shapes of these vimanams are either stellate (star shaped) or staggered square.
 - The Salabhanjika is a common feature of Hoysala sculpture.
 - The pillar images known as 'sthamba buttalikas' show the influence of the Chola art and architecture.
 - The temple walls of the Hoysala Empire are speckled with events from Hindu epics, Ramayana and Mahabharata.
 - The Hoysala sculpture is erotica. The nooks and niches of the temple walls have been filled with erotic themes.

About Hoysaleswara temple

- They are also referred as the Halebidu temple, which is a 12th-century Hindu temple dedicated to Shiva.
- It is the former capital of the Hoysala Empire.
- The temple was sponsored by King Vishnuvardhana of the Hoysala Empire.
- During the early 14th century, Halebidu was twice sacked and plundered by the Muslim armies of the Delhi Sultanate from northern India.
- It is a Shaivism tradition monument, yet includes many themes from Vaishnavism and Shaktism tradition of Hinduism, as well as images from Jainism.

Kesava temple in Belur

- Chennakeshava Temple, also referred to as Keshava, Kesava or Vijayanarayana Temple of Belur, is a 12th-century Hindu temple in Karnataka state, India.
- It was commissioned by King Vishnuvardhana in 1117 CE, on the banks of the Yagachi River in Belur also called Velapura, an early Hoysala Empire capital.
- It was repeatedly damaged and plundered during wars, repeatedly rebuilt and repaired over its history.
- It is dedicated to Vishnu.

What are World Heritage Sites?

- It is a landmark or area with legal protection by an international convention administered by the United Nations Educational, Scientific and Cultural Organisation (UNESCO).
- World Heritage Sites are designated by UNESCO for having cultural, historical, scientific or other forms of significance.
- As per the 'Convention concerning the Protection of the World Cultural and Natural Heritage' 1972, UNESCO seeks to encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity.
- As of July 2021, a total of 1,154 World Heritage Sites (897 cultural, 218 natural, and 39 mixed properties) exist across 167 countries. With 58 selected areas, Italy is the country with the most sites on the list.
- Categories:** A World Heritage Site can be either cultural or natural areas or objects which are inscribed on UNESCO's World Heritage List for having "outstanding universal value".
- These sites are usually considered to have cultural significance to all the people in the world, including future generations.

How are they selected?

- According to **The Operational Guidelines for the Implementation of the World Heritage Convention**, a country must first list its significant cultural and natural sites into a document known as the **Tentative List**.
- The sites selected from that list move onto the Nomination File, which is then evaluated by the International Council on Monuments and Sites and the World Conservation Union.
- Any site that wasn't first included in the Tentative List cannot be nominated.
- The two bodies then make their recommendations to the World Heritage Committee, which consists of diplomatic representatives from 21 countries.
- The committee meets each year to decide whether a nominated property can be inscribed on the World Heritage List.
- The committee makes the final decision if a site meets at least one of the ten selection criteria.

Does a site can lose its designation?

- A site **may lose its designation** when the World Heritage Committee determines if it is **not properly maintained or protected**.
- It is first placed in the list of **World Heritage in Danger** as the Committee attempts to find a remedy involving the local authorities. If any remedies fail, the designation is revoked.
- A country can also request the Committee to partially or fully delist a property, generally in such cases when its condition has seriously deteriorated.

How many World Heritage Sites are in India?

- There are **currently 32 cultural, seven natural and one mixed World Heritage Sites** in India.
- Oldest sites:** Agra Fort, Ajanta Caves, Ellora Caves, and Taj Mahal made it to the list in 1983.
- Latest sites:** The latest sites to be added to the list Dholavira in Gujarat, Kakatiya Rudreshwara (Ramappa) Temple in Telangana in 2021.
- There are **46 sites in the Tentative List** including a group of monuments at Mandu and the historic ensemble of Orchha in Madhya Pradesh, Satpura tiger reserve, temples of Kanchipuram, temples at Bishnupur in West Bengal, and Sri Harimandir Sahib in Amritsar, Punjab.

Indian Properties inscribed on the World Heritage List (40)

Cultural (32)

- Agra Fort (1983)
- Ajanta Caves (1983)
- Archaeological Site of Nalanda Mahavihara at Nalanda, Bihar (2016)
- Buddhist Monuments at Sanchi (1989)
- Champaner-Pavagadh Archaeological Park (2004)
- Chhatrapati Shivaji Terminus (formerly Victoria Terminus) (2004)
- Churches and Convents of Goa (1986)
- Dholavira: a Harappan City (2021)
- Elephanta Caves (1987)
- Ellora Caves (1983)
- Fatehpur Sikri (1986)
- Great Living Chola Temples (1987,2004)
- Group of Monuments at Hampi (1986)
- Group of Monuments at Mahabalipuram (1984)
- Group of Monuments at Pattadakal (1987)
- Hill Forts of Rajasthan (2013)
- Historic City of Ahmadabad (2017)
- Humayun's Tomb, Delhi (1993)
- Jaipur City, Rajasthan (2019)
- Kakatiya Rudreshwara (Ramappa) Temple, Telangana (2021)
- Khajuraho Group of Monuments (1986)
- Mahabodhi Temple Complex at Bodh Gaya (2002)
- Mountain Railways of India (1999,2005,2008)
- Qutb Minar and its Monuments, Delhi (1993)
- Rani-ki-Vav (the Queen's Stepwell) at Patan, Gujarat

(2014)

- Red Fort Complex (2007)
- Rock Shelters of Bhimbetka (2003)
- Sun Temple, Konârak (1984)
- Taj Mahal (1983)
- The Architectural Work of Le Corbusier, an Outstanding Contribution to the Modern Movement (2016)
- The Jantar Mantar, Jaipur (2010)
- Victorian Gothic and Art Deco Ensembles of Mumbai (2018)

Natural (7)

- Great Himalayan National Park Conservation Area (2014)
- Kaziranga National Park (1985)
- Keoladeo National Park (1985)
- Manas Wildlife Sanctuary (1985)
- Nanda Devi and Valley of Flowers National Parks (1988,2005)
- Sundarbans National Park (1987)
- Western Ghats (2012)

Mixed (1)

- Khangchendzonga National Park (2016)

WILDFIRES

GS-I GEOGRAPHY

Context

- Wildfires are predicted to worsen in the coming years and decades, the United Nations Environment Programme (UNEP) has warned in its annual Frontiers report.

Wildfire

- A wildfire is an **unplanned fire that burns in a natural area such as a forest or grassland**.
- Wildfires are often caused by human activity or a natural phenomenon such as lightning, and they can happen at any time or anywhere.

Findings of the UNEP Report

More dangerous now

- Wildfires are a natural phenomenon, but are becoming **more dangerous and affecting larger areas due to climate change and human activities**.
- **Change in land-use and land management practices** are also responsible for the increasing risks of wildfires.

Rising GHGs- a catalyst

- The trends towards more dangerous fire-weather conditions are likely to increase due to rising concentrations of atmospheric greenhouse gases and the attendant escalation of wildfire risk factors.

Wild land-urban interface

- There has been a rapid expansion of cities towards forest areas in many regions in recent decades. This wild land-urban interface is the area where wildfire risks are most pronounced.

Deforestation and Forest Fragmentation

- Wildfires seldom spread to humid tropical forests in the past.
- But these forests are now more vulnerable due to deforestation and forest fragmentation.

Extreme weather events

- Extreme weather events such as hotter temperatures and more droughts are leading to longer fire seasons.

Impact on Savannah Ecosystem

- Savannah or the mixed woodland-grassland ecosystem accounted for 77 per cent of the total 13 million individual fires (lasting for 4-5 days) which occurred globally between 2003 and 2016.
- This has affected over one-fourth of species in the Savannah ecosystem.

Total area burnt

- Between 2002 and 2016, an average of about 423 million hectares or 4.23 million square km of the earth's land surface was burnt every year. This is equivalent to an area around size of the entire European Union.

Impact on Africa

- 67 per cent of the annual global area burned by all types of fires, including wildfires, was on the African continent. In 2021 too, Africa was the most affected region due to wildfires.

Situation in the coming years

- UNEP has projected that the **number of wildfires is likely to increase by up to 14 per cent by 2030**.
- It is projected to **spike by 33 per cent by 2050**. It would rise by 52 per cent by 2100.

Failing targets and SDGs

- An increase in damaging wildfires may reverse or **delay progress towards achieving the United Nations Sustainable Development Goals (SDGs), Paris Agreement and Sendai targets**.

Future Trend and Impact

Lightning Wildfire Feedback Loop

- With rising forest fires, the world is very likely to see more frequent incidences of lightning.
- Lightning strikes are projected to increase in frequency in some parts of the world as the climate changes.
- Thus, Climate change can prompt extreme wildfires, generating lightning that can ignite other fires, far beyond the fire front and creating a **so-called hazardous feedback loop**.
- Lightning ignition is the predominant driver of massive wildfires in the boreal forests of North America and northern Siberia.

Thunderstorms and Wildfires

- Fire-induced thunderstorms are a new danger posed by rising wildfires.
- In recent decades, such thunderstorms have been reported very frequently in Australia, Europe and North America.
- These thunderstorms contribute to more dangerous conditions for fires on the ground.
- Lightning from these storms will also lead to additional blazes in far-away locations.

Wildfire and Pollution

- Wildfires are also responsible for air pollution. There is a link between impact of wildfire-related pollution and human deaths.

Environment

- Black carbon and other pollutants generated from wildfires can contaminate water sources, speed up glacier melt, trigger landslides and turn rainforests into carbon sinks.

Exacerbates impact

- Long-term effects on human health extend beyond those fighting wildfires, or the evacuated, or those who have lost homes, and exacerbate impacts among those with pre-existing illness, women, children, the elderly, and the poor.

Recommendations made by the UNEP Report

- Appreciating and adopting indigenous fire management techniques.
- Focus on long-range weather forecasting.
- Focus on remote-sensing capabilities such as satellites, ground-based radar, lightning detection as well as data handling.
- Wildfire prevention, response and management calls for improved planning and policies coupled with practices.
- It is important to enhance fire-fighting capabilities and strengthen community resilience-building programmes.
- A preventive approach, rather than reactive approach by engaging vulnerable groups, will help adapt to the wildfires.
- Greater investment in reducing wildfire risks.
- Integrated wildfire management is the key to adapting to current and future changes in global wildfire risk.
- There is a need to invest more in fire risk reduction, work with local communities and strengthen global commitment to fight climate change.
- Achieving and sustaining adaptive land and fire management requires a combination of policies, a legal framework and incentives that encourage appropriate land and fire use.
- UNEP has called for strengthening international and regional cooperation on wildfires.
- Development of an international standard for wildfire management has also been recommended. This will facilitate international cooperation and help all wildfire-prone countries build capacity for both domestic application and international assistance.
- UNEP's Fire Ready Formula can help in achieving these goals.

UNEP's Fire Ready Formula

- The United Nations Environment Programme (UNEP) called on global governments to adopt a new 'Fire Ready Formula,' as it warned that incidences of wildfires would rise in the future.

Details

- The new formula envisages that 66 per cent of spending be devoted to planning, prevention, preparedness and recovery.
- The remaining 34 per cent can be spent on response.

New "Fire Ready Formula" focuses on planning and prevention		
Serial No	Budget item	Percentage share of the total on wildfire management recommended
1	Planning	1 %
2	Prevention	32 %
3	Preparedness	13 %
4	Response	34 %
5	Recovery	20 %

Source: UNEP report

Trivia

According to Forest Survey Report 2021

- 35.46% of the forest cover in India is prone to forest fires.
- Out of this, 2.81 % is extremely prone, 7.85% is very highly prone and 11.51 % is highly prone.
- The highest numbers of fires were detected in Odisha, Madhya Pradesh and Chhattisgarh.

Also Read: <https://www.iasgyan.in/mind-map-current-issues/forest-fire>

BOMB CYCLONE

GS-I GEOGRAPHY

Context

- Recently, 'Bomb cyclone' hit eastern U.S., triggering transport chaos.

About

Definition

- Bomb cyclone, sometimes called 'winter hurricane' is a large, intense mid-latitude extratropical cyclonic storm that has low pressure at its center.

BOMBOGENESIS

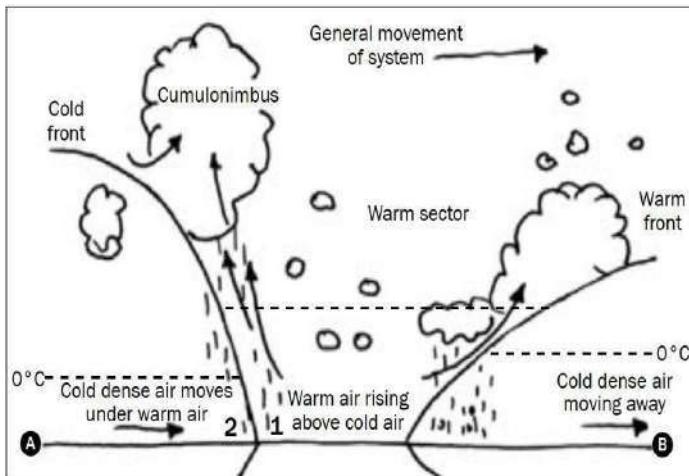


- RAPIDLY STRENGTHENING LOW PRESSURE SYSTEM
- PRESSURE DROP OF 24+ MILLIBARS IN 24 HOURS
- LOWER PRESSURE LEADS TO MORE INTENSE IMPACTS

- It is associated with blizzards to severe thunderstorms to heavy precipitation.

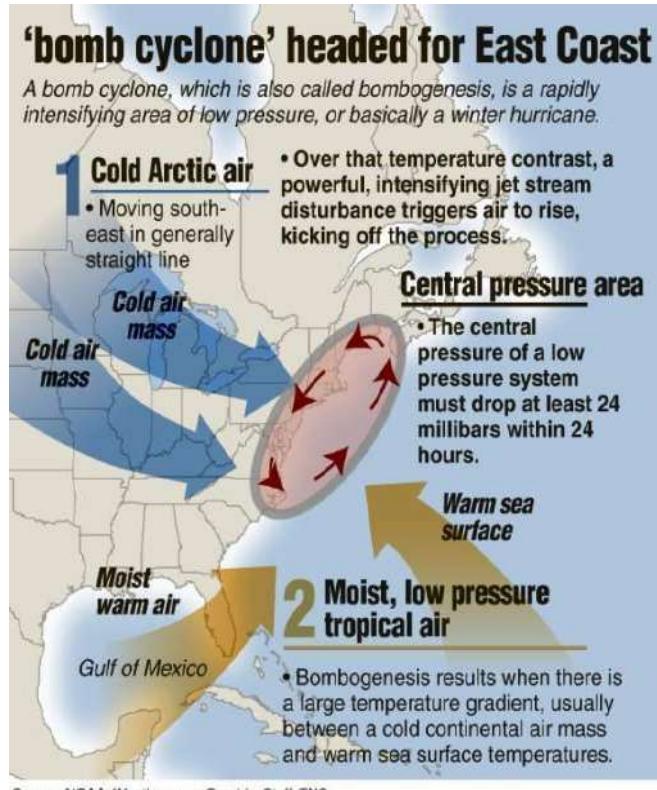
Formation

- A storm becomes a bomb when its central pressure decreases very quickly – by at least 24 millibars in 24 hours at 30- 60° latitude.
- In simple terms, bombogenesis is a storm (low pressure area) that undergoes rapid strengthening.
- This can happen when a cold air mass collides with a warm air mass, such as air over warm ocean waters.



Favourable conditions for Bomb cyclones to form

- Baroclinic instability is one of the principal mechanisms for the development of most explosively deepening cyclones.
- Deep tropospheric frontogenetic processes.
- Influence of air-sea interaction, and latent heat release
- Upper-level winds, also known as "jet streams": When a strong jet stream overlies a developing low-pressure system, it creates a feedback pattern that makes warm air rise at an increasing rate. This allows the pressure to drop rapidly at the center of the system. As the pressure drops, winds strengthen around the storm leading to Bombogenesis.



Source: NOAA, Weather.com, Graphic: Staff, TNS

Areas prone to Bomb Cyclones

- Along the U.S. East Coast during winter, there's a naturally potent thermal contrast between the cool land and the warm Gulf Stream current. Over the warmer ocean, heat and moisture are abundant. But as cool continental air moves overhead and creates a large difference in temperature, the lower atmosphere becomes unstable and buoyant. Air rises, cools and condenses, forming clouds and precipitation.
- In the Northern Hemisphere the maximum frequency of explosively deepening cyclones is found within or to the north of the Atlantic Gulf Stream and Kuroshio Current in the western Pacific.
- In the Southern Hemisphere it is found with Australian east coast lows above the East Australian Current, which shows the importance of air-sea interaction in initiating and rapidly developing extratropical cyclones

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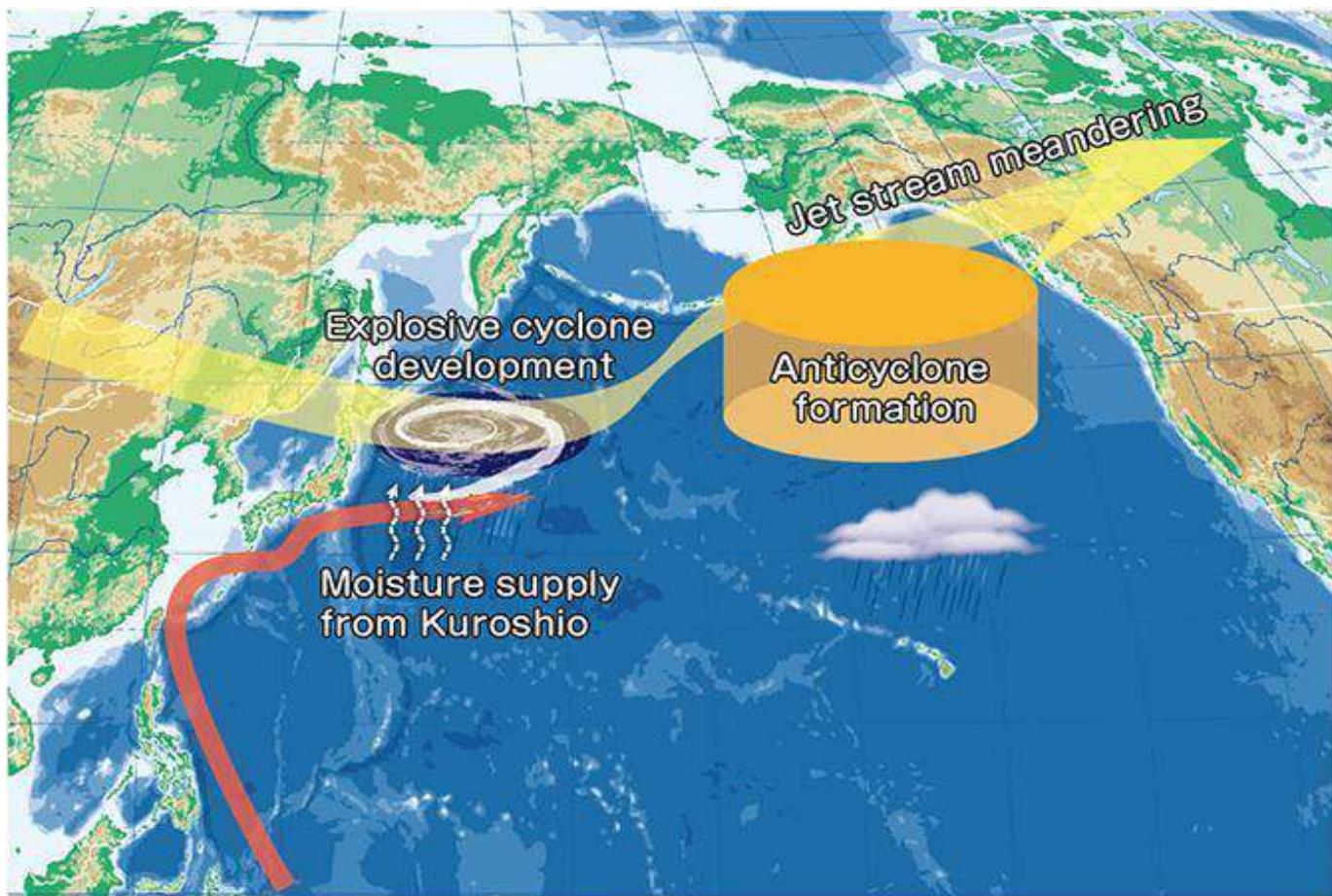


Diagram showing how Kuroshio gives impact on bomb cyclones and atmospheric general circulation.

Impact of Bomb Cyclones

- Bomb Cyclones can produce heavy flooding, blizzard conditions and wind speeds comparable to a Category 1 hurricane.
- The fast strengthening is usually a signature of a very powerful storm system and so much of the danger lies in the fact that bomb cyclones can lead to damages before giving time to prepare.

Read about Cyclones here : <https://www.iasgyan.in/blogs/cyclone-burevi-all-about-tropical-cyclones>



GEO MAGNETIC STORM

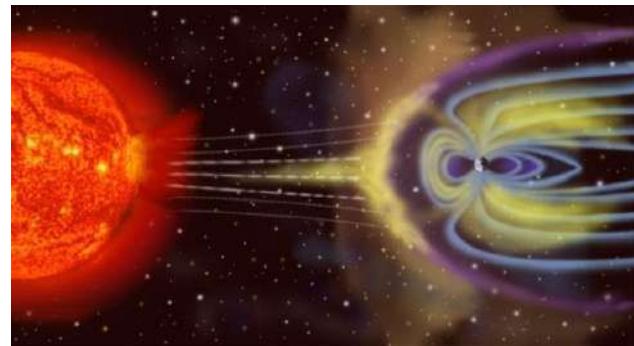
Context

- Elon Musk's Starlink has lost dozens of satellites that were caught in a geomagnetic storm a day after they were launched.
- Up to 40 of the 49 satellites were impacted, causing them to fall from orbit before they could be commissioned.

Geomagnetic Storm

About

- A geomagnetic storm is a temporary disturbance of the Earth's magnetosphere caused by a solar wind shock wave or solar magnetic field that interacts with the Earth's magnetic field.
- These storms result from variations in the solar wind that produces major changes in the currents, plasmas, and fields in Earth's magnetosphere.



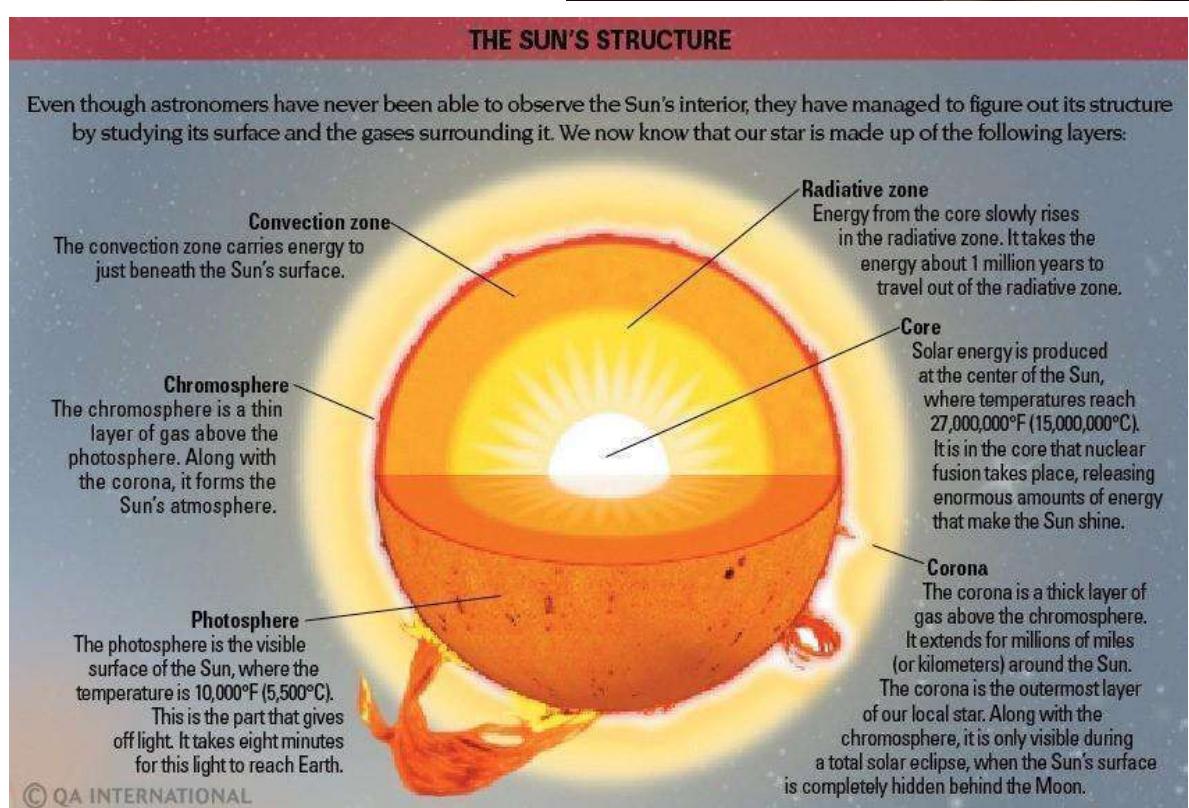
Occurrence

- Sunspots:** They occur during the release of magnetic energy associated with sunspots. Sunspots are small and dark but cooler areas on the solar surface having strong magnetic forces. They are

cooler than the surrounding photosphere. Sunspots are indicative of solar activity, giving birth to solar flares and coronal mass ejections (CMEs).

- CMEs:** These conditions are also associated with solar coronal mass ejections (CMEs)

where a billion tons of plasma



with its embedded magnetic field are expelled from the sun's corona, arrives at Earth.

- Solar storm:** Solar wind storm also creates conditions favorable to Geomagnetic Storms. Solar storms are magnetic plasma ejected at great speed from the solar surface.



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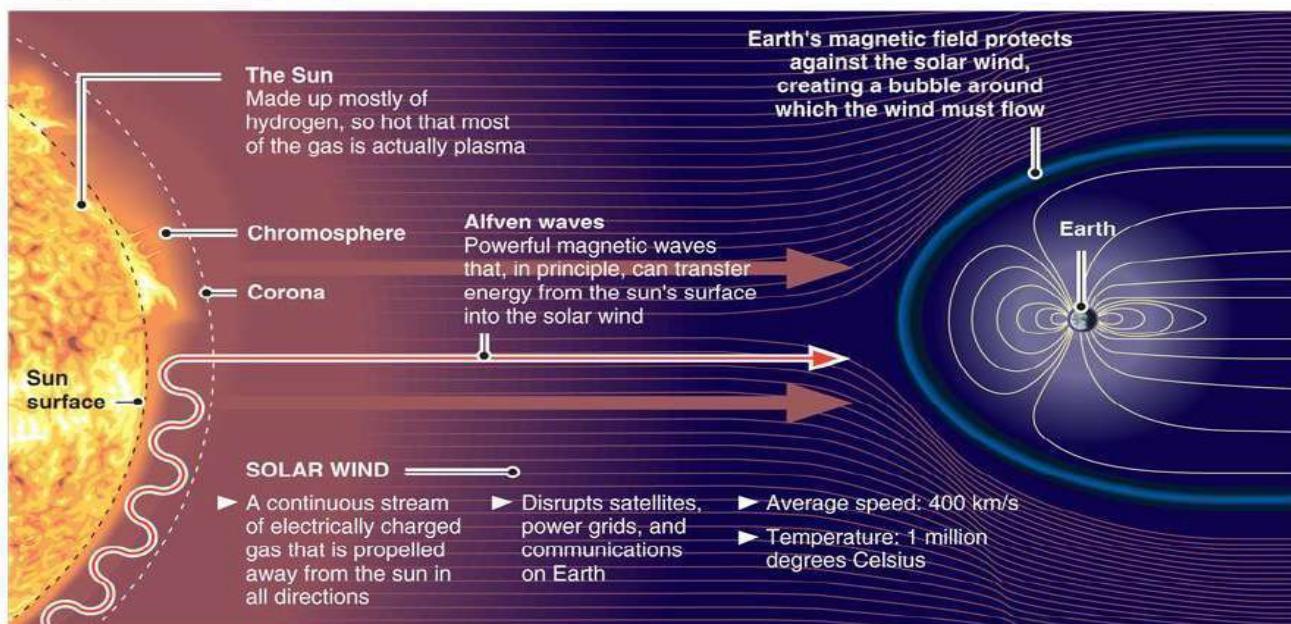
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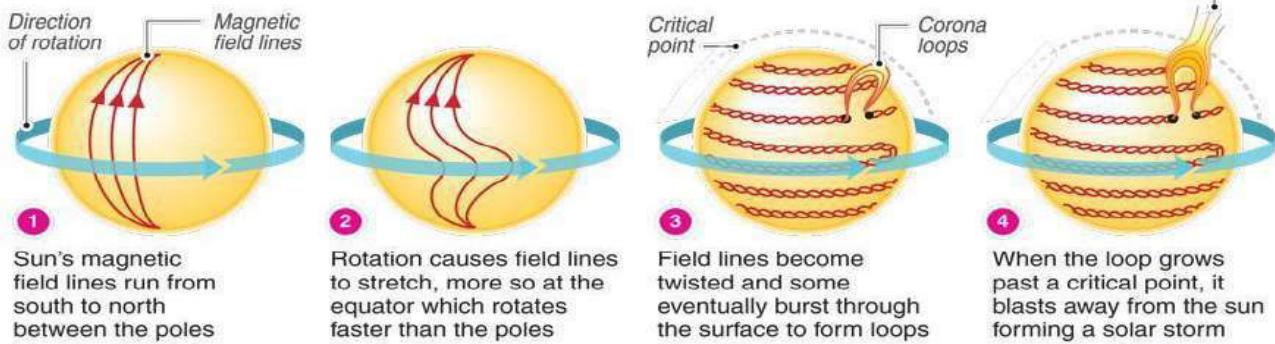
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SOLAR FLARES



HOW A SOLAR FLARE IS FORMED



To read more about the sun, visit: <https://www.iasgyan.in/blogs/structure-of-the-sun>

Impact on Earth

Not all solar flares reach Earth, but solar flares/storms, solar energetic particles (SEPs), high-speed solar winds, and coronal mass ejections (CMEs) that come close can impact space weather in near-Earth space and the upper atmosphere.

- **Space-dependent services:** Solar storms can hit operations of space-dependent services like satellite communications.
- **Radio communication:** Geomagnetic storms interfere with high-frequency radio communications.
- **Magnetosphere:** CMEs, with ejections loaded with matter travelling at millions of miles an hour, can potentially create disturbances in the magnetosphere, the protective shield surrounding the Earth.
- **Ionosphere and LEO satellites:** During storms, the currents in the ionosphere, as well as the energetic particles that precipitate into the ionosphere add energy in the form of heat that can increase the density and distribution of density in the upper atmosphere, causing extra drag on satellites in low-earth orbit.
- **Global Positioning System:** The local heating also creates strong horizontal variations in the ionospheric density that can modify the path of radio signals and create errors in the positioning information provided by GPS.
- **Power and navigation systems:** They can disrupt navigation systems such as the Global Navigation Satellite System (GNSS) and create harmful geomagnetic induced currents (GICs) in the power grid and pipelines.
- **Astronauts:** Astronauts on spacewalks face health risks from possible exposure to solar radiation outside the Earth's protective atmosphere.
- **Other:** Aircraft flights, power grids, and space exploration programmes are vulnerable.

Do you know?

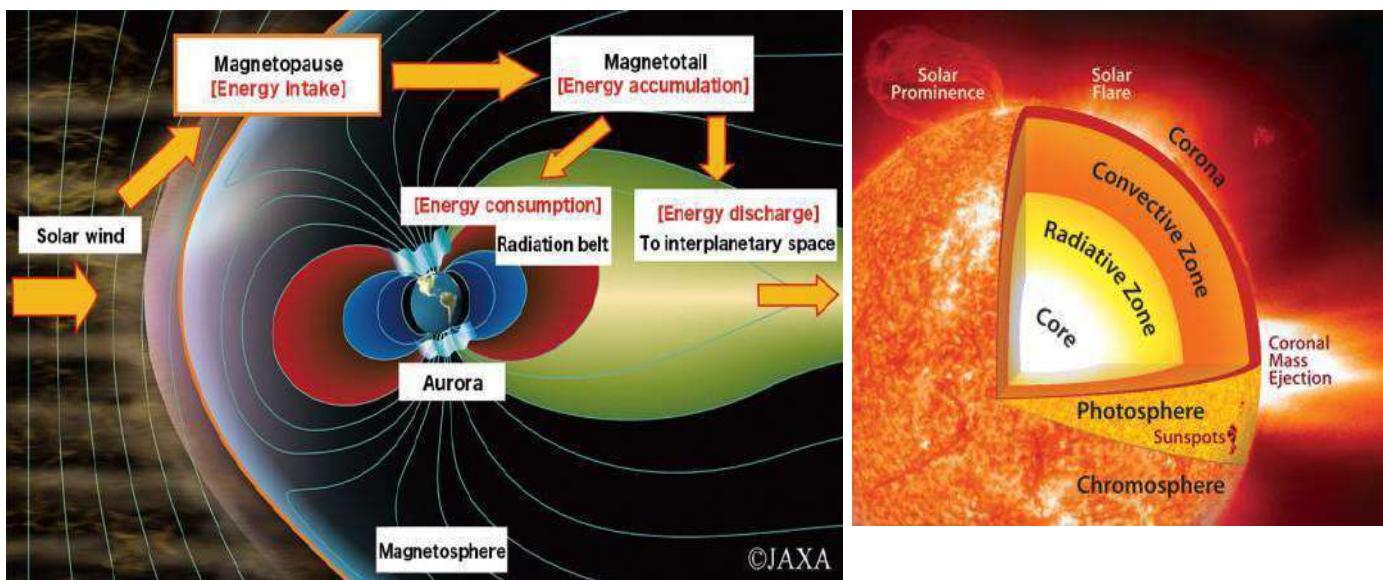
A solar storm in March 1989 caused a nine-hour blackout Hydro-Québec's electricity transmission system in Canada.

Final Thought

- With the increasing global dependence on satellites for almost every activity, there is a need for better space weather forecasts and more effective ways to protect satellites.

Magnetosphere

- A magnetosphere is the region around a planet dominated by the planet's magnetic field. Other planets in our solar system have magnetospheres, but Earth has the strongest one of all the rocky planets: Earth's magnetosphere is a vast, comet-shaped bubble, which has played a crucial role in our planet's habitability. Life on Earth initially developed and continues to be sustained under the protection of this magnetic environment. The magnetosphere shields our home planet from solar and cosmic particle radiation, as well as erosion of the atmosphere by the solar wind (constant flow of charged particles streaming off the sun) - that would otherwise strip away the upper atmosphere, including the ozone layer that protects Earth from the harmful ultraviolet radiation.
- It is generated by the convective motion of charged, molten iron and nickel, far below the surface in Earth's outer core. Constant bombardment by the solar wind compresses the sun-facing side of our magnetic field.



SAFFRON BOWL PROJECT

/ GS-I GEOGRAPHY

Context

- India's saffron bowl, which was till now confined to parts of Kashmir, has now spread its wings to parts of the North East.
- North East Centre for Technology Application and Reach (NECTAR) under Saffron Bowl project has identified new locations in Arunachal Pradesh and Meghalaya for saffron cultivation.

Saffron production

- Iran, India, Spain and Greece are the major saffron producing countries with Iran occupying the maximum area and contributing about 88% of world's saffron production.
- India occupies the 2nd largest area and produces approximately 7 per cent of the total world production.
- Jammu & Kashmir and Himachal Pradesh are the two most important producing states in India.

Kashmir saffron: The saffron Bowl

- Saffron Bowl: Saffron production has long been restricted to a limited geographical area in the Union territory of Jammu & Kashmir. Pampore region, in India, commonly known as Saffron bowl of Kashmir, is the main contributor to saffron production, followed by Budgam, Srinagar, and Kishtwar districts. The Pampore Saffron Heritage of Kashmir is one of the Globally Important Agricultural Heritage System (GIAHS) recognized sites in India.
- Origin: Saffron cultivation was introduced in Kashmir by Central Asian immigrants around 1st Century BCE. In ancient Sanskrit literature, saffron is referred to as 'bahukam'.
- Benefits: It rejuvenates health and is used in cosmetics and for medicinal purposes.
- Characteristics: The unique characteristics of Kashmir saffron are its longer and thicker stigmas, natural deep-red colour, high aroma, bitter flavour, chemical-free processing, and high quantity of crocin (colouring strength), safranal (flavour) and

picrocrocin (bitterness). It is the only saffron in the world grown at an altitude of 1,600 m to 1,800 m AMSL (above mean sea level), which adds to its uniqueness and differentiates it from other saffron varieties available the world over.

- **Recognition:** Kashmir saffron, which is cultivated and harvested in the Karewa (highlands) of Jammu and Kashmir, got the Geographical Indication (GI) tag in 2020.

Types of Kashmir Saffron

- The saffron available in Kashmir is of three types
 1. '**Lachha Saffron**', with stigmas just separated from the flowers and dried without further processing;
 2. '**Mongra Saffron**', in which stigmas are detached from the flower, dried in the sun and processed traditionally; and
 3. '**Guchhi Saffron**', which is the same as Lachha, except that the latter's dried stigmas are packed loosely in air-tight containers while the former has stigmas joined together in a bundle tied with a cloth thread.

Expansion of the Saffron Bowl Project by NECTAR

- As saffron growing was confined to very specific areas in Kashmir, its production remained limited.
- It is against this background that NECTAR supported a pilot project to explore the feasibility of growing saffron in North East region of India, with the same quality and higher quantity as it is grown in Kashmir thereby expanding the Saffron Bowl Project.
- The Botany and Horticulture department of Sikkim Central University carried out tests to understand the soil and actual pH conditions of Yangyang of Sikkim and found it comparable to saffron growing places of Kashmir.
- The matching of climatic and geographical conditions between Pampore (Kashmir) and Yangyang (Sikkim) led to the successful sample farming of Saffron in Yangyang.
- The project also focused on post-harvest management and value addition of saffron so that quality saffron drying and efficient post-harvest processing can improve saffron recovery, thereby improving its production.

Ideal Conditions for Saffron Cultivation

- Warm subtropical climate.
- A long photoperiod: It requires a 12-hour photoperiod.
- Saffron grows best in a Mediterranean climate.
- Loamy, sandy, and calcareous soils(soil that has calcium carbonate in abundance). A gravelly soil is also excellent for saffron farming, however a heavy, clayey soil is not.
- Soil should be slightly damp but not completely dry. Hence it requires little water.
- Saffron grows best on acidic soil. It thrives well when pH of soil is around 5.5 to 8.5.
- Elevations ranging from 1500 to 2500 metres above sea level.
- Saffron needs to remain underground for about 45 days at sub-zero temperatures.
- In India, saffron Corms (seeds) are cultivated during the months of June and July and at some places in August and September. It starts flowering in October.

NECTAR

- **About:** North East Centre for Technology Application and Reach (NECTAR) is an autonomous body under the Department of Science and Technology. Its headquarters are in Shillong, Meghalaya
- **History:** NECTAR was formed in 2012 through the merger of the former National Mission on Bamboo Applications (N MBA) and the Mission on Geospatial Applications (MGA).
- **Mandate:** The center work towards the social and economic development of the Northeastern region by harnessing and leveraging frontier technologies available through the central scientific departments and institutions.
- **Key Projects**
 - **Saffron cultivation in the North Eastern region**
 - Bamboo applications and product development
 - Urban Management and Urban Civic Services
 - Remote sensing and aerial mapping
 - Training and skills development programs in rural areas
 - Development of SDR (Software Defined Radios)
 - High Speed Wireless Mesh Networks for Telemedicine & CCTV based monitoring
 - Technology Support for Agriculture Crop Analysis

Further expansion of the Saffron Bowl Project

- NECTAR has recently identified few locations in Arunachal Pradesh and Meghalaya for saffron cultivation.

- Some sites have been identified in Meghalaya: Barapani, Cherrapunji, Mawsmai, Shillong, and Lalingtop.

National Saffron Mission

- About:** The National Saffron Mission (NSM) was launched in 2010-11 for the cultivation of saffron in Jammu and Kashmir.
- Aim:** The main objective of the scheme is to extend support for creation of irrigation facilities through tube wells and sprinklers which would help better crop in the area.
- Expansion:** In 2020, the Government has decided to revive this mission and expand the cultivation of saffron to the north eastern part of the country.

Boosting Saffron Exports

Recognition

- Kashmiri saffron had received the GI tag in July 2020 and this has boosted the domestic as well as the overseas business opportunities for Kashmir's Saffron Market.
- With production declining and concerns of adulteration increasing, the prestigious GI tag is expected to restore saffron its earlier market size.

Holistic Steps

- To further enhance the production of saffron a few things must be considered:
 - Provision of good quality and high yield seeds.
 - Extension in the area of cultivation and production.
 - Extensive use of solar drier and air drier. Financial help for the purchase of these apparatus.
 - Appropriate training for packing the produce.

Marketing

- Marketing is also one of the main problems. An average saffron grower finds it troublesome to sell the small quantity of his produce.
- The grading and packing individually is not highly profitable. The cultivator has scarce resources.
- So, this is necessary that cooperative societies are formed to sell the saffron at remunerative prices.

Final Thoughts

- In India, 6 to 7 tonne of saffron is produced annually. However, the demand in India is 100 tons and in order to meet that, the country has to import saffron.
- The expansion of Saffron Bowl Project will boost production and it indicates the immense possibilities for indigenous farmers as saffron is a cash crop and its demand is very high all over India.
- A proper strategy must be devised and the whole activity must be so organized that the average saffron growers gets full benefits of their toils.

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GENERAL STUDIES - II

TRIBUNAL REFORMS ACT 2021

// GS-II POLITY

Context

- The Supreme Court said that the Union Government's move to introduce reforms on tribunals goes against the earlier judgments of the court.

Details

- Issues Raised by SC**
 - The government has re-enacted the very same provisions struck down by the Court in the Madras Bar Association case (2021).
 - The government is not following the repeated directions issued by the Court to ensure the proper functioning of the Tribunals.
 - The provisions in the act regarding conditions of service and tenure of Tribunal Members and Chairpersons were struck down by the Supreme Court.

About Tribunals

- The original Constitution did not contain provisions with respect to tribunals.
- The 42nd Amendment Act of 1976 added a new Part XIV-A to the Constitution. This part is entitled as 'Tribunals' and consists of only two Articles;
 - Article 323 A: Dealing with administrative tribunals.
 - Article 323 B: Dealing with tribunals for other matters.
- Administrative Tribunals:** Article 323 A empowers the Parliament to provide for the establishment of administrative tribunals for the adjudication of disputes relating to recruitment and conditions of service of persons appointed to public services of the Center, the states, local bodies, public corporations and other public authorities.
 - Under Article 323 A, the Parliament passed the Administrative Tribunals Act in 1985. The act authorizes the Central government to establish one Central Administrative Tribunal (CAT) and the State Administrative Tribunals (SAT).
 - The CAT exercises original jurisdiction in relation to recruitment and all service matters of public servants covered by it. Its jurisdiction extends to the all-India services, the Central civil services, civil posts under the Center and civilian employees of defense services. However, the members of the defense forces, officers and servants of the
- State Administrative Tribunals:** The Administrative Tribunals Act of 1985 empowers the Central government to establish the State Administrative Tribunals (SATs) on specific request of the concerned state governments.
 - The SATs exercise original jurisdiction in relation to recruitment and all service matters of state government employees.
- Tribunals function as a parallel mechanism to the traditional court system.
- Tribunals were established for two main reasons:**
 - Allowing for specialized subject knowledge in disputes on technical matters.
 - Reducing the burden on the court system.
- The Finance Act, 2017 reorganized the Indian tribunal system to ensure uniformity in their administration by merging certain tribunals based on the similarity in their functional domain.
- The 2017 Act also empowered the central government to make Rules to provide for the qualifications, appointments, term of office, salaries and allowances, removal, and other conditions of service for chairpersons and members of these tribunals.
- The Tribunals Reforms Act 2021 abolishes nine existing appellate bodies and transfers their functions mainly to high courts.
- The 2021 Act also amends the Finance Act, 2017, to bring certain provisions (such as qualifications, appointments, term of office, salaries and allowances of tribunal members) under the purview of the 2021 Act.

Key points of Tribunal Reforms Act 2021

- The Act dissolved certain existing appellate bodies and transferred their functions (such as adjudication of appeals) to other existing judicial bodies.
- Provisions on the composition of selection committees, and terms of office have been included in the Act.
- Qualification of members, and other terms and conditions of service will be notified by the central government.
- The Chairperson and Members of the Tribunals will be appointed by the central government on the recommendation of a Search-cum-Selection Committee. The Committee will consist of:

- The Chief Justice of India, or a Supreme Court Judge nominated by him, as the Chairperson (with casting vote),
- 2 Secretaries nominated by the central government,
- The sitting or outgoing Chairperson, or a retired Supreme Court Judge, or a retired Chief Justice of a High Court,
- The Secretary of the Ministry under which the Tribunal is constituted (with no voting right).
- **State administrative tribunals will have separate search-cum-selection committees. These Committees will consist of:**
 - The Chief Justice of the High Court of the concerned state, as the Chairman (with a casting vote),
 - The Chief Secretary of the state government and the Chairman of the Public Service Commission of the concerned state,
 - The sitting or outgoing Chairperson, or a retired High Court Judge,
 - The Secretary or Principal Secretary of the state's general administrative department (with no voting right).
 - The central government must decide on the recommendations of selection committees preferably within three months from the date of the recommendation.
- **The Act provides for a 4 year term of office (subject to the upper age limit of 70 years for the Chairperson, and 67 years for members). Further, it specifies a minimum age requirement of 50 years for appointment of a chairperson or a member**

Concerns

- Existence of a large number of vacancies of Members and Chairpersons and the delay caused in filling them up has resulted in weakening of the tribunals.
- The dissolution of certain tribunals and appellate bodies, and the transfer of their functions to High Courts can be criticized on the grounds that Indian courts are already overburdened with their existing caseload.

NATIONAL SINGLE WINDOW SYSTEM

GS-II POLITY

Context

- Jammu and Kashmir became the first Union Territory to introduce the National Single Window System.

Details

- Lieutenant Governor of Jammu and Kashmir launched the National Single Window Clearance System.
- This aims to promote Ease of Doing Business in the Union Territory.
- This system is linked with the India Industrial Land Bank, and this will help Investors to discover available land parcels in J&K.

About National Single Window System for Investors and Businesses

- This is a single window portal and works as a one-stop-shop for investors for approvals and clearances.
- All facilities are provided at one place on the line of 'End to End' facilitation.
- This will promote Transparency, Accountability and Responsiveness in the Business ecosystem. An applicant Dashboard would be there to apply, track & respond to queries.
- Common registration form has been introduced; this eliminates the need to fill the same information again.
- The Portal will also include Services like Know Your Approval (KYA), Common Registration and State registration Form, Document repository and E-Communication.

Expected outcome

- The portal will provide support to various schemes e.g. Make in India, Atmanirbhar Bharat, Startup India, PLI scheme etc.
- It will Support government initiatives to promote India as a global manufacturing hub.
- Promote ease of doing business, by supporting investors, providing pre-investment advisory. This service is only for guidance purposes and does not constitute any legal advice.
- It will enable investors to identify and obtain approvals and clearances needed by investors, entrepreneurs, and businesses in India.
- Improved business climate would motivate investors and also attract FDI.
- More Investment means more job creation, this in turn will improve the income and standard of living of people.

MEDIA ACCREDITATION GUIDELINES 2022

GS-II POLITY

Context

- Central Media Accreditation Guidelines-2022 released by the Union government.

About Central Media Accreditation Guidelines

- Most of the provisions mentioned in the guideline are drawn from Article 19(2) of the Indian Constitution which impose

- restrictions to freedom of free speech and expression guaranteed to every citizen of the country and worked as the guidelines for the press and media.
- These guidelines are announced by the Ministry of Information and Broadcasting.
 - Accreditation is only available for journalists living in the Delhi NCR region.
 - The guidelines contained various conditions under which license could be canceled if:
 - A journalist acts in a manner prejudicial to the country's security, sovereignty and integrity, friendly relations with foreign states, public order.
 - Charged with a serious cognisable offense.
 - On the ground of decency or morality.
 - In relation to contempt of court, defamation or Provocation to an offense.
 - Authorized media persons are prohibited from using the words "Accredited to the government of India" on public platforms, social media profiles, visiting cards, etc.
 - The Government formed a 25 members "Central Media Accreditation Committee" under the Press Information Bureau (PIB), to ensure implementation of the guidelines.

Importance of Accreditation

- It helps in getting access to government offices and to special events organized by the Government of India.
- Some Ministries like Home and Defense and Finance allow access only to accredited journalists.
- Accreditation brings several benefits for journalists and their families, such as coverage under the Central Government Health Scheme, concessions on railway tickets, etc.

Who is eligible for accreditation under the guidelines?

- Any journalist working with a newspaper which has a daily circulation of 10,000, news agencies with at least 100 subscribers and digital news platforms with 10 lakh unique visitors can apply.
- A full-time working journalist with a minimum of five years experience can apply for accreditation to the Press Information Bureau (PIB), the licensing process involving a mandatory security check from the Ministry of Home Affairs.
- Journalists, with over 30 years of experience, and who are older than 65 years of age, are also eligible.
- Digital newspapers should have a registered office in India. The Editor of the digital news portal must be an Indian citizen.
- No accreditation for freelance journalists working for foreign news media organizations.

Concerns

- The Editors Guild of India expressing concern over the new guidelines issued by the Press Information Bureau (PIB).
- According to many activists some clauses have been included with an intention to restrict criticism and investigative reporting of government affairs. The conditions mentioned serve more as censorship rules rather than guidelines.
- These guidelines have been announced without any prior consultation with Media houses or Journalists associations.
- Merely being charged has been mentioned as a ground for cancellation. Journalists concerned have not been given an opportunity to be heard.
- Any report critical to the Government could now be seen as prejudicial to the interests of the country and it will be left to the discretion of the Central Media Accreditation Committee.

Way forward

- The Government should undertake meaningful consultation with all the stakeholders before announcing any policy in order to avoid post-announcement controversy, and for smooth implementation of the Policy. Government needs to learn from the experience of Farmers's agitation against farm bills.


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Context

- Controversy over school's denial to entry of girls in hijab has started a debate on the freedom of religion.

Details

- The Karnataka government announced a blanket ban on wearing hijab in classrooms, this decision came after a controversy emerged when women in hijab were prohibited to enter in schools and colleges by the administration.
- The Female students were demanding right to education and the right to observe their religious practices as guaranteed under the constitution of India, while the Karnataka government invoked Article 133 (2) of the Karnataka Education Act, 1983, which says that a uniform style of clothes has to be worn compulsorily.

Constitutional Articles related to Freedom of Religion and educational rights

- Article 25 says that all persons are equally entitled to freedom of conscience and the right to freely profess, practice and propagate religion.
 - Freedom of conscience:** Inner freedom of an individual to frame his relation with God or Creatures in whatever way he desires.
 - Right to Profess:** Declaration of one's religious beliefs and faith openly and freely.
 - Right to Practice:** Performance of religious worship, rituals, ceremonies and exhibition of beliefs and ideas.
 - Right to Propagate:** Transmission and promotion of one's religious beliefs to others. But, it does not include a right to convert another person to one's own religion.
 - Article 25 covers religious beliefs and also religious practices (rituals).
- Article 26: Freedom to Manage Religious Affairs**, every religious denomination or any of its section shall have the following rights:
 - Right to establish and maintain institutions for religious and charitable purposes.
 - Right to manage its own affairs in matters of religion.
 - Right to own and acquire movable and immovable property.
 - Right to administer such property in accordance with law
- Article 27 - Freedom from Taxation for Promotion of a Religion**
 - No person shall be forced to pay any taxes for the promotion or maintenance of any particular religion or religious denomination.
 - The State should not spend the public money collected by way of tax for the promotion or maintenance of any particular religion.
 - This provision prohibits the State from favoring and supporting one religion over the other. This also means that the taxes can be used for the promotion or maintenance of all religions.
 - This provision prohibits only levy of a tax and not a fee.
- Article 28 - Freedom from Attending Religious Instruction**

- **No religious instruction shall be provided in any educational institution wholly maintained out of State funds.**
- No person attending any educational institution recognised by the State or receiving aid out of State funds shall be required to attend any religious instruction or worship in that institution without his consent.
- **Article 29 - Protection of Interests of Minorities**
 - It provides that any section of the citizens residing in any part of India having a distinct language, script or culture of its own, shall have the right to conserve the same.
 - No citizen shall be denied admission into any educational institution maintained by the State or receiving aid out of State funds on grounds only of religion, race, caste, or language.
- **These rights are subject to public order, morality, health and other provisions relating to fundamental rights.**
 - The State is permitted to regulate or restrict any economic, financial, political or other secular activity associated with religious practice.

How to Draw the Line between Matters of Religion and Matters Other Than Religion?

- The 'essential practice' doctrine can be traced to a 1954 decision of the Supreme Court in 'Shire Mutt' case. In this Case the Court said: "**In the first place, what constitutes the essential part of a religion is primarily to be decided with reference to the doctrines of that religion itself.**"
- In 2004, the Supreme Court held that the Ananda Marga sect had no fundamental right to perform Tandava dance in public streets, since it did not constitute an essential religious practice of the sect.
- In 2016, a three-judge Bench of the Supreme Court upheld the discharge of a Muslim airman from the Indian Air Force for keeping a beard.
- **In the Sabarimala case (2018), the majority ruled that the bar on entry of women in the age-group of 10 to 50 was not an essential or integral part of the religion, and denied the status of a separate religious denomination of devotees of Lord Ayyappa.**

Argument in Support of Hijab Ban

- **Hijab is not an essential religious practice, and the freedom of religion can be subjected to reasonable restrictions under constitutional provisions for maintaining institutional discipline.**
- Educational institutions can impose dress code/uniform prohibiting religious dress to **ensure secular education**.
- **Public places are meant to be secular**, religion has to be kept out of them.
- The right to practice religion is subject to several restrictions and rules of public morality.
- **The spirit behind a dress code is of ensuring homogeneity in a classroom and obliterating the visible class or caste divide.**

Argument against Hijab Ban

- **Constitutional Right** - Wearing of hijab is their fundamental right under the right to freedom of religion under article 25, and also Wearing a hijab is an expression protected under Article 19 of the Constitution which guarantees the right to freedom of speech and expression.
- **Irrational restrictions** - Government has the right to restrict fundamental rights to protect sovereignty and integrity of India, friendly relations with foreign states, public order, decency or morality or in relation to contempt of courts.
 - But, **Students silently wearing a hijab/headscarf and attending class cannot in any manner be said to be a practice that disturbs "public order".**
- **While Hijab is being attacked for disrupting the 'uniform style of clothes', no other religious symbols displayed on the body (Turban, Bindi, Sindur, Mangasutra, etc) are being questioned.**
- **The Kerala High Court and the Madras High Court came to a conclusion that purdah or burkha may not be an essential religious practice but a hijab/headscarf is.**
- **India is a land of diversity, and the diversity in the classroom must reflect this social reality, as this helps students to know about different diverse groups and they learn to respect diversity.** If the classroom becomes homogeneous then students could feel uncomfortable in Heterogeneous Indian Society.
- **When the President, Prime Minister, Chief Ministers, officials, etc, could follow their constitutional duties while publicly following their own religious identity and values, then why can't a common man be allowed to do so?**

Concerns

- **Negative effect on the students**, this whole controversy emerged when only a few months left for their final examination.
- **Negative impact on student's Mental and Psychological health**, as female students are already struggling at home to get education, and now they are also struggling outside their home. This 2 front struggle could result in increasing dropout rate, and go against the Vision of Women empowerment.
- This controversy is **promoting hatred and discrimination** and goes against the constitutional value of 'Brotherhood'.
- The female students are seeing that students from other religions are allowed to wear turban, bindi, mangalsutra, sindur,

etc. but they are not, in the long run this could promote division in our society and hamper peace and harmony of the nation.

Way forward

- The Law Commission in its report mentioned that 'Cultural diversity cannot be compromised to the extent that our urge for uniformity itself becomes a reason for threat to the unity and integrity of the nation'.
- Difference does not always imply discrimination. Diversity, both religious and regional should not be subsumed under the louder voice of the majority.
- Codification of all religious laws is necessary to avoid the controversies related to what is and what is not essential religious practices under Right to freedom of religion guaranteed by Indian Constitution.**
- There are some protocols developed for regulating educational institutions, any amendment in them must be made after consulting all stakeholders, and once a decision is made then there must be a time limit to implement them, for example any change introduced in the dress code must be made from next academic year and not in the middle of the year, so that parents and students could plan in advance.

REVAMPED DISTRIBUTION SECTOR REFORM SCHEME

/ GS-II POLITY

Context

- The Union Government has launched the Revamped Distribution Sector Scheme to reform the Power sector.

Details

- The Government of India had launched a Results-linked reform initiative 'Revamped Distribution Sector Scheme'.
- The objective of the initiative is to improve the operational efficiencies and financial sustainability of State owned DISCOMs and Power Departments.

Revamped distribution sector reform scheme

- The Ministry of Power has approved a Reforms-based and Results-linked Scheme "Revamped Distribution Sector Scheme (RDSS)"
- DISCOMs/ Power Departments would be able to access the funds under the Scheme for Prepaid Smart Metering, Distribution infrastructure works for loss reduction and modernisation.
- The financial assistance for Distribution infrastructure works under the Scheme would be subject to meeting pre-qualifying criteria as well as upon achievement of basic minimum benchmarks by the DISCOM and evaluated on the basis of Action plans.
- The Scheme provides for annual appraisal of the DISCOM performance.** DISCOMs have to score a minimum of 60% of marks and clear a minimum bar in respect to certain parameters to be eligible for funding against the Scheme in that year.
- The Scheme has a major focus on improving electricity supply for the farmers through separation of agriculture feeders.**
- All North-Eastern States including Sikkim and States/Union Territories of Jammu & Kashmir, Ladakh, Himachal Pradesh, Uttarakhand, Andaman & Nicobar Islands, and Lakshadweep will be treated as Special Category States.

Objectives of Revamped distribution sector reform scheme

- The main objective is to improve the quality, reliability and affordability of power supply to consumers through a financially sustainable and operationally efficient distribution sector.
- Proper Implementation of the Scheme would lead to consumer empowerment by way of prepaid Smart metering to be implemented in Public-Private-Partnership (PPP) mode.
- The aim is to improve the efficiencies and financial sustainability of State owned DISCOMs/ Power Departments by providing financial assistance to DISCOMs for modernisation and strengthening of distribution infrastructure, aiming at improvement of the reliability and quality of supply to end consumers.

Other Initiatives taken to reform power sector

- Accelerated Power Development Reforms Programme** intended for up-gradation of Sub-Transmission and Distribution in densely electrified zones in the urban and industrial areas and improvement in commercial viability of State Electricity Board.
- Saubhagya Scheme or Pradhan Mantri Sahaj Bijli Har Ghar Yojana** is an Indian government project to provide electricity to all households.
- Ujwal DISCOM Assurance Yojana (UDAY)** for revival of power distribution companies (DISCOMs), and also ensures a sustainable permanent solution to the problem.
- The Indian government aims to provide access to affordable, reliable, sustainable and modern energy under the vision 'Power for all by 2022'.

- **KUSUM Program** - Solar Power Grid-connected tube-wells/lift irrigation and drinking water projects
- **Transparent bidding** and facilitation for procurement of solar and wind power through tariff based competitive bidding processes have led to significant reduction in cost of solar and wind power.
- **Introduced Renewable Generation Obligation**. This provision will encourage coal based thermal power generators to diversify in the renewable energy portfolio.
- **The government has recently announced amendments to the Electricity Act 2003**, it includes constitution of the Electricity Contracts Enforcement Authority, development of a National Renewable Energy Policy, and rationalization of tariffs, etc.

Concerns

- Highly dependent on thermal power plants based on fossil fuel such as coal, natural gas and diesel.
- Agricultural consumers receive erratic, poor quality supply.
- High transmission losses and mismanagement has pushed electricity distributors (discoms) into losses as high as 40% in some states, while the country-wide average is 27%.
- Lack of adequate funding, Infrastructure barriers.
- Institutional and administrative barriers, Absence of clearly defined responsibilities.
- Complicated licensing procedures, Difficulty with land acquisition and permission etc.
- Market barriers, irregular pricing of energy products, distortions in market power supply and price.

Steps need to be taken

- Increasing Direct policy support for power sector and end-use sectors.
- Enabling policies to ensure effective operating conditions like level playing field with other technologies, facilitating innovation etc.
- Integrating policies, effective participation by all stakeholders.
- Increasing share of renewables to achieve Paris Goals.
- Practice of solar power generation in Kochi Airport can be copied in similar large scale projects by other government agencies.
- Increasing investment in renewable, Reaching to hinterland, Universal Energy Access.
- Cheaper option to expand energy access in rural areas, Cost-effective, Cleanest, Role in Improving Air Quality.
- Decarbonising and providing a cleaner energy option by mandating building codes, enacting energy efficiency policies, providing fiscal and financial incentives and imposing carbon or energy taxes.

Way forward

- Union and State governments need to be flexible to ensure success of the Revamped Distribution Sector Reform Scheme.
- Regulators need to be responsive about the challenges faced by the sector and policy framework needs to be drafted and enforced to ensure sustainability and reliability.

MARITAL RAPE

GS-II POLITY



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Context

- Delhi High Court refused to grant more time to Central government to make stand clear on the issue of criminalizing marital rape.

Details

- Delhi High Court hearing a petition seeking the criminalization of exception 2 under Section 375 of the Indian Penal Code, which exempts husbands from being charged with rape if they have non-consensual sexual relations with their wife.

About Marital Rape

- **Marital rape is the act of sexual intimacy without the consent of the spouse.**
- **The lack of consent is the key element** and it might not involve physical violence.
- Marital rape is also considered as domestic violence and sexual harassment.

Global Scenario

- In the Past, Sexual intimacy was viewed as the right of the spouse within the marriage.
- At the end of the 20th century and especially since the 1980s, women's rights groups demanding complete sexual autonomy over their own bodies, including the rights within the marriage.
- These demands have been accepted by many governments, and **at present marital rape have been criminalized by more than 150 countries.**
 - In some countries, marital rape is specifically criminalized through a separate law; in other countries the rape law makes no distinction between rape by one's husband or rape by anyone else.
 - In a few countries, marital rape was criminalized due to a court decision.
- In a few of those countries that do not criminalized marital rape, such as Malaysia, a husband can still be punished if he uses violence in order to have sex with his wife.
- Still there are many countries, where marital rape is either remains outside the criminal law, or is illegal but widely tolerated.

Indian Scenario

- **According to the National Health and Family Survey (NFHS-4), 5.4% women have experienced marital rape.** According to some activities, these numbers are far from accurate due to under-reporting.
- **According to National Crime Records Bureau's (NCRB) report, about 70% of women in India are victims of domestic violence, a woman is raped every 16 minutes,** and every four minutes, she experiences cruelty at the hands of her in-laws.
- A study of National Family Health Survey (NFHS) indicates that **an estimated 99% of sexual violence cases go unreported**, and **an average Indian woman is 17 times more likely to face sexual violence from her husband than from others.**
- **In India there is no provision under any law related to the marital rape.** India is one of the 32 countries in the world that has not criminalized marital rape.
- **Section 375 of the Indian Penal Code (IPC) criminalizes the offence of rape, but the exception 2 of Section 375 excludes cases within the marriage.**
- The Kerala High Court passed the judgment that the marital rape, although not penalized in India, could be accepted as a valid reason for divorce.
- **The Verma Committee also recommended criminalization of marital rape** should be followed by some changes in the attitude of prosecutors, police officers and the society at large.

Steps taken by Government

- **Government enacted Protection of Women from Domestic Violence Act, 2005'** to protect women from domestic violence; it also includes provisions against sexual violence.
- **The Dowry Prohibition Act, 1961'.**
- **The Prohibition of Child Marriage Act, 2006'.**
- An online analytic tool "Investigation Tracking System for Sexual Offences" to monitor and track time-bound investigation in sexual assault cases.
- "**National Database on Sexual Offenders**" (NDSO) has been launched by MHA on to facilitate investigation and tracking of sexual offenders across the country by law enforcement agencies.
- **Emergency Response Support System (ERSS) provides a single emergency number.**
- '**One-Stop Center**' to facilitate access to an integrated range of services including medical aid, police assistance, legal aid, psychosocial counseling and temporary support services to women affected by violence.

Argument in Support of Criminalizing Marital Rape

- **Marital rape violates several fundamental rights under Articles 14, 15, 19, and 21 of the Constitution.**
- **Rape by a husband is more emotionally and physically damaging than rape by a stranger.** When a woman is raped by a stranger, she has to live with a frightening memory but when she is raped by her husband, she has to live with the rapist.
- Marital rape is a criminal offence in more than 150 countries, including United Kingdom, whose common law was followed by India during colonial period.

- Marriage is a social contract of a lifelong equal-relationship and not a one-time consent to everything.
- The legal exception to the rape laws gives men unequal privilege.

Argument against Criminalizing Marital Rape

- According to some people, it may destabilize the institution of marriage apart from being an easy tool for harassing the husbands. They present the example of "Rising misuse of Section 498A of IPC", known as the dowry law.
- Other countries, mostly western, have criminalized marital rape does not necessarily mean India should also follow them blindly.
- Woman has several other legal provisions that she can take the help of if she is being abused in marriage.
- Married Women are covered in the "Protection of Women from Domestic Violence Act 2005" and thus there is no need for a special law to cover marital rapes.
- The judgment as to whether it is a marital rape or not will singularly rest with the wife. There is no way a Husband could prove his innocence.
- A section of society feels that once marital rape is criminalized, it may lead to filing of false charges against husbands. They also think that it will be very difficult for the police to prove such cases as everything happened in the private space, how will a husband prove that consent was taken?

Challenges

- Forced marriage and child marriage are common in many parts of the world, especially in parts of Asia and Africa. These types of marriages are connected with the higher rate of domestic violence, including marital rape.
- Discussing sexual matters in many cultures is taboo. The Concept of consent is not understood in many societies.
- Most cases focused on wives as victims of marital rape, but husbands experience marital rape as well. Studies suggest that men and women have nearly the same annual rates of victimization of violence by a marital partner.
- Present debate of marital rape reflecting a biased view against husband as it stigmatize wife as a victim and a husband as a Culprit, the present debates are diverting from the larger topic of violence in marriage.

Way Forward

- In modern social order, spouses in marriage are treated as equal partners and husband cannot claim any superior right over wife either with respect to her body or with reference to individual status.
- Union government should consult to State governments, as criminal law is under the concurrent list and implemented by states – and given the vast diversity in cultures across states.
- Factors like literacy, lack of financial empowerment of the majority of females, mindset of the society, vast diversity, poverty, etc., should be considered carefully before making any decision.
- The importance of consent needs to be taught in schools and colleges, and also through awareness campaigns. Promote "moral and social awareness" to stop such acts.
- In the modern world, marriage must not be seen as the union between male and female only, while taking any decision about the future law, we must also need to recognize the victimization of partner in all type of marriages, including marriages among LGBT (lesbian, gay, bisexual, and transgender), and also the rights of a partner in live-in relationship.
- Government should come up with a gender neutral law, addressing the concerns of all stakeholders. Only a gender neutral law could ensure equality in our society.

LOKAYUKTA

GS-II POLITY

Context

- The Kerala government recently proposed an ordinance to amend the Kerala LokAyukta Act.

Proposed Modification

- The state government would have the power to "either accept or reject the verdict of the Lokayukta after an opportunity of being heard.
- Currently, under Section 14 of the Act, a public servant is required to vacate office if directed by the Lokayukta. The amendment has taken away this mandatory nature of the verdicts by the quasi-judicial anti-corruption body.
- Post-amendment, a Lokayukta verdict would have only recommendatory jurisdiction, not a mandatory one.

Working of Lokayukta in States

- Lokayuktas are the state equivalents of the central Lokpal.
- Following the Act and the intervention of the Supreme Court, most states have now set up a Lokayukta.
- The Lokayukta's powers vary from state to state on various aspects, such as tenure, and need of sanction to prosecute officials

because states have autonomy to frame their own laws.

Lokayukta Act - 2013

- **Purpose:** Lokpal is the national anti-corruption ombudsman, established under the Lokpal and Lokayuktas Act 2013 to inquire and investigate into allegations of corruption against public functionaries.
- **Membership:** Lokpal consists of a chairperson and a maximum of eight members, 50% of whom are judicial members, who are or have been Judges of the Supreme Court or Chief Justices of a High Court.
- **Qualification of members:** The other half being non-judicial members are people of impeccable integrity and outstanding ability having special knowledge and expertise of not less than twenty-five years in matters relating to anti-corruption policy, public administration, vigilance, finance including insurance and banking, law and management.
- **Types of membership:** 50% of the members of Lokpal shall be SC/ST/OBCs, minorities and women.
- **Selection of chairperson:** Selection of chairperson and members of Lokpal would be through a selection committee consisting of PM, Speaker of Lok Sabha, leader of opposition in Lok Sabha, Chief Justice of India or a sitting Supreme Court judge nominated by CJI.
- **Coverage:** The Lokpal has jurisdiction to inquire into allegations of corruption against anyone who is or has been Prime Minister, or a Minister in the Union government, or a Member of Parliament, as well as officials of the Union government under Groups A, B, C, and D.
- **Regulations on Civil Society:** All entities (NGOs) receiving donations from foreign source in the context of the Foreign Contribution Regulation Act (FCRA) in excess of Rs 10 lakh per year are under the jurisdiction of Lokpal.

Need of the Lokpal

- **Rise in corruption:** Corruption has been rising in India and India rank in the transparency international is testimony to it.
- **Declining legitimacy of state:** Rise in protest movement due to corruption highlights the declining legitimacy of state.
- **Poor watchdog:** Indian anti corruption agencies like CBI, CVC has already been hailed as caged parrot by the Supreme Court and has little power to punish the guilty.
- **Lack of power:** Anti investigation agencies like CBI require government permission to take actions against senior government officials.

Powers of Lokpal

- Lokpal will have power of superintendence and direction over any investigation agency including CBI for cases referred to them by Lokpal.
- The appointment of the Director of Prosecution, CBI will be made on the recommendation of the Central Vigilance Commission.
- Transfer of officers of CBI investigating cases referred by Lokpal with the approval of Lokpal.
- The act lays down clear time lines for Preliminary enquiry & investigation and trial and towards this end, the Bill provides for setting up of Special Courts.
- It incorporates provisions for attachment and confiscation of property acquired by corrupt means, even while prosecution is pending.
- It grants powers to Lokpal to sanction prosecution against public servants.
- CBI may appoint a panel of advocates with approval of Lokpal, CBI will not have to depend on govt advocates.

Limitations in the Power of Lokpal

- **Ambiguous terms:** Terms like eminent jurist and a person of integrity is ambiguous and doesn't provide a clear benchmark for appointment.
- **Poor protection to whistleblowers:** It has provisions of initiation of proceeding against the whistle blower if the accused

Lacking teeth

Six years after the Lokpal and Lokayuktas Act, 2013, was signed into law, key provisions for the ombudsman to function have not been operationalised

- First chairperson and members were appointed in March 2019
- 1,065 complaints were sent to the Lokpal. After scrutiny, complaints that did not fall within the Lokpal mandate were disposed of
- 1,000 complaints have been disposed of until September 30
- Section 60 of the Act empowers the Lokpal to make regulations on "the manner and procedure of conducting preliminary inquiry"
- Till now, no such regulations have been made
- The process of constitution of the Inquiry Wing is yet to be initiated, the Lokpal's office said on November 25

person is held innocent. Such provisions discourage honest person to come forward.

- **Poor coverage:** Judiciary has been kept out of Lokpal purview which has recently been dealing with high corruption cases.
- **No constitutional support:** Lokpal doesn't have constitutional protection which diminishes its authority.

Way Forward

- Before CBI is assigned to lokpal, CBI should be augmented with manpower, infrastructure, etc. else Lokpal will be handicapped and CBI would be overburdened with cases.
- It shall function independent from any political influence so that a proper system of checks-and -balances is maintained in the federal and democratic system of India.



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SUSTAINABLE CITIES INDIA PROGRAMME

GS-II GOVERNANCE

Context

- World Economic Forum and the National Institute of Urban Affairs signed a MoU to collaborate on a jointly designed 'Sustainable Cities India program'.

Details

- The World Economic Forum and the National Institute of Urban Affairs (NIUA) signed a Memorandum of Understanding (MoU) to collaborate on a jointly designed 'Sustainable Cities India program'.**
- The aim of the Collaboration is to create an enabling environment for cities to generate decarbonization solutions across the energy, transport, and the built environment sectors.
- This initiative would support India's commitment to turn net zero by 2070 as a climate mitigation response at COP26.

About Sustainable Cities India Program

- Decarbonization of cities:** Enable cities to decarbonize in a systematic and sustainable way that will reduce emissions and deliver resilient and equitable urban ecosystems.
- The National Institute of Urban Affairs (NIUA) will adapt the Forum's City Sprint process and Toolbox of Solutions for decarbonization in the context of five to seven Indian cities across two years.
 - The City Sprint process is a series of multi-sectoral, multi-stakeholder workshops involving business, government, and civil society leaders to enable decarbonization, especially through clean electrification and circularity.
 - The City Sprint process uses the Toolbox of Solutions.
- Toolbox of Solutions:** It is a digital platform containing over 200 examples of clean electrification, efficiency and smart infrastructure best practices and case studies across buildings, energy systems and mobility from over 110 cities around the world.

About Net Zero Carbon Cities

- The World Economic Forum's Net Zero Carbon Cities' mission is to create an enabling environment for clean electrification and circularity, resulting in urban decarbonization and resilience.
- The program aims to do this by fostering public-private collaboration to bridge the gap across the energy, built environment and transport sectors.

About National Institute of Urban Affairs (NIUA)

- The National Institute of Urban Affairs (NIUA) was established in 1976.
- It is India's leading national think tank on urban planning and development.
- NIUA seeks to provide innovative solutions to address the challenges of a fast urbanizing India, and pave the way for more inclusive and sustainable cities of the future.

INTER-OPERABLE CRIMINAL JUSTICE SYSTEM

GS-II GOVERNANCE

Components of the Criminal Justice System

Law Enforcement



Police patrol communities to help prevent crimes, to investigate incidences of crime, and to arrest people suspected of committing crimes.

Courts System



The court system consists of attorneys, judges, and juries, as well as ancillary staff. The guilt or innocence of a suspect is determined in court.

Corrections System



The corrections system incorporates all forms of sentencing and punishment. It includes incarceration and probation.

the balance

Context

- Government announced the Inter-Operable Criminal Justice System (ICJS) project.

Details

- The Union Minister of Home Affairs initiated the Interoperable Criminal Justice System (ICJS) project for the period from 2022-23 to 2025-26, for ensuring effective and modern policing.
- It is a Central Sector Scheme, which means 100% funding would come from the union government.
- It is a national platform for promoting integration of the key services (such as Police, Forensic labs, courts, public prosecutors, prisons) used for the delivery of Criminal Justice in the country.
- A dedicated and secure cloud-based infrastructure with high speed internet connectivity will be created.
- National Crime Records Bureau (NCRB) will be responsible for the implementation of the project in association with National Informatics Center (NIC).
- This project will be implemented with the support of States and Union Territories.
- The system is built on the principle of 'one data one entry', the data entered once will be available at all stages without the need to re-enter the data at every stage.

Criminal Justice System in India

- The Criminal Justice System in India is a century-old system established by the colonial power.
- This system hardly experienced any substantial changes even after 70 years of Independence.
- The Criminal Justice system includes the agencies of government charged with enforcing law and order, deciding criminal offenses, and correcting criminal conduct.
- Criminal justice system has the power to control crime and punish criminals and ensure rule of law in the society.
- Source of Criminal law in India: Indian Penal Code of 1860, Protection of Civil Rights Act 1955, etc.
- The Criminal Justice System investigates, decides whether a person is guilty or not, and then imposes penalties on those who violate the established laws.
- Criminal law and criminal procedure are part of the concurrent list of the seventh schedule of the constitution.

Why reform the Indian Criminal Justice System?

- Less than 20% of the total people booked for criminal offenses are finally convicted. Low rate of conviction points to the inefficiency of the Criminal Justice System of India.
- Century old Indian Criminal Justice System has promoted dissatisfaction among people due to its lengthy and costly nature and also increased burden on the judiciary.
- Lack of Cooperation and coordination among the judiciary, the prosecution and the police.
- A large number of guilty go unpunished. On the other hand many innocent people remain as under trial prisoners as well. According to NCRB data, 67% of our total prison population comprises under trial prisoners.
- Nature of crime is changing fast in the world of digital connectivity and technological innovations.

Steps taken by government to reform the system

- The entire Code of Criminal Procedure (CrPC) was amended in 1973.
- The Vohra Committee was appointed for reforming the Criminal Justice System in India.
- Malimath Committee was formed by the government to suggest reform in the Indian criminal justice system.

ELECTION COMMISSION ON STAR CAMPAIGNER

GS-II GOVERNANCE

Context

- Election Commission restored the number of star campaigners

Details

- The Election Commission restored the number of star campaigners as COVID cases declined.
- The Election commission in October 2020 has reduced the number of star campaigners for recognized national and state parties from 40 to 30.

Star Campaigner

- A Star Campaigner is a person chosen by a political party to appeal to the voters to vote for a particular candidate or party during the election. This person can be a politician or even a film star.
- He/she is chosen usually on the basis of popularity, and there is no specific definition under Indian law and the Election Commission.

- There is no law governing who can or cannot be made a star campaigner by a political party
- A recognized political party can select a maximum number of 40-star campaigners while unrecognized political parties can select up to 20 star campaigners.
- Section 77 of the Representation of People Act, 1951 contains the Guidelines related to Star Campaigners. The guidelines say 'selection or release of 'star campaigners' is the special rights of the political party'.
- **Expenditure made during election campaigns by the star campaigner is not added to a candidate's election expenditure limit.** According to the Representation of People's Act, these expenses will be borne by the political parties.
- There are certain situations where the expenditure on rally and travel made by the star campaigner will be added to the candidate's expenditure limit:
 - If the candidate shares the stage with a star campaigner in a rally.
 - If the name of the candidate is mentioned by the star campaigner during a rally or any other event.
 - If more than one candidate shares the stage with the star campaigner, or there are posters with their photographs, then the expenses are equally divided among all such candidates.
 - If the candidates are not present but their posters or photographs have been displayed in their constituencies where a star campaigner holds a poll rally, the entire expense will be added to the election expenses of the candidate.
- When a Prime Minister or a former prime minister is a star campaigner, the expenditure made on security including on the bullet-proof vehicles will be borne by the government and will not be added to the election expenses of the party or the individual candidate.

About Recognized Political party

- **Status** - Election Commission registers political parties for the purpose of elections and grants them status of national or state parties on the basis of their poll performance. The other parties that failed to fulfill the eligibility criteria are declared as registered-unrecognized parties.
- **Advantage** - Recognized political parties enjoy certain privileges like allocation of the party symbols, provision of time for political broadcasts on the state-owned television and radio stations and access to electoral rolls.
- **Star Campaigners** - Recognized parties are allowed to have 40 Star Campaigners during the time of elections and the registered unrecognized parties are allowed to have 20 Star Campaigners.
- **Election Symbol** - Every national party is allotted a symbol exclusively reserved for its use throughout the country. Similarly, every state party is allotted a symbol exclusively reserved for its use in the state or states in which it is so recognized.
 - A registered-unrecognized party can select a symbol from a list of free symbols.


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Conditions for Recognition as a National Party: A party is recognized as a national party if any of the following conditions is fulfilled:

- If it secures 6% of votes in any 4 or more states in the general election to the Lok Sabha or to the legislative assembly, in addition the party must also win 4 seats in the Lok Sabha from any state or states.
- If it wins 2% of seats in the Lok Sabha at a general election, these candidates must be elected from 3 states.
- If it is recognized as a state party in 4 states.

Conditions for Recognition as a State Party: A party is recognized as a state party in a state if any of the following conditions is fulfilled:

- If it secures 6% of the valid votes polled in the state at a general election to the legislative assembly of the state concerned, in addition the party must also win 2 seats in the assembly of the state.
- If it secures 6% of the valid votes polled in the state at a general election to the Lok Sabha from the state concerned, and in addition it must win 1 seat in the Lok Sabha from the state concerned.
- If it wins 3% of assembly seats at a general election to the legislative assembly of the state concerned or 3 seats in the assembly, whichever is more.
- If it wins 1 seat in the Lok Sabha for every 25 seats to the Lok Sabha from the state concerned.
- If it secures 8% of the total valid votes polled in the state at a General Election to the Lok Sabha from the state or to the legislative assembly of the state. This condition was added in 2011.

Note - The number of recognized parties keeps on changing on the basis of their performance in the general elections. At Present, there are 7 national parties, 52 state parties and 2354 registered unrecognized parties in the country.

DIGITAL MAP OF VILLAGE

GS-II GOVERNANCE

Context

- Government to prepare digital maps of all villages in India.

Details

- Government announced a programme to prepare digital maps for all 6,00,000 villages and pan-India 3D maps will be prepared for 100 cities.
- Updated guidelines under SVAMITVA scheme will help private companies to prepare maps without needing approvals from government departments and ministries.

SVAMITVA Scheme

- SVAMITVA stands for 'Survey of Villages Abadi and Mapping with Improvised Technology in Village Areas'.
- SVAMITVA Scheme was launched in 2020 under the Ministry of Panchayati Raj.
- It aims to provide Record of Rights/Property Cards in rural areas through surveying drone technology.
- It aims to cover all the villages by 2025.

Expected Outcome of SVAMITVA Scheme

- It will help in creating accurate land records for rural planning and reduce property related disputes.
- It will bring financial stability in rural India by enabling people to use their property as a financial asset for taking loans and other financial benefits.
- It will help in improving rural area governance, proper assessment of property tax, and also help the government in the implementation of welfare schemes.

Present Status

- Digital mapping through Drones has been completed in more than 1,10,000 villages in 28 States and UTs.
- Digital mapping has been completed in all the villages of Haryana, Dadra Nagar Haveli, and Daman & Diu.
- Nearly 41 Lakh property cards have been prepared and 36 Lakh property cards have been distributed.

Significance of Digital Mapping

- The digitization of land records will provide tamper-proof evidence of land ownership, and this will also reduce land related disputes.
- Digital mapping under SVAMITVA Scheme has promoted the drone ecosystem in the country.
- Increasing use of Drones will boost manufacturing industries, drone pilots and training institutes.
- It will promote MSMEs and Start-ups in the country.
- It will provide employment opportunities.
- Availability of digitized maps will support innovation in this sector.

Steps taken by government

- Government started Unique Land Parcel Identification Number (ULPIN) to facilitate IT-based management of land records. ULPIN is a unique ID of 14 digits for every plot of land in the country based on the longitude and latitude coordinates of the land.
- Government development National Generic Document Registration System (NGDRS) with the aim of 'One-Nation One-Registration Software' will reduce the cost, time and number of visits required for the registration of land related documents.
- Government initiated a programme to promote Multilingual Land Records to provide land records in any of the 22 languages recognized by the Constitution.

Way forward

- The scheme will help in facilitating monetization of properties and enabling bank loans, reducing property related disputes, and supporting village level planning.
- It is the right step taken in the direction of achieving Gram Swaraj and making rural India AtmaNirbhar.

NEW INDIA LITERACY PROGRAMME

GS-II GOVERNANCE

Context

- 'New India Literacy Programme' a new Adult Education scheme announced by Union Government.

Details

- New India Literacy Programme (2022-2027) to cover all the aspects of Adult Education mentioned in the National Education Policy 2020 and Budget Announcements 2021-22.
- The National Education Policy 2020 has also recommended to promote Adult Education.

Objectives of the Scheme

- Provide Foundational literacy and numeracy.
- Promote Critical life-long skills; such as Financial literacy, Digital literacy, Commercial skills, Health care awareness, Child care, informal education, and Family welfare.
- Non-literates of the age group of 15 years and above will be covered in all State/UTs.
- Target to cover 5 crore learners (or 1 crore per year) by using "Online Teaching, Learning and Assessment System (OTLAS)" in collaboration with National Informatics Center.

Features of the Scheme

- The Term "Adult Education" used in earlier Programmes is replaced by the term "Education For All".
- The scheme will be implemented through Community Participation.
- All types of materials and resources shall be provided through digital platforms.
- Adopt different strategies for different age groups.
- States/UTs will be provided flexibility to adopt innovative activities.
- Performance Grading Index (PGI) will show the performance of States and UTs at district level through the UDISE portal.
- Priority in Literacy:
 - The age group of 15-35 years will be covered first.
 - Priority will be given to Girls and women.
 - Focus on SCs, STs, OBCs, Minorities, Persons with Special Needs (Divyangjans), Construction workers, laborers, etc.
- Special Focus on:
 - Aspirational Districts
 - Districts with literacy rates less than the National/State average.
 - Districts with female literacy rates less than 60% as per the 2011 Census.

POOR SOCIAL SECTOR SPENDING

GS-II GOVERNANCE

Context

- Recent budget hasn't given the due share to social sector which it deserved due onslaught of pandemic.

India's Social Sector Spending

- According to the International Labour Organization's World Social Security Report 2020-22, India spends 1.4 percent of GDP on social protection (excluding health), while the average for low-middle income nations is 2.5 percent.
- Budgets for health and education have always fallen short of the desired goals of 3% and 6% of GDP respectively.

Budget Allocation for social sector

- The Ministry of Social Justice and Empowerment received an allocation of Rs 10,516 crore, an enhancement of Rs 414 crore over the previous budget.
- There was a 4 percent drop in allocation for the Ministry of Minority Affairs at Rs 4,810 crore. It was allocated Rs. 5,029 crore for 2020-21.
- Allocations for the Ministry of Tribal Affairs saw a 37 percent increase over the revised estimates for 2020-21.

Impact of Pandemics on Social Sector

- India's performance in the global indexes like Human development index, gender empowerment has been very poor consistently.
- According to Oxfam's "Inequality Kills" study, India's economic recovery is K-shaped which means that the poorer sectors of

- society's incomes are declining while the wealthy sections' incomes are increasing.
- Furthermore, real earnings have remained stagnant and unemployment has increased since 2016.
- According to the recent National family health survey, malnutrition in 2019 was worse than 2015-16.
- Decline in the GDP due to pandemic would further worsen the conditions of nutrition among children.
- The recent Oxfam report on inequality highlights that while incomes of 84 per cent of households declined in 2020 and 46 million Indians fell into extreme poverty.
- According to the 2019 NSSO situation assessment survey, every second agricultural household was mired in debt even before the pandemic.

Concern with Budget Allocations

- Decline for nutrition:** The Budget for school midday meals (newly re-named PM POSHAN) has declined by 11 per cent.
- Only ₹10,000 has been additionally budgeted for each of the 2,00,000 anganwadis to upgrade with "better infrastructure and audio-visual aids, powered by clean energy".
- The healthcare budget has also remained stagnant despite the country battling with the pandemic.
- Government has substantially decreased the NREGA budget to ₹73,000 crore from the actual expenditure of Rs. 1,11,170 crore in 2021-22.
- Centre expenditure on the education has declined since 2014-15. Recent budget only amounts to 0.4 % of GDP.
- The food subsidy (BE) for 2022-23 is only enough to cover normal NFSA entitlements. It appears that the Pradhan Mantri Garib Kalyan Anna Yojana will not be extended (PMGKAY).
- Budgets for vital programmes like Saksham Anganwadi, maternity benefits, and social security pensions are roughly the same as last year's allocations.

Conclusion

- Social sector spending plays a critical role in developing the human capital in society. With the onslaught of pandemic, high no of poor in India, poor socio-economic indicators of the society, it is imperative to enhance the budget for social sector.

SAHKAR SE SAMRIDDHI

GS-II GOVERNANCE

Context

- The government is drafting a new National Cooperation Policy to strengthen the cooperative sector by increasing openness, modernization, and competitiveness.

About the Scheme

- The Ministry of Cooperation's futuristic vision, 'Sahkar se Samriddhi,' intends to build an administrative, legal, and policy framework to foster the cooperative movement in the country
- The administration is drafting a new National Cooperation Policy in order to promote prosperity through cooperation.
- Stakeholders such as various ministries, departments of the central and state governments, cooperative organisations, NABARD, and other cooperative institutions will be consulted on this strategy.
- The system will be strengthened by the combined efforts of the centre and the states, which will aid in the implementation of developmental programmes.
- New National Cooperative Policy and schemes are being drafted with the aim to deepen co-operatives as a true people-based movement reaching up to the grassroots and develop a cooperative based economy model including giving focus on 'Make in India'.
- The Ministry has started stakeholder consultations on relevant interventions viz. creation of a National database of Cooperatives, digitalisation of about 63000 active Primary Agriculture Credit Societies (PACS) to make cooperatives transparent and efficient.

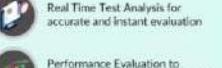
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 Performance Evaluation to strategize preparation accordingly

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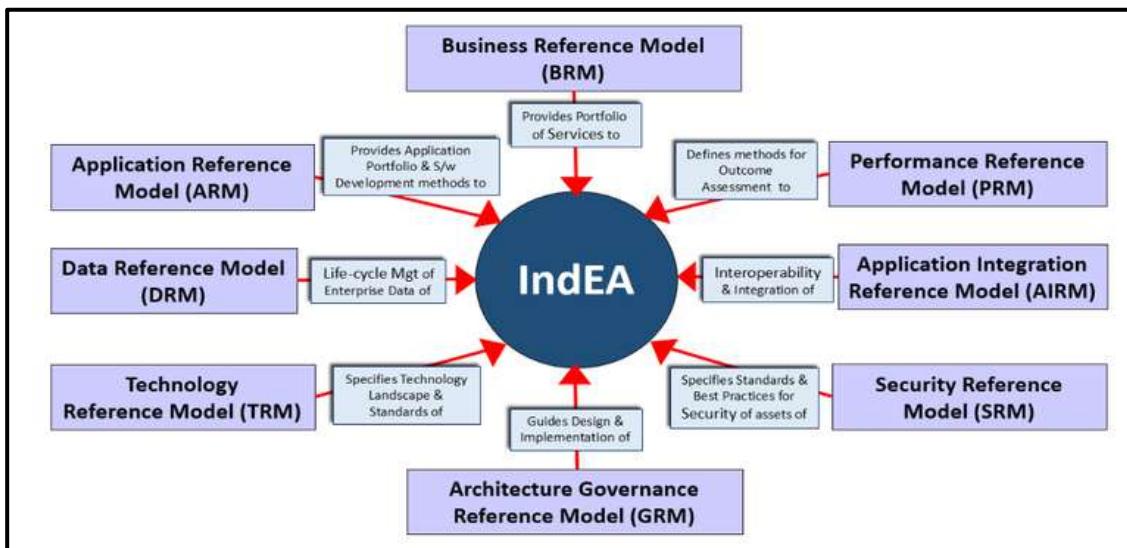


INDIA ENTERPRISE ARCHITECTURE 2.0

GS-II GOVERNANCE

Context

- The Ministry of Electronics and Information Technology (MeitY) has proposed a new model of "Federated Digital Identities" under the India Enterprise Architecture (IndEA) 2.0.



Need of IndEA

- Blurring boundaries:** The boundaries between functions, jurisdictions, public-private organizations are getting blurred due to increasing interdependencies and the need for citizen-centric approaches to designing digital services.
- End-to-end services:** Citizens are increasingly expecting fulfilment of their needs on an integrated and end-to-end basis. This calls for seamless and automated collaboration between multiple organizations and their systems.
- Digital Transformation:** The transition from e-Governance to digital governance calls for raising above the traditional systems approach.
- Leveraging innovation:** The potential of explosive and disruptive innovations happening via emerging technologies like AI/ML, IoT, DLT, AR/VR can be leveraged only if crosscutting and pervasive digital environment is established.
- Disruptive Business Models:** An ecosystem approach provides the flexibility and complementarity required for the growth of disruptive business models that can enhance efficiency and effectiveness at a lower cost.

About InDEA 2.0

- InDEA 2.0 presents a Federated Digital Identities paradigm that aims to reduce the number of digital identities required by citizens.
- InDEA 2.0 proposes a model of Federated Digital Identities that seeks to optimise the number of digital identities that a citizen needs to have.
- The model empowers the citizen by putting her in control of these identities and providing her the option of choosing which one to use for what purpose.
- It gives the agency to the citizen and protects privacy by design.
- A citizen's many digital IDs, ranging from PAN and Aadhaar to driving licence and passport numbers, can be linked, stored, and accessed through a single unique ID under the new approach.
- Citizens can use their digital ID "to access other third-party services through authentication and consented eKYC," according to the government.
- The tendency to create additional IDs, each with its own card, management, etc., will be minimised.

India Enterprise Architecture (IndEA)

- India Enterprise Architecture (IndEA) is a way to establish Unity in Diversity in the domain of e-Governance.
- It is a framework that enables the development and implementation of Enterprise Architectures independently and in parallel by all governments and their agencies across India, conforming to the same models and standards.
- It enables planned development through architecture thinking.
- IndEA has been notified as a e-Governance standard by the Ministry of Electronics and Information Technology (MeitY) in October 2018.

Aims:

- Documenting and communicating architecture best practises, both explicit and implicit
- Assisting with the creation of enterprise architectures.
- Capturing important architectural features and their interrelationships
- By establishing an audit procedure, we may provide the means for architecture governance.

OMBUDSMAN APP FOR MGNREGA

GS-II GOVERNANCE

Context

- The Union Rural Development Minister launched Ombudsman app for Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)

Details

- The Ombudsperson app would promote transparency under the MGNREGA system.
- The Union Government has also announced that from the next fiscal year, the Center will not give funds for employment guarantee scheme MGNREGS to states that do not appoint ombudspersons in 80 % of their districts where the scheme has been applied.
- According to the report published by the Union Rural Development Ministry, Gujarat, Arunachal Pradesh, Goa, Telangana, and union territories such as Puducherry, Andaman and Nicobar Islands, Lakshadweep, and Dadra and Nagar Haveli do not have a single ombudsperson MGNREGS.
- There are also many states that have appointed ombudspersons in very few districts such as Rajasthan, West Bengal, Haryana, and Punjab.
- According to the MGNREGA Act, states are mandated to appoint an ombudsperson for each district for receiving grievances, enquiring and passing awards.

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) 2005

- The MGNREGA is an Indian labor law and social security programme that aims to guarantee the 'right to work'.
- It provides a legal right for 100 days of employment in every financial year to at least one member of every rural household whose adult members agree to do unskilled manual work.
- The Ministry of Rural Development is monitoring the implementation of this scheme.
- Women were guaranteed one third of the jobs made available under the MGNREGA.
- The MGNREGA programme also helps in creating durable assets (such as roads, canals, ponds and wells).
- Work to be provided within 5 km of workers residence and minimum wages are to be paid.
- Right to get unemployment allowance in case employment is not provided within 15 days of submitting the application.
- MGNREGA is implemented mainly by gram panchayats. Adult members of rural households submit their details to the Gram Panchayat. The Gram Panchayat registers households after making enquiry and issues a job card. The job card contains the details of adult member enrolled and his /her photo
- The involvement of contractors is banned.
- Social Audit of MGNREGA works is mandatory, which ensures accountability and transparency.

Significance of MGNREGA

- The programme is providing economic security and creating rural assets,
- It also helps in protecting the environment, reducing rural-urban migration and promoting social equity, etc.
- It focuses on the economic and social empowerment of women.
- It provides "Green" and "Decent" work.
- Works under MGNREGA helps to address the climate change vulnerability and protect the farmers from such risks and conserve natural resources.

Constitutionality of MGNREGA

- MGNREGA providing a 'right to work' in accordance with Article 41 that directs the State to secure to all citizens the right to work.
- It also protects the environment through sustainable rural works, which is consistent with Article 48A that directs the State to protect the environment.
- Article 21 guarantees the right to life with dignity to every citizen of India, this act promotes dignity among the rural people through an assurance of livelihood security.
- Article 16 guarantees equality of opportunity in matters of public employment and prevents the State from discriminating against anyone in matters of employment on the grounds only of religion, race, caste, sex, descent, place of birth, place of residence or any of them.
- NREGA also follows Article 46 that requires the State to promote the interests of and work for the economic uplift of the scheduled castes and scheduled tribes and protect them from discrimination and exploitation.
- Article 40 mandates the State to organize village panchayats and award them with such powers and authority as may be necessary to enable them to function as units of self-government.

SCHEME FOR ECONOMIC EMPOWERMENT OF DNTS

GS-II SOCIAL JUSTICE

Context

- Scheme for Economic Empowerment of DNTs (SEED) launched by Union Minister for Social Justice and Empowerment

About SEED

- **SEED Scheme launched for the welfare of Denotified, Nomadic and Semi Nomadic Communities.**
- Economic Empowerment of DNTs, SNTs & NTs (SEED) has been formulated with four components that affect their livelihood. The four component of the SEED scheme are:
 1. **Educational empowerment** - Free coaching to students from these communities for Civil Services, entry to professional courses like medicine, engineering, MBA, etc.
 2. **Health Insurance** through Pradhan Mantri Jan Arogya Yojna (PM-JAY) under National Health Mission.
 3. Livelihoods support for income generation.
 4. Housing through Pradhan Mantri Awas.
- The scheme targets Rs.200 crore to be spent over five years beginning 2021-22.
- A dedicated Online portal to ensure user friendly accessibility and registration process, and will also act as a repository of the data on these communities.

'De-notified Tribes'

- The term 'De-notified Tribes' stands for all those communities which were once notified Criminals under the Criminal Tribes Act 1871, enforced during British rule.
- The Policies of the British government affected their lives and livelihood. As a result, they experienced forcible alienation from their traditional occupations and habitations.
- After Independence, These Acts were repealed by the Indian Government in 1952, and thereafter these communities were known as "De-Notified".

Challenges

- People from these communities have to face social stigma in their daily life.
- They face issues of mistrust by other non-community members, non-inclusion in the mainstream society, and discriminatory behavior.
- As the community is stigmatized as a community with criminal background, the community members are still easy targets for the police and hence suffer from illegal arrests.
- Discrimination is faced by the students, and the students are also denied admission into the private schools.
- They are scattered across the country. Due to the small size of population living in an area, their needs are often ignored by the political representatives, and hence the community is struggling to progress.

Steps taken by Government

- The Renke Commission (2008) was set up to look into the problems of these communities.
- The Idate Commission (2015) was constituted for the development of these communities.
- In 2019, the Government of India set up the Development and Welfare Board for DNTs, SNTs & NTs (DWBDNCs) for the welfare of these communities.

Way forward

- Majority of them have no identity certificate, government and local authority must work together to provide identity proof to them. This would allow them to take benefits of reservation and government schemes targeted for them.
- Awareness campaigns in schools and colleges against discrimination faced by these communities.
- Ensuring employment to them through the MGNREGA scheme.
- Promote skill development and Combine their traditional skills and crafts with Skill India to improve their employability and earning capacity.
- Ensuring basic infrastructure development for these communities.
- Include stories about tribal struggle and their contribution in the Indian freedom movement.
- Inclusion of the DNT and other nomadic tribes into mainstream society would help us in creating an inclusive society and achieving the goal of "Sabka saath sabka vikas".

CASTE CENSUS

GS-II SOCIAL JUSTICE

Context

- Controversy over Union government decision to reject the demand of conducting a Socio-Economic Caste Census (SECC).

Details

- Several States, including Bihar, Maharashtra, Andhra Pradesh and Odisha, have written to the Union government demanding to conduct caste Census.
- The Ministry of Home Affairs has stated that data on castes, communities and OBCs other than the notified Scheduled Castes and Scheduled Caste are not collected in the Census.
- The Union government filed an affidavit in the Supreme Court where it ruled out conducting a Socio-Economic Caste Census (SECC).

Caste System in India

- Caste is an institution uniquely associated with the Indian Subcontinent. While Social arrangements Producing Similar effects have existed in other Parts of the world, the exact form has not been found elsewhere.
- Although the caste system is an institution Characteristic of Hindu Society, Caste has spread to the major non-Hindu Communities of the Indian Sub-Continent.
- Varna based division of the Society into brahmana, kshatriya, vaishya and Shudra, though this excludes a Section of the Population Composed of 'Outcastes', foreigners, Slaves, Conquered Peoples and others.
- In its earliest Phase, the Caste System was not very elaborate or very rigid, and they were not determined by birth. Movement across the Categories seems to have been Common. It is only in the Post-Vedic Period that Caste became the rigid institution.
- Features of Caste System**
 - Caste is determined by birth, Caste is never a matter of Choice. One can never Change one's Caste, leave it, or choose not to join it.
 - Membership in a Caste involves strict rules about marriage. Caste groups are "endogamous", i.e. marriage is restricted to members of the group.
 - Caste membership also involves rules about food and food-Sharing. What kinds of food may or may not be eaten is prescribed.
 - Castes are arranged in a hierarchy of rank and Status.
 - Castes also involve Subdivisions within themselves, Castes almost always have Sub-Castes and Sometimes Sub-Castes may also have Sub Sub-Castes.
 - Castes were traditionally linked to occupations. A Person born into a Caste Could only Practice the occupation associated with that Caste.
- Colonialism And Caste System**
 - Present form of Caste as a Social institution has been Shaped very strongly by both the Colonial Period as well as the rapid Changes that have come about in independent India.
 - Scholars feel that direct attempt to Count Caste and to officially record Caste Status Changed the institution itself. Before this kind of intervention, Caste identities had been much more fluid and less rigid; once they began to be Counted and recorded, Caste began to take on a new life.
 - Towards the end of the Colonial Period, the Administration also took an interest in the welfare of marginalized Castes, referred to as 'Depressed Classes' at that time.
- Caste System In The Present**
 - Development of the Country and the growth of Private industry also affected Caste indirectly through Inter-dependence. Modern industry created all kinds of new jobs without considering Caste rules.
 - Urbanization and Conditions of Collective living in the Cities made it difficult for the Caste-Segregated Patterns of Social interaction.
 - Modern educated Indians are attracted to the liberal.
 - Prejudice against the untouchables remained quite Strong and not absent from the City, though not as extreme as it could be in the village.
 - Endogamy, or the Practice of marrying within the Caste, remained largely unaffected by modernisation and Change. Even today, most marriages take place within Caste boundaries, although there are more intercaste marriages.
 - Democratic Politics has been deeply affected by Caste. Caste remains Central to electoral Politics.
 - Since the 1980s we have Seen the emergence of Caste-based Political Parties. During the initial Stage, Caste Support was decisive in winning elections. But the Situation got very complicated as Parties Competed with each other for Caste Support.

- Land reforms and Fragmentation of land took away Economic rights from the upper Castes which affected their social status.
- Landowners depended on the lower Castes for tilling and tending the land.
- Constitutional values and rights promoted equal opportunities to all, and also affirmative actions were taken to ensure the development of marginalized sections.

About Census in India

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

About Caste Census

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

Arguments in favor of Conducting Caste census

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

Argument against conducting caste census

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

Way forward

- In democratic Societies there is nothing to legally stop a Person from the most deprived Class and Caste from reaching the highest Position, but these legal rights also need socio-economic support from the government as affirmative action.

- Education can play an important role in reducing caste rigidity in our society.
- Governments need to take effective affirmative action's based on strong data to ensure socio-economic development of marginalized people living at the bottom of the social hierarchy.
- People also need to understand that our Sources of knowledge about the Past and especially the ancient Past are inadequate. It is difficult to be very certain about what things were like at that time, or the reasons why some institutions and Practices came to be established. But even if we knew all this, just because something happened in the Past or is Part of our tradition, it is not necessarily right or wrong forever.
- Every age has to think afresh about such questions and Come to its own Collective decision about its Social institutions.

REWARD PROJECT

GS-II SOCIAL JUSTICE

Context

- Government of India and World Bank signed a loan agreement for the implementation of the REWARD Project.

Details

- Government of India, State Governments of Karnataka and Odisha and World Bank have signed a loan agreement of \$115 million for the implementation of "Rejuvenating Watersheds for Agricultural Resilience through Innovative Development" (REWARD) Project.

About REWARD Project

- Rejuvenating Watersheds for Agricultural Resilience through Innovative Development or REWARD Project was **initiated by the Department of Land Resources, under the Ministry of Rural Development.**
- **The main objective of the project** is to improve land and water conservation and climate resilience, and strengthen capacities of institutions.
- The project aims to Support Institutional reforms and adopt a science based approach to improve watershed management practices.
- Reforms in Institutional architecture for watershed development will offer new opportunities for farmers.
- It will prevent soil erosion, support the growth of natural vegetation, promote rainwater harvesting, and recharging of groundwater.
- The project will provide sustainable livelihood opportunities to the people residing in the watershed area.

Expected Outcome

- The Project will help national and state institutions to adopt improved watershed management practices.
- It will strengthen farmers' resilience to climate change; also promote higher productivity and better incomes.
- The project will support India's commitment to restore 26 million hectares of degraded land by 2030 and doubling farmers' income by 2023.
- Effective watershed management can promote livelihood opportunities in rainfed areas, and also ensure food security by increasing total production; this will support the government vision of 'AtmaNirbhar Bharat'.
- The new program will help State governments to ensure effective watershed planning and execution and adopt scientific methods to improve efficiency of the program.
- The COVID-19 pandemic highlighted the need for a sustainable agriculture ecosystem in India which must protect farmers from climate uncertainties and support their livelihood opportunities.

Concerns related to water management

- **India has nearly 18% of the global population, but only 4% of the world's fresh water.**
- According to the NITI Aayog report, about 80 Crore Indians face water Scarcity and about 2 lakh people die every year due to inadequate access to Safe water.
- **Food Security:** Population of India will be more than 1.5 billion people by 2030. Achieving food Security for this rising Population becomes more difficult with water Scarcity.
- **Urban Sustainability:** No Indian City Supplied 24x7 water to its entire urban Population, and only 35% of urban households in India had piped water.
- **Economic risks:** Water Shortages can hamper industrial operations.
- **Biodiversity risks:** Biodiversity is impacted by human activities undertaken to Create additional water Sources. These activities include dam Construction and river diversion which can lead to Changes in water flow, Salinity levels, and monsoon Patterns.
- Scarcity of Potable water, Inadequate Supplies, irregular water Supply, Illegal Connections.
- Contamination from solid and liquid waste from industries and human settlements.

- Falling Groundwater tables, poor water quality, presence of excess fluoride, salinity and nitrates.

Steps taken by for water management

- Government of India launched Jal Shakti Abhiyan with a mission mode approach intended to improve water availability including ground water conditions in the water stressed blocks in India.
- National Water Policy (2012) has been formulated by the Department of Water Resources for the conservation of river, river bodies and infrastructure in a scientifically planned manner through community participation.
- Central Ground Water Authority has been constituted under the "Environment (Protection) Act, 1986" for the purpose of regulation and control of ground water development and management in the Country.
- Master Plan for Artificial Recharge to Groundwater 2020 has been prepared in consultation with States/UTs.
- Construction of watershed management structure under Mahatma Gandhi National Rural Employment Guarantee Scheme.
- Pradhan Mantri Krishi Sinchayee Yojana promotes water conservation and management, water harvesting, soil and moisture conservation, groundwater recharge, flood protection, land development.
- Atal Bhujal Yojana for sustainable management of ground water with community participation is being taken up in the identified over-exploited and water stressed areas in the States of Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh.

Steps need to be taken

- The Water Management program focuses on recharging underground aquifers and promoting rainwater harvesting. This improves the availability and quality of groundwater in the long run, and provides water security to all.
- Adopt Innovative Approaches to Sustainable Operation and Maintenance.**
- Making Village Water and Sanitation Committee under Gram Panchayat, Involve Community members at all Stages.**
- Effective Communication among all stakeholders.**
- Ensure Transparency and Accountability in Governance.**
- Promote and ensure maintenance services.**
- Investments in creating the necessary infrastructure, developing skill.**
- Empowering Women, as they face more adversities due to lack of easy access to water.**
- Awareness Campaign on water conservation.**

Way forward

- India has one of the largest watershed management programs in the world. This programme will enhance this progress by adopting and applying scientific technologies, decision support tools, and knowledge exchanges.
- Government and administration should work with local communities to revive traditional water bodies, and design and construct cost-effective groundwater recharge structures; such as check dams, ponds, farm ponds, tanks, recharge wells, etc.

SAMRIDH INITIATIVE

GS-II SOCIAL JUSTICE

Context

- NITI Aayog has announced a new partnership under the SAMRIDH initiative

Details

- Atal Innovation Mission, NITI Aayog, and the U.S. Agency for International Development (USAID) announced a new partnership under the Sustainable Access to Markets and Resources for Innovative Delivery of Healthcare (SAMRIDH) initiative.**
- The aim of the Partnership is to **improve access to affordable and quality healthcare for vulnerable populations in tier-2 and tier-3 cities, and rural and tribal regions.**
- The Partnership aims to build a healthcare system for future infectious disease outbreaks and health emergencies.

Concerns

- Diseases drain our economy in two ways: loss of Productivity and expenditure for Healthcare.**
- Rise in both Communicable and non-Communicable diseases.
- Quality, Accessibility and Affordability of Health Services.
- High out of Pocket expenses.
- Shortage of Infrastructure, Equipment and Skilled Manpower.**
- Rigid regulatory Framework Combined with Corrupt enforcement.
- Limited number of Medical Seats.
- Primary Health Care Centers are not Present in many villages and wherever Present they lack basic facilities.**

- Inefficiencies in Procurement Process results in both Shortages and Wastage.
- **Nearly 70% of Healthcare delivery is through Private Players which are largely regulated.**
- **Lack of Sanitation, disease Surveillance, Political will and Public Health response.**
- Demand Supply gap in Healthcare, lifestyle Changes and environmental degradation, resulting in a rising total burden of disease.

Steps taken by Government

- Promotion of Institutional deliveries through Cash incentive under Janani Suraksha Yojana.
- **Janani Shishu Suraksha Karyakram: Free ante-natal Check-ups, Postnatal Care and treatment of Sick infants till one year of age.**
- Providing Reproductive, Maternal, Newborn, Child and Adolescent Health Services, establishment of Special Newborn Care Units.
- Newborn Stabilization Units and Kangaroo Mother Care units for Care of Sick and Small babies.
- Home Based Newborn Care is being Provided by ASHAs.
- MAA initiative for improving breastfeeding Practices.
- Pradhan Mantri Dialysis Program.
- **Mission Indradhnaush: Expanding full immunization Coverage, introduction of new vaccines.**
- **PM Swasthya Suraksha Yojana for strengthening tertiary health Sector.**
- **POSHAN Abhiyaan to address Malnutrition.**
- Iron and folic acid Supplementation for Prevention of Anemia, home visits by ASHAs to Promote breastfeeding and Promote use of ORS and Zinc for management of diarrhea in Children.
- Capacity building of healthcare Providers: Trainings are being conducted under National Health Mission to build and upgrade the Skills of health Care Providers.
- Medical Devices Rules, 2017: Transparent regulatory System, Ensure Safety and quality of medical devices, Allowed 100% FDI in medical devices Sector to Promote Make in India.
- **Kayakalp initiative to Promote Cleanliness, hygiene and infection Control practices in public health facilities.**

Way Forward

- According to the World Health Organization (WHO) Health refers to a State of Complete physical, mental and social well-being and not merely the absence of disease.
- Need to reduce the Pressure on Secondary and tertiary hospitals by investing in Preventive and Primary health Care facilities.
- Increasing Doctor Patient ratio.
- Reduce Out Of Pocket Expenditure.
- Increasing number of vaccines under Mission Indradhnaush.
- Increasing the number of drugs and medical devices under price Control.
- The Ministry Should Standardize the Cost of Certain treatments.
- **Raising Public Health expenditure to 2.5% of GDP.**
- Provide accessible, affordable and quality health Care.
- Inform and educate People about the traditional Systems of medicine.
- **Prescription of Generic medicines, Ayurveda Doctors and Yoga Teachers for Rural Areas.**
- **Improve Hospital access, Health worker density, Access to essential medicine; Mobile Medical Units to Provide outreach Services in rural and remote areas.**
- Upgrade and Strengthen the existing laboratories.
- 12th Five Year Plan and National Health Policy, 2017 strongly advocated establishing a Public Health management Cadre to improve quality of Health Services.

SMILE SCHEME

GS-II SOCIAL JUSTICE

Context

- The Union Government has launched the "SMILE: Support for Marginalized Individuals for Livelihood and Enterprise" Scheme.

Details

- The Union Minister for Social Justice and Empowerment has launched the Central Sector scheme "SMILE: Support for Marginalized Individuals for Livelihood and Enterprise".

About SMILE Scheme

- The Scheme aims to provide welfare and rehabilitation to the Transgender community and the people engaged in the act of begging.
- The 2 sub-schemes of SMILE are:
 - Central Sector Scheme for Comprehensive Rehabilitation for Welfare of Transgender Persons.
 - Central Sector Scheme for Comprehensive Rehabilitation engaged in the act of Begging'.
- It aims to provide comprehensive welfare and rehabilitation measures to the Transgender community and the people engaged in the act of begging.
- The scheme aims to ensure social security through multiple dimensions of identity, medical care, education, occupational opportunities and shelter.
- The Ministry has allocated Rs. 365 Crore for the scheme from 2021-22 to 2025-26.
- It has provisions for Skill Development and Livelihood under the PM-DAKSH scheme.

Expected Outcome of the Scheme

- Through Composite Medical Health it aims to provide a comprehensive package in convergence with PM Jan Arogya Yojna (PM-JAY) supporting Gender-Reaffirmation surgeries through selected hospitals.
- Providing Housing facility in the form of 'Garima Greh' to ensures food, clothing, recreational facilities, skill development opportunities, recreational activities and medical support etc. to the Transgender community and the people engaged in the act of begging.
- The Provision of Transgender Protection Cell in each state will monitor cases of offences and to ensure timely registration, investigation and prosecution of offences.
- The National Portal and Helpline will provide necessary information and solutions to the Transgender community and the people engaged in the act of begging when needed.

Concerns

- Transgender face numerous forms of discrimination and injustice, exclusion from participation in social and cultural life, education, and economic sphere, political and decision-making processes.
- Issues with Current legislations:
 - Discretionary powers to Police to arrest.
 - No distinction between beggars and homeless.
 - Different definitions in different State.
- The problem of beggary, like any other social problem, is multidimensional. Its roots are found in the diverse patterns of its intertwined and interlocked social fabrics.
- According to an estimate, 3 lakh children across India are forced to beg, using everything from addiction to drugs, to threats of violence and actual beating.
- In India there is lack of adequate provision for treatment and social rehabilitation of blind, deaf, dumb or the physically handicapped. In the absence of any reasonable alternative, such persons are forced to beg.
- Economic factors which generally prompt people to take to begging. Among these factors poverty, unemployment, under-employment and loss of income are important.

Way forward

- These are Social problems and have to be seen in a Holistic manner as there are numerous contributory factors such as poverty, unemployment, disability and migration.
- Rehabilitate through rehabilitation Center, Setting up Counseling Committees to interact with them and assist them.
- Sensitizing people and authorities, Coordination of stakeholders such as Civil Society, Government, media, police and Citizens is needed to end this.
- As a progressive and developing society it is our duty to respect the identity and dignity of all sections of society.
- The Ministry has ensured that each and every need of Transgender community and persons engaged in the act of begging are taken care of in most professional way.
- The provision under the SMILE initiative will provide necessary information and solutions to the problems of the Transgender community and the people engaged in the act of begging.

REFUGEE AND ASYLUM LAW

GS-II SOCIAL JUSTICE

Context

- A Private Member's Bill was introduced in the Lok Sabha proposing the enactment of a Refugee and Asylum law.
- The Bill lays down comprehensive criteria for recognizing asylum seekers and refugees and prescribes specific rights and

duties accruing from such status.

Who is a Refugee and Asylum Seeker

- According to United Nations, a refugee is someone who is forced to flee their country owing to a well-founded fear of being persecuted because of his or her race, religion, nationality, membership of a particular social group or political opinion.
- Asylum seekers too ask for protection from persecution in another country, but they are not yet legally recognized as a refugee and are waiting to receive a decision on their asylum claim.

Refugees in India

- India is home to diverse groups of refugees, ranging from Buddhist Chakmas from the Chittagong Hill Tracts of Bangladesh, to Bhutanese from Nepal, Muslim Rohingyas from Myanmar and small populations from Somalia, Sudan and other sub Saharan African countries.
- According to the UNHCR, there were 204,600 refugees, asylum seekers and "others of concern" in India in 2011.

1951 Refugee Convention

- India is neither a signatory to the 1951 UN Refugee Convention relating to refugee status nor of its 1967 Protocol.
- 149 countries are party to either or both of the instruments.
- The cornerstone of the UN Convention of 1951 is non-refoulement, which asserts that a refugee should not be sent to a country where they face serious threats to life. This is now considered a rule of customary international law.

Why won't India sign the Convention or the Protocol?

The reasons are chiefly security-related. The line of argument is that borders in South Asia are extremely porous and any conflict can result in a mass movement of people. This can have two results: first, a strain on local infrastructure and resources in countries that are poorly equipped to deal with sudden spikes in population.

Second, it can upset the demographic balance, a tinderbox in South Asia.

Another argument is that India already does its duty, so there's no need to sign this piece of paper.

Laws Governing Refugees in India

- In India, all foreign nationals including refugees, asylum seekers and stateless persons are governed by the provisions contained in the
 - Foreigners Act 1946,
 - the Registration of Foreigners Act, 1939,
 - the Passport Act 1920 and
 - the Citizenship Act 1955.
- Passport Act, 1920:** Under this, it is mandatory for anyone entering India to possess their passport and it also prohibits the entry of the person not possessing the document. Imprisonment of up to five years or a fine which may extend up to Rs 50,000 could also be levied from one who trespasses.
- Foreigners Act, 1946:** It states that where the nationality of the person is not evident, the onus of proving whether a person is a foreigner or not will lie upon that very person. The Act gives the power to the Government of India to detain a person until deported back to their country of origin.
- Citizenship (Amendment) Act, 2019.** This Act, aims to facilitate grant of citizenship to migrants belonging to Hindu, Sikh, Buddhist, Jain, Parsi and Christian communities from Afghanistan, Pakistan and Bangladesh who have taken shelter in India due to persecution on grounds of religion or fear of such persecution on or before December 31, 2014.
- Home ministry Guidelines:** Who so ever comes to the country fleeing persecution from their home country will be granted a long-term visa for one year which will be renewed for 5 years later. It also mentioned that if a refugee is not found fit to be granted a long- term visa, the government will consult the UNHCR to get them resettled to a third country and not send them back to their home country.

Issues in India's Refugee Policy

Ad hoc Policy

- India's ad hoc administrative policy on refugees has created an atmosphere of confusion. The dual system has contributed to a lack of awareness and misinformation among legal duty bearers causing high levels of insecurity and precarity for refugee communities.

Discriminatory standard of protection

- Indian government's approach to refugee issues results in different standards of protection and assistance among different refugee groups.
- Tibetans and Sri Lankan refugees are protected and assisted by the government, while the UNHCR is directly involved with

groups arriving from other countries (mostly Afghanistan and Myanmar) by dint of India's ad hoc or dual framework for refugees and asylum seekers.

Non recognition of temporary documents

- Holders of documentation provided by UNHCR are able to obtain temporary residence permits from the authorities.
- The UNCHR-issued documents are not recognized by the authorities in India being non signatory of the 1951 Convention and due to rise in the number of refugees and asylum seekers in the country.

Absence of specialised domestic law for refugees

- In the absence of specialized domestic law for refugees, the government relies on Foreigners Act, 1946 and Registration of Foreigners Act, 1939 to govern the entry, stay and exit of foreigners.
- But under this law refugees fall under the category of illegal migrants, given that they do not usually have a valid passport and visa for the duration of stay and these laws do not recognize the special humanitarian treatment that is accorded to refugees.

No national refugee protection framework

- The lack of a national refugee protection framework is an obstacle to providing effective refugee protection.

Obtaining Refugee Card: A time consuming affair

- Although UNHCR issues a refugee card through refugee status determination process but this process is time consuming and can take up to 20 months for evaluation. Within that period of time if someone is caught by the police, they will be arrested, detained and deported without even getting an access to the UNHCR.
- Also, if the application for refugee card is rejected, no reason is given to the refugee for such a rejection.

Against principle of "non-refoulement"

- **Example:** In terming Rohingya in India as "illegal" (in contrast to calling them refugees in Bangladesh) and pledging to send them back to Myanmar, India is going against the principle of "non-refoulement", to which it is bound as a signatory to other international treaties such as the International Covenant on Civil and Political Rights.
- Non-refoulement means no refugee shall be returned in any manner to any country where he or she would be at risk of persecution.

Against 1984 Convention against torture

- India is bound by this principle because it is contained in the 1984 Convention against torture, to which India is a signatory.
- Article 3 of the Torture Convention states: "No state party shall expel, return (refoul) or extradite a person to another state where there are substantial grounds for believing that he would be in danger of being subjected to torture."

Challenges of recognizing refugees in India

- Refugees creating an identity crisis by overtaking the indigenous people.
- Delay in deportation, makes them permanent in India gradually.
- Increased financial responsibility of the state.
- Pressure on limited resources, employment, wages etc.
- Change in demography through replacement of native people.
- Influencing elections through illegal voting.
- Terrorism: vulnerable to join terror outfits for work and revenue.

Plausible steps India can take

Setting up of National Immigration Commission

- The commission can frame a National Migration Policy and a National Refugee Policy for India.

Making changes to the Foreigners Act, 1946

- At present the terms 'foreigner' and 'refugees' are used interchangeably.
- This places refugees along with immigrants and tourists in this broad category of foreigners depriving them of privileges available under the Geneva Convention.

NRC

- Carry out the NRC (National Register of Citizens) and identify the number of refugees and illegal immigrants.

Legal Deportation

- For legal deportation India needs to crystallize bilateral repatriation agreements with various countries.

Implementing Ministry of Home Affairs Guidelines

- Capturing their biographic and biometric particulars of refugees
- Restrictions of Illegal Migrants
- Cancellation of fake Indian documents
- Initiating legal proceedings including deportation proceedings

National Refugee Agency

- A national refugee agency (NRA) can be emplaced to compile comprehensive profiles and credentials of the migrants,

immigrants, asylum-seekers and refugees immediately upon their arrivals in India.

Private sponsorship

- Options for private sponsorship of refugees should be developed in parallel to government systems in light of the success of such schemes in the Global North.
- Such schemes often result in better settlement and employment outcomes for refugees and ease the financial burden on government resources.

Removing language barrier

- Refugees must be supported in learning both the Hindi and English languages to remove bottlenecks for employment and psychological wellness.

Bottom up approach

- The key to India's sustainable refugee policy includes a bottom-up approach based on comprehensive evaluations of
- employment opportunities for refugees,
- utilization of their skills in national development,
- creating stability in the public attitudes towards them,
- ensuring the support of state governments private sponsors, voluntary organizations, NGOs and civil society organizations.

Securing Borders

- Porous borders at difficult terrain need to be sealed through state of art technologies.

Final Thoughts

- The history of India is full of examples of hosting persons fleeing war, conflict, and persecution.
- Cross-border movements of refugees have existed for generations and human mobility has fundamentally shaped the current community of nations. But the refugee recognition challenges cannot be refuted either.
- It is important therefore that our collective approach in dealing with these issues retains a balanced, differentiated and a longer term perspective.
- A sustainable refugee policy is the way ahead.

NATIONAL COMMISSION FOR WOMEN

GS-II SOCIAL JUSTICE

Context

- According to the Prime Minister, given the evolving needs of women in the country, the scope of NCW must be broadened.

Need for expanding the scope

- Women share in the **employment is continuously on the rise which has given new forms of crime against women** like sexual harassment at work place.
- Women are engaging in **self employed and today more than 70% of the beneficiaries of the Pradhan Mantri Mudra Yojana** are Women. NCW can harness its strength of policy advocacy to better the conditions of these self employed women.
- Rising urbanisation:** Rise in urbanisation has brought new challenges for the women like poor street lighting affecting their security. This demands attention of the NCW.
- Encouragement to women:** More women needs to be empowered and encouraged by the NCW to undertake activities of msme and seek credit from Bank.
- Rising crime:** According to NCRB, there has been a drastic increase in the crime against women and NCW need to expand its scope to control this crime.

About NCW

- The National Commission for Women was set up as statutory body in January 1992 under the National Commission for Women Act, 1990.

Functions

- Review the Constitutional and Legal safeguards for women ;
- Recommend remedial legislative measures ;
- Facilitate redressal of grievances and
- Advise the Government on all policy matters affecting women.

Membership

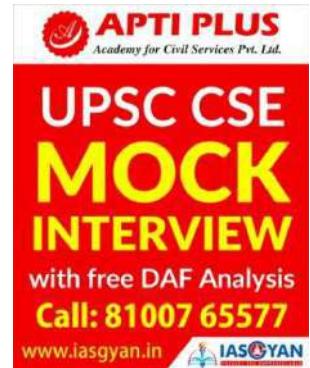
The Commission shall consist of:

- A Chairperson, committed to the cause of women, to be nominated by the Central Government.
- Five Members to be nominated by the Central Government from amongst persons of ability, integrity and standing who have

- had experience in law or legislation, trade unionism, management of an industry potential of women, women's voluntary organisations(including women activist), administration, economic development, health, education or social welfare;
- Provided that at least one Member each shall be from amongst persons belonging to the Scheduled Castes and Scheduled Tribes respectively;
 - A Member-Secretary to be nominated by the Central Government who shall be :-
 - an expert in the field of management, organisational structure or sociological movement, or
 - an officer who is a member of a civil service of the Union or of an all-India service or holds a civil post under the Union with appropriate experience

Important issues taken up by NCW

- Gender and Law Enforcement
- Impact of Displacement of Women
- Sexual Harassment at Workplace
- Women in Detention
- Anti-Arrack Movement
- Issues concerning Prostitution
- Political Empowerment of Women



Issues faced by NCW

- **Political appointment:** NCW members have been of political nature while expertise has often been discarded by the party in government.
- **Indulgence in Political activities:** NCW chairperson was engaged in propagating the love Jihad which is more of political nature than having an actual substance.
- **Failed to take action against mighty organisation:** NCW failed to resolve the conflict of interest during a sexual harassment case against the Chief Justice of Supreme Court.
- **Sexual harassment at its own workplace:** NCW has failed to prevent and provide an effective redressal for the complaint of sexual harassment at its own workplace in 2016.
- **Accusations on the victims:** NCW has often been found in controversy when it said that 30% of rape cases reported in India are fake in nature.

Way Forward

- **Amending the NCW Act:** With the change in the women role in public role, NCW scope needs to be widened by making the legislative changes.
- **Due procedure of appointment:** Appointment to NCW must be done with the consultation of the opposition and eminent person of the society.
- Being more proactive: NCW need to be more proactive in nature while attaining to the issues of women.

RASHTRIYA UCHCHATAR SHIKSHA ABHIYAN (RUSA)

GS-II SOCIAL JUSTICE

Context

- The Ministry of Education has announced the continuation of Rashtriya Uchchatar Shiksha Abhiyan (RUSA) till 2026.

About Rashtriya Uchchatar Shiksha Abhiyan (RUSA)

- Rashtriya Uchchatar Shiksha Abhiyan (RUSA) or National Higher Education Mission was launched in 2013 under the Ministry of Human Resource Development (last year renamed as Ministry of Education).
- RUSA is a **Centrally Sponsored Scheme**, the central funding (in the ratio of 60:40 for general category States, 90:10 for special category states and 100% for union territories).
- It aims to create new model degree colleges, new professional colleges and provide infrastructural support to existing universities and colleges.
- **Governance reform is central to the scheme.**
- Faculty recruitment support, faculty improvements programmes and leadership development of educational administrators are also an important part of the scheme.
- **Adoption of accreditation** (certification of efficiency) as a mandatory quality assurance framework.
- The **Central Project Appraisal Board** monitors the academic, administrative and financial initiatives taken under the scheme.
- **Mandatory National Assessment and Accreditation Council (NAAC)** for ensuring regular assessment of all the institutions.

Objectives of Rashtriya Uchchatar Shiksha Abhiyan (RUSA)

- Improve access, equity and quality in higher education through planned development of higher education at the state level.
- **Creating new academic institutions, expanding and upgrading the existing ones.**
- Improve education quality, promote research and provide students with education that is relevant to them as well as for the nation.
- Improve the overall quality of state institutions by prescribing norms and standards.
- Ensure reforms in the affiliation, academic and examination systems.
- Ensure adequate availability of quality faculty in all higher educational institutions and promote capacity building at all levels of employment.
- Create an enabling atmosphere in the higher educational institutions to promote research and innovation.
- **Correct the regional imbalances in terms of access to higher education by setting up institutions in un-served and underserved areas of the country.**
- Improve equality in higher education by providing adequate opportunities of higher education to SC/STs and socially and educationally backward classes.
- Promote inclusion of women, minorities, and differently abled persons.

Way forward

- RUSA can prove to be a real game changer for higher education in the country. It has prioritized the country's needs, by ensuring adequate funding to institutions it has improved the infrastructure, and also reformed the administration and management of the institutions.



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Context

- Bangladesh signs agreement to purchase 420 broad-gauge railway wagons from India.

More about agreement

- Project implementation:** It will be done by joint funding of the Government of Bangladesh and Asian Development Bank (ADB) under the **Rolling Stock Operation Improvement Project**.
- Significance**
 - These are high speed bogies with automatic air brake systems that can reach the destination safely at low cost and in less time.
 - It will help improve freight transportation by replacing old wagons of Bangladesh railway.
 - It will increase rail connectivity across the country and the neighbouring countries.

India-Bangladesh relation

Background

- The friendship between India and Bangladesh is **historic, evolving over the last 50 years**.
- India's **political, diplomatic, military and humanitarian support** during Bangladesh's Liberation War played an important role towards Bangladesh's independence.
- Post-Independence**, the India-Bangladesh relationship has oscillated as Bangladesh passed through different regimes.
- The relationship **remained cordial until** the assassination of Bangladesh's founding President Sheikh Mujibur Rahman in August 15, 1975, followed by a period of military rule and the rise of General Ziaur Rahman who became President and also assassinated in 1981.
- It **thawed again between 1982-1991** when a military-led government by General H.M. Ershad ruled the country.
- In the **last decade**, India-Bangladesh relations have warmed up, entering a new era of cooperation, and moving beyond historical and cultural ties to become more assimilated in the areas of trade, connectivity, energy, and defence.

Major Achievements of Indo-Bangla cooperation

- Land Boundary Agreement in 2015:** Bangladesh and India have **solved their border issues peacefully** by ratifying the historic Land Boundary Agreement in 2015, where enclaves were swapped allowing inhabitants to choose their country of residence and become citizens of either India or Bangladesh.
- Border security:** The Bangladesh government led by Prime Minister Sheikh Hasina **has uprooted anti-India insurgency elements from its borders, making the India-Bangladesh border one of the region's most peaceful**, and allowing India to make a massive redeployment of resources to its more contentious borders
- Trade:** Bangladesh is **India's one of the biggest trading partner in South Asia**. India has **offered duty free access to multiple Bangladeshi products**.
- Line of credit:** On the development front, India has extended **three lines of credit** to Bangladesh in recent years amounting to \$8 billion for the construction of roads, railways, bridges, and ports.
- Tourism:** Bangladeshis make up a **large portion of tourists in India**, with one in every five tourists being a Bangladeshi. Bangladesh accounts for **more than 35% of India's international medical patients and contributes more than 50% of India's revenue from medical tourism**.

What are irritants in INDO-Bangladesh relationship?

- National Register of Citizens (NRC) and the Citizenship Amendment Act (CAA):** Bangladesh had cancelled visits by ministers, and Hasina has expressed reservations about CAA. She commented that the CAA and the proposed nationwide NRC are "**internal matters**" of India, the CAA move was "**not necessary**".
- China factor:** **China is the biggest trading partner of Bangladesh** and is the foremost source of imports. India has provided developmental assistance worth \$10 billion, but **China has promised around \$30 billion worth of financial assistance to Bangladesh** to overcome India assistance. **Bangladesh's strong defence ties with China** makes the situation complicated. **China is the biggest arms supplier to Bangladesh and it has been a legacy issue**.
- Teesta river dispute:** India and Bangladesh have been engaged in a long-standing dispute over water-sharing in the Teesta. Disputes over the appropriate allocation and development of the water resources of the river have remained a subject of conflict for almost 35 years, with several bilateral agreements and rounds of talks failing to produce results. The two countries were on the verge of signing a water-sharing pact in September 2011, when Prime Minister Manmohan Singh was going to visit Bangladesh. However, West Bengal Chief minister Mamata Banerjee objected to it, and the deal was scuttled.

How has India been engaging with Bangladesh post CAA?

- **Cooperation during Covid:** India and Bangladesh have cooperated on pandemic-related moves. India provided medical aid to Bangladesh.
- **Railway cooperation:** The two countries have also cooperated in railways, with India giving 10 locomotives to Bangladesh. The first trial run for trans-shipment of Indian cargo through Bangladesh to Northeast states under a pact on the use of Chittagong and Mongla ports took place in July.
- The two sides agreed that Implementation of projects should be done in a timely manner.
- Bangladesh sought return of the Tablighi Jamaat members impacted by the lockdown in India, and early release of the 25 Bangladeshi fishermen in custody in Assam.

What is the way ahead?

- **Teesta project:** While the Teesta project is important and urgent from India's point of view, it will be difficult to address without West Bengal state government will. There is an urgent need that India addresses this issue timely to avert Bangladesh shift towards China.
- **Timely implementation of projects:** India should ensure time bound implementation of development projects or else, the latent anti-India sentiment in Bangladesh, which has been revived after India's CAA -NRC push – threatens to damage Dhaka-New Delhi ties.
- Cooperation is required for post-covid economic recovery as Bangladesh is one of the main trading partner of India.
- There is need to strengthen the Mutual trust to improve the cross-border security situations.

JOINT COMPREHENSIVE PLAN OF ACTION

GS-II INTERNATIONAL RELATIONS

Context

- US restored sanctions waivers to Iran to allow international nuclear cooperation projects, as indirect American-Iranian talks on reviving the 2015 international nuclear deal with Tehran enter the final stretch.

More about news

- The waivers had allowed Russian, Chinese and European companies to carry out non-proliferation work to effectively make it harder for Iranian nuclear sites to be used for weapons development.
- The indirect talks are aimed at having the United States return to the Joint Comprehensive Plan of Action (JCPOA) agreement and Iran resume compliance.
- JCPOA is designed to serve US non-proliferation and nuclear safety interests and constrain Iran's nuclear activities.

The 2015 JCPOA agreement

- It sought to cut Iran off a possible path to a nuclear bomb in return for lifting of economic sanctions.
- Iran agreed to cut its stockpile of enriched uranium by 98% to 300 kg and keep them at a low purity level of 3.67%. In return, the Obama administration lifted sanctions.
- Restrictions were introduced on the number of centrifuges it could keep and Iran agreed to open all its facilities to the inspection of the International Atomic Energy Agency (IAEA).

India-Iran

- **Trade with central Asia:** Iran-India relations are of vital importance for India because of Iran's Chabahar port, which plays a fundamental role in India's trade connectivity with Afghanistan, Central Asia, Eurasia and Europe.
- **Energy security:** India being the second largest importer of crude oil from Iran has begun to effectuate a plan to ensure that there is no shortage in supply by increasing imports from other countries.
- **Sanction impact:** The immediate impact of the sanctions on India was that it can no longer use US dollars for transactions with Iran.
- **Investment by Indian companies** in Iran's oil and gas development projects and pipeline projects, not permitted to open new US bank accounts and facing restrictions on loans, licences and Ex-Im credit.
- In December 2018, India and Iran agreed to revive its **2012 rupee-rial payment mechanism** to receive payments in Indian rupee, where half of the payments would be used to import products from India.

Impacts of Iran's sanctions on India

- **Energy security:** Cutting down crude imports from Iran will impair India's energy-security needs affecting inflation and slow down economic growth.
- **China's growing presence:** In the absence of Indian infrastructural development projects in Iran, the vacuum created is likely to be filled by China amid fast-changing geopolitics.

- **Lack of clear policy:** India's policy towards Iran and developments in the Middle East has been largely reactive.
- **Create a balance between U.S. and Iran:** In the backdrop of tensions between US and Iran, India has had to re-adjust its own relations with Iran while maintaining strategic ties with US and Israel.

Conclusion

- India needs to emerge out with a **clear foreign policy** and choose an alliance to not only safeguard its interests but also to play an active role on the international stage.

INDIA AND UAE (CEPA)

GS-II INTERNATIONAL RELATIONS

Context

- India and the United Arab Emirates (UAE) signed a bilateral Comprehensive Economic Partnership Agreement (CEPA).
- Memorandum of Understanding (MoU) was signed between the International Financial Services Centers Authority (IFSCA), GIFT City and the Abu Dhabi Global Market Financial Services Regulatory Authority (FSRA).
- MoU on building food corridors also signed, that would welcome investment from the UAE into food processing and logistics sectors.

Salient features of the pact

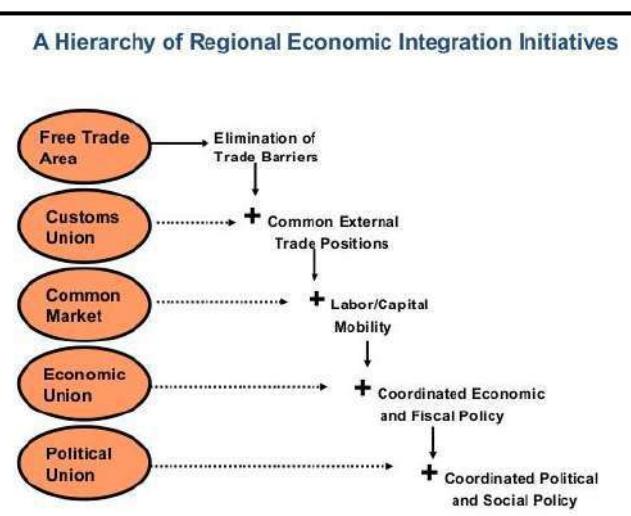
- This Free Trade Agreement (FTA) is set to **reduce tariffs for 80 per cent of goods and give zero duty access to 90 per cent of India's exports to the UAE**.
- The agreement covers areas **including goods, services, rules of origin, Customs procedures, government procurement, intellectual property rights, and e-commerce**.
- It included **robust rules of origin** to protect both economies from misuse of the agreement by third countries, including a requirement of "melt and pour" for steel exports to qualify as domestically produced products from either country.
- It provides a **permanent safeguard mechanism** to protect businesses in both countries to prevent "any unnecessary or unwarranted surge in volumes of (imports) any particular product".
- Under the agreement, the UAE has agreed to **facilitate market access and regulatory approval within 90 days for Indian pharmaceutical products and medical products** that have been approved in developed jurisdictions such as the US, the UK, the EU, Canada and Australia.
- CEPA would have **strong anti-dumping measures**.
- Deal would cover **90% of India's exports to the UAE**. Indian exports are expected to benefit from the "zero duty from day one of the entry into force of the agreement".

Significance of this pact

- Deepening of the relationship with the UAE would also **help Indian exporters gain access to other West Asian countries, Africa and some parts of Europe**.
- It would **open new routes for regional trade and connectivity and advance "collective interests" of India, Israel, the UAE and the United States**.
- It will open up to 10 lakh jobs for the young people in the country.
- It would open access to broader African and Asian markets for India.
- Substantial net gains for India will be visible in the labour-intensive industries such as gems and jewellery, leather, furniture, wood products, agriculture, medical devices, pharma and automobiles.
- It would help boost trade over goods to \$100 billion over five years.

CECA (Comprehensive Economic Cooperation Agreement) vs CEPA (Comprehensive Economic Partnership Agreement)

- These are forms of economic agreements are India's way of forging economic ties with other Asian countries like Malaysia, Singapore, and Thailand (for CECA) and Japan, Sri Lanka, and South Korea.
- CECA is a **stepping stone for CEPA**. CEPA also has a broad scope in terms of its aspects and items.
- CECA deals mostly with the elimination or reduction of tariffs while CEPA's concerns are the same with the addition of investments and services.



- “Cooperation” in CECA and “Partnership” in CEPA denotes the degree of relationship between two parties. “Cooperation” implies a cohesive but distant effort, but a partnership can entail a more personal and deeper relationship between two parties.

INDIA AND AUSTRALIA RELATION

GS-II INTERNATIONAL RELATIONS

Context

- India and Australia are set to finalise India-Australia Comprehensive Economic Cooperation Agreement (CECA). The two nations also signed a memorandum of understanding (MoU) to boost tourism.

About Comprehensive Economic Cooperation Agreement

- It is aimed at boosting economic ties between the two countries.
- The pact covers areas such as goods, services, investment, rules of origin, customs facilitation, legal and institutional issues.
- It is expected to increase bilateral trade in goods to \$100 billion within five years.

About MoU on tourism

- It will enhance cooperation and encourage Expansion of bilateral relations in tourism.
- It will facilitate Exchange of information and data related to tourism, Cooperation between tourism stakeholders, particularly hotels and tour operators, Cooperation and exchanges between training and education providers in tourism and hospitality.

India-Australia relations

Historical background:

- Before independence, Australia and India were both part of the British Empire.
- As a result of British colonisation, cricket has emerged as a strong cultural connection between the two nations, as well as the English language.
- Australia has traditionally supported India's position on Arunachal Pradesh, which is subject to diplomatic disputes between India and the People's Republic of China.
- Principle and pragmatism have been the two pillars on which the two countries have built their partnership.

Areas of cooperation

- Regional forum:** Besides both being members of the Commonwealth of Nations, both nations are founding members of the United Nations, and members of regional organisations including the Indian Ocean Rim Association for Regional Cooperation, Quadrilateral Security Dialogue (Quad) and ASEAN Regional forum.
- Democratic form of government:** India and Australia have a lot in common, as both are Westminster-style secular, multicultural democracies.
- Freedom of navigation:** The Australian foreign policy blueprint sees healthy relations with India must for stability and openness of the Indian Ocean. Both the countries have common interests in upholding international law, especially in relation to freedom of navigation and maritime security.
- Free and open Indo-Pacific:** India's and Australis share the same vision “free and open Indo-Pacific” with a rules-based order and open market economies.
- China issue:** Both countries share the same concern about China's expansionist behavior, whether in the South China Sea or along China's land border, especially the ongoing India-China border standoff.

Security cooperation

- In June 2020, India and Australia had elevated their relationship to a ‘Comprehensive Strategic Partnership’.
- They hold the “Two-Plus-Two” dialogue meets to discuss vital security issues.
- India and Australia signed Mutual Logistics Support Agreement to allows each country to use the other's bases for the refuelling and maintenance of aircraft and naval vessels
- Military cooperation between Australia and India includes the regular joint exercise AUSTRA HIND (a Special Forces Army Exercise), AUSINDEX (a bilateral maritime exercise), KAKADU (a multilateral maritime exercise), and Exercise Pitch Black (a multilateral air exercise).
- Recently, Australia joined the Malabar exercise, which also include the United States and Japan.

Nuclear cooperation

- In 2012, Australian government decided to sell uranium to India despite India not being a signatory to the nuclear Non Proliferation Treaty.
- Canberra's overturning of a ban on uranium sales to India was seen as a removal of a diplomatic thorn between the two nations, potentially opening up a new and growing market for Australian suppliers.

The Treaty on the Non-Proliferation of Nuclear Weapons or Non-Proliferation Treaty

- It is an international treaty whose objective is to prevent the spread of nuclear weapons and weapons technology, to promote cooperation in the peaceful uses of nuclear energy, and to further the goal of achieving nuclear disarmament and general and complete disarmament.
- India, Israel, Pakistan and South Sudan**, has not joined it.

People-to-people ties

- Growing people-to-people ties, including an increasing Indian diaspora in Australia as well as Indian students choosing Australia for higher education, tourism, sports etc,
- There are already more than 100,000 Indian students who are studying in Australia, more than two-thirds of whom are pursuing higher education.

Economic relations

- India was Australia's first major trading partner with imports through the East India Company, exports from Australia to India dates back to the late 18th century, when coal from Sydney and horses from New South Wales were exported to India.
- Trade is **highly skewed towards Australia**.
- India is Australia's **fifth largest trade partner**.
- Australia mainly exports **Coal, services (mainly education), vegetables for consumer consumption, gold, copper ores and concentrates**, while India's chief exports are **refined petroleum, services (professional services such as outsourcing), medicaments, pearls, gems and jewelry**.
- India and Australia have established a **\$100 million Strategic Research Fund**.
- Australia is one of the **most important tourism generating markets for India** (ranked 4th in terms of Foreign Tourist Arrivals to the country in 2019 and contributing 3.4% in total tourism share of foreign tourists in the country).

Way Forward

- Australia and India should negotiate to revive the **Comprehensive Economic Cooperation Agreement (CECA)** to improve trade and market access.
- There is need to address the **gaps in the educational cooperation** between India and Australia and associated **issues of attack on Indian students**.
- There is also a need to promote and popularize the **New Colombo Plan of Australia**, which encourages Australian undergraduate students to study in Indo-Pacific countries in general and India in particular.

RUSSIA-UKRAINE CRISIS

GS-II INTERNATIONAL RELATIONS

Context

- US authorities have warned Russia not to invade Ukraine and urged both countries to return to a set of agreements designed to end a separatist war by Russian speakers in eastern Ukraine.

What are Minsk Agreements?

MINSK I

- Ukraine and the Russian-backed separatists agreed a 12-point ceasefire deal in the capital of Belarus in September 2014.
- Its provisions included **prisoner exchanges, deliveries of humanitarian aid and the withdrawal of heavy weapons**
- The agreement **quickly broke down**, with violations by both sides.

MINSK II

- Representatives of **Russia, Ukraine, the Organisation for Security and Cooperation in Europe (OSCE)** and the leaders of two pro-Russian separatist regions signed a **13-point agreement** in February 2015 in Minsk.
- The leaders of **France, Germany, Russia and Ukraine** gathered there at the same time and issued a declaration of support for the deal.
- A major blockage has been **Russia's insistence that it is not a party to the conflict and therefore is not bound by its terms**.

The 13 points were, in brief:

1. An immediate and comprehensive ceasefire
2. Withdrawal of all heavy weapons by both sides
3. Monitoring and verification by the OSCE
4. To start a dialogue on interim self-government for the Donetsk and Luhansk regions, in accordance with Ukrainian law, and acknowledge their special status by a resolution of parliament.
5. A pardon and amnesty for people involved in the fighting
6. An exchange of hostages and prisoners.
7. Provision of humanitarian assistance.
8. Resumption of socio-economic ties, including pensions.
9. Restore full control of the state border by the government of Ukraine.
10. Withdrawal of all foreign armed formations, military equipment and mercenaries.
11. Constitutional reform in Ukraine including decentralisation, with specific mention of Donetsk and Luhansk.
12. Elections in Donetsk and Luhansk on terms to be agreed with their representatives.
13. Intensify the work of a Trilateral Contact Group including representatives of Russia, Ukraine and the OSCE.

Russia-Ukraine conflict

Background

- Ukraine and Russia share hundreds of years of cultural, linguistic and familial links.
- As part of the Soviet Union, Ukraine was the second-most powerful Soviet republic after Russia, and was crucial strategically, economically and culturally.
- Ever since Ukraine split from the Soviet Union, both Russia and the West have vied for greater influence in the country in order to keep the balance of power in the region in their favour.

What are the roots of the Russia-Ukraine standoff?

- Ukraine, which was part of the Russian empire for centuries and won independence as the USSR broke up in 1991.
- The country has moved to shed its Russian imperial legacy and **forge increasingly close ties with the West**.
- A decision by Kremlin-leaning Ukrainian President Viktor Yanukovych to reject an association agreement with the European Union in favor of closer ties with Moscow sparked mass protests that led to his ouster in 2014.
- **Russia responded by annexing Ukraine's Crimean Peninsula**.
- Ukraine and the West accused Russia of sending its troops and weapons to back the rebels.
- A **2015 peace agreement** brokered by **France and Germany** helped to end large-scale battles, but efforts to reach a political settlement have failed.

The latest Russian buildup

- Ukraine says Russia has amassed 90,000 troops at the border, and US intelligence reports say that a **Russian invasion of Ukraine is possible**.
- Russia is not happy with efforts of U.S. and EU to induct Ukraine into U.S. lead military alliance NATO.



What does Moscow want?

- Russia has accused Ukraine of failing to honour the 2015 peace deal and criticized the West for failing to encourage Ukrainian compliance.
- Russia has rejected a four-way meeting with Ukraine, France and Germany, saying it's useless in view of Ukraine's refusal to abide by the 2015 agreement.
- It strongly criticized the U.S. and its NATO allies for providing Ukraine with weapons and holding joint drills.
- Moscow wants to see **an end to NATO's eastward expansion**, after much of eastern Europe joined the alliance following the collapse of the Soviet Union.
- Russia describes Russians and Ukrainians as "one people" and claims that Ukraine has unfairly received historic Russian

lands during Soviet times.

What is the US' role in these tensions?

- For the United States and the European Union, Ukraine is a crucial buffer between Russia and the West.
- As tensions with Russia rise, the US and the EU are increasingly determined to keep Ukraine away from Russian control.

Recent developments

- Russian President Vladimir Putin recognised the independence of separatist regions in eastern Ukraine and paved the way to provide them military support.
- The rebel-held self-declared **Donetsk** and **Luhansk** People's Republics (DNR/DPR and LNR/LPR) in Eastern Ukraine have started evacuating civilians to the Rostov region in Russia claiming an impending Ukrainian military offensive.
- The Donbass region**, comprising the Donetsk and Luhansk oblasts of Ukraine, has been at the centre of the conflict since March 2014 when Moscow invaded and annexed the Crimean Peninsula.

How Western governments are responding?

- Western governments are warning Moscow that any movement of military forces across the Ukrainian border would draw a strong response, including stringent financial sanctions.
- Donbass region recognition "would further undermine Ukraine's sovereignty and territorial integrity, constitute a gross violation of international law, (and) call into further question Russia's stated commitment to continue to engage in diplomacy to achieve a peaceful resolution of this crisis".

How UN is responding?

- The United Nations opened an **emergency Security Council** meeting on the deepening Ukraine crisis.
- Russia, which currently holds the rotating presidency of the Council, had wanted the Security Council session to be closed but the United States insisted it be public.

India's stand

- India adopted a **balanced approach** at the UN Security Council where it called for a **diplomatic dialogue to de-escalate the situation**.
- Adoption of "**Quiet and constructive diplomacy**" is the need of the hour and any step that could escalate the tension should be avoided.
- India pitched for **immediate de-escalation of the situation**.

Ganging up at Ukraine's border

NATO is planning to establish four new multinational battlegroups - totalling 4,000 troops - in Romania, Bulgaria, Hungary and Slovakia, in response to Russia's military build-up around Ukraine



INDIA-MALDIVES DEFENCE RELATION

GS-II INTERNATIONAL RELATIONS

Context

- India and Maldives signed a defence **Line of Credit agreement worth \$50 million** during Defence Cooperation Dialogue. The defence Line of Credit will "facilitate capability building in the maritime domain".

- The Defence Cooperation Dialogue is one of India's policy-level frameworks that aims to strengthen long-standing and mutually beneficial bilateral defence ties.
- The first Defence Cooperation Dialogue was held in July 2016 during the presidency of Abdulla Yameen Abdul Gayoom and the second DCD was held in January 2019.

Key highlights of the Defence Cooperation Dialogue

- Both sides agreed to maintain peace and security in the Indian Ocean Region.
- Both sides to convene the first meeting of the Joint Working Group on Counter Terrorism, countering Violent Extremism and De-radicalisation at the earliest.
- The defence and security collaboration focus on combating terrorism in "all its forms and manifestations".
- For deepening security cooperation, an agreement to develop, support and maintain a Maldives National Defence Force Coast Guard Harbour at Sifvaru was also signed.
- The Maldivian side assured Delhi of its support for permanent membership of India at the "expanded and reformed UNSC".

Why Maldives matters to India?

Strategic location

- The location of the Maldives, at the intersection of commercial sea-lanes running through the Indian Ocean, makes it strategically important for India, particularly in the light of China's growing aggression in the region.
- Maldives holds strategic importance for India under the Modi government's 'Neighborhood First' policy due to its location in the Indian Ocean.
- The Eight Degree Channel is one of the major maritime lanes of the world.
- Stability, maturity and democratic systems in the Maldives can ensure peace and security in the Indian Ocean.

India-Maldives defence cooperation

- Since 1988, defence and security have been major areas of cooperation between India and Maldives. This cooperation extends to assisting the Maldives with defence training and equipment requirements.
- In 2016, the two countries also signed a comprehensive action plan to consolidate defence partnership.
- Phase -I extension of the Composite Training Centre (CTC) of the MNDF were completed through an Indian grant.
- The Trinkat-class patrol vessel was gifted to the Maldivian Coast Guard in 2006. This vessel is used by the Maldives for coastal surveillance and for combating transnational crimes such as drug trafficking, illegal, unreported and unregulated fishing.
- India gave two Dhruv Advanced Light Helicopters (ALH) to the Maldives in 2010 and 2015 both of which were to be used for ocean search-and-rescue operations, maritime weather surveillance and for airlifting patients between islands.
- Capacity building:** India provides the largest number of training opportunities for Maldivian National Defence Force (MNDF), meeting around 70 per cent of their defence training requirements.

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RANK 8



STEM CELLS AND HIV

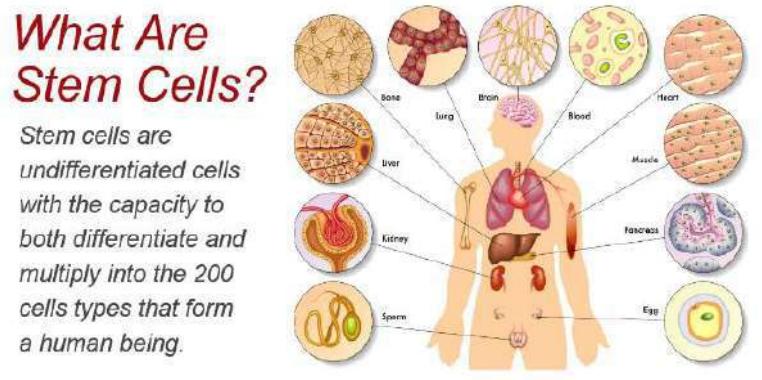
GS-II HEALTH

Context

- A U.S. patient with leukemia has become the first woman and the third person to date to be cured of HIV after receiving a stem cell transplant from a donor who was naturally resistant to the virus that causes AIDS.

Stem Cells

- About:** A stem cell is a cell with the unique ability to develop into specialised cell types in the body.
- Production:** Blood stem cells are produced in the bone marrow and can become any kind of blood cell the body needs. Stem cells are constantly dividing and maturing into different types of blood cells, replacing older and worn-out blood cells in the body. They produce billions of new blood cells every day.
- Inadequate production:** If the stem cells cannot make enough new blood cells, many serious health problems can occur. These problems may include infections, anemia or bleeding.



Stem Cell Transplantation

- About:** Stem cell transplantation (SCT), sometimes referred to as bone marrow transplant, is a procedure in which a patient receives healthy stem cells to replace damaged stem cells.
- Engraftment:** After the stem cells are infused into the patient's bloodstream, they travel to the bone marrow and begin the process of forming new, healthy blood cells including white blood cells, red blood cells and platelets. This process is called "engraftment."

STEM CELLS CLASSIFICATION		
Class	Cell types	Mature cell lineages
Totipotent	Embryonic stem cells (e.g. zygotes)	Differentiate into any cell types
Pluripotent	Embryonic stem cells, iPSCs	Differentiate into cells from any of the three germ layers
Multipotent	Adult stem cells (e.g. mesenchymal, hematopoietic)	Differentiate into a limited range of cell types
Oligopotent	Adult stem cells (e.g. lymphoid, myeloid)	Differentiate into a limited number of cell types
Unipotent	Adult stem cells (e.g. satellite, epidermal)	Differentiate into single cell type

DEFINITION	Adult Stem Cells	Embryonic Stem Cells
POTENCY	Multipotent	Pluripotent
GROWING IN CELL CULTURES	Very challenging	Relatively easy
EXAMPLES	Present in skeletal muscle, liver, pancreas, brain, eye, dental pulp, skin, bone marrow, blood and the lining of the gastrointestinal tract	Present in the inner cell mass of the blastocyst which gives rise to the three germ layers

What is HIV?

- Human immunodeficiency virus or HIV is an infection that attacks the immune system by destroying the body's immune cells called CD4, which help it respond to infection.
- Once HIV attacks the CD4 cells, it starts replicating and destroying the cells, weakening the body's immune system and making it more prone to certain "opportunistic infections" that take advantage of the weak immune system.
- In a nutshell, if HIV is not treated, it can lead to AIDS (acquired immunodeficiency syndrome).

Transmission

- Bodily fluids such as blood, semen, vaginal fluids, rectal fluids and breastmilk can be carriers for HIV.
- It can be transmitted through unprotected sex, transfusion of contaminated blood, sharing needles and syringes, and from a mother with HIV to her infant during pregnancy.
- Typically, the time between HIV transmission and AIDS diagnosis is 10-15 years, although it may occur sooner.

Prevention

- There's no vaccine to prevent HIV infection and no cure for AIDS.
- Protecting oneself from infection is the way ahead.

GENERAL STUDIES - III

INLAND WATERWAYS

// GS-III ECONOMY

Context

- India has offered Bangladesh the use of our inland waterways system up to Varanasi, which can help in trade using the India-Nepal connectivity.

Background

- The Inland Waterways Authority of India (IWAI) came into existence on the 27th October, 1986 for the development and regulation of inland waterways for shipping and navigation purposes.
- The Authority primarily undertakes projects for development and maintenance of IWT infrastructure on national waterways through grants received from the Ministry of Shipping.

THE 13 NATIONAL WATERWAYS NOW IN OPERATION

THE LINKS AND THE LENGTHS

Link	Description	Length (km)
NW-1	Ganga-Bhagirathi-Hooghly (Haldia-Allahabad)	1,620 km
NW-2	Brahmaputra river	891 km
NW-3	West Coast Canal-Champakara Canal-Udyogmandal Canal	205 km
NW-4	Krishna (Muktiyala-Vijayawada)	82 km
NW-10	Amba river	45 km
NW-83	Rajpuri Creek	31 km
NW-85	Revadanda Creek-Kundalika river	31 km
NW-91	Shastri river-Jaigad Creek System	52 km
NW-68	Mandovi river (Usgaon Bridge-Arabian Sea)	41 km
NW-111	Zuari river (Sanvordem Bridge-Marmugao Port)	50 km
NW-73	Narmada river	226 km
NW-100	Tapi river	436 km
NW-97	Sunderbans Waterways	172 km

Details

- Large rivers and backwaters provide around 14,500 kilometres of inland waterways in India where only 3,700 kilometres of these are accessible to mechanised boats.
- India has a long coastline of around 7,516 kilometres along which lie 12 major and 181 medium and small ports.
- Navigable waterways are more fuel-efficient, environment friendly and cost-effective modes of transport.
- The country has increased the modal share of cargo from 0.5 per cent to 2 per cent and has witnessed 19 per cent year-on-year growth in cargo volumes over the last five years.

Mode	Highways	Railways	IWT
Freight (Rs./T.km)	2.50	1.36	1.06

Advantages of Inland waterways

Plenty of Potential...

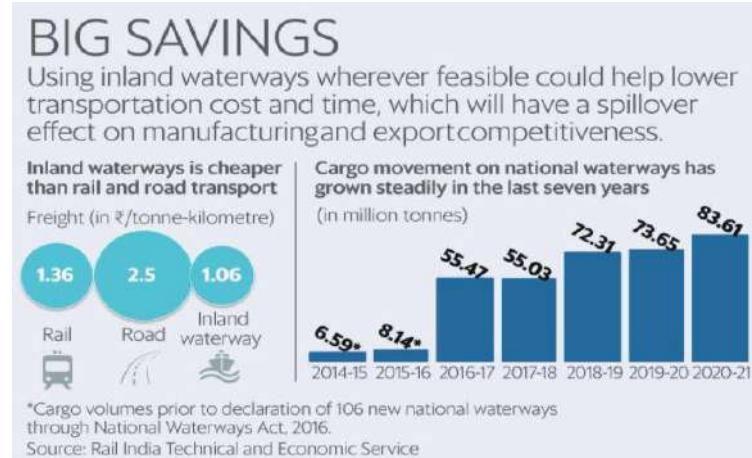
India has a number of rivers, canals, creeks

14,500 KM
Length of navigable inland waterways in India

... And Benefits

COST SAVINGS:	ENVIRONMENT FRIENDLY:	SUPPLEMENTARY MODE:
1 horsepower moves 150 kg on road, 500 kg on rail and 4,000 kg on water	Least fuel consumption per tonne/km CO2 emission is 50% of trucks	Reduces pressure on road and rail
1 litre of fuel moves 24 tonne/km on road, 85 tonne/km on rail and 105 tonne/km on water	Negligible land requirement Safe mode for hazardous goods	Reduces congestion and accidents on road
Cost of developing waterways much lower than rail and road		
Reduces transportation losses		

1. Big savings



2. Cheapest means of transport

- Rivers form a natural highway which does not require any further cost for construction or maintenance.
- The cost of construction and maintenance of the canals is also meagre and they are used, not only for the purpose of transport but also for irrigation purposes. Moreover, the cost of operation of inland water transport is very low.
- Therefore, it is the cheapest mode of transport for carrying goods from one place to another.
- 3. **Energy-efficiency:** Waterways are a fuel-efficient and environment-friendly mode of transportation. The mechanised boats and steamers also consume much lesser fuel and do not pollute the surrounding
- 4. **Easy transport of bulky goods:** Waterway can carry much larger quantities of heavy and bulky goods such as coal, and timber, etc
- 5. **Less/no friction:** Since the boats and steamers flow in the direction of water the friction force is less as compared to road and railways.
- 6. **Environmental-friendly:** The boats and steamers consume much less fuel and do not pollute the surrounding.
- 7. **Low maintenance cost:** 30% lower than the railways and 60% lower than road.

Initiatives taken by the Government to promote Inland waterways

1. **Jal Marg Vikas Project for capacity Augmentation of NW-1** (Project Cost: 4633.81 cr.): Construction of Multimodal

- Terminals, Construction of Lock gate, Enhancement of Least Available Depth (LAD)
2. **Development of Eastern Grid:** Connectivity with Bangladesh, Nepal, Bhutan and North Eastern States 10 Protocol Routes covering 2650 Km and 13 Port of Call in each country, 600 vessels on IBP routes, 3600 voyages
 3. **E- Initiatives- CAR-D and PANI & IBP Portals:** For collection Compilation of Cargo data, dissemination of National Waterway infrastructure and issue inward/ outward permission to ply on IBP routes respectively
 4. **National Waterways Act, 2016:** Under this act, Parliament has declared 111 National Waterways which cover a total length of 20300 Kms and spread across 24 States.
 5. **Sagarmala Program:** Promote port-led development through 14,500 km of potentially navigable waterways
 6. **Arth Ganga** for holistic and sustainable development of National Waterways-1 for freight, passenger movement and recreation purposes.
 7. **Gati Shakti National Master Plan:** It will incorporate the existing infrastructure schemes of different departments and state governments like Bharatmala, Sagarmala, inland waterways, UDAN etc.

Conclusion

- The inland waterways are cost-effective, fuel-efficient, and safe and secure mode of transportation for goods and passengers. Going forward, the Government's initiatives must be implemented efficiently to realise the full potential of Inland water transport.

PRICE SUPPORT VS INCOME SUPPORT

GS-III ECONOMY

Context

- Although the farmers' agitation that lasted over one year was finally called-off, their demand for a law guaranteeing minimum support prices (MSP) for crops is continuing.

Background

- The Centre has been announcing MSP for crops every year for two seasons-kharif and rabi since 1965, based on the recommendation of the Commission for Agricultural Costs and Prices (CACP).
- Initially, it was announced only for wheat and paddy. Over the years, more crops were added.
- The MSP is currently offered for 23 crops.
- Historically, the MSP is determined based on the cost of cultivation, input prices, supply and demand of crops, the price level in world markets, etc.
- Since kharif 2018, the MSP has been fixed based on the cost A2+FL plus 50 percent formula as recommended by the MS Swaminathan Committee.

Issues with legalising MSP

1. It will cost annually about Rs. 17-lakh crore for purchasing the 23 mandated crops.
2. there will be a demand to include other crops, particularly fruits and vegetables, whose current production is about 320 million tonnes. Dairy farmers may also demand an MSP for milk and other products.
3. Moreover, it will mostly benefit farmers owning over 2 hectares of land.

Further problems with MSP

1. The issue of legalising the MSP arises mainly because of the exploitation by middlemen and private traders.
2. The SAS data of 2018-19 suggests that the awareness about MSP-based procurement is poor. This might be higher among marginal and small farmers, who constitute 86 per cent of all farmers. As a result private traders and middlemen exploit farmers by setting lower prices.
3. Per SAS data of 2018-19, the number of farmer households that sold their crops to procurement agency is only around 5 per cent in most crops

Price Support system

MSPs:

- It is the price offered by the government to procure the farmers' produce during the season.
- The objective behind MSP is to provide a fair return to efficient farmers and to protect the consumer's interests by keeping the prices of food and other agriculture commodities at reasonable levels.
- The government has made the announcement that the MSP for the majority of the Kharif crops and rabi crops, will be fixed at 1.5 times the cost of production. This is based upon the A2+FL cost (which is the actual paid out cost plus the imputed value of family labour)
- The increment in the MSP by 1.5 times could have an impact on the consumer price index (CPI) inflation.

- If the government agrees to settle on 1.5xC2 cost (which is the comprehensive cost including the imputed rent and the interest on owned land and capital), the inflationary impact could be significantly huge, which might even breach the RBI's CPI target of 5% by more than 200 bps.

Income Support System

Price compensation scheme (PCS)

- MSP is available for limited crops, therefore, the government has developed an institutional mechanism to compensate for the difference in price where the market price is less than MSP, such as the Bhavantar Bhugtan Yojana (BBY) adopted by the government of Madhya Pradesh.
- The main positive under BBY is the price support given to the farmers.
- Case study: the total arrival of soybeans at Madhya Pradesh mandis increased by 150% but the price declined by only 10%. But on the other hand, the BBY scheme in MP could benefit only 23% of production,
- Hence, the doubt arises as to how it will benefit the majority of farmers at an all India level.
- The total financial costs of running up BBY/PCS at the national level is estimated to be at the levels ranging from Rs 56,518 crore to Rs 1.69 trillion annually depending upon the price.
- There is also an issue of manipulation done by traders and lower level mandi officials to depress both prices and inflate the production figures.

Way Forward

- In the short term, instead of either price or income working in isolation, India needs to adopt both the price and income support to work together for farmers.
- A hybrid of the two schemes that is. 1.5 times MSP and PCS will be a suitable approach.
- For the cereals, which are largely procured by both the Central and the state governments, we should continue with the procurement at the MSP which is 1.5 times the cost of production.
- Crops like the groundnut, sesamum, niger-seed, and soybean should also be brought under the 1.5 times MSP scheme as these are procured to a limited extent with less than 10% of the total production, which also varies from state to state.
- The **agriculture investment support scheme**, which is easy to implement and is without leakages, has to be avoided because it would be a huge fiscal burden.
- The long term solution to the farmer's distress could be to improve the supply chain, establish the agro-processing zones and create better agri-logistic platforms.
- The losses in efficiency may far exceed the price or income support that the government intends to extend to the farmers. Therefore, we should think rationally now, and support farmers through less distortionary policies by intermixing both practises which will go a long way in bringing back the rural economy from the distress.

MILLET REVOLUTION

GS-III ECONOMY

Context

- Prime Minister Narendra Modi has talked of "a millet revolution" to "stamp out malnutrition from the country". Also, recently, both Telangana and Andhra Pradesh have decided to incentivise the farmers to shift from paddy to alternative crops such as millets.

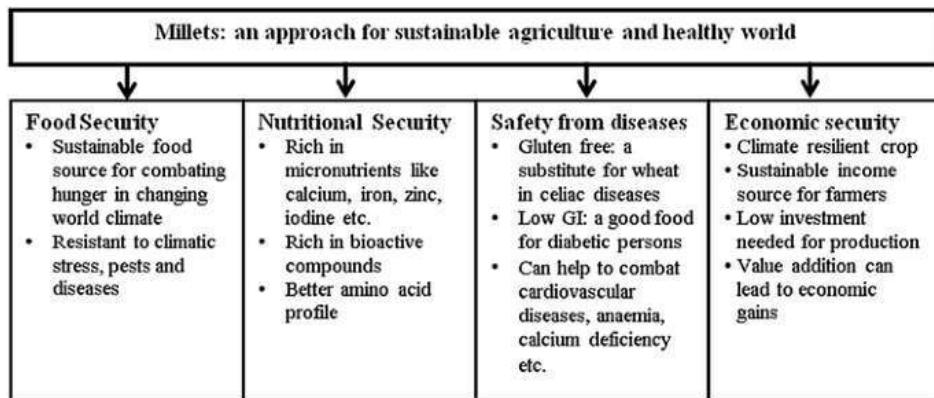
Mainstreaming of Millets

- NITI Aayog signed a Statement of Intent with the United Nations World Food Programme (WFP) in order to promote the production of millet. This could be the preliminary step towards the resolution of the UNGA to declare 2023 as the International Year of Millets.

Background

- The Government of India observed the year 2018 as the year of millets, followed by which the government has taken numerous steps to encourage the production of millets.
- A centre for excellence was established and the Nutri-cereals were integrated with the National Food Security Act.
- Despite the multiple initiatives taken to boost the overall production of millets, there still are challenges in the terms of production, distribution channels and adaptability amongst the consumers.

Benefits of Millets



Nutritional Security:

- Millets are the least expensive and are nutritionally superior to rice and wheat owing to their high protein, vitamins, minerals and fibres.
- Millets are also rich in magnesium and calcium.
- The high iron content can help fight the high prevalence of anaemia in Indian women of reproductive age and in infants.

Climate Resilient:

- Millets are drought-resistant crops and have a short growing season (of approximately 70-100 days, as against 120-150 days for paddy or wheat) and it requires far less water(350-500 mm versus 600-1,200 mm for paddy/wheat).

Economic Security:

- Cultivation of millets requires low investment, so these can prove to be a sustainable income source for farmers.

Can Tackle Health Issues:

- Millets can also help solve the lifestyle problems and health challenges such as obesity and diabetes as they are gluten-free and have a low glycemic index (a relative ranking of carbohydrates in foods according to how they affect blood glucose levels).

Problems with Millet Cultivation In India

1. **No market to sell millet crops:** In certain village areas such as that of North Karnataka, farmers are not getting the market to sell their crops.
2. **Low bulk prices of Millets in India and high MRP:** Farmers get a low pay for millets which urges them to lower millet production and grow other crops instead to earn a better income.
3. **Government schemes and efforts are unable to reach the farmers:** All schemes and plan benefits are limited to the big cities, due to which farmers are not at all aware of the programs.
4. **Difficult post-harvest operations** owing to no facilities of transport, warehouse, access to markets etc. add to these problems.
5. **Easy availability of other grains:** such as wheat due to a good network of Public Distribution System gives tough competition for the demand of millets in India.
6. **Low investment** in millet product development and promotion/ advertisements.

Steps taken by the Government to promote production

- **Intensive Millets Promotion(INSIMP):** Launched in 2012 as a part of the Rashtriya Krishi Vikas Yojana(RKVV), wherein Rs.300 crores has been allocated to advancing equipment and technology related to millet harvest and increasing productivity of inefficient areas.
- **Rainfed Area Development Programme:** Developing and identifying new areas receiving adequate rainfall for millet farming as a part of the Rashtriya Krishi Vikas Yojana(RKVV).
- **National Food Security Mission (NFSM):** Targets to achieve thirteen million tonnes of additional food grains production comprising of rice-5 MT, wheat- 3 MT, pulses3 MT and Nutri-cum-coarse cereals-2 MT by 2019- 20 with an additional objective to enhance post-harvest value addition for better price realisation to farmers.
- **Special Action Plan for better production of Nutri Cereals (Millets):** Focus on increasing production and productivity of Nutri Cereals in certain states.
- **Declaration of 2023 as international year of Millets.**
- The government also initiated the 'Integrated Cereals Development Programmes in Coarse Cereals' under Macro Management of Agriculture.

Conclusion

- The millet agriculture industry is a big boon to India in terms of health and employment. Though the industry is declining, the government schemes seem to encourage the millet culture. Hopefully, it will take on a rise in the coming future. Thus, we need to focus on supply side factors (incentive to farmers, high yielding crops) and demand side factors (value addition, labelling, awareness generation, inclusion under ICDS, MDM etc.) to ensure the success of Millet Revolution.

ZERO BUDGET NATURAL FARMING

GS-III ECONOMY

Context

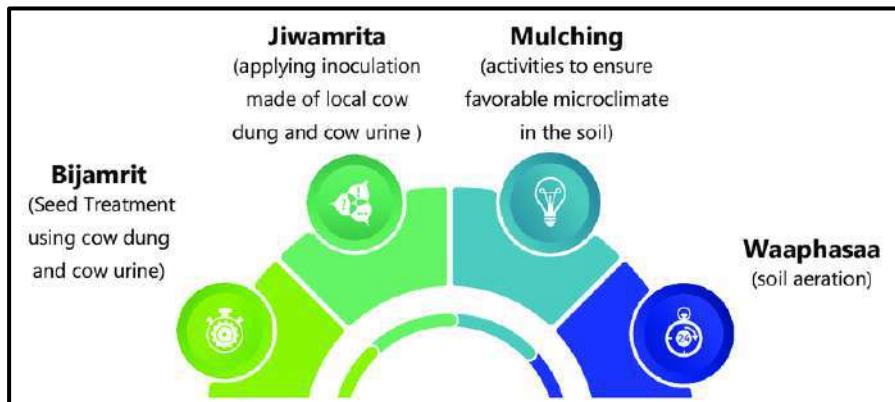
- Prime Minister Narendra Modi's has recently set a vision to minimise the dependence of farmers on purchased inputs through ZBNF that reduces the cost of agriculture by relying on traditional field-based technologies which leads to improved soil health through natural farming should be fulfilled.

What is it?

- Natural farming is a system where the laws of nature are applied to agricultural practises.
- This method works along with the natural biodiversity of each farmed area, encouraging the complexity of living organisms, both plants, and animals that shape each particular ecosystem to thrive along with food plants.
- The word 'budget' refers to credit and expenses, thus the phrase 'Zero Budget' means without using any credit, and without spending any money on purchased inputs. 'Natural farming' means farming with Nature and without chemicals.

Features of ZBNF

- The premise of ZBNF is that soil has all the nutrients plants need. To make these nutrients available to plants, we need the intermediation of microorganisms. For this, "four wheels of ZBNF" have been suggested:
 - Bijamrit** is the microbial coating of seeds with formulations of cow urine and cow dung
 - Jivamrit** is the enhancement of soil microbes using an inoculum of cow dung, cow urine, and jaggery
 - Mulching** is the covering of soil with crops or crop residues which creates humus and encourages the growth of friendly microorganisms
 - Waaphasa** is the building up of soil humus to increase soil aeration
- According to ZBNF principles, plants get 98% of their supply of nutrients from the air, water, and sunlight. And the remaining 2% can be fulfilled by good quality soil with plenty of friendly microorganisms. (Just like in forests and natural systems)
- The system requires cow dung and cow urine obtained from Indian-breed cows only. Desi cow is apparently the purest as far as the microbial content of cow dung, and urine goes.
- In ZBNF, multi-cropping is encouraged over the single crop method.



Similarities between Organic Farming and ZBNF

- Organic and natural farming both discourage farmers from using any chemical fertilisers, pesticides on plants and in all agricultural practises.
- Both farming methods encourage farmers to use local breeds of seeds, and native varieties of vegetables, grains, pulses and other crops.
- Both farming methods promote non chemical and homemade pest control methods.

Differences between Organic Farming and ZBNF

- In organic farming, organic fertilisers and manures like compost, vermicompost, cow dung manure, etc. are used and added to farmlands from external sources. While in natural farming decomposition of organic matter by microbes and earthworms is encouraged right on the soil surface itself, which gradually adds nutrition to the soil over the period.
- Organic farming requires basic agro practises like ploughing, tilling, mixing of manures, weeding, etc. to be performed. While in natural farming there is no ploughing, no tilting of soil and no fertilisers, and no weeding is done just the way it would be in natural ecosystems.

- Organic farming is still expensive due to the requirement of bulk manures, and it has an ecological impact on surrounding environments; whereas, natural agriculture is an extremely low-cost farming method, completely moulded with local biodiversity.

Subhash Palekar, who coined the term ZBNF, is training farmers in different states regarding the techniques of ZBNF. But experts claim that yield is less in ZBNF.

Benefits of ZBNF

- It will help reduce the cost of farming and improve the welfare of farmers.
- It also helps to improve the health of the soil.
- In the longer run, the productivity of the farmland will not be reduced, as, in other farm practises, the overall productivity of the farmland gets reduced overtime after using chemical fertiliser.
- It also lowers down the toxicity in the food chain.
- Optimum utilisation of water and reduce water consumption (85%)
- Promote diversification of agriculture- towards other crops and towards livestock rearing. This can also lead to reduction in the risks and enhance nonfarm income.

Criticism or drawback of zero budget farming

- The green revolution came to ensure food security in India however due to mismanagement and excess use of the fertiliser it created many environmental problems.
- Experts of farming still doubt zero budget farming practice, as in Sikkim state, it has been noticed that the yield of the farmers is declining due to organic farming.
- Zero budget farming is not a full-proof farming practice where it can be ensured that yield will not decline and food security of the country will not get hampered.
- Family labour cost, rent of land, cow maintenance, electricity cost, etc are ignored in the cost calculation
- Fertiliser and microbes are not uniform in all the soils; a huge lack of humus in Indian soils can make ZBNF costly. The only solution for all the Indian soils problem, may not be a practical solution.

Way Forward

- There are a host of structural marketing issues which need to be addressed immediately before aiming to achieve the ambitious goal of Zero Based Natural Farming. For example:
 - Strengthening the agricultural market infrastructure.
 - Ensuring that the procurement mechanism applies to all foodgrain and non-food grain crops in all the States.
 - Effective implementation of the price deficiency payment system for the selected crops.
 - Ensuring that minimum support prices (MSP) are fixed in consonance with the cost of cultivation.
 - MGNREGA should also be linked with farm work in order to ensure that there is a reduction in the cost of cultivation which has escalated at a faster pace over the past few years.

NEW WAREHOUSING POLICY

GS-III ECONOMY

Context

- The government has proposed a new warehousing policy that will set the roadmap for development of exclusive warehousing zones in public-private partnership (PPP) mode to ease transportation and reduce logistics cost in India.

Warehousing in India

- Meaning:** 'Warehousing' refers to the activities involving storage of goods on a large scale in a systematic and orderly manner and making them available conveniently when needed.
- Present Status:** The Indian warehousing industry, estimated to be worth INR 561 Billion (excluding inventory carrying costs, which amount to another -INR 4,340 billion) in 2017, is estimated to grow at 9.5% CAGR to reach INR 968 Billion by 2024.

Importance

- Warehousing constitutes only 15%-35% of the total logistics costs but its importance is significant with respect to the role it plays in the smooth functioning of supply chain networks.

Objectives of New Warehousing Policy

- Logistics boost:** The new policy is aimed at improving logistics throughout the country. It will help **cut India's logistics cost** which is 14%-16% of gross domestic product (GDP) compared to 8%-10% of GDP in China and 12%-13% in the US.
- Supply chain management:** As the modern warehouses will provide the facilities of cold-storage chains and will be able to store all kinds of cargo-wet and dry.
- Decongesting cities:** These facilities are expected to come up outside city centres so that large trucks carrying the cargo do not need to enter the city to unload their goods.
- Fuel efficiency:** This will help boost bulk carrying capacity and also help save fuel.
- Curbing air pollution:** The idea is to minimise pollution and traffic congestion in major cities.
- NHAI:** The National Highways Authority of India (NHAI) will be the implementing agency

Cost efficiency

Warehousing zones will help cut India's logistics cost, which is 14%-16% of gross domestic product (GDP), compared to 8%-10% of GDP in China and 12%-13% in the US.

		GDP per capita (in \$)	Warehousing stock (mn sq. m.)	Warehousing stock per capita (sq. m.)
	US	55,753	1,446	4.4
	UK	43,710	73	1.09
	China	8,242	1,060	0.8
	India	2,152	30.9	0.02

Source: World Bank, China Logistics Research Association, Knight Frank Research

Problems of Warehousing in India:

- Underdeveloped Third-party logistics:** 3PL is a concept where a single logistics service provider manages the entire logistics function for a company. There are only a few third-party logistics providers in India.
- Dominated by the unorganised players:** Approximately 90% of the warehousing space in the country is controlled by unorganised players, which manage small-sized warehouses.
- Highly Fragmented Warehouses:** The domestic warehousing market in India is highly fragmented with most of the warehouses having an area less than 10,000 sq. ft.
- Low mechanisation in warehouses:** Higher dependence on manual loading and unloading of cargo.
- No or very low adoption of IT infrastructure for tracking of cargo.**
- Higher storage costs and handling losses and lack of cold chain infrastructure.

DEFENCE MANUFACTURING

GS-III ECONOMY

Context

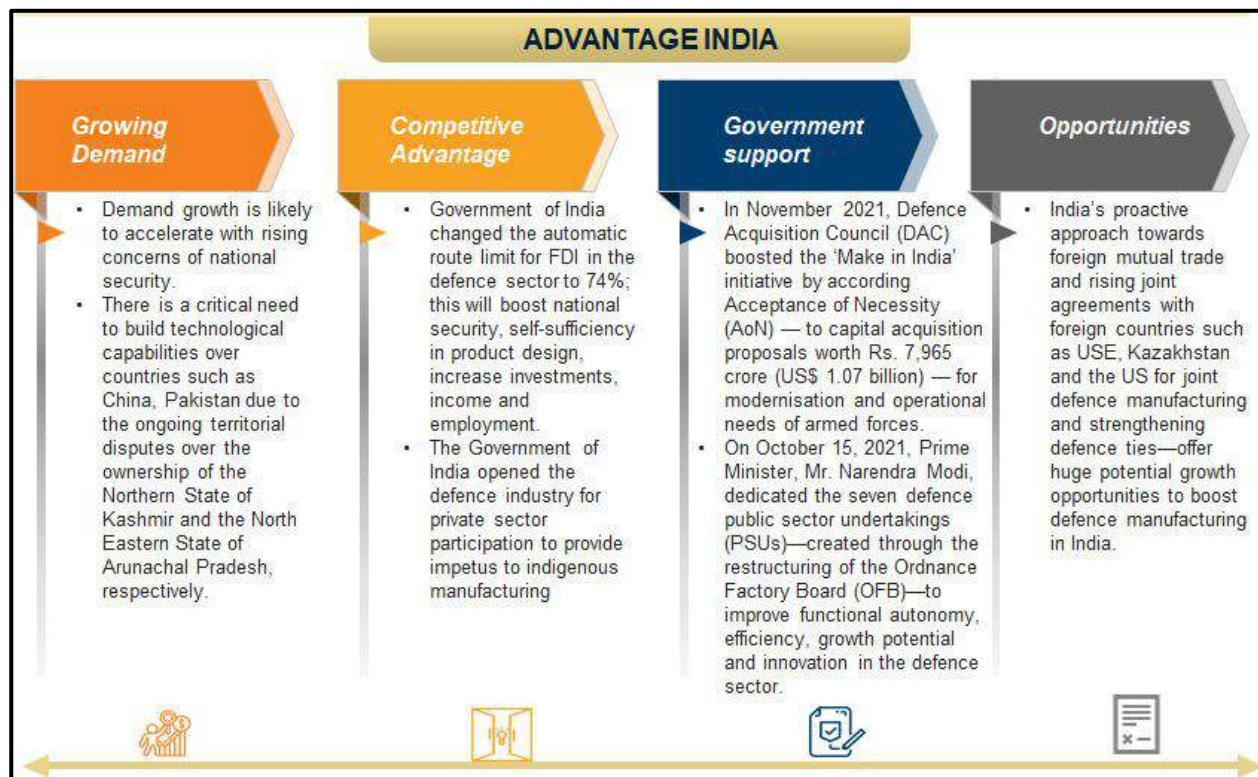
- While addressing the 94th Annual General Meeting of the Federation of Indian Chambers of Commerce and Industry (FICCI) gathering, the Defence Minister put forth the objective of making India into a defence manufacturing hub.

Present status

- As of 2019**, India ranked 19th in the list of top defence exporters in the world by exporting defence products to 42 countries.
- India's defence manufacturing sector has been witnessing a CAGR of 3.9% between **2016 and 2020**.
- The Total Size (2019-20):** Rs 80,000 crores (out of Public Sector is 80%; Private Sector is - 20%)
- India accounts for 3.7% of the global military spending, making it the third highest military spender in the world.
- Dependency on imports :**India is 2nd Largest Importer after Saudi Arabia; 65-70% of Defence Goods imported (SIPRI)
- India's defence exports have increased from Rs.1,521 crore in 2016-17 to Rs. **8,434.84 crore in 2020-21**

Target

- The Indian government has set the defence production target at US\$ 25.00 billion by 2025 (including US\$ 5 billion from exports by 2025). The government is taking several initiatives to encourage domestic manufacturing and reduce its external dependence.



Steps taken by the government to promote indigenisation and self-reliance in defence manufacturing, under Atma Nirbhār Bharat Mission in the defence sector

- **Positive Indigenisation list:** Ministry of Defence has notified Positive Indigenisation lists for which there would be an embargo on the import beyond the timelines indicated against them
- In order to promote indigenous design and development of defence equipment 'Buy {Indian-IDDM (Indigenously Designed, Developed and Manufactured)}' category has been accorded top most priority for procurement of capital equipment
- **FDI:** The Government of India has enhanced FDI in the Defence Sector up to 74% through the Automatic Route for companies seeking a new defence industrial licence and up to 100% by Government Route.
- An innovation ecosystem for Defence titled 'Innovations for Defence Excellence (iDEX)' was launched. iDEX is aimed at creating an ecosystem to foster innovation and technology development in Defence and Aerospace by engaging Industries including MSMEs, startups, individual innovators, R&D institutes and academia.
- **The Defence Industrial Corridors at Lucknow and Chennai** will be an essential part of the defence manufacturing ecosystem by employing developing technologies and promoting the growth of domestic manufacturers in the MSMEs and Start-ups.
- **Public Procurement Order:** Department of Defence Production has notified a list of 24 items for which there is local capacity and completion, and procurement of these items shall be done from local suppliers only irrespective of the purchase value.

Way forward/Strategies to promote defence manufacturing:

- **Supporting the private sector:** To build a defence industrial base, the government should support the private sector with bigger and stable defence contracts.
- **Set up a Project Management Unit (PMU)** that should be able to provide a clear picture of future requirements of Armed Forces to Industries. It should also be able to support the acquisition process and facilitate management of the contracts.
- **Need to move away from licensed production** to Design, Develop and produce wherein India should own the Design Rights and Intellectual property rights.
- Need to have a distinct budget for domestic capital procurement.
- The list of Defence Goods banned for import should be reviewed and updated regularly.
- Procurement of indigenously developed products/systems involves conducting several tests and trials and consumes a considerable amount of time because of which placement of orders is delayed. This is required to be streamlined and expedited.
- Set up an Indigenisation portal to provide necessary support to MSMEs/ Start-ups for import substitution.
- Enhancing the Investment in Research and Development and converting the prototypes into commercially useful products.
- Promoting the export of domestically manufactured defence products through Govt-to-Govt agreements and Lines of Credit/Funding.

NATIONAL TECHNICAL TEXTILES MISSION

GS-III ECONOMY

Context

- Ministry of Textiles recently cleared 20 Strategic Projects in the areas of Specialty Fibres and Geotextiles under the Flagship Programme National Technical Textiles Mission (NTTM)

Details:

- Amongst the 20 Research projects, 16 projects of Specialty fibres were cleared including
 - five projects in Healthcare,
 - four projects in Industrial and Protective,
 - three projects in Energy Storage,
 - three projects in Textile waste recycling, & one in Agriculture and
 - four projects in Geotextiles (Infrastructure) were cleared.

About

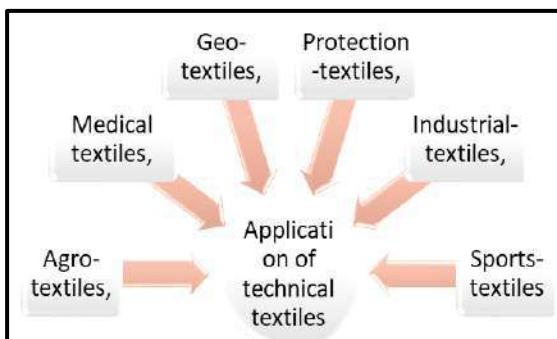
- National Technical Textiles Mission:** The National Technological Textiles Mission was launched by the Ministry of Textiles to improve the penetration of technical textiles in India while leveraging the sector's outstanding growth rate.

Objectives of the mission

- The Mission aims to improve technical textiles in India.
- The mission is to be implemented for a period of 4 years between 2020-21 and 2023-24.
- To focus on the innovation, research and development :
 - Research on the different fibres and their applications in sectors like geo, agro, medical, sports, and mobile textiles.
 - To develop biodegradable technical textiles.
 - To develop the indigenous machineries and the process equipment.
- To promote and develop the market for technical textiles.
- To focus on the export promotion and to ensure an average growth of 10% every year.
- To focus on education, training, and skill development.

Important Terms:

- Geotextiles:** Geotextiles are synthetic textiles that are permeable. It's usually made of polyester or polypropylene polymers. Geotextiles are used to improve soil stability, limit erosion, and improve drainage.
- Technical textiles:** Technical textiles are defined as materials and products manufactured primarily for their technical and performance properties rather than their aesthetic or decorative characteristics.



- The technical textiles are a non-aesthetic product where function is its primary purpose.
- Basically, they are used in 12 applications namely Geotech, Indutech, Military textiles, packing, agro, buildings, Geotech, medtech, autotech, smartech etc
- They are functional fabrics that are used in civil engineering, automobiles, agriculture, construction, healthcare, personal protection, etc
- For instance, a technical textile can be used in gloves for a high temperature environment, in astronauts' and firefighters' suits, etc.

What are Technical Textiles?

Conventional Textiles

- Manufactured primarily for aesthetic or decorative purpose
- Fiber (natural or synthetic) is usually first Spun into Yarn and then Yarn is Woven / Knit into Fabric

Technical Textiles

- Manufactured primarily for performance or function rather than aesthetics
- May be both woven and non woven, and is made out of primarily synthetic and some natural fibers

Various Initiatives taken by the Government related to Technical Textile

- Technology Upgradation Fund Scheme (TUFS)

- Scheme for Growth and Development of Technical Textiles (SGDTT)
- Central Government offers concessional customs duty list of 5% for the coverage of major machinery for technical textile manufacturing
- Focus Product Scheme provides duty credit scrip for the export products up to 2% of FOB value
- Technology Mission on Technical Textiles (TMTT)
- Focus Incubation Centres (FIC)
- Scheme for promoting usage of Agro-textiles in India (excluding the North-East Region)
- Scheme for promoting usage of Agro-textiles in the North-East Region
- Scheme for promoting usage of Geotechnical textiles in the North-East Region
- Scheme for Integrated Textile Parks (SITP)

COUNTERPRODUCTIVE HIGH TARIFFS ON ELECTRONIC COMPONENTS

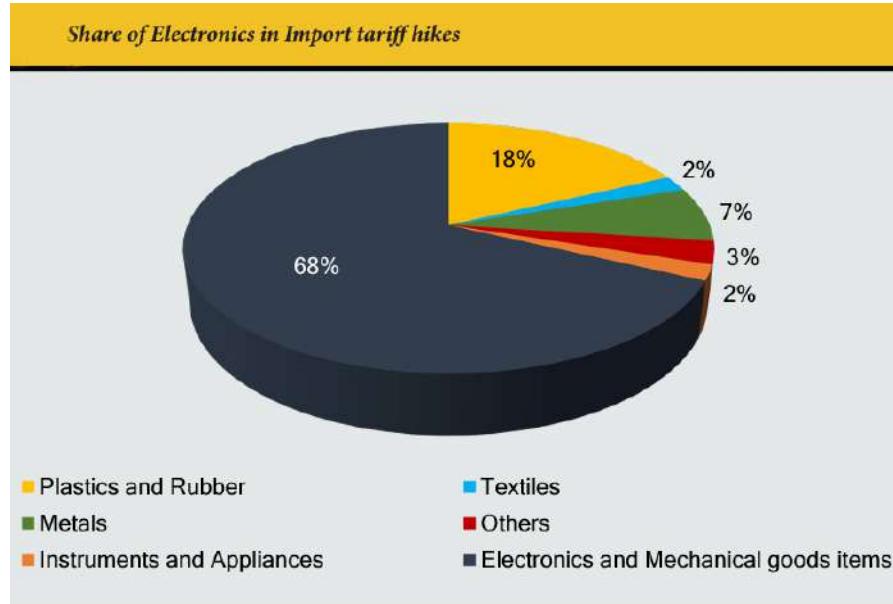
GS-III ECONOMY

Context

- According to study by the India Cellular and Electronics Association (ICEA), India's policy of adopting high tariffs on the import of electronics components to reduce risks from global competition and save domestic companies may prove to be counterproductive to its schemes aimed at increasing domestic production of electronic products

India as compared to other electronics manufacturing nations

- By comparing the performance of India with that of China, Vietnam, Mexico and Thailand, the report by ICEA highlights how these countries have tried to encourage the domestic production of electronic goods in their geographies by adopting almost similar strategies such as
 - attracting foreign direct investment,
 - improving domestic capabilities and competitiveness,
 - increasing exports and
 - then linking their markets with global value chains.
- **China:** Since 1980, China has improved its ranking in terms of office and telecom equipment export from 35 to 1.
- **Vietnam:** which did not export any such electronic products up until the 1990s has climbed the ladder to become the eighth largest export in just 20 years.
- **Mexico:** which was 37th in terms of electronics product export in 1980s has steadily risen through the ranks to gain 11th place
- **Thailand:** which ranked 45 in 1980 has also consolidated its position in the top 15 electronic product exporters
- **India:** which started at 40th position in the 1980s has gained and lost positions to reach 28th position by 2019



High import tariffs hurt India's domestic electronics industry

- **Reason for adopting high import tariffs:** India adopted high tariffs on the import of electronics components to ensure reduced risks from the global competition and to save the domestic infant companies
- Even for the domestic markets, the assumption that it will be beneficial to most companies since it is large and growing is wrong. **Example:** in the case of mobile phones, where one of the largest PLI schemes is currently operational, the size of the domestic market is expected to increase to \$55 billion by 2025-26, whereas the global market is expected to reach \$625 billion.
- At present, India's market share is not attractive enough for FDI to choose India as a location primarily on the basis of its domestic market per se, especially if India's policies result in cost inefficiencies which create obstacles to accessing a much larger global market

Reasons for ICEA to believe high import tariffs are counterproductive to PLI schemes

- The global Companies which have extensive global value chains are reluctant to enter India when tariffs for components are

high.

- India does not produce about 50% of the components on which tariff has been increased. Therefore, the impact of tariffs is likely to be adverse on India's competitiveness

Suggestion by ICEA

- Even Though, globally companies such as the US are increasing tariffs on the import of electronic components, India must keep its tariff at a bare minimum to ensure it remains competitive among its peers in the Asian neighbourhood.

K-SHAPED ECONOMIC RECOVERY

GS-III ECONOMY

Context

- Stark K-shaped recovery emerges in the latest round of ICE360 Survey 2021, conducted by People's Research on India's Consumer Economy (PRICE)

Details

- The survey conducted, between April and October 2021, covered 200,000 households in the first round and 42,000 households in the second round. It was spread over 120 towns and 800 villages across 100 districts.

Key Findings of the Survey

- The annual income of the poorest 20% of Indian households, constantly rising since 1995, plunged 53% in the pandemic year 2020-21 from their levels in 2015-16.
- In the same five-year period, the richest 20% saw their annual household income grow 39% reflecting the sharp contrast Covid's economic impact has had on the bottom of the pyramid and the top.
- The survey shows that the pandemic hit the urban poor most and eroded their household income.
- Even among the poorest 20 per cent, those in urban areas got more impacted than their rural counterparts as the first wave of Covid and the lockdown led to stringent curbs on economic activity in urban areas.
- Data shows that there has been a rise in the share of poor in cities. While 90 per cent of the poorest 20 per cent in 2016, lived in rural India, that number had dropped to 70 per cent in 2021. On the other hand, the share of poorest 20 per cent in urban areas has gone up from around 10 per cent to 30 per cent now.

HOW COVID DEEPENS DISTRESS, DIVIDE

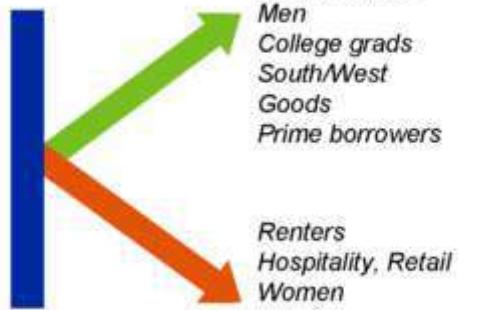
	2015-16	2020-21	Change (%)
Q1 (Poorest 20%)	1.37	0.65	-52.6 ▼
Q2 (Lower middle 20%)	1.85	1.25	-32.4 ▼
Q3 (Middle 20%)	2.25	2.05	-8.9 ▼
Q4 (Upper middle 20%)	3.01	3.22	7.0 ▲
Q5 (Richest 20%)	5.26	7.31	39.0 ▲
All-India average	2.98	3.23	8.4 ▲
Total personal disposable income of households (₹ bn)	83,574	99,184	18.7 ▲

*Q is quintile and is obtained by dividing population into five equal slabs of 20% each; Source: ICE 360 data

The K-Shaped Recovery

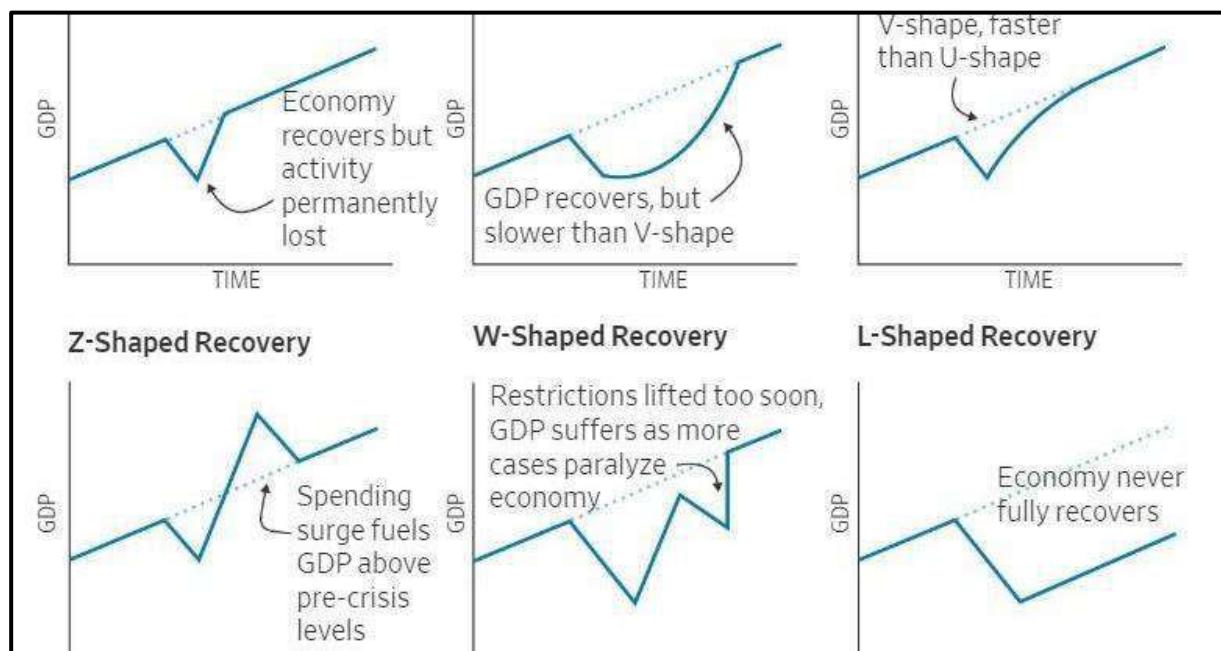
Inequality accelerating due to the pandemic

- Jobs
- Wealth
- Income
- Health
- Education



Shapes of economic recovery

- **The Z-shaped recovery** is the most-optimistic scenario in which the economy quickly rises like a phoenix after a crash. It more than makes up for lost ground (think revenge-buying after the lockdowns are lifted) before settling back to the normal trend-line, thus forming a Z-shaped chart.
- **In V-shaped recovery** the economy quickly recoups lost ground and gets back to the normal growth trend-line.
- **A U-shaped recovery** is a scenario in which the economy, after falling, struggles and muddles around a low growth rate for some time, before rising gradually to usual levels.
- **A W-shaped recovery** is a dangerous creature — growth falls and rises, but falls again before recovering yet again, thus forming a W-like chart.
- **The L-shaped recovery** is the worst-case scenario, in which growth after falling, stagnates at low levels and does not recover for a long, long time.
- **The J-shaped recovery** is a somewhat unrealistic scenario, in which growth rises sharply from the lows much higher than the trend-line and stays there.



Way Ahead: Think welfare schemes

- The disproportional benefit of the asset price inflation favouring the upper-middle-class further displays the inherent K-shape of the recovery.
- It is crucial that the Government addresses this phenomenon and works towards aiding the middle and lower-middle class.
- Social welfare schemes must be given greater importance to assist households to get through this period.
- A seemingly viable solution is for the Government to increase progressive (direct) taxes and reduce regressive (indirect) taxes to ease the financial pressure on lower-income households.

Conclusion

- India's economic recovery after the ebbing of the second COVID-19 wave remains uneven, despite an uptick in several economic indicators.
- The Indian economy is in a vicious cycle of low growth and higher inflation unless policy action ensures higher demand and growth.
- In the absence of policy interventions, India will continue on the path of a K-shaped recovery where large corporations with low debt will prosper at the cost of small and medium sectors. This means lower employment as most of the jobs are created by the latter.

PUSH TO ELECTRONIC MANUFACTURING IN INDIA

GS-III ECONOMY

Context

- The government's vision document envisages electronics manufacturing in India to quadruple by 2026

Details

- The current projection made is lower than the target of \$400 billion by 2025 set as per the National Policy on Electronics (NPE) 2019 owing to the 'unforeseen and unprecedented' challenges brought by the pandemic.
- The reduced target still aims for a 400% increase from the current level and electronics manufacturing had grown from \$37.1 billion in 2015-16 to \$67.3 billion in 2020-21 even as COVID-19-related disruptions impacted the growth trajectory in 2020-21.
- India's domestic mobile sales are in sync with the total industry estimates and likely to grow faster in the coming few years due to increasing digital lifestyle and Covid-related disruptions.

Challenges

- Industry is facing various challenges across qualitative (non-tariff, infrastructure-related) and quantitative (tariff, free trade agreements etc.) aspects and need to be addressed.

Recommendations

- The vision document recommends that for achieving the target of \$300 billion in electronics manufacturing by the year 2025-26, the primary focus shall be on building of scale through incentives and removal of cost disabilities.
- It has also called for 'swift changes' in respect of existing policies within the next 1,000 days, including stability in import tariffs, decrease in import tariffs for components with no manufacturing base in India, development of skill sets and encouraging major foreign manufacturers to set up components ecosystems in India.

Electronic sector in India

- The electronics industry is the largest and fastest-growing industry in the world and is increasingly finding applications in almost all the sectors of the economy.
- India is amongst the leading contenders for alternate solutions for global electronics companies.
- Potential:**
 - The electronics sector has the huge potential to become one of the top exports of India in the coming 3-5 years.
 - The electronics exports may account for significant contributions to the Indian economy in terms of foreign exchange earnings and employment generation.
 - India has witnessed a huge spike in the demand for electronic products in the last few years; this is mainly attributed to India's position as the second-largest mobile phone manufacturer worldwide and surge in internet penetration rate.

Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS):

- The vision of National Policy on Electronics 2019 (NPE 2019) is to position India as a global hub for Electronics System Design and Manufacturing (ESDM) by encouraging and driving capabilities in the country for developing core components, including chipsets, and creating an enabling environment for the industry to compete globally.
- The scheme will provide financial incentive of 25% on capital expenditure for the identified list of electronic goods that comprise downstream value chain of electronic products, i.e., electronic components, semiconductor/ display fabrication units, ATMP units, specialised sub-assemblies and capital goods for manufacture of aforesaid goods, all of which involve high value added manufacturing.
- The Scheme will be applicable to investments in new units and expansion of capacity/ modernization and diversification of existing units. Application under the Scheme can be made by any entity registered in India.
- The capital expenditure will be total expenditure in plant, machinery, equipment, associated utilities and technology, including for Research & Development (R & D).

Market Size

- In FY22 (until October 2021), imports of electronics goods stood at US\$ 28.59 billion, whereas exports stood at US\$ 7.89 billion.
- The electronics manufacturing industry had grown from \$37.1 billion in 2015-16 to \$67.3 billion in 2020-21.
- According to the Department for Promotion of Industry and Internal Trade, from April 2000 to June 2021, Foreign Direct Investment (FDI) equity inflows stood at US\$ 3,176.29 million.

RBI'S APPROVAL PENDING FOR THE BAD BANK

GS-III ECONOMY

Context

- Even after the six months after the setting up of the National Asset Resolution Company Limited (NARCL), the proposal for setting up a 'bad bank' – a key reform measure of this fiscal year's Budget -- is yet to take off.

National Asset Reconstruction Company Limited

Details

- The Union Cabinet approved the central government guarantee of Rs. 30,600 crore to back Security Receipts issued by National Asset Reconstruction Company Limited (NARCL) for acquiring stressed loan assets in September, 2021
- NARCL proposes to acquire stressed assets of about Rs. 2 Lakh crore in phases within extant regulations of RBI.
- It intends to acquire these through 15% Cash and 85% in Security Receipts (SRs).

What is a bad bank?

- A bad bank is a financial entity set up to buy non-performing assets (NPAs), or bad loans, from banks.
- The aim of setting up a bad bank is to help ease the burden on banks by taking bad loans off their balance sheets and get them to lend again to customers without constraints.
- After the purchase of a bad loan from a bank, the bad bank may later try to restructure and sell the NPA to investors who might be interested in purchasing it.
- A bad bank makes a profit in its operations if it manages to sell the loan at a price higher than what it paid to acquire the loan from a commercial bank.
- However, generating profits is usually not the primary purpose of a bad bank — the objective is to ease the burden on banks, holding a large pile of stressed assets, and to get them to lend more actively.

What is National Asset Reconstruction Company Limited?

- NARCL has been incorporated under the Companies Act and has applied to Reserve Bank of India for licence as an Asset Reconstruction Company (ARC). NARCL has been set up by banks to aggregate and consolidate stressed assets for their subsequent resolution. PSBs will maintain 51% ownership in NARCL.
- India Debt Resolution Company Limited (IDRCL) is a service company/operational entity which will manage the asset and engage market professionals and turnaround experts. Public Sector Banks (PSBs) and Public FIs will hold a maximum of 49% stake and the rest will be with private sector lenders.
- Capitalisation of NARCL would be through equity from banks and Non-Banking Financial Companies (NBFCs). It will also raise debt as required.

How will it work?

- The NARCL will acquire assets by making an offer to the lead bank. Once NARCL's offer is accepted, then, IDRCL will be engaged for management and value addition.
- It will incentivise quicker action on resolving stressed assets thereby helping in better value realisation.
- This approach will also permit freeing up of personnel in banks to focus on increasing business and credit growth.
- As the holders of these stressed assets and SRs, banks will receive the gains. Further, it will bring about improvement in the bank's valuation and enhance their ability to raise market capital.

Need of NARCL

- Existing Asset Reconstruction Companies have been helpful in resolution of stressed assets especially for smaller value loans. However, considering the large stock of legacy NPAs, additional options/alternatives are needed and the NARCL-IDRCL structure announced in the Union Budget is this initiative.

Need for government guarantee

- Resolution mechanisms of this nature which deal with a backlog of NPAs typically require a backstop from the Government.
- This imparts credibility and provides for contingency buffers. Hence, GoI Guarantee of up to Rs 30,600 crore will back Security Receipts (SRs) issued by NARCL.
- The guarantee will be valid for 5 years. The condition precedent for invocation of guarantee would be resolution or liquidation.
- The guarantee shall cover the shortfall between the face value of the SR and the actual realisation. GOI's guarantee will also enhance liquidity of SRs as such SRs are tradable.

CAGE CULTURE IN AQUACULTURE

GS-III ECONOMY

Context

- Ministry of Fisheries, Animal Husbandry and Dairying, Government of India organised a webinar on "Cage aquaculture in Reservoir: Sleeping Giants" today as a part of "Azadi Ka Amrit Mahotsav".

About Cage Culture

- It involves the growing of fishes in existing water resources while being enclosed in a net cage which allows free flow of water.
- It is an aquaculture production system made of a floating frame, net materials and mooring system (with rope, buoy, anchor etc.) with a round or square shaped floating net to hold and culture large numbers of fishes and can be installed in reservoir, river, lake or sea. A catwalk and handrail is built around a battery of floating cages
- Economically speaking, cage culture is a low impact farming practice with high returns and least carbon emission activity.
- Farming of fish in an existing water body removes one of the biggest constraints of fish farming on land, i.e, the need for a constant flow of clean, oxygenated water.
- Cage farms are positioned in such a way to utilise natural currents, which provide the fish with oxygen and other appropriate natural conditions.



Advantages

- Cage culture has advantages which include:
 - Many types of water resources can be used, including lakes, reservoirs, ponds, strip pits, streams and rivers which could otherwise not be harvested.
 - A relatively low initial investment is required in an existing body of water.
 - Harvesting is simplified.
 - Observation and sampling of fish is simplified.
 - Allows the use of the pond for sport fishing or the culture of other species.
 - Less manpower requirement.
 - Generation of job opportunities for unemployed youth and women.
 - Additional income to fishers during closed seasons.

Disadvantages

- Cage culture also has some distinct disadvantages. These include:
 - Feed must be nutritionally complete and kept fresh.
 - Low Dissolved Oxygen Syndrome (LODOS) is an ever present problem and may require mechanical aeration.
 - Fouling of the net cage.
 - The incidence of disease can be high and diseases may spread rapidly.
 - Vandalism or poaching is a potential problem.
 - Navigation issues.
 - Accumulation of unused feed and excreta will lead to water pollution as well as eutrophication.
 - Change in water quality parameters.
 - Conflicts within the local community.
 - Predation by aquatic mammals and birds.
 - Escapement.
 - Overcrowding of aquatic organisms in cages


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FORMULATION OF THE BUDGET

GS-III ECONOMY

Context

- The Budget is tabled in Parliament by the Finance Minister on 1st February every year.

The list of Budget documents presented to the Parliament, besides the Finance Minister's Budget Speech, is given below

- A. Annual Financial Statement (AFS)
- B. Demands for Grants (DG)
- C. Finance Bill
- D. Fiscal Policy Statements mandated under Fiscal Responsibility and Budget Management Act, 2003:

- Macro-Economic Framework Statement
- Medium-Term Fiscal Policy cum Fiscal Policy Strategy Statement
- E. Expenditure Budget
- F. Receipt Budget
- G. Expenditure Profile
- H. Budget at a Glance
- I. Memorandum Explaining the Provisions in the Finance Bill
- J. Output Outcome Monitoring Framework
- K. Key Features of Budget 2022-23
- L. Implementation of Budget Announcements, 2021-2022

Budget/Annual Financial Statement (AFS) (Article 112 of the Constitution)

When budget is presented	On such a date as fixed by the President. In practice, The Union Budget of India is presented each year on the first working day of February by the Finance Minister of India in Parliament.
Where presented	Before both the houses of parliament. First in Lok Sabha by the Minister of Finance then in Rajya Sabha at the conclusion of the speech of the Finance Minister in Lok Sabha.
Responsibility of budget presentation	President
Details of AFS	It shows: Budgeted Estimates of receipts and expenditure of the Govt of India for Next year 2022- 23. Budgeted and revised estimates for Current year 2021-22. Actual expenditure for the year Previous year 2020-21
Three parts	The receipts and disbursements are shown under three parts in which Government Accounts are kept viz., Consolidated Fund, Contingency Fund and Public Account.
Separation of Revenue expenditure	The Annual Financial Statement distinguishes the expenditure on revenue accounts from the expenditure on other accounts, as is mandated in the Constitution of India. The Revenue and the Capital sections together, therefore make the Union Budget.
Budget of a State/Union Territory under President's Rule	Budget of a State under President's rule is presented to Lok Sabha

Revenue Budget:

Definition	The Revenue Budget consists of the revenue receipts of the Government and the expenditure met from these revenues
Revenue receipts	Tax revenues: taxes and other duties levied by the Union, Taxes of Union Territories Non Tax revenues: interest and dividend on investments made by the Govt, fees and other receipts for services rendered by the Govt, External Grants, Receipts of Union Territories
Revenue expenditure	Expenditure which does not result in creation of assets for the Govt of India, is treated as revenue expenditure like normal running of Government departments and for rendering of various services, making interest payments on debt, meeting subsidies, grants in aid, etc.
Grants to the State Governments/Union Territories	All grants given to the State Governments/Union Territories and other parties are also treated as revenue expenditure even though some of the grants may be used for creation of capital assets.

Capital Budget:

Definition	Capital receipts and capital payments together constitute the Capital Budget
Capital receipts	Loans raised by the Govt from the public (termed as market loans),

	Borrowings by the Govt through the sale of Treasury Bills, Loans received from foreign Govts and bodies, Disinvestment receipts and Recoveries of loans from State/Union Territory Govts and other parties
Capital payments	Acquisition of assets like land, buildings, machinery, equipment etc. Investments in shares, etc., and Loans and advances granted to the State/Union Territory Govts, Govt companies, Corporations and other parties

Finance Bill

- At the time of presentation of the Annual Financial Statement before Parliament, a Finance Bill is also presented detailing the imposition, abolition, remission, alteration or regulation of taxes proposed in the Budget. It also contains other provisions relating to the Budget that could be classified as Money Bill. A Finance Bill is a Money Bill as defined in Article 110 of the Constitution.

SEMICONDUCTOR SHORTAGE

GS-III ECONOMY

Context

- Recently, there has been an abrupt and cascading shortage of semiconductors worldwide.

Semiconductor

- Semiconductors, or chips, have properties that are somewhere between conductors and insulators.
- Usually **made of silicon**, they are used to power a wide range of devices - cars, laptops, smart-phones, household appliances and gaming consoles.
- These tiny objects perform a host of functions such as powering displays and transferring data.
- So, a supply crunch has a consequent impact on sales of cars, fridges, laptops, TVs and other electronic devices.

	Properties	Conductors	Semiconductors	Insulators
1.	Electrical conductivity	Good conductors; large number of electrons	Conductivity in between that of conductors and insulators	Bad Conductors; no free electrons
2.	Resistivity	It increase with increase in temperature	Resistivity decreases with increase in temperature	It remain constant.
3.	Example	Silver, copper, aluminum etc	Silicon, Germanium, Boron etc.	Rubber, glass, porcelain etc

Challenges faced by the semi-conductor Industry

- The world's top chipmakers still can't manufacture chips fast enough to satisfy the market's insatiable appetite.

The COVID-19 crisis

- The pandemic disrupted semiconductor shipments as global demand for new mobile devices, PCs, and data center upgrades surged in response to remote work, online learning, and other stay-at-home trends.

Declining memory chip prices

- Memory chip prices soared in 2017 and 2018, but declined in 2019 and 2020 amid sluggish demand from the PC and smartphone markets.

The ongoing tech war

- The tech war between the U.S. and China, which intensified under President Donald Trump and is continuing under President Joe Biden, is another pressing issue.
- The U.S. has already levied sanctions against several big Chinese companies, including SMIC and Huawei, amid national security concerns.
- Those sanctions are exacerbating the shortage of advanced chips in China.
- They're also spurring the Chinese government to aggressively invest in its domestic chipmakers to reduce its overall dependence on overseas technologies -- which could cause a messy decoupling of the U.S. and Chinese markets.

Fluctuating forecasts

- Automakers that cut back drastically early in the pandemic underestimated how quickly car sales would rebound.
- They rushed to re-up orders late in 2020, only to get turned away because chipmakers were stretched supplying computing and smartphone giants like Apple Inc.

Stockpiling

- Chinese companies began building up inventory to ensure it could survive U.S. sanctions that were set to cut it off from its primary suppliers.

Disasters

- Several recent setbacks -- including a power outage at TSMC, a production pause at Samsung, and a fire at the Japanese auto chipmaker Renesas -- all highlight the fragility of the semiconductor supply chain .

Impact

Disrupted supply chain

- The semiconductor shortage severely disrupts the supply chain and constrains the production of many electronic equipment types.
- Production of laptops, tablets, smartphones and other electronic devices are impacted by the shortage of semiconductors.

Increasing Prices

- Foundries are increasing wafer prices, and in turn, chip companies are increasing device prices.

Production Disruption in Automobile Sector

- Domestic and global automobile manufacturers cut output and halt production due to the semiconductor shortage.
- According to data from Society of Indian Automobile Manufacturers (SIAM), automobile wholesales in India declined 11 percent year-on-year in August 2021.
- Chip shortages are expected to wipe out \$210 billion of sales for carmakers in 2022, with production of 7.7 million vehicles lost.

Challenges specific to India

Competition

- It is difficult to compete with neighbouring countries like China and Vietnam which have been favourite destinations for global chip manufacturers due to better cost-efficiency.

Massive investment

- In addition to the huge cost, running in billions of dollars, manufacturing even a single chip requires hundreds of gallons of pure water, which may also be hard to find in India in the required quantities.

Infrastructure

- There have been challenges in setting up of Semiconductor Wafer Fabrication (FAB) units in India.
- India is still not upto the par in terms of the basic infrastructure needed.

Power Supply

- An uninterrupted power supply is another major hurdle.
- The heart of the issue is that India is still not upto the par in terms of the basic infrastructure needed to pursue endeavours in the chip manufacturing space.

Price pressure

- There is also constant price pressure from other global players, particularly China which is also building a homegrown chip program for the adoption of local semiconductors in 70% of its products by 2025.

Dependency on Imports

- India imports 100% of its semiconductors.
- Around 40 percent of India's demand is met through imports from China, despite the frequent geopolitical impasse that the two nations find themselves in.

Government efforts

Development of sustainable semiconductor and display ecosystem in the country Programme

- The comprehensive programme for the "development of sustainable semiconductor and display ecosystem in the country" is aimed at making India a global hub of electronic system design and manufacturing.
- The scheme would provide fiscal support of up to 50% of the project cost for setting up semiconductor and display fabrication units.

100% FDI in the ESDM

- In 2016, the government allows 100% FDI in the ESDM sector through an automatic route to attract investments including from Original Equipment Manufacturers (OEMs) and Integrated Device Manufacturers (IDMs).

Electronics development Fund

- The Department of Electronics and Information Technology (DeitY) has established an Electronics Development Fund (EDF) managed by Canara Bank to provide risk capital and to attract venture funds, angel funds and seed funds for incubating R&D and fostering the innovative environment in the sector.

Initiatives under Telecom and Electronic Policies

- Some of the initiatives outlined in the National Electronics policy and the National Telecom policy are in the process of implementation, such as Preferential Market Access (PMS), Electronics Manufacturing Clusters (EMC) and Modified Special Incentive Package Scheme (M-SIPS).

Scheme for Promotion of manufacturing of Electronic Components and Semiconductors (SPECs)

- Ministry of Electronics and Information Technology (MeITy) has drawn up the Scheme for Promotion of manufacturing of Electronic Components and Semiconductors (SPECs).

Production-linked incentive scheme (PLI) scheme

- Under the scheme, the Centre will offer financial support to companies that want to manufacture a range of semiconductor goods in India.
- The subsidy will bring down the production costs of companies manufacturing such goods, and thus encourage them to set up new factories and other facilities.

Global efforts

- In the US, the Biden administration's \$2 trillion infrastructure investment package includes \$50 billion for the semiconductor industry.
- The South Korean government has announced a massive \$451 billion investment to help companies boost production of semiconductors.
- Many tech companies have begun developing their own chips, a move that will not only alleviate the current supply concerns but will likely help the industry in the long-run.
- Western countries are focusing on the need to shift manufacturing within their countries and become self-reliant.

Way Ahead and Final Thoughts

- As 5G mobile networks proliferate with many people working from home, the need for more powerful, energy-efficient chips is only going to grow.
- The rise of artificial intelligence is another force pushing innovation, since AI relies on massive data processing.
- Indian semiconductor industry is set for a stable upsurge with bright prospects provided India's generic obstacles like redtape-ism, fund crunch and infrastructural deficits are adequately addressed.
- Steps needed to be taken:
 - Land Acquisition by the government:** acquire the land and develop a special economic zone (SEZ) which would encompass a complete semiconductor manufacturing ecosystem.
 - Cover all ancillaries:** The monetary benefits being extended for setting up a fab should be made available for all the ancillary units manufacturing specialty chemicals to clean room apparel.
 - Focus on simple technology:** The requirements are less stringent and the fabs less expensive. These companies typically operate at much lower gross margins as opposed to the large fabs and OEMs.
- With the implementation of fabrication capabilities in India, the country could achieve a degree of self-sufficiency in the sector of semiconductors.
- Building a strong semiconductor industry would put an end to the country's reliance on imports to meet its semiconductor needs and will help in the creation of jobs.

PARVATMALA PROJECT

GS-III ECONOMY

Context

- Union Finance Minister in the Budget for 2022-23 has announced the National Ropeways Development Programme – “Parvatmala”.

Details

- It will be taken up in PPP mode.
- It will be a preferred ecologically sustainable alternative in place of conventional roads in difficult hilly areas
- The idea is to improve connectivity and convenience for commuters, besides promoting tourism.
- It will also cover congested urban areas, where a conventional mass transit system is not feasible.
- The scheme is being presently started in regions like Uttarakhand, Himachal Pradesh, Manipur, Jammu & Kashmir and the other North Eastern states.

Nodal ministry

- The Ministry of Road Transport and Highways (MORTH) will be the nodal ministry.
- The Ministry will also have responsibility for development of ropeway and alternative mobility solutions technology, as well as construction, research, and policy in this area.

Major factors driving ropeway infrastructure

- Economical mode of transportation:** Given that ropeway projects are built in a straight line over a hilly terrain, it also results in lower land acquisition costs. Hence, despite having a higher cost of construction per km than roadways, ropeway projects' construction cost may happen to be economical than roadways.
- Faster mode of transportation:** Owing to the aerial mode of transportation, ropeways have an advantage over roadway projects where ropeways can be built in a straight line, over a hilly terrain.
- Environmentally friendly:** Low dust emissions. Material containers can be designed so as to rule out any soiling of the environment.
- Last mile connectivity:** Ropeway projects adopting 3S (a kind of cable car system) or equivalent technologies can transport 6000-8000 passengers per hour.

Benefits of ropeways

- Ideal for difficult / challenging / sensitive terrain**
 - Long rope spans: The system crosses obstacles like rivers, buildings, ravines, or roads without a problem.
 - Ropes guided over towers: Low space requirements on the ground, and no barrier for humans or animals.

This mode of transportation will enable mobility to people living in difficult areas and help them become part of the mainstream. Villagers / farmers living in such areas will be able to sell their produce in other areas, which in turn will help them grow their income.
- Economy:** Ropeway having multiple cars propelled by a single power-plant and drive mechanism. This reduces both construction and maintenance costs. The use of a single operator for an entire ropeway is a further saving in labour cost. On level ground, the cost of ropeways is competitive with narrow-gauge railroads; in the mountains the ropeway is far superior.
- Flexible:** Transport of different materials - A ropeway allows for the simultaneous transport of different types of material.
- Ability to handle large slopes:** Ropeways and cableways (cable cranes) can handle large slopes and large differences in elevation. Where a road or railroad needs switchbacks or tunnels, a ropeway travels straight up and down the fall line. The old cliff railways in England and ski resort ropeways in the mountains take advantage of this feature.
- Low footprint:** The fact that only narrow-based vertical supports are needed at intervals, leaving the rest of the ground free, makes it possible for ropeways to be constructed in built-up areas and in places where there is intense competition for land use.

INITIAL PUBLIC OFFERING AND DRHP

GS-III ECONOMY

Context

- Life Insurance Corporation of India (LIC) has filed draft papers with the market regulator for what could be the country's largest initial public offering (IPO).

About IPO

- An IPO or initial public offering is the process by which a privately held company, or a company owned by the government such as LIC, raises funds by offering shares to the public or to new investors. Following the IPO, the company is listed on the stock exchange.

Which companies can come out with an IPO?

- In order to protect investors, SEBI has laid down rules that require companies to meet certain criteria before they can go to the public to raise funds.
- Among other conditions, the company must have net tangible assets of at least Rs 3 crore, and net worth of Rs 1 crore in each of the preceding three full years, and it must have a minimum average pre-tax profit of Rs 15 crore in at least three of the immediately preceding five years.

What are the advantages of listing a company?

- it may help a company raise capital, and diversify and broaden its shareholder base.
- Listing provides an exit to existing investors of the company.
- A listed company can raise share capital for growth and expansion in the future through a follow-on public offering or FPO.

Who can invest in an IPO?

- There are various categories of investors who can invest in an IPO.
- Qualified institutional buyers (QIBs) is a category of investors that includes foreign portfolio investors (FPIs), mutual funds, commercial banks, insurance companies, pension funds, etc.
- All individuals who invest up to Rs 2 lakh in an issue are classified as retail investors.
- Retail investors investing above Rs 2 lakh are classified as high net worth individuals.

LIC's road to the IPO

- The Life Insurance Corporation of India (LIC) filed its draft red herring prospectus to kick-start the initial public offering (IPO) process.
- The Government, which owns 100% of LIC, will be offloading 5% of its stake through the IPO.
- All the proceeds from the IPO will go towards meeting the Government's disinvestment target for FY22.

What does the LIC do?

- LIC makes money by selling various kinds of life insurance products.
- It collects premiums from customers promising to pay a certain amount as insurance cover in case of death, disability due to accident, etc.
- When LIC annually pays out less against individual claims than what it collects as a premium from all its policyholders, it makes a profit.
- The company also invests some of the premium and other surplus money into stocks, government bonds and other investment products, returns from which add to its overall profits.
- LIC currently pays out just 5% of its profits to the sole shareholder - the Government.
- The remaining 95% of the profits are either reinvested back into the company or distributed to policyholders as bonuses.
- This allows LIC to market its insurance policies to its policyholders as investment products besides the element of risk coverage
- Critics argue the returns offered by LIC are lower when compared with other investments.

Why are policyholders worried about the IPO?

- The Government has recognised that the way LIC distributes its profits can turn out to be a problem in attracting a lot of investors.
- Investors who buy shares of LIC would want a larger share of the profits earned by LIC each year if they are to purchase the shares offered by the Government at a price desired by the Government.
- This means that the share of profits that are distributed to policyholders is likely to drop as the Government tries to sell its stake in LIC at the best price.
- In short, as the Government tries hard to make its stake sale attractive to investors participating in the IPO, the returns that policyholders could expect from their policies could diminish going forward.

What lies ahead?

- Policyholders may likely reconsider their investment in LIC's products as the percentage of LIC's profits redistributed to them drops going forward, thus affecting their returns.
- Also, the primary appeal of LIC among policyholders has been the implicit sovereign guarantee offered by the Centre which has convinced policyholders to park their money with LIC despite low returns.
- LIC parks most of its capital in government bonds and this money can be better used in other ways that yield higher returns and also help the economy.
- The higher returns can even trickle down to policyholders if greater competition is encouraged in the insurance industry.

Impacts of listing of LICs

- Profit-making for govt: The government is trying to make the most of the brand value of LIC; as it is one of the few remaining profit-making entities owned by the state.
- Better returns: Listing will boost LIC's efficiency and thereby policy returns.
- Reforming insurance sector: LIC will also become more competitive.
- This will put pressure on its peers to innovate.
- Better financial position: Less govt interference will be positive for LIC's financial health.
- Risk-free: As long as sovereign guarantee over the maturity proceeds and sum assured to continue, policyholders won't perceive any risk.

Various challenges

- Structural challenges: LIC may evolve into a bank like many of its global peers like Axa, Berkshire, and Munich Re.
- Market hurdles: It remains to be seen if the Indian share market is ready to absorb such a large public issue.
- Impact on growth: The size of the IPO will determine the extent of liquidity it will suck out, but Indian markets do not have the depth to take the issue of a very large size.
- Fears of disclosure: The Company's books and operations have been opaque for far too long but it is trusted by 250 million policyholders.

IMPORT BAN ON DRONES

// GS-III ECONOMY

Context

- The government has banned the import of drones with immediate effect, except for research and development, defence and security purposes.

Possible outcomes

- It will drive rapid advancements in domestic drone manufacturing
- This would be bad news for drone enthusiasts, who import them for photography, video and other leisurely activities.

Reason behind the move

- To create an environment to advance the (domestic) drone manufacturing ecosystem
- The idea is to provide a fillip to drone manufacturing in India.

What is a drone?

- A drone is an unmanned aircraft. Drones are more formally known as unmanned aerial vehicles (UAVs) or unmanned aircraft systems. Essentially, a drone is a flying robot that can be remotely controlled or fly autonomously using software-controlled flight plans in its embedded systems that work in conjunction with onboard sensors and a global positioning system (GPS).

Applications of drones



Initiative by the Government to boost drone industry

- **SVAMITVA:** Launched on 24th April 2020, the SVAMITVA scheme solely relies on drone technology. The scheme aims to carry out the world's largest drone mapping operation by mapping 6 lakh villages.
- **Drone Rules 2021:** Government initiatives to liberalise drone regulations. The number of permits and approvals required by a drone operator has been reduced from 25 to 6.
- **PLI Scheme for Drones and Drone Components:** The scheme aims to fulfil the vision of 'Atmanirbhar Bharat' by financially aiding the Indian drone industry. The PLI scheme will allocate an amount of INR 120 crore for drones and drone components spread across a period of three financial years

CRUDE PALM OIL

GS-III ECONOMY

Context

- Centre has reduced the agri-cess for Crude Palm Oil (CPO) from 7.5% to 5% with effect from 12th February, 2022

Details

- With a view to provide further relief to consumers and to keep in check any further rise in the prices of domestic edible oils due to rise in the prices of edible oils globally, the Government of India has reduced the agri-cess for Crude Palm Oil (CPO) from 7.5% to 5%
- After reduction of the agri-cess, the import tax gap between CPO and Refined Palm Oil has increased to 8.25%.
- The increase in the gap between the CPO and Refined Palm Oil will benefit the domestic refining industry to import Crude Oil for refining.

Expected outcome

- The measure is expected to curtail any unfair practices like hoarding, black marketing etc. of edible oils and oilseeds in the market which may lead to any increase in the prices of edible oils
- This measure will help in cooling down the prices of edible oils which are witnessing an upward trend in the international market due to lower availability and other international factors.

National Edible Oil Mission-Oil Palm

- During the year 2020-21, India imported 133.5 lakh tonnes of edible oil, out of which the share of palm oil was around 56%.
- The National Mission on Edible Oils :
- Oil Palm (NMOOP) has been launched with the aim to augment the availability of edible oil in the country by harnessing area expansion, increasing crude palm oil production with the aim to reduce the import burden.

Objective:

- To ensure self-sufficiency in edible oil production.

Aim:

- To reduce import dependence from 60% to 45% by 2024-25, by increasing domestic edible oil production from 10.5 million tonnes to 18 million tonnes which is a 70% growth target.
- Farmers will get all needed facilities, from quality seeds to technology.
- Along with promoting the cultivation of oil palm, this mission will also expand the cultivation of our other traditional oilseed crops.

What is the need for such schemes?

- India is the largest consumer of vegetable oil in the world.
- India's Palm oil imports are almost 60% of its total vegetable oil imports.
- Recently, India's dependence on expensive imports has driven retail oil prices to new highs.
- In India, 94.1% of its palm oil is used in food products, especially for cooking. Thus, palm oil is extremely important to India's edible oils economy.
- Top consumers: India, China, and the European Union (EU).
- For the year 2021-22, a total of Rs 10422.69 lakh has been approved for various state annual action plans.

INDIA'S FIRST WATER TAXI SERVICE

GS-III ECONOMY

Context

- India's first water taxi launched in Mumbai

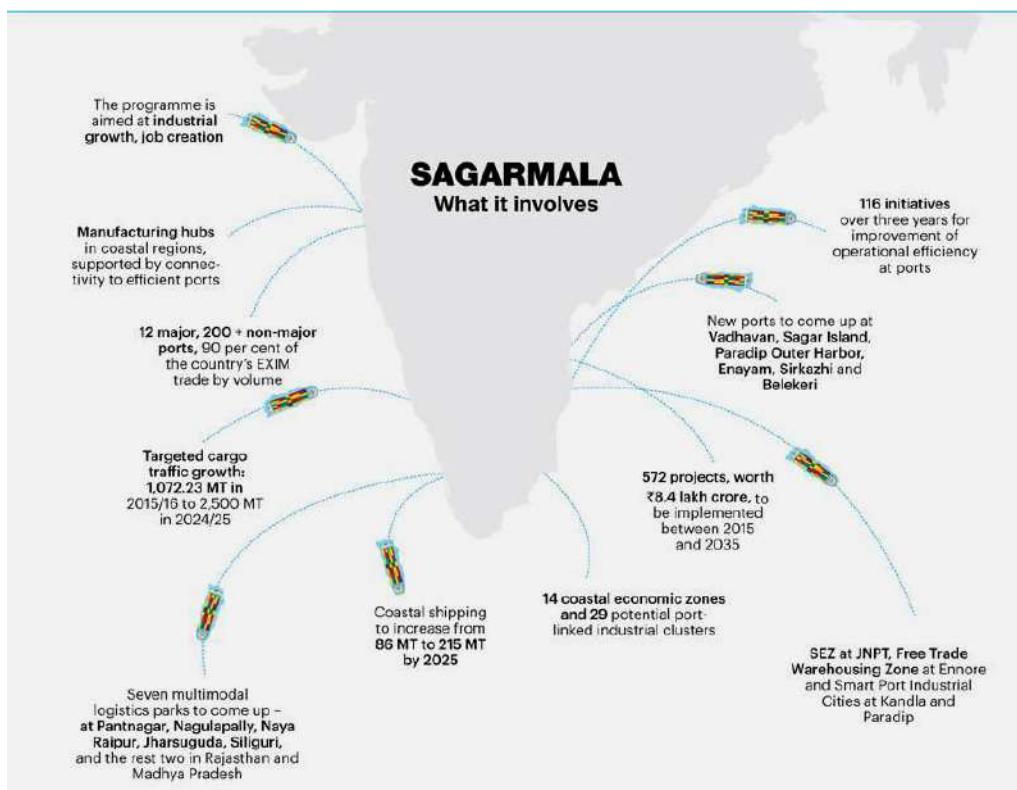
Details

- India's first water taxi service was inaugurated in Maharashtra which will connect the Navi Mumbai area to mainland Mumbai.
- The ₹8.37-crore project will presently run on three routes:
 - Belapur to Ferry Wharf- the domestic cruise terminal,
 - Belapur to Elephanta Caves
 - Belapur to JNPT
- The State and the Centre have each shared 50% of the expenditure.
- In the initial stage, seven speed boats each with a capacity of 10 to 30 passengers and one catamaran with passenger capacity of around 50 to 60 will run on these routes.

Positives

- Water taxi will reduce the travel time
- It promises faster connectivity between Mumbai and Navi Mumbai.
- This shipping service will be useful for getting Elephanta closer to tourists and will help connect the MMR region.
- It will also prove to be more useful for the common man coming to Mumbai for work and business.

[The first railway service in the country was also started between Mumbai and Thane.]



RoPax and Water taxi services in Coastal states

- The Ministry of Ports, Shipping and Waterways under the Sagarmala programme has undertaken Ro-Ro/Ro-Pax projects across several routes.
- Ro-Pax is a roll-on-roll-off cum passenger ferry service launched by the Shipping Ministry.
- It is a water transport service project.
- It enhances connectivity between centres and also aids in reducing pollution associated with road transport.
- Water transport services such as these are economical and more green in comparison to the road/rail transport. It is a cheaper alternative for people and also is more time-saving as it can reduce the journey time by more than half.
- It has a substantial impact on the logistics of small-scale industries of the region.

ASIA'S BIGGEST BIO CNG PLANT

GS-III ECONOMY

Context

- Prime Minister Narendra Modi inaugurated Asia's largest bio-CNG plant in Indore district of Madhya Pradesh.

Details

- Efforts were being made under the Swachh Bharat-2 campaign to remove piles of garbage from vast chunks of lands in several cities of the country and turn them into green zones.
- The state governments are being provided all possible help to achieve the goal.
- The government is working towards setting up 75 such bio-CNG plants in big municipalities of the country.
- The plant has been set up by the Indore Municipal Corporation (IMC) on public private partnership (PPP) model as per the Centre's 'wealth-to-waste' initiative at an initial investment of Rs 550 crore.
- It is likely to generate 19,000 kg bio-CNG gas. The IMC will purchase bio-CNG at Rs 5 per kg and use it to fuel nearly 400 of its buses.
- Nearly 1,600 municipalities are being equipped with material management facilities to end single use of plastic.
- The Mission is being implemented under the overarching principles of waste to wealth and circular economy for maximising resource recovery and both of which are exemplified in the Indore Bio-CNG plant

What is unique about the plant?

- The plant has a capacity to treat 550 tonnes per day of segregated wet organic waste.
- It is expected to produce around 17 thousand kilogram per day of CNG, and 100 tonnes per day of organic compost.
- The plant is based on zero-landfill models, whereby no rejects would be generated.
- Additionally, the project is expected to yield multiple environmental benefits like reduction in greenhouse gas emissions, providing green energy along with organic compost as fertiliser.

GOBAR-DHAN YOJNA

GS-III ECONOMY

Context

- Gobar-Dhan Yojana (also known as Galvanising Organic Bio-Agro Resource Fund scheme) aims to improve the lives of the villagers. Under it, solid waste of dung and fields will be changed into compost, biogas and bio-CNG.

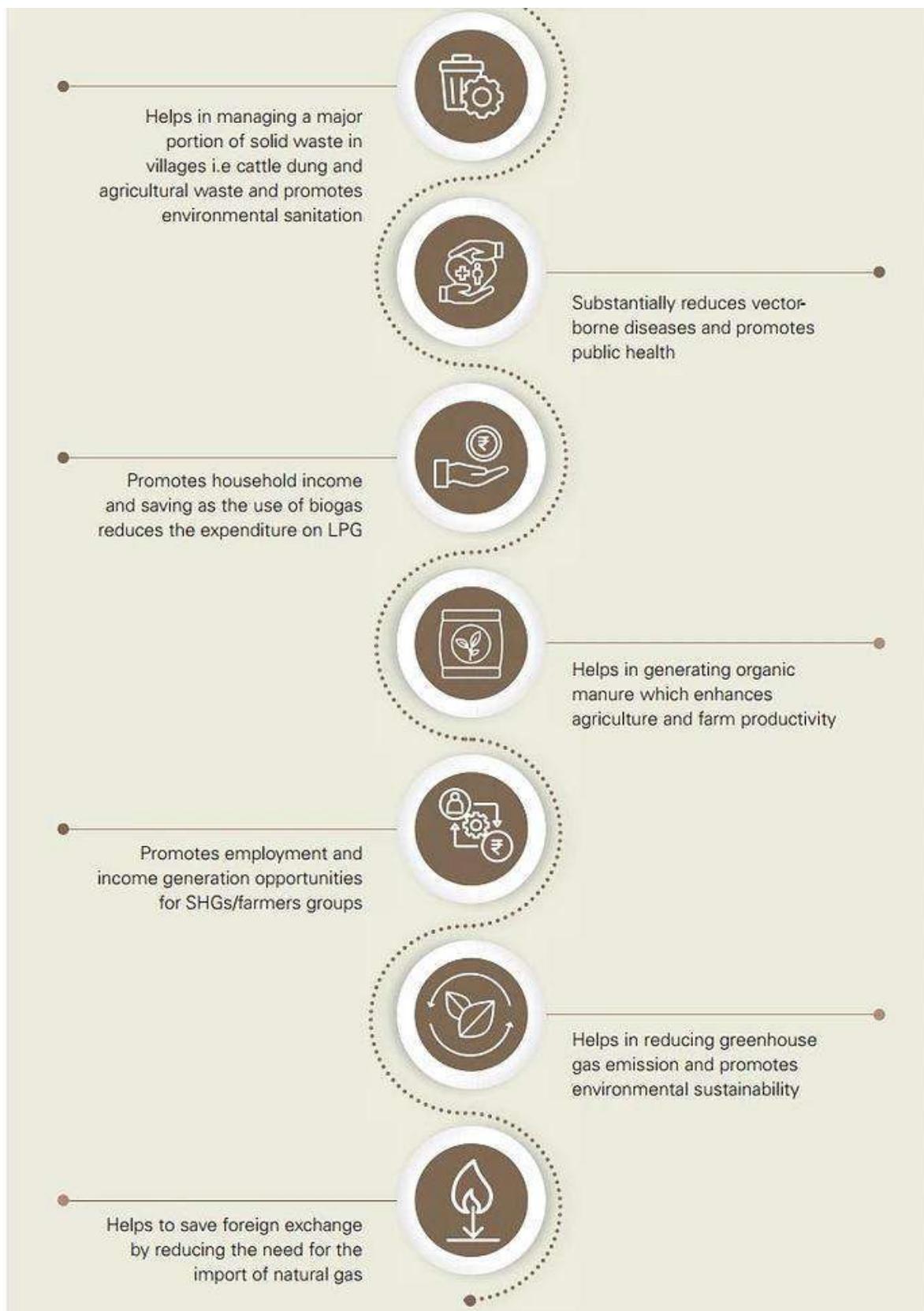
Objectives



Principles of GOBAR-DHAN YOJANA

- Collect and convert livestock waste into biogas for residential and industrial use.
- As a byproduct of the biogas process, bio-slurry is employed as a bio-fertilizer.
- Participate actively in the operation and management of the community/SHG/milk Cooperatives.
- Concentrate on making the process financially viable for everyone involved in the value chain.
- Entrepreneurship for large-scale compressed biogas and biofertilizer production

Benefits



SOLAR WASTE HANDLING POLICY

GS-III ECONOMY

Context

- According to the International Renewable Energy Agency (IRENA), India does not have a firm policy on managing waste that results from used solar panels or from the manufacturing process.

Why does India need a solar waste handling policy?

- India is ramping up for solar power installation. India has set a target of producing 100 GW of solar energy by 2022.
- The International Renewable Energy Agency (IRENA) estimated that the global photovoltaic waste will touch 78 million tonnes by 2050, with India expected to be one of the top five photovoltaic-waste creators.
- India does not yet have a firm policy on managing waste that results from used solar panels or from the manufacturing process.

Current situation

- India currently considers solar waste a part of electronic waste and does not account for it separately.
- There is no commercial raw material recovery facility for solar e-waste operational in India, but a pilot facility for solar panel recycling and material recovery had been set up by a private company in Gummidiyoor, Chennai, Tamil Nadu.
- Solar Power Europe and PV Cycle, supported by the European Union in India and the Union Ministry of New and Renewable Energy, could generate over 34,600 tonnes of cumulative solar waste in India by 2030, according to a report prepared by the National Solar Energy Federation of India.
- Solar panels have a life of 20-25 years, so the problem of waste seems distant. It is likely that India will be faced with solar waste problems by the end of this decade, and solar waste will end up being the most prevalent form of waste in landfills soon.

Other Countries Handling Solar Waste

- The Waste Electrical and Electronic Equipment (WEEE) Directive of the EU (European Union) imposes responsibility for the disposal of waste on the manufacturers or distributors who introduce or install such equipment for the first time.
- The UK also has an industry-managed “take-back and recycling scheme”, where all PV producers will need to register and submit data related to products used for the residential solar market (Business-to-Consumer) and non-residential market.
- While there are no federal statutes or regulations in the US that talk about recycling, there are some states who have proactively defined policies to address end-of-life PV module management.
- The federal government in Australia has acknowledged the concern and announced a USD 2 million grant as part of the National Product Stewardship Investment Fund to develop and implement an industry-led product stewardship scheme for PV systems.
- Countries such as Japan and South Korea have already indicated their resolve to come up with dedicated legislation to address the PV waste problem.

Suggestion

- Government should propose an action plan to evolve a “circular economy” in solar panels, through reuse/recycling of waste generated.
- Strong e-waste or Renewable Energy Waste Laws: EPR for the manufacturer and developers to take responsibility for end-of-life the solar panel.
- PV modules were the first to be included in the EU’s WEEE regulations. It includes options for financing waste management.
- Infrastructure: To bring down the cost of recycling infrastructure investment is required, coordination between the energy and waste sector to efficiently handle the renewable energy waste and build more recycling plants to avoid solar panels ending up in landfills.
- Environmental Disposal and Recycling: Environmental disposal and recycling of solar waste could be part of the power purchase agreement SECI / DISCOMS / government signs with project developers.
- Ban on Landfills: Solar panel waste is harmful to the environment as it contains toxic metals and minerals that may seep in the ground.
- Business Incentives: New business models, incentives or issues of green certificates to be provided to encourage the recycling industry to participate more.
- Research and Development: Innovation in design may have an impact on the type of waste they generate; technology advancements will be significant in reducing the impact of renewable energy waste. New panels, for example, use less silicon and produce less waste during the manufacturing process.

SWIFT

GS-III ECONOMY

Context

- The US and European Union (EU) have decided to cut off a number of Russian banks from the main international payment gateway, SWIFT.

What is SWIFT?

- SWIFT is a messaging network used by banks and financial institutions globally for quick and faultless exchange of information pertaining to financial transactions.
- The Belgium-headquartered SWIFT connects more than 11,000 banking and securities organisations in over 200 countries and territories.
- Each participant on the platform is assigned a unique eight-digit SWIFT code or a bank identification code (BIC). If a person, say, in New York with a Citibank account, wants to send money to someone with an HSBC account in London, the payee would have to submit to his bank the London-based beneficiary's account number along with the eight-digit SWIFT code of the latter's bank. Citi would then send a SWIFT message to HSBC. Once that is received and approved, the money would be credited to the required account.
- SWIFT is merely a platform that sends messages and does not hold any securities or money. It facilitates standardised and reliable communication to facilitate the transaction.
- SWIFT, first used in 1973, went live in 1977 with 518 institutions from 22 countries, its website states. SWIFT itself had replaced the much slower and far less dynamic Telex.

SWIFT international payments network

The global extent of SWIFT

Society for Worldwide Interbank Financial Telecommunication

Authority to record IBAN and BIC banking codes

No real competitor

Connects 11,000 banking organisations in 200 different countries

Transmits more than 5 billion financial messages per year

The SWIFT system

1 → 2 → 3

Connects banks when their clients make transactions

If two organisations are not partners, SWIFT can connect them through an intermediary organisation

Describes itself as a secure and reliable system with exchanges only between banking partners

What does the move aim to achieve?

- Excluding Russian banks from the SWIFT platform is expected to hit the country's economy hard — and in the words of the White House, it will make the country rely on "the telephone or a fax machine" to make payments.

Are any countries excluded from SWIFT?

- Iranian banks were ousted from the system in 2018 despite resistance from several countries in Europe.

What happens if one is excluded from SWIFT?

- If a country is excluded from the most participatory financial facilitating platform, its foreign funding would take a hit, making it entirely reliant on domestic investors. This is particularly troublesome when institutional investors are constantly seeking new markets in newer territories. An alternative system would be cumbersome to build and even more difficult to integrate with an already expansive system.

What happens if Russia is disconnected from SWIFT?

- Russia sets up its own SWIFT counterpart called SPFS, with plans to integrate it with China's counterpart CIPS



- This would allow trade between the two. Russia is also working on launching a digital version of its rouble

- India, Russia & China were using the BRICS grouping to create an alternative to SWIFT — this could get a boost now



How is the organisation governed?

- SWIFT claims to be neutral. Its shareholders, consisting of 3,500 firms across the globe, elect the 25-member board, which is responsible for oversight and management of the company.
- It is regulated by G-10 central banks from Belgium, Canada, France, Germany, Italy, Japan, The Netherlands, the United Kingdom, the United States, Switzerland, and Sweden, alongside the European Central Bank. Its lead overseer is the National Bank of Belgium.
- The SWIFT oversight forum was established in 2012. The G-10 participants were joined by the central banks of India, Australia, Russia, South Korea, Saudi Arabia, Singapore, South Africa, the Republic of Turkey, and the People's Republic of China.
- Europe, Middle East, and Africa are the highest contributors to SWIFT.
- In 2021, the SWIFT financial messaging platform had recorded an average of 42 million FIN messages per day. The full-year figure was an 11.4% growth on a year-over-year basis.
- Europe, the Middle East, and Africa, combined, sent approximately 4.66 billion messages. The Americas and the United Kingdom stood second with 4.42 billion interactions, with the Asia Pacific on third with an approximate 1.50 billion messages.

NON-FUNGIBLE TOKENS

GS-III ECONOMY

Context

- According to market data tracker app Radar data analytics, the sales of NFTs surged \$25 billion in 2021 as the crypto asset exploded in popularity, fuelled by the rising interest of celebrities and tech evangelists.

What is NFT?

- NFTs are transaction records captured on the blockchain — the web version of a physical ledger. Non-Fungible Tokens allow people to trade the ownership of digital entities such as memes, media, tweets, arts, articles in "token" form.
- The term 'non-fungible' simply means that each token is different as opposed to a fungible currency such as money (a ten-rupee note can be exchanged for another and so on).
- As NFTs are supported by blockchain, these transaction records are permanent, verified multiple times and cannot be erased or changed.
- Each non-fungible token is uniquely identifiable. So, no two digital entities can have the same token. A NFT is essentially a certificate of authenticity or a digital autograph that can be attached to digital property.

How does it work?

- When you buy an NFT, you do not necessarily own the connected piece of art, meme or music. This is because a NFT does not convey copyright or usage rights unless there is an explicit licence mentioning it. The right that an NFT confers on you is a digital bragging right.
- Multi-million-dollar NFT sales have lately been attracting social media eye-balls. For instance, an NFT for an animated Gif of a meme of a flying pop-tart cat sold for more than \$500,000.
- NFTs don't offer any cash flow and are not real assets. The only way one can make money is by luring others into buying the NFT off you.
- Remember, before you sell an NFT, you need to create one. Unless you are a blockchain enthusiast, creating an NFT will require spending real money in the order of \$100 which will go into the crypto economy.

Who can buy NFTs?

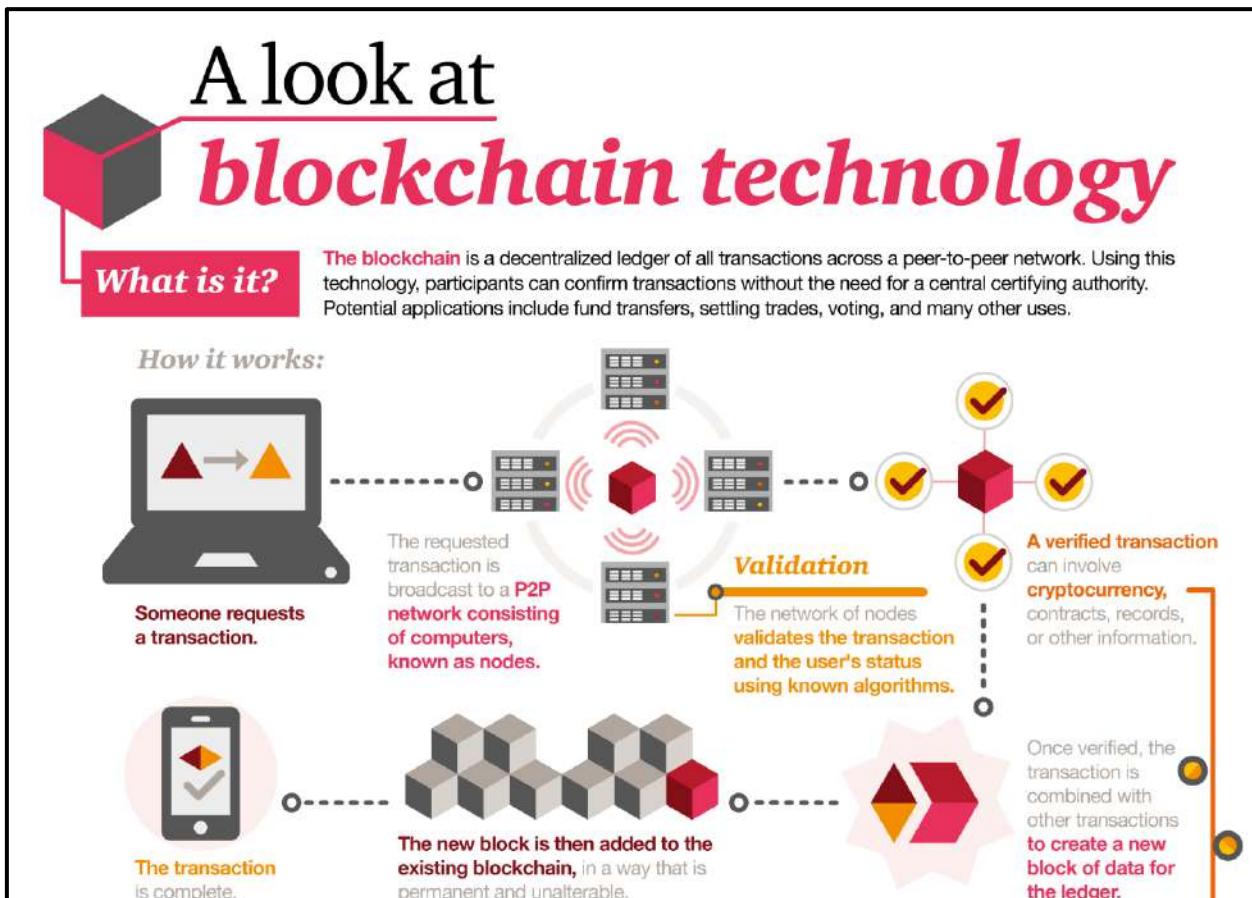
- Anyone who holds a cryptocurrency wallet can buy an NFT. That is the only prerequisite to purchase an NFT. You don't need any KYC documents to purchase an art.
- All you need is a cryptocurrency wallet powered by Metamask, and an NFT marketplace where you can buy and sell NFTs.

Difference between Fungible and Non-Fungible tokens

Non-Fungible Tokens	Fungible Tokens
Unique Each non-fungible token of the same type is unique in its own way. For example - There are many CryptoKitties present in the market but each one has its own attributes that makes them unique.	Uniform Fungible tokens of the same type are identical to one another. This is because each token has a common attribute. For example - Ether is a fungible token and all Ethers are identical to one another.
Non-Interchangeable Non-fungible tokens have their own properties and therefore their own prices. The price of one non-fungible token may not be the same as that of the other even if they have the same category. For example - The properties developed on cryptovoxels will have their own features and therefore their own prices. They are therefore non-interchangeable.	Interchangeable Fungible tokens on the other hand have the same properties and therefore have the same prices as well. They can therefore be interchangeable. For example - one Uniswap token (UNI) is similar to any other token and can therefore be interchangeable.
Non-Divisibility Non-fungible tokens are non divisible. A simple argument for that is that a fraction of CryptoKitty cannot be bred. They can only be traded and held in whole numbers.	Divisibility Fungible tokens can be divided into as many smaller parts as we want, as long as they add up to the same number. Traders who do not wish to buy 1 Bitcoin because of its price can even buy Bitcoin for as minimum as \$100 and even less.

Examples of Fungible & Non-Fungible Tokens

Fungible	Non-Fungible
Dollar 	Cryptokitties 
Bitcoin 	Art 
Ethereum 	House/Property 



NEW SCHEME FOR MERCHANT DISCOUNT RATE (MDR)

GS-III ECONOMY

Context

- The Union Cabinet chaired by Prime Minister Narendra Modi approved an incentive scheme worth Rs 1,300 crore for 2022-23 to promote RuPay debit cards and low-value Unified Payments Interface (UPI) transactions up to Rs 2,000 by reimbursing the merchant discount rate (MDR) to banks, which was brought down to zero in December 2019.

Details

- The Government will reimburse transaction charges levied on digital payments made by persons to the merchant as part of the **merchant discount rate (MDR)**.

Merchant Discount Rate

- It is a charge levied for facilitating a digital transaction and is generally distributed among various parties.
- MDR compensates the bank issuing the card, the bank which installs the PoS (Point of Sale) terminal and network providers (MasterCard and Visa), and payment gateways for their services.
- MDR charges are proportionally shared between the merchant and the bank, and the charges are expressed as a percentage of the transaction amount.

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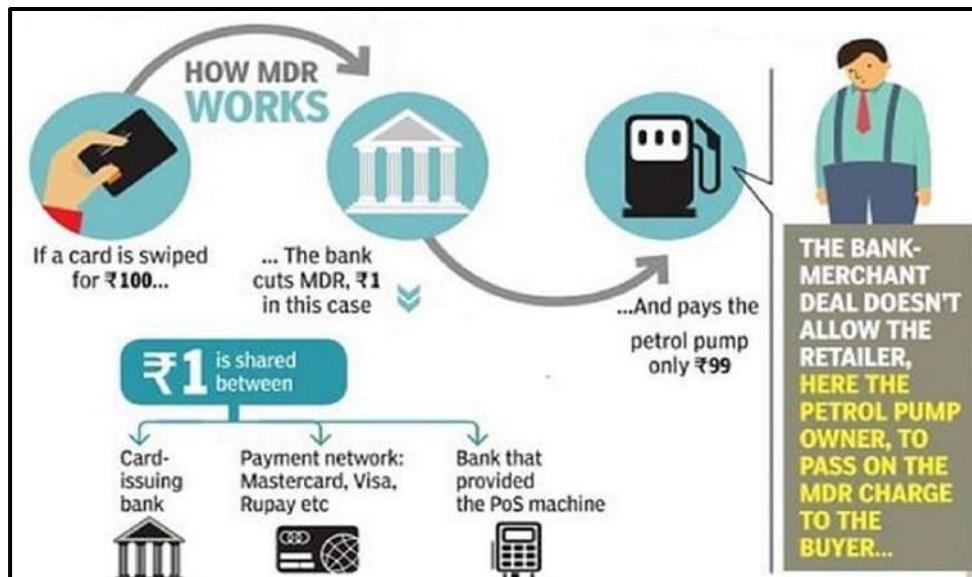
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How MDR works?



Possible impact of Zero MDR on Rupay and BHIM-UPI Payments

Negatives

- Reduction of income for Banks and PSPs:** This may disincentivize the banks and the PSPs from promoting UPI and RuPay transactions. This may also push them to shift their business model to selling financial data of their users.
- Continued MDR for SMEs:** the Government's Zero-MDR decision is aimed solely at entities with an annual turnover in the excess of rupees 50 Crores, and hence it is unlikely to offer any respite to the small enterprises, or increase adoption of UPI and RuPay among them, as desired.
- It will bring losses to NPCI which has developed the RuPay and BHIM UPI
- Many financial technology companies** like freecharge, paytm etc. have integrated UPI into their applications for facilitating digital payments. The waiver of MDR charges through UPI would lead to reduced profits, which might discourage innovation and hurt the fintech sector.

Positives

- It will help bring down the cost of digital payments done through RuPay and BHIM-UPI;
- It shall also encourage the adoption of indigenously developed payment tools;
- It will help promote the cashless economy;
- It will also help in Nudging the other payment operators such as Visa or Mastercard to bring down their commissions.

Conclusion

- The 2016 Watal Committee Report, and the 2019 Nilekani Committee Report on digital payments both have acknowledged that MDR is essential for the sustained growth of the industry.
- While the Watal Committee Report believes that the fee should be market-fixed, the Nilekani Committee Report suggests that a standing committee of the RBI review the rate periodically, such as in the case of benchmark rates.

SCALE BASED REGULATION OF NBFCs

GS-III ECONOMY

Context

- The Reserve Bank of India (RBI)** has introduced a revised scale-based regulatory framework for non-banking financial companies (NBFCs), which will be effective from 1 October, 2022.
- The scale-based framework encompasses different facets of regulation of NBFCs covering capital requirements, governance standards, prudential regulation, and others.

What is NBFCs?

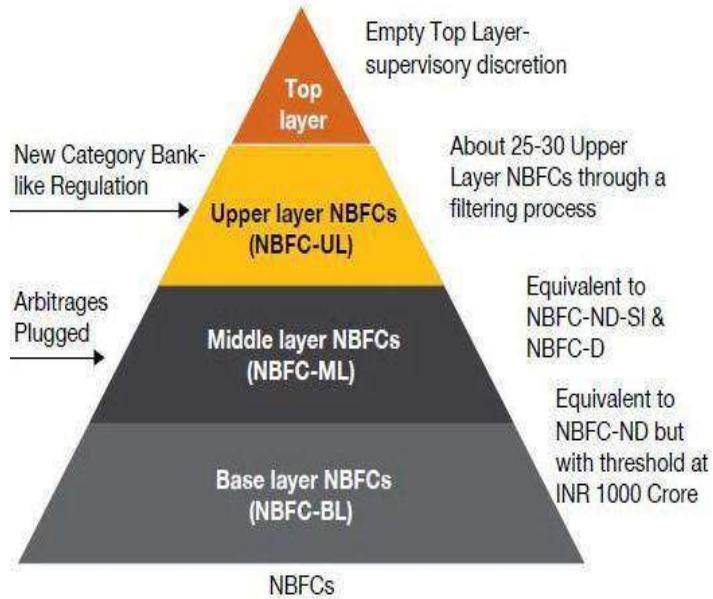
- A Non-Banking Financial Company (NBFC)** is a company registered under the Companies Act, 1956 engaged in the business of loans and advances, acquisition of shares / stocks / bonds / debentures / securities issued by Government or local authority or other marketable securities of a like nature, leasing, hire-purchase, insurance business, chit business but does not include any institution whose principal business is that of agriculture activity, industrial activity, purchase or sale of any goods (other than securities) or providing any services and sale/purchase/construction of immovable property.

Difference between Banks and NBFCs

Basis for Comparison	Bank	NBFC
Meaning	Bank is a government authorized financial intermediary that aims at providing banking services to the general public.	An NBFC is a company that provides banking services to people without holding a bank license.
Incorporated under	Banking Regulation Act, 1949	Companies Act 1956 or Companies Act 2013
Loan sanction process	Comparatively Stringent	Easier and faster
Demand Deposit	Accepted	Not Accepted
Deposit insurance facility	Available	Not available
Overdraft Facility	Available in some banks such as SBI	Not Available
Maintenance of Reserve Ratios	Compulsory	Not required
Credit creation	Banks create credit	NBFC do not create credit
Transaction services	Provided by Banks	Not provided by NBFC
Foreign Investment	Allowed up to 74% for private sector banks	Allowed up to 100%

RBI's scale based regulation (SBR) of NBFCs

Scale Based Approach – Introducing Scale Based Framework



Key regulatory changes under the SBR framework

1. Applicability

- The RBI has clarified that the existing regulations and directions notified for NBFCs will continue to apply other than the changes introduced under the SBR Framework. Any regulatory stipulation applicable to a lower layer under the new NBFC categorisation will automatically apply to a higher layer, unless otherwise notified by the RBI.

2. Changes to minimum capitalisation requirements for specified NBFCs:

- The RBI has increased the minimum net owned fund (NOF) requirement for NBFC-ICC from INR 2 crores to INR 10 crores. For NBFC-MFI and NBFC-Factor, the NOF requirement has been increased from INR 5 crores to INR 10 crores.

3. Changes to NPA classification norms

- The RBI has prescribed a uniform overdue period of more than 90 days for classification of a non-performing asset (NPA) by all categories of NBFCs.
- Presently, all NBFCs other than NBFC-MFIs enjoy a longer overdue period of six months (or twelve months for lease rental and hire purchase instalments) for classifying an asset as an NPA.
- As a financial sector regulator, the RBI has looked to tighten the screws on several regulatory and compliance aspects, so as to ensure that NBFCs are well-funded, efficiently managed, and insulated against various risks. Overall, the SBR Framework seems to be a positive step towards bringing accountability and responsibility in the shadow banking space.

SCHEDULED BANK STATUS FOR PAYTM

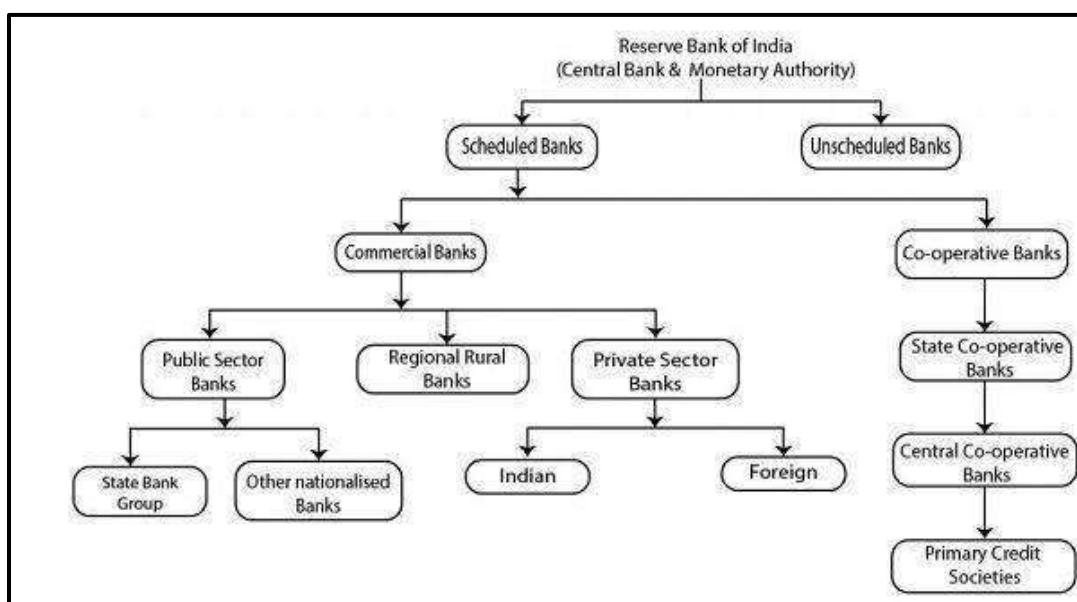
GS-III ECONOMY

Context

- Paytm Payments Bank has been given the scheduled bank status by the Reserve Bank of India.

How does it make a difference?

- With the scheduled bank status, the bank can explore new business opportunities, including participation in government and other large corporations issued request for proposals, primary auctions, fixed-rate and variable rate repos, and reverse repos.



Definition of scheduled bank

- Scheduled banks are those banks that are listed under Schedule II of the Reserve Bank of India Act, 1934.
- The bank's paid-up capital and raised funds must be at least Rs. 5 lakh to qualify as a scheduled bank. These banks are liable for low interest loans from the RBI.
- They also have membership in clearing houses.
- They also have numerous obligations to fulfil such as maintaining an average daily Cash Reserve Ratio with the central bank.

Difference between the Scheduled Banks and Non-Scheduled Banks

	SCHEDULED BANKS	NON SCHEDULED BANKS
Meaning	Scheduled banks is a banking corporation whose minimum paid up capital is Rs. 25 lakhs and does not harm the interest of the depositors.	Non-scheduled banks are the banks which do not comply with the rules specified by the Reserve Bank of India, or say the banks which do not come under the category of scheduled banks.
Second Schedule	Listed in the Second schedule	Non-listed in the Second schedule
Cash Reserve Ratio	Maintained with RBI.	Maintained with themselves.
Borrowing	Scheduled banks are allowed to borrow money from RBI for regular banking purposes.	Non-Scheduled banks are not allowed to borrow money from RBI for regular banking purposes.
Returns	To be submitted periodically.	No such provision of submitting periodic returns.

Members of clearing house	It can become a member of clearing house	It can not become a member of clearing house.
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Differentiated Banks in India

WHO CAN PROMOTE	PAYMENTS BANKS	SMALL BANKS
WHAT THEY MUST DO	<ul style="list-style-type: none"> ➢ Prepaid card issuers, telecom companies, NBFCs, business correspondents, supermarket chains, corporates, realty sector co-ops & PSUs ➢ Have a minimum capital of Rs 100cr ➢ Maintain 75% of deposits in govt bonds ➢ Maintain 25% of deposits in other banks ➢ Have at least 26% investment by Indians ➢ Get listed if net worth crosses Rs 500cr ➢ Have 25% of branches in unbanked areas ➢ Be fully networked and technology driven ➢ Have Rs 1 lakh cap for deposits in one a/c 	<ul style="list-style-type: none"> ➢ Individuals/professionals with 10 years experience in finance, NBFCs, microfinance cos, local area banks ➢ Have a minimum capital of Rs 100cr ➢ Extend 75% of loans to priority sector ➢ Have 25% of branches in unbanked areas ➢ Maintain reserve requirements ➢ Cap loans to individuals and groups at 10% and 15% of net worth ➢ Have a business correspondent network
WHAT THEY CAN DO	<ul style="list-style-type: none"> ➢ Offer internet banking ➢ Sell mutual funds, insurance, pensions ➢ Offer bill payment service for customers ➢ Have ATMs and business correspondents (BC) ➢ Can function as BC of another bank 	<ul style="list-style-type: none"> ➢ Sell forex to customers ➢ Sell mutual funds, insurance, pensions ➢ Can convert into a full-fledged bank ➢ Expand across the country
WHAT THEY CAN'T DO	<ul style="list-style-type: none"> ➢ Offer credit cards ➢ Extend loans ➢ Handle cross-border remittances ➢ Accept NRI Deposits 	<ul style="list-style-type: none"> ➢ Extend large loans ➢ Float subsidiaries ➢ Cannot deal in sophisticated financial products

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NUCLEAR FUSION

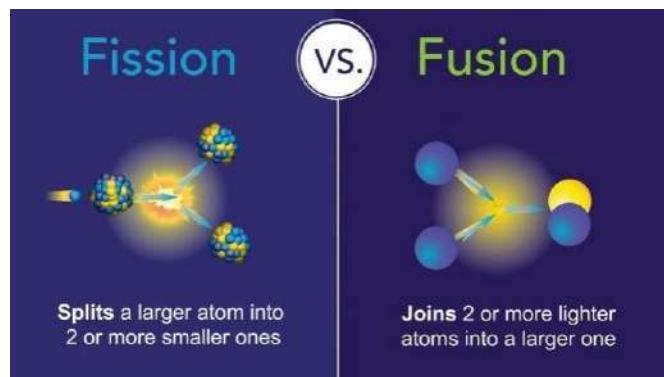
GS-III SCIENCE & TECHNOLOGY

Context

- Recently, scientists in the United Kingdom have achieved a new milestone in producing nuclear fusion energy, or imitating the way energy is produced in the sun.

Thermonuclear fusion

- About:** Thermonuclear fusion is the process by which hydrogen atoms combine to produce helium inside the Sun, and release immense energy in light and radiation.
- Core of Sun:** Ordinarily, these atoms cannot fuse. But in the sizzling heat at the core of the Sun with the intense pressure and dense core, the plasma of hydrogen fuse with each other to form helium, releasing colossal energy in the form of light and heat.



Understanding Nuclear Fission

- About:** Nuclear fission is a reaction in which the nucleus of an atom splits into two or more smaller nuclei..
- Process:** In this process, there is a subdivision of a heavy atomic nucleus, such as that of uranium or plutonium, into two fragments of roughly equal mass. The process is accompanied by the release of a large amount of energy. Some of this energy is from radiation, but the biggest source is kinetic energy.
- In Nuclear Reactor:** This is the energy that produces heat inside a reactor, which in turn is used to generate steam, and ultimately creates electricity.

Why is fusion a better option than fission to generate power?

- Less fuel:** Nuclear fusion requires less fuel than fission.
- Abundant supply:** Fusion is carried out by using deuterium (an isotope of hydrogen) as fuel, which is quite abundant in nature. In contrast, the fuel necessary for fission (uranium, plutonium or thorium) is very hard to get - and highly expensive.
- No Radioactive waste:** Unlike fission, nuclear fusion does not produce any radioactive waste.
- No CO₂:** Fusion doesn't emit harmful toxins like carbon dioxide or other greenhouse gases into the atmosphere. Its major by-product is helium: an inert, non-toxic gas.
- No Chain Reaction:** Fusion doesn't produce runaway chain reactions the way fission does so it can be controlled easily.
- Huge amount of energy:** A kilogram of fusion fuel contains about 10 million times as much energy as a kilogram of coal, oil or gas.
- Limited risk of proliferation:** Fusion doesn't employ fissile materials like uranium and plutonium. (Radioactive tritium is neither a fissile nor a fissionable material.) There are no enriched materials in a fusion reactor that could be exploited to make nuclear weapons.

Why couldn't we use Nuclear Fusion then?

- Temperature and Pressure requirements:** For fusion to occur on Earth, we need a temperature of at least 100 million degrees Celsius – six times hotter than the core of the sun. The sun is a natural fusion reactor which makes up 15 million degrees with the intense pressure created by its core's gravity.
- Huge power consumption:** Experimental fusion reactors do exist -- but they consume way more power than they produce, which basically defeats the purpose of generating power using fusion.
- Lack of resistant materials:** It's quite difficult to find materials that can withstand the reaction.

Nuclear Fission vs Nuclear Fusion

A heavy nucleus breaks up to form two lighter nuclei.	Two nuclei combine to form a heavy nucleus.
It involves a chain reaction.	Chain reaction is not involved.
The heavy nucleus is bombarded with neutrons.	Light nuclei are heated to an extremely high temperature.
We have proper mechanisms to control fission reaction for generating electricity.	Proper mechanisms to control fusion reaction are yet to be developed.
Disposal of nuclear waste is a great environmental problem.	Disposal of nuclear waste is not involved.
Raw material is not easily available and is costly.	Raw material is comparatively cheap and easily available.

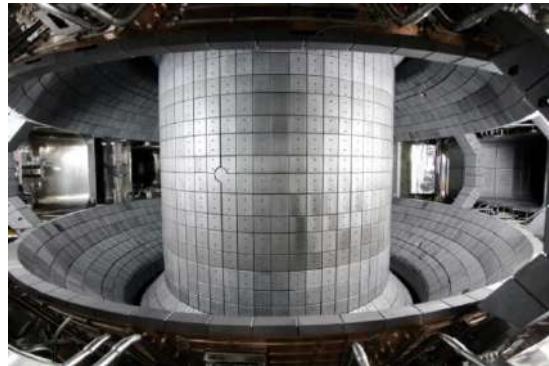
- **Energy requirements:** It requires a lot of excess energy in order to keep the fusion reaction going once it has started.
- **Risk of meltdown:** If fusion has to occur, the first step has to be the creation of hot plasma. Heating a tiny pellet of hydrogen to millions of degrees and generating plasma is not that hard. However, to keep the fiery plasma at millions of degrees from touching the container wall is a challenge.

Developments in the recent years

- Today, we conduct fusion reactions in a machine/reactor called the Tokamak.
- Harnessing energy from thermonuclear fusion today is a global collaborative effort.
- Thirty-five countries, including India, Russia, the United States, the United Kingdom, China, European Union, are collaborating to jointly build the largest Tokamak as part of the International Thermonuclear Experimental Reactor (ITER).

Tokamak

- The Tokamak is an acronym for a Russian term which means "toroidal chamber with magnetic coils". Tokamaks were first conceptualised by Soviet physicists Igor Tamm and Andrei Sakharov.
- They theorized that if one can create a magnetic field in the shape of a torus then the scorching plasma could be contained. The scalding of the walls of the container from the intense heat of plasma could be prevented.
- Unlike fission reactors, fusion reactors like the tokamaks do not pose the dangers of a radioactive leak.
- Gram for gram, the thermonuclear power produces four million times more energy than burning coal. The only waste product is harmless helium.



China's "artificial sun"

- Recently, China's "artificial sun" set a new record after it ran at 120 million degrees Celsius for 101 seconds.
- The Experimental Advanced Superconducting Tokamak (EAST) device designed by China replicates the nuclear fusion process carried out by the sun.

ITER

About

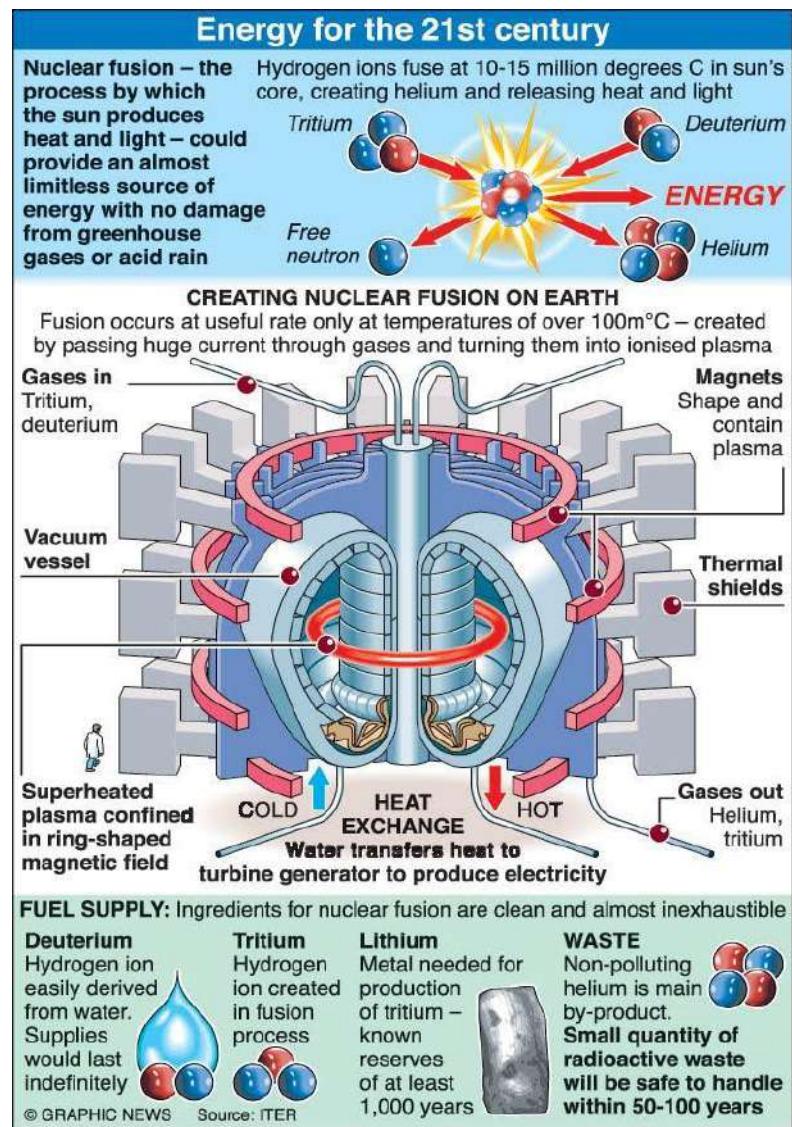
- ITER is an international nuclear fusion research and engineering megaproject aimed at replicating the fusion processes of the Sun to create energy on the Earth.
- ITER is funded and run by seven member parties: China, the European Union, India, Japan, Russia, South Korea and the United States.

Genesis

- The idea germinated in 1985. After years of ups and downs since March 2020, the machine assembly is underway at France. With the installation of the Cryostat, a device to cool the reactor, covering the assembly is slated to be completed by 2025.

Method

- The ITER fusion reaction will use the isotopes of hydrogen called deuterium and tritium. To create plasma for fusion, the mixture of deuterium and tritium needs to be heated to temperatures 10 times hotter than the Sun's centre.
- Using strong magnets, the writhing plasma must



be held in place without touching container walls. It would be made to swirl around, beams collide, fuse and release tremendous energy as heat. The heat must be removed from the reaction to boil water, produce steam and turn a turbine to generate electricity.

Significance

- The plant is expected to generate 500 MW power and consume 50 MW for its operation, resulting in a net 450 MW power generation.
- If all goes well, the first plasma will be produced at the end of 2025. After testing and troubleshooting, energy production will commence in 2035.

Final Thoughts

- The ideal future energy mix for the planet would be based on a variety of generation methods instead of a large reliance on one source. As a new source of carbon-free base load electricity, producing no long-lived radioactive waste, fusion could make a positive contribution to the challenges of resource availability, reduced carbon emissions, and fission waste disposal and safety issues.
- Sustainability is another advantage. Fusion fuels are widely available and nearly inexhaustible. Deuterium can be distilled from all forms of water, while tritium will be produced during the fusion reaction as fusion neutrons interact with lithium.
- Terrestrial reserves of lithium would permit the operation of fusion power plants for more than 1,000 years, while sea-based reserves of lithium would fulfil needs for millions of years.

ACCELERATE VIGYAN SCHEME

GS-III SCIENCE & TECHNOLOGY

Context

- Science and Engineering Research Board (SERB), has invited applications under 'ABHYAAS', a program of 'Accelerate Vigyan' scheme, for summer season.

Accelerate Vigyan Scheme

Launch

- Accelarate Vigyan Scheme was launched by the Science and Engineering Research Board (SERB) in 2020.

Aim and Objective

- "Accelerate Vigyan" (AV) strives to provide a big push to high-end scientific research and prepare scientific workforce, which can venture into research careers and a knowledge-based economy.
- AV aims to expand the research base in the country, with three broad goals –
 - consolidation / aggregation of all scientific training programs,
 - initiating high-end orientation workshops and
 - creating opportunities for training and skill internships.

Implementation

- An Inter-Ministerial Overseeing Committee (IMOC) involving all the scientific ministries/departments and a few others has been constituted for the purpose of supporting SERB in implementing the AV scheme in a successful manner.

Programmes under Accelerate Vigyan Scheme

1. 'ABHYAAS'

About

- 'ABHYAAS' programme, is an attempt to boost research and development in the country by enabling and grooming potential PG/PhD students by means of developing their research skills in selected areas across different disciplines or fields.

Components

- It has two components: High-End Workshops ('KARYASHALA') and Research Internships ('VRITIKA').

Significance

- This is especially important for those researchers who have limited opportunities to access such learning capacities / facilities / infrastructure.
- 2. SAMMOHAN**
- Samoohan is aimed to encourage, aggregate and consolidate all scientific interactions in the country under one common roof. This mission, through its wide knowledge base, caters to a varied audience – Research & Development Departments, Institutes in Science & Technology as well as stakeholders - mentors, coordinators, participants and students.
- This programme has been sub-divided into 'SAYONJIKA' and 'SANGOSHTI'.

I. SAYONJIKA

- It is an open-ended program for aggregation of the major capacity building activities of all government funded science departments/ ministries in the country.

II. SANGOSHTI

- It is a pre-existing program of SERB. This involves providing partial financial support to hold conferences, seminars, symposia, technical meetings and short-term training programs/workshops.

Significance of Accelerate Vigyan Scheme

Capacity Building

- The database of skilled manpower developed across different disciplines and the final outcomes of all the sub-components of the AV will serve the cause of all stakeholders in respect of capacity building in the country.

Social Responsibility

- The scheme will garner the social responsibility of the scientific community in the country.

Skilled manpower

- The AV platform is expected to be a game changer for developing career paths and providing support to catalogue the development of skilled man-power.

National scale Research based development

- Recognizing that all research has its base as development of quality and well-trained researchers, AV will initiate and strengthen mechanisms of identifying research potential, mentoring, training and hands-on workshop on a national scale.

Science and Engineering Research Board (SERB)

- It is a Statutory body of the Department of Science and Technology (DST).
- The Organization aims to uplift science and engineering in India, in a manner that can contribute majorly in the economic growth of the country. It is the premier research funding agency in India. Its functions include:
 - Investigating and identifying the major areas of development and research
 - Maintaining a disciplinary link between academic institutions, research labs, and industries promoting Science and Technology.
 - Monitoring the development and implementation of various research projects.

ARTIFICIAL NEURAL NETWORK

GS-III SCIENCE & TECHNOLOGY

Context

- Through Artificial Neural Networks, artificial intelligence has become more powerful – The Hindu.

Background

What is AI?

- AI (Artificial Intelligence) is the ability of a machine to perform cognitive functions as humans do, such as perceiving, learning, reasoning and solving problems.

Artificial Intelligence and its subsets

- Artificial intelligence can be divided into three fields:
 - Artificial intelligence (AI) itself,
 - Machine learning (ML) and
 - Deep learning

In a nutshell,

- AI is a broader concept than ML, which addresses the use of computers to mimic the cognitive functions of humans.
- When machines carry out tasks based on algorithms in an "intelligent" manner, that is AI. (Example: Amazon Alexa)
- ML is a subset of AI and focuses on the ability of machines to receive a set of data and evolve as they learn more about the information they are processing. (Example- Spam Detection). Deep Learning goes a step further.

ARTIFICIAL INTELLIGENCE VS MACHINE LEARNING VS DEEP LEARNING

① Artificial Intelligence

Development of smart systems and machines that can carry out tasks that typically require human intelligence

② Machine Learning

Creates algorithms that can learn from data and make decisions based on patterns observed
Require human intervention when decision is incorrect

③ Deep Learning

Uses an artificial neural network to reach accurate conclusions without human intervention

Deep Learning – A subset of Machine Learning

- Deep Learning is a subset of Machine Learning, which on the other hand is a subset of Artificial Intelligence.
- Deep Learning is inspired by the structure of a human brain. Deep learning algorithms attempt to draw similar conclusions as humans would by continually analyzing data with a given logical structure.
- To achieve this, deep learning uses a multi-layered structure of algorithms called neural networks.

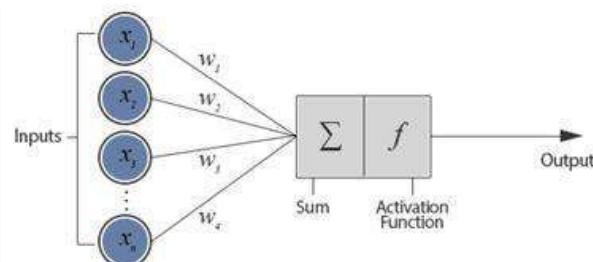
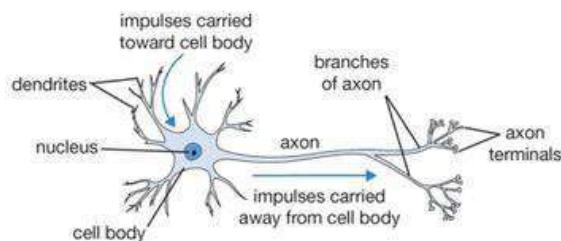
Artificial neural network (ANN) – Part of Deep Learning

- Artificial neural network refers to a system or an algorithm used in deep learning that mimics how the human brain's neural circuits function, such as when making sense of things and events.

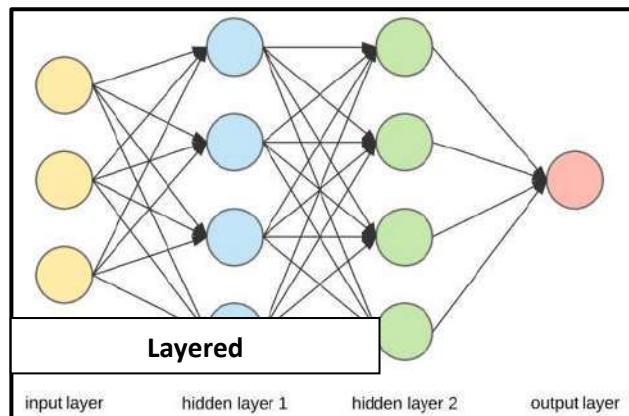
Biological Neural Network

- The neuron is the basic working unit of the brain, a specialized cell designed to transmit information to other nerve cells, muscle, or gland cells. Neurons are cells within the nervous system that transmit information to other nerve cells, muscle, or gland cells. Most neurons have a cell body, an axon, and dendrites.
- A biological neural network/circuit is a population of neurons interconnected by synapses to carry out a specific function when activated. Neural circuits interconnect to one another to form large scale brain networks. Biological neural networks have inspired the design of artificial neural networks.

Biological Neuron versus Artificial Neural Network



- An Artificial neural network is an architecture where the layers are stacked on top of each other. In deep learning, the learning phase is done through a neural network.
- Thus, Deep learning does not mean the machine learns more in-depth knowledge; it means the machine uses different layers to learn from the data.
- The depth of the model is represented by the number of layers in the model. For instance, Google for image recognition counts 22 layers.



Applications of Artificial neural network (ANN)



Some limitations of Deep Learning

Requirement of massive Data sets: Detrimental to small firms

- Deep learning algorithms require massive datasets for training.
- Example: For a speech recognition program, data formulating multiple dialects, demographics and time scales are required to obtain desired results. Major tech giants like Google and Microsoft are able to gather and have abundant data. But small firms with good ideas may not be able to do so.

Sparse availability of Data

- Sometimes, the data necessary for training a model is already sparse or unavailable.

Expensive

- Deep learning models are an extremely costly affair due to complex data models. Sometimes, they require expensive GPUs and hundreds of machines, which add up the cost for the users.

Can fail in real world

- Deep learning algorithms sift through millions of data points to find patterns and correlations.
- These models that perform well on benchmarked datasets, can fail badly on real world images outside the dataset. To illustrate this, consider a deep learning algorithm which learns that school buses are always yellow, but, all of a sudden, school buses become blue, it will need to be retrained.

Lacks common sense

- Current algorithms may fail to discern that both sofas and chairs are for sitting. It also falls short of general intelligence and multiple domain integration. Thus, it lacks common sense, to draw conclusions in cross-domain boundary areas.

Black box problem

- They are hard to debug or understand how they make decisions.

Vulnerable to adversarial samples

- Inputs crafted by adversaries with the intent of causing deep neural networks to misclassify.

Lack of objectivity

- The presence of biases in the datasets can lead to inexact outcomes – thus inherently amplifying the discrimination in real world. Existence of black box can make it challenging for the developers to identify where, how such maligned data was fed to the system.

Example: Amazon scrapped its internal recruitment AI once it came to light that it was biased against women.

Way Ahead

- Deep learning has to be combined with other technologies such as plain-old rule-based programming and other AI techniques such as reinforcement learning.
 - Experts propose neuroscience as the key to creating real AI that will be able to achieve human-like problem solving.
 - Government should develop policies for 'ethical AI', when considering the application of AI, Big Data and predictive analytics for making consequential decisions.
- Reinforcement learning is a machine learning training method based on rewarding desired behaviors and/or punishing undesired ones.
 - In computer science, a rule-based system is used to store and manipulate knowledge to interpret information in a useful way.

SYNTHETIC BIOLOGY

GS-III SCIENCE & TECHNOLOGY

Context

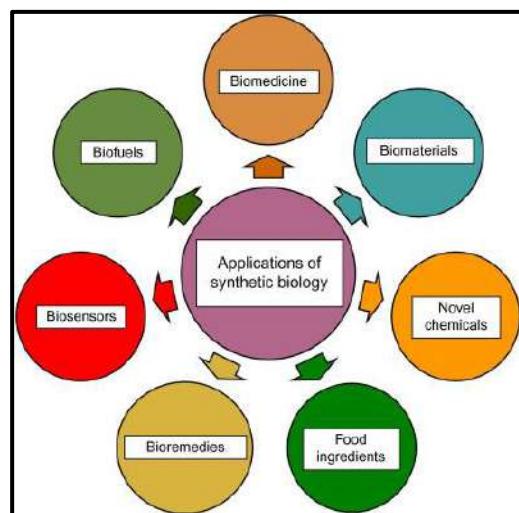
- Central Government is working on a national policy on synthetic biology.

What is Synthetic Biology?

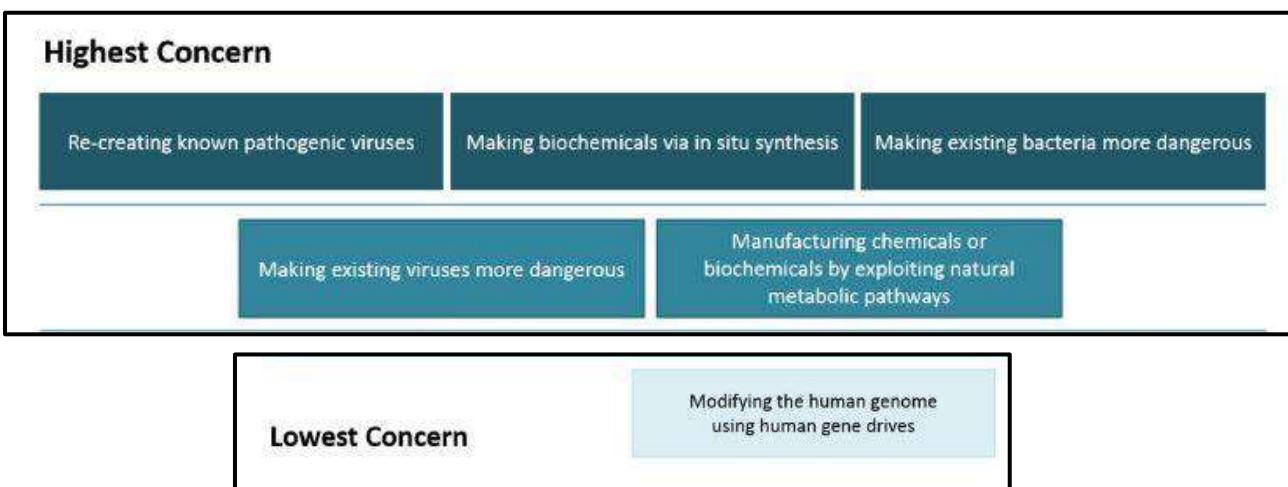
- Synthetic biology is a field of science that involves redesigning organisms for useful purposes by engineering them to have new abilities.
- In essence, synthetic biology combines biotechnological tools with ideas from engineering, computer sciences and design thinking, and uses them to build new biological systems.
- It is an emerging science that deals with engineering life forms for a wide range of applications from making designer medicines to foods.

Prospects of Synthetic Biology

- It can redesign 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.
- Some examples of what scientists are producing with synthetic biology are:**
- Harnessing Microorganisms for bioremediation to clean pollutants from our water, soil and air.
- Modifying rice to produce beta-carotene, a nutrient usually associated with carrots, that prevents vitamin deficiency.
- Engineering algae as biofactories for renewable fuel.
- Engineering strains of microorganisms and novel enzymes to synthesize all sorts of Food Additives from food colorings, to sweeteners, to meat tenderizers, to preservatives.
- Using bacteria to turn methane into bioplastics for clothing and other goods that will degrade naturally if they end up in our oceans as so much waste does.
- Engineering soil bacteria to end our dependence on synthetic fertilizers.



Concerns associated with Synthetic Biology



In a nutshell,

- The hazards of synthetic biology include biosafety hazards to workers and the public, biosecurity hazards stemming from deliberate engineering of organisms to cause harm, and hazards to the environment.

Final Thoughts and Way Ahead

- Synthetic biology is seen as one of the top ten breakthrough technologies as part of the “new industrial revolution” that are “most likely to change the world”.
- National regulation of both the benefits and risks is important for accelerating pace of scientific research of synthetic.
- The laws and regulations framework governing traditional tools and products of biotechnology can be applicable to this relatively nascent field.

HELIOSWARM AND MUSE

GS-III SCIENCE & TECHNOLOGY

Context

- NASA has selected two science missions – the Multi-slit Solar Explorer (MUSE) and HelioSwarm – to help improve our understanding of the dynamics of the Sun, the Sun-Earth connection, and the constantly changing space environment.

MUSE

About

- The Multi-Slit Solar Explorer is a proposed Small Explorer mission for studying the dynamics of the Sun's corona and transition region using both conventional and novel spectral imaging techniques.

Objectives of the Mission

- To investigate the causes of coronal heating and instability, such as solar flares and coronal mass ejections, and gain insight into the basic plasma properties of the corona.
- To obtain high-resolution images of the evolution of solar flare ribbons.
- To understand the forces driving the heating of the Sun's corona and the eruptions in that outermost region that is at the foundation of space weather.

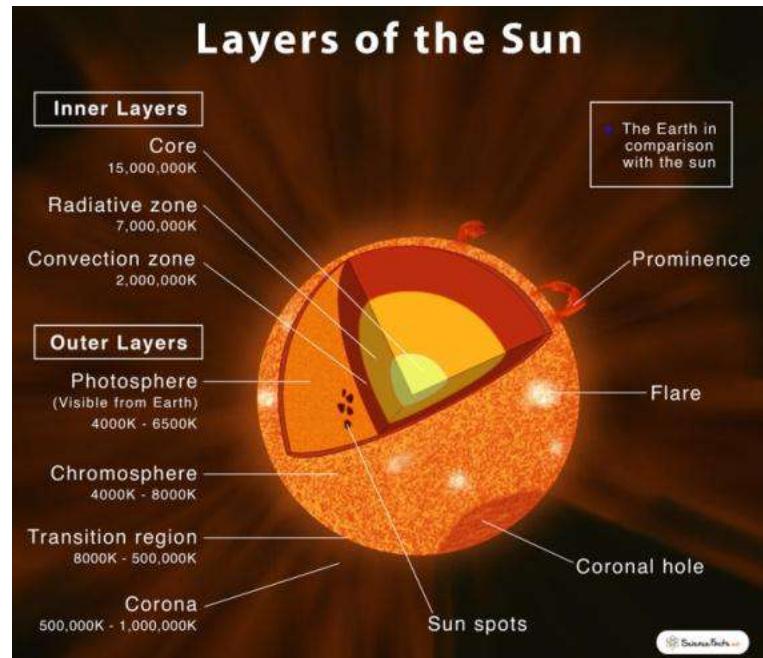
Significance

- The mission will offer deeper insight into the physics of the solar atmosphere.

HelioSwarm

About

- The HelioSwarm mission is a constellation or "swarm" of nine spacecraft that will capture the first multiscale in-space measurements of fluctuations in the magnetic field and motions of the solar wind known as solar wind turbulence.



Studying the Solar Wind

- The Sun's outermost atmospheric layer, the heliosphere, encompasses an enormous region of the solar system.
- Solar winds spread through the heliosphere, and their interactions with planetary magnetospheres and disruptions such as coronal mass ejections affect their turbulence.
- HelioSwarm's small satellites provide the unique ability to investigate turbulence and its evolution in the solar wind.

HELIOSPHERE

- The heliosphere is the magnetosphere and outermost atmospheric layer of the Sun. It takes the shape of a vast, bubble-like region of space. The "bubble" of the heliosphere is continuously "inflated" by plasma originating from the Sun, known as the solar wind. As part of the interplanetary magnetic field, the heliosphere shields the Solar System from significant amounts of cosmic ionizing radiation; uncharged gamma rays etc.

HELIOPAUSE

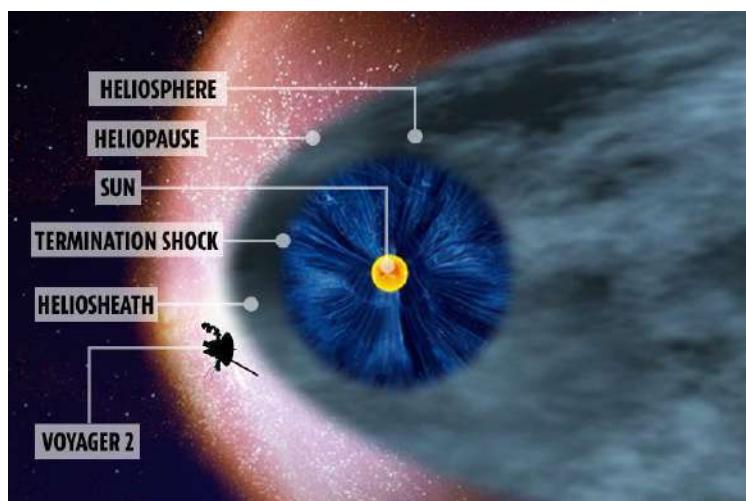
- Heliopause marks the end of a region created by our sun that is called the heliosphere. At heliopause the interstellar medium and solar wind pressures balance.

TERMINATION SHOCK

- The termination shock is the boundary marking one of the outer limits of the Sun's influence, and is one boundary of the solar system. It is where the bubble of solar wind particles slows down so that the particles are traveling slower than the speed of sound.

HELIOSHEATH

- The "heliosheath", is a broad transitional region between the termination shock and the heliosphere's outermost edge, the "heliopause".



INDIAN NEUTRINO OBSERVATORY PROJECT

GS-III SCIENCE & TECHNOLOGY

Context

- The Tamil Nadu government filed an affidavit in the Supreme Court stating that it would not permit the construction for the proposed Indian Neutrino Observatory at Bodhi West Hills in Theni district.

What are Neutrinos?

- A neutrino is a subatomic particle that is very similar to an electron, but has no electrical charge and a very negligible mass.

Characteristics of Neutrinos

- Neutrinos are not subject to the strong force. The weak force has a very short range, the gravitational interaction is extremely weak, and neutrinos do not participate in the strong interaction.
- Thus, neutrinos typically pass through normal matter unimpeded and undetected.
- About 100 trillion neutrinos pass through our bodies every second.
- The neutrino has a very little mass, a zero charge and a spin $\frac{1}{2}$.
- Neutrinos were first detected in 1959 and they are the second most abundant particle in the world after Photon.

Sources of Neutrinos

- Neutrinos are created by various radioactive decays; the following list includes some of those processes:
 - beta decay of atomic nuclei or hadrons,
 - natural nuclear reactions such as those that take place in the core of a star
 - artificial nuclear reactions in nuclear reactors, nuclear bombs, or particle accelerators
 - during a supernova
 - during the spin-down of a neutron star
 - when cosmic rays or accelerated particle beams strike atoms.

Detection

- A neutrino is able to react with an atom of gallium-71, converting it into an atom of the unstable isotope germanium-71.
- The germanium is then chemically extracted and concentrated. Neutrinos can be thus detected by measuring the radioactive decay of germanium.

India-based Neutrino Observatory

- In Theni district in Tamil Nadu, the India-based Neutrino Observatory is proposed to be set up.
- It is a particle physics research project under construction to primarily study atmospheric neutrinos in a 1,200 meters (3,900 ft) deep cave under a mountain. The main experiment proposed at INO is the Iron-Calorimeter Detector.

Why does INO need the mountain?

- The mountain consists of 1km of solid rock that filters away most of the charged particles from the cosmic rays.
- The filtered set consists of a part of the incident cosmic ray protons and ions and practically all the neutrinos.

Tamil Nadu's apprehension

- The project, if implemented, will affect the flora and fauna of the Periyar Tiger Reserve and Mathikettan Shola National Park in the Western Ghats.

METAMATERIALS

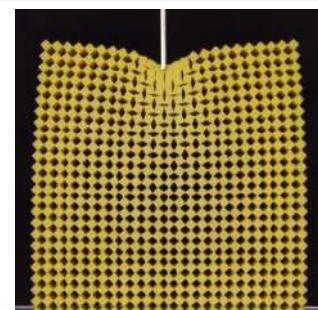
GS-III SCIENCE & TECHNOLOGY

Context

- Researchers from Indian Institute of Technology Madras have developed Origami Metamaterials, which could have many such uses.

Metamaterials

- A metamaterial is any material engineered at the atomic level to have a property that is not found in naturally occurring materials.
- They are made from assemblies of multiple elements fashioned from composite materials such as metals and plastics.



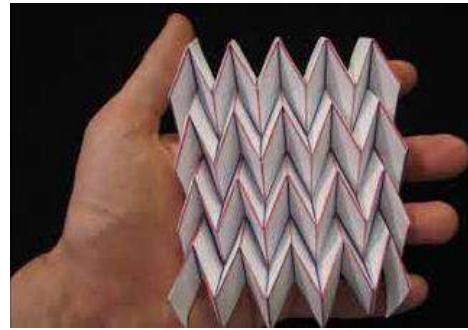
- Their precise shape, geometry, size, orientation and arrangement give them their smart properties capable of manipulating electromagnetic waves: by blocking, absorbing, enhancing, or bending waves.

Meta-materials and Negative Refraction

- Metamaterials are made up of nanoparticle building blocks (typically based on composite metals and plastics) that use extremely small, repetitive patterns to interact with light or other waves to produce dynamic effects.
- The refinement of the refraction can be modified to produce different values and transform positive refraction into negative.
- Negative refraction of light and other wave forms can be a highly desirable property. It bends waves as they enter the structure of the metamaterial, which may allow the materials to exhibit certain properties, including:
- Invisibility or optical camouflage.
- Extreme light magnification.
- Negative electrical permittivity and magnetic permeability.

Origami Meta-materials

- There has been a quest to develop materials that can be sandwiched in the fender system which will absorb the shock and prevent the interiors from being damaged.
- Origami meta-materials developed by Indian Scientists crumple rather than tear, and take the impact, can play an important role in such situations.
- This special class of origami meta-materials shows a constant value of Poisson Ratio when subjected to stress.
- Origami meta-materials combine the Japanese art of paper folding (origami) and the existing material of choice and fold it to obtain desired properties.



Poisson's ratio

- Poisson's ratio is defined as the ratio of the change in the width per unit width of a material, to the change in its length per unit length, as a result of strain.
- In order to be useful, materials need to maintain a constant Poisson ratio when they crumble under pressure. However, they are prone not to do so, and the Poisson ratio varies as they deform.

Potential Applications of Metamaterials

- Potential applications of metamaterials are diverse and include optical filters, medical devices, remote aerospace applications, sensor detection and infrastructure monitoring, smart solar power management, crowd control, high-frequency battlefield communication and lenses for high-gain antennas, improving ultrasonic sensors, and even shielding structures from earthquakes.

JIO SATELLITE

GS-III SCIENCE & TECHNOLOGY

Context

- Digital services company Jio Platforms has formed a joint-venture with Luxembourg-based satellite-linked content connectivity solutions provider SES to deliver satellite broadband services across India.

Details

- The joint venture will use multi-orbit space networks that is a combination of GEO (geostationary equatorial orbit) and MEO (medium earth orbit) satellite constellations.
- These would be capable of delivering multi-gigabit links and capacity to customers across the length and breadth of India and neighbouring regions.
- It will have availability of up to 100 Gbps capacity.

Some other similar initiatives

Elon Musk's Starlink

- Starlink is a satellite internet constellation operated by SpaceX providing satellite Internet access coverage to most of the Earth.
- The constellation has grown to over 1,700 satellites that will eventually consist of many thousands of mass-produced small satellites in low Earth orbit (LEO), which communicate with designated ground transceivers.

Bharti's One Web

- The OneWeb satellite constellation has a goal to provide global satellite Internet broadband services to people everywhere.

- The satellites are in a circular low Earth orbit, at approximately 1,200 km altitude.

GEO, MEO and LEO Satellites

- While GEO satellites are positioned at an altitude of 36,000 km, MEO and LEO are lower at altitudes of 5,000-20,000 km and 500-1,200 km, respectively.
- The altitude of the satellite is directly proportional to the area of earth that it covers. Therefore, the higher a satellite is positioned, the larger an area it covers.

GEO

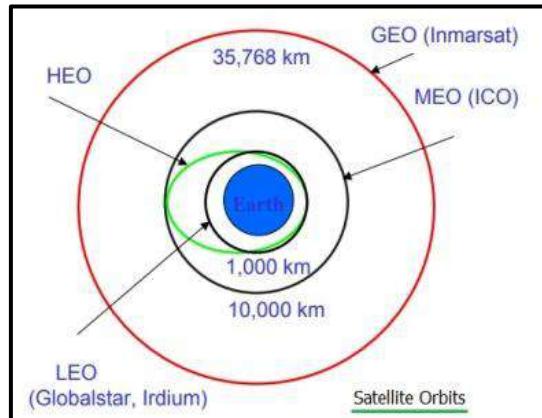
- Thus, GEO satellites provide a larger coverage and therefore only three satellites can cover the whole earth.

LEO

- Hundreds of LEO satellites are needed to provide coverage to a larger area.

MEO

- In case of MEO satellites, a simple equatorial orbit covers 96 per cent of the global population.
- But it shares some disadvantages of GEO satellites such as the need for a high inclined antenna for locations away from the equator.



Satellite feature	GEO(satellite	MEO satellite	LEO satellite
Full form	Geostationary Earth Orbit satellite	Medium Earth Orbit Satellite	Low Earth Orbit Satellite
Orbital period	24 hours	2 to 8 hours	10 to 40 minutes
Satellite height	35,800 km	5000 to 12000 km	500 to 1500 km
Satellite life	Long	Long	Short
Propagation loss	Highest	high	least

Advantages	<ul style="list-style-type: none"> Covers large geographical area, Only three GEO satellites are needed to cover earth. Visible for 24 hours from fixed location on earth Ideal for satellite broadcast and multipoint communication 	<ul style="list-style-type: none"> With MEO satellite lesser number of satellite network required compared to LEO satellite to cover the area. Lesser time delay in the signal compared to GEO satellite 	<ul style="list-style-type: none"> LEO satellite provides better signal strength. Least signal propagation delay since it is closest to earth.
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Disadvantages	<ul style="list-style-type: none"> Considerable time delay in the signal, which is not favourable for point to point communication. Since it is above the equator, it faces difficulty in broadcasting near polar region. 	<ul style="list-style-type: none"> Weaker signal compared to LEO since it is higher orbit than LEO Visible for only 2 to 8 hours from a particular location on earth. 	<ul style="list-style-type: none"> A very large number of satellites network is required, thus it is very costly Atmospheric drag effects are more which cause gradual orbital disorientation only visible for 15 to 20 minutes from a particular area.
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GEOSPATIAL SECTOR

GS-III SCIENCE & TECHNOLOGY

Context

- Recently, India liberalized its regulations on geospatial data.

Geospatial data

- Geospatial data **is information that describes objects, events or other features with a location on or near the surface of the earth.**
- Geospatial data typically combines -
 - location information (usually coordinates on the earth)
 - attribute information (the characteristics of the object, event or phenomena concerned)
 - temporal information (the time or life span at which the location and attributes exist).
- The location provided may be:
 - Static in the short term (for example, the location of a piece of equipment, an earthquake event, children living in poverty) or
 - Dynamic (for example, a moving vehicle or pedestrian, the spread of an infectious disease).

Examples of geospatial data

- Vectors and attributes:** Descriptive information about a location such as points, lines and polygons
- Point clouds:** A collection of co-located charted points that can be recontextured as 3D models
- Raster and satellite imagery:** High-resolution images of our world, taken from above
- Census data:** Released census data tied to specific geographic areas, for the study of community trends
- Cell phone data:** Calls routed by satellite, based on GPS location coordinates
- Drawn images:** CAD images of buildings or other structures, delivering geographic information as well as architectural data
- Social media data:** Social media posts that data scientists can study to identify emerging trends

Present policy on geo-spatial data in India

Strict regulations

- There are **strict restrictions on the collection, storage, use, sale, dissemination of geo-spatial data and mapping** under the current regime.

Driven by security concerns

- Initially conceptualised as a matter solely concerned with security, geo-spatial data collection was the prerogative of the defence forces and the government.
- The policy had **not been renewed in decades and has been driven by internal as well as external security concerns.**

Dominated by Government

- The sector so far is **dominated by the Indian government as well as government-run agencies such as the Survey of India.**

Crippled Private Sector

- Private companies need to navigate a system of permissions from different departments of the government (depending on the kind of data to be created) as well as the Defence and Home Ministries, to be able to collect, create or disseminate geo-spatial data.

Dependency on foreign data

- GIS mapping was also rudimentary, with the government investing heavily in it after the Kargil war highlighted the dependence on foreign data and the need for indigenous sources of data.

Impact of present policy

Delayed projects

- This system of acquiring licenses or permission, and the red tape involved, can take months, delaying projects, especially those that are in mission mode – for both Indian companies as well as government agencies.

Lack of Data

- There is also a huge lack of data in the country which impedes planning for infrastructure, development and businesses which are data-based.
- The mapping of the entire country, that too with high accuracy, by the Indian government alone could take decades.

Mistrust

- Indian companies were monitored by a government agency - thereby leading to a mistrust in Indian entities.

While for decades, geo-spatial data has been a priority for strategic reasons and for internal and external security concerns, this priority has seen a shift in the past 15 years – geo-spatial data has now become imperative for the government in planning for infrastructure, development, social development, natural calamities as well as the economy, with more and more sectors such as agriculture, environment protection, power, water, transportation, communication, health (tracking of diseases, patients, hospitals etc) relying heavily on this data.

Major objectives of deregulating geo-spatial data

- There are three major objectives of the new guidelines
 1. Ease of collecting, using and sharing geospatial data.
 2. Deregulating the sector and allowing private entities to survey and map all physically accessible areas without prior approvals.
 3. Sharing the geospatial data collected by government agencies with the public and the industries.

New Guidelines

- Under the new policy, geospatial data from government agencies such as the Survey of India and the Indian Space Research Organisation will also be made **available to public and private companies**.
- Private companies are allowed to conduct surveying and mapping **without prior government approvals**.
- Private companies **can also share the data for various everyday applications**, from logistics and transport to road safety and e-commerce.
- Indian entities will require **no prior approvals, security clearances, licenses for acquisition and production of geospatial data** and geospatial data services, **including maps**.
- The new policy **restricts the terrestrial mapping and surveying to only Indian entities** – both public and private.
- The **data** generated also **needs to be owned and stored in India, with foreign entities being allowed to license it**.
- High resolution data – finer than 1m horizontally and 3m vertically – will still remain restricted.

Benefits of liberalizing the Geospatial sector

Allied sectors

- This will be beneficial for all allied sectors that need geospatial data such as logistics and transportation, road safety, e-commerce.

Govt. schemes

- It will also aid government programmes such as MNREGA where people will now be able to see the implementation of various projects and their progress.

Logistics sector

- Currently in the logistics industry, the country spends around 13% of GDP.
- This can be brought down to 9% using geospatial data and other technology.

Level playing field to Indian Companies

- This will also level the playing field for Indian companies.
- Just as an example, while Google Earth could provide satellite images on the map we weren't allowed to do so even though we had the technology. Indian companies will now be able to develop indigenous apps, for example an Indian version of google maps.

Mapping

- It will promote projects like the 4D map that we are working on – a 3D map with real-time updated data that can be used by applications such as autonomous vehicles.
- The new guidelines will allow increase the scale, speed, and accuracy of mapping.

Employment

- Startups and businesses can now also use this data in setting up their concerns, especially in the sector of e-commerce or geo-spatial based apps – which in turn will increase employment in these sectors.

Increase in Private public partnership

- There is likely to be an increase in public-private partnerships with the opening of this sector with data collection companies working with the Indian government on various sectoral projects.

Increased investment and export

- There can be an increase in investment in the geo-spatial sector by companies, and also an increase in export of data to foreign companies and countries, which in turn will boost the economy.

Final Thoughts

- Geospatial data is vital for all manners of planning and development work.

- Liberalising policies governing the acquisition and production of geospatial data is a massive step in our vision for an Aatmanirbhar Bharat," or Self-Reliant India.
- The reforms will unlock tremendous opportunities for our country's start-ups, private sector, public sector and research institutions to drive innovations and build scalable solutions.

EOS-04

GS-III SCIENCE & TECHNOLOGY

Context

- ISRO successfully launched the **Earth Observation Satellite EOS-04** along with two other satellites.
- India's **Polar Satellite Launch Vehicle PSLV-C52** successfully injected Earth Observation Satellite EOS-04, **into a sun synchronous polar orbit of 529 km altitude**.

Details

About

- The satellite EOS-04 is a **Radar Imaging Satellite designed to provide high-quality images under all weather conditions** for various applications. These include:
 - Agriculture,
 - Forestry & Plantations,
 - Soil Moisture & Hydrology and
 - Flood mapping.

Mission life

- Weighing about 1710 kg, it generates 2280 W power and has a **mission life of 10 years**.

Other satellites

- The mission will also carry two small satellites—INSPIREsat-1, and a technology demonstrator satellite, INS-2TD.

1. INSPIREsat-1

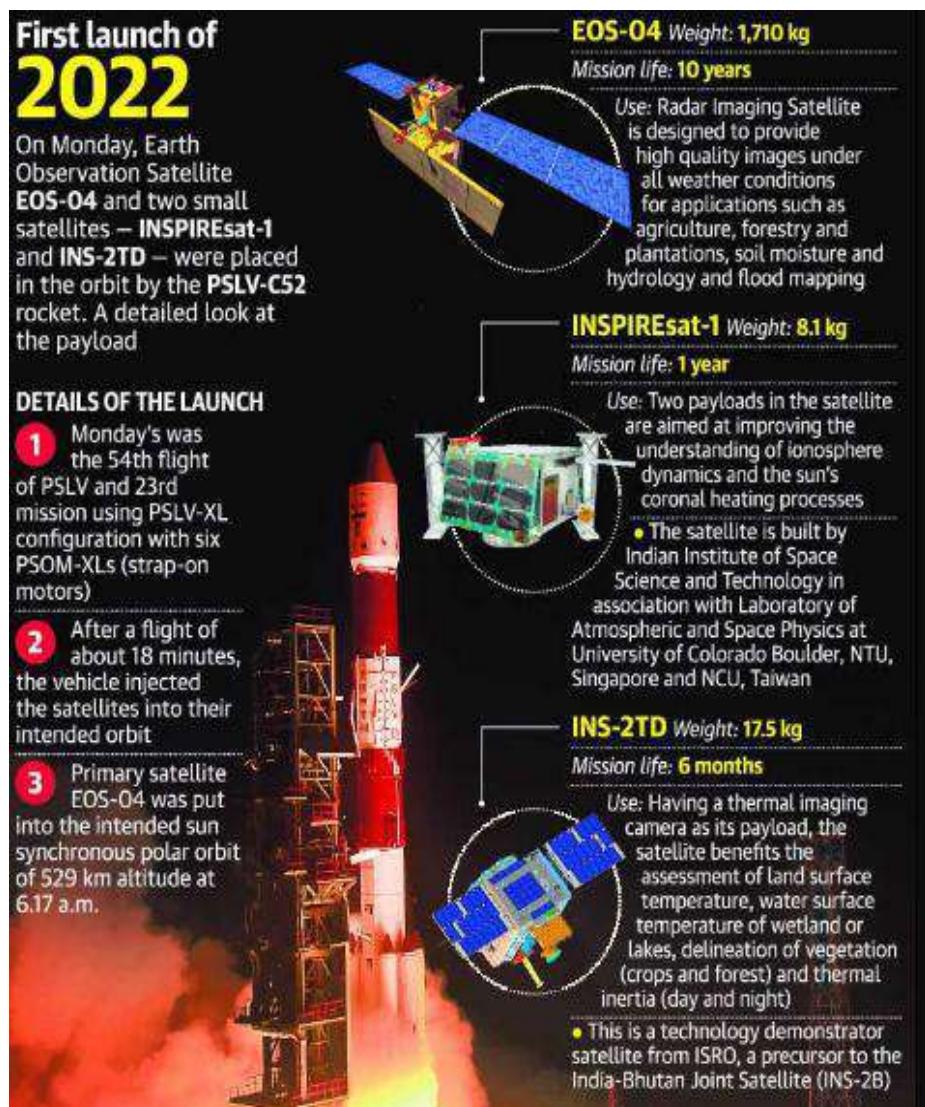
- The INSPIREsat-1 is a student satellite developed by Indian Institute of Space Science & Technology, in association with USA, Singapore and Taiwan.
- It aims to improve the **understanding of ionosphere dynamics and sun's coronal heating processes**.

2. INS 2TD

- The INS 2TD (ISRO NanoSatellite 2TD) is a **nanosatellite developed by ISRO**, which is a **precursor to the India-Bhutan joint satellite (INS-2B)**. Having a thermal imaging camera as its payload, the satellite benefits the assessment of: **land surface temperature; water surface temperature of wetlands/lakes; delineation of vegetation (crops and forest); and thermal inertia (day/night)**.

PSLV-C52

- The PSLV-C52 is the **54th mission of the Indian Polar Satellite Launch Vehicle (PSLV) program**. As mentioned earlier it carried primary payload, RISAT-1A (EOS-4) with 2 other satellites.



PSLV

- Polar Satellite Launch Vehicle (**PSLV**) is the third generation launch vehicle of India. It is the first Indian launch vehicle to be equipped with liquid stages.
- After its **first successful launch in 1994**, PSLV emerged as the reliable and versatile workhorse launch vehicle of India.
- PSLV successfully launched two spacecraft – **Chandrayaan-1 in 2008 and Mars Orbiter Spacecraft in 2013**

Read about types of orbits in details here: <https://www.iasgyan.in/blogs/types-of-orbits-explained>

SLV-3	ASLV	PSLV-XL	GSLV Mk II	GSLV Mk III
Height : 22.7m	Height : 23.5m	Height : 44m	Height : 49m	Height : 43.43 m
Lift-off weight : 17 t	Lift-off weight : 39 t	Lift-off weight : 320 t	Lift-off weight : 414 t	Lift-off weight : 640 t
Propulsion : All Solid	Propulsion : All Solid	Propulsion : Solid & Liquid	Propulsion : Solid, Liquid & Cryogenic	Propulsion : Solid, Liquid & Cryogenic
Payload mass : 40 kg	Payload mass : 150 kg	Payload mass : 1850 kg	Payload mass : 2200 kg	Payload mass : 4000 kg
Orbit : Low Earth Orbit	Orbit : Low Earth Orbit	Orbit : 475 km Sun Synchronous Polar Orbit (1300 kg in Geosynchronous Transfer Orbit)	Orbit : Geosynchronous Transfer Orbit	Orbit : Geosynchronous Transfer Orbit



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MODIFIEDELEPHANT

GS-III SECURITY & DEFENSE

Context

- A report on 'ModifiedElephant' released by American cybersecurity firm SentinelOne.

About ModifiedElephant

- ModifiedElephant has been operating since at least 2012, and has repeatedly targeted specific individuals.
- It is a hacking group that reportedly planted incriminating evidence on the personal devices of Indian journalists, human rights activists, human rights defenders, academics and lawyers.**
- It operates through the use of commercially available remote access trojans (RATs) and has potential ties to the commercial surveillance industry.

How ModifiedElephant work?

- ModifiedElephant operators have been infecting their targets using spearphishing emails with malicious file attachments.
- SpearPhishing refers to the practice of sending emails to targets that look like they are coming from a trusted source to either reveal important information or install different kinds of malware on their computer systems.**
- It typically weaponises malicious Microsoft Office files to deliver malware to their targets.
- The objective of ModifiedElephant is long-term surveillance with the target of planting of 'evidence' that frames the target in specific crimes.

Concerns

- ModifiedElephant uses services of free email service providers, like Gmail and Yahoo, to target users.
- The phishing emails take many routes to gain the appearance of legitimacy. This includes fake body content with a forwarding history containing long lists of recipients, resending their malware multiple times using new emails or sending links with attractive business or shopping offers.**
- It obtains remote access to and unrestricted control of victims' devices.
- NetWire and DarkComet, two publicly-available remote access trojans (RATs), were the primary malware families deployed by ModifiedElephant.
 - NetWire is a RAT focused on password stealing, keylogging and remote control capabilities.
 - DarkComet is another RAT that can take control of a user's system using a convenient graphical user interface.

How to protect devices?

- Keep your computer and software updated.
- Think twice before clicking links or downloading anything.
- Be careful about opening email attachments or images
- Don't trust pop-up windows that ask you to download software
- Limit your file-sharing
- Adopt multi-factor authentication protocol to ensure that you or your associates' email IDs and other accounts aren't compromised in the first place.
- Awareness campaign to educate people about the dangers of cyberattacks such as spear phishing and ensure that they remain suspicious about emails from unknown and known sources.
- Be alert and aware of digital behavior.



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BLACK CARBON

GS-III ENVIRONMENT & ECOLOGY

Context

- Human presence has accelerated snow melting in Antarctica.

New report findings

- Black carbon (BC) concentration** in Antarctica is considerably higher around research stations and popular tourist destinations than other parts of the continent.
- BC impacted areas are seeing a shrinking of snowpack on the Antarctic Peninsula and associated archipelagoes by up to 23 millimetres water equivalent every summer.
- BC footprint in Antarctica has increased with **vessels, airplanes, diesel power plants, generators, helicopters and trucks** – all **black carbon sources**.

Black Carbon

- Chemically, it is a component of fine particulate matter ($PM \leq 2.5 \mu m$).
- It is formed through the **incomplete combustion of fossil fuels, biofuel, and biomass**.
- Black carbon emissions come from**
 - diesel engines for transportation and industrial use;
 - residential solid fuels such as wood and coal;
 - open forest and savanna burning, both natural and initiated by people for land clearing; and
 - industrial processes, usually from small boilers.
- Environmental implications:** BC is a **climate forcing agent** contributing to global warming. It warms the Earth by absorbing sunlight and heating the atmosphere and by **reducing albedo** when deposited on snow and ice (direct effects) and **indirectly by interaction with clouds**.
- Black carbon stays in the atmosphere for **only several days to weeks**.
- Black carbon's **warming effect on the climate is as much as 1,500 times more intense than that of carbon dioxide (CO₂)**.
- The IPCC have posited that reducing black carbon is one of the easiest ways to slow down short term global warming.

Ways for reducing black carbon in the Antarctic region

- Reduce intra-Antarctic emissions of black carbon by controlling emission from marine vessels operating within Antarctic waters.
- Robust measures should be adopted to mitigate the impacts of accidental spill or leaks.
- New vehicle regulations** should be adopted to reduce BC emission from vehicle operating in Antarctic region.
- Providing **alternative energy-efficient and smoke-free cookers and introducing transferring technology for reducing soot emissions** from coal emissions in small industries could have major impacts on the contributions made to global warming by soot.
- Adoption of cleaner fuels** must be promoted. For ex. Distillate fuels, such as kerosene and LPG, burn cleaner than solid fuels like charcoal.

RIVERBED SAND MINING

GS-III ENVIRONMENT & ECOLOGY

Context

- Environment clearance issued to as many as 60 mining areas has paved the way for legal mining of bajri (riverbed sand) in Rajasthan. The mining will start in almost all riverbeds of the State after the completion of necessary formalities.
- Sand is a minor mineral.

Background

- In 2017, Supreme Court **banned the sand mining activities** in riverbeds until a scientific replenishment study was completed and the Ministry of Environment and Forest granted the clearance.
- The apex court later appointed a **Central Empowered Committee (CEC)** to look into the issue of illegal sand mining.

CEC recommendations

- Union Ministry of Environment, Forest and Climate Change issue **environmental clearance to all valid holders of letters of intent, within three months** and without insisting on submission of the scientific replenishment report as a precondition.
- The replenishment study could be undertaken during the course of mining.

Impact of Sand Mining

- **Salinity:** Depletion of sand in the river bed causes the deepening of rivers and estuaries, and the enlargement of river mouths, which leads to saline water intrusion.
- **River erosion:** The excess extraction of sand affects the normal course of the river. Any variation in the course of the river will either lead to river erosion in a few areas or will lead to flooding during monsoon.
- **Affect Fishing industry:** Due to rampant sand mining and ecological imbalance, fishing activity has declined in the Mangalore and fishermen are forced to take up alternative jobs outside their village.
- **Loss of tree cover:** Trees that come under the buffer zone are felled to facilitate the movement of vehicles to collect sand from the riverside.
- **Affect species diversity:** Sand mining during the monsoons affects the fish species as they lay eggs in the shores. Crabs, fishes have declined drastically at the coast of Karnataka.

Impacts on	Description
Biodiversity	Impacts on related ecosystems (for example fisheries)
Land losses	Both inland and coastal through erosion
Hydrological function	Change in water flows, flood regulation and marine currents
Water supply	Through lowering of the water table and pollution
Infrastructures	Damage to bridges, river embankments and coastal infrastructures
Climate	Directly through transport emissions, indirectly through cement production
Landscape	Coastal erosion, changes in deltaic structures, quarries, pollution of rivers
Extreme events	Decline of protection against extreme events (flood, drought, storm surge)

Steps to tackle Sand Mining

- **Legal course:** Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act) empowers state governments to make rules for regulating the grant of mineral concessions in respect of minor minerals and for purposes connected therewith.
- Ministry of Environment, Forest and Climate Change has issued **Sustainable Sand Mining Management Guidelines, 2016**.
- Grant of Environment Clearance for minor minerals, including sand and gravel, for mining lease of area up to 5 hectare will be done by the District Environment Impact Assessment Authority headed by the District Collector / District Magistrate.
- Several states have formed their own rules to regulate sand mining.

GREEN HYDROGEN AND GREEN AMMONIA POLICY

GS-III ENVIRONMENT & ECOLOGY

Context

- Centre notified the **green hydrogen and green ammonia policy**.

Policies aim

- **Boosting the domestic production of green hydrogen to 5 million tonnes by 2030.**
- Making India an **export hub for the clean fuel**.

Key features of new policy

- It offers **25 years of free power transmission** for any new renewable energy plants set up to supply power for green hydrogen production before July 2025.
- This move will make **it more economical** for key users of hydrogen and ammonia such as the oil refining, fertiliser and steel sectors to produce green hydrogen for their own use. These sectors currently use grey hydrogen or grey ammonia produced using natural gas or naphtha.
- Government will provide a single portal for all clearances required for setting up green hydrogen production as well as a facility for producers to bank any surplus renewable energy generated with discoms for upto 30 days and use it as required.
- Energy plants set up to produce green hydrogen/ammonia would be given connectivity to the grid on a priority basis.
- **Come under Renewable Purchase Obligation:** Power distribution companies may procure renewable energy to supply green hydrogen producers but will be required to do so at a concessional rate which will only include the cost of procurement, wheeling charges and a small margin as determined by the state commission, under the new policy. Such procurement would also count towards a state's Renewable Purchase Obligation (RPO) under which it is required to procure a certain proportion of its requirements from renewable energy sources.

- **Export oriented:** Under the policy port authorities will also provide land at applicable charges to green hydrogen and green ammonia producers to set up bunkers near ports for storage prior to export. Germany and Japan could be key markets for green hydrogen produced in India.
- **New mandates:** The government is set to come out with mandates requiring that the oil refining, fertiliser and steel sectors procure green hydrogen and green ammonia for a certain proportion of their requirements.

About Hydrogen

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

Types of Hydrogen

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

Color	GREY HYDROGEN	BLUE HYDROGEN	TURQUOISE HYDROGEN*	GREEN HYDROGEN
Process	SMR or gasification	SMR or gasification with carbon capture (85-95%)	Pyrolysis	Electrolysis
Source	Methane or coal  	Methane or coal  	Methane 	Renewable electricity  

*Note: SMR = steam methane reforming.
* Turquoise hydrogen is an emerging decarbonisation option.*

Green hydrogen current status

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

National Hydrogen Mission

- On India's 75th Independence Day (15th August, 2021) the Prime Minister announced the National Hydrogen Mission.
- Under the Mission, **India is targeting to produce three-fourths of its hydrogen from renewable resources by 2050**.
- The Mission under the Ministry of Power, aims to support India in meeting its Sustainable climate goals.
- Hydrogen is seen as the **potential fuel to replace fossil fuels in future**.
- It will help India in increasing its renewable energy capacity.
- This will help the government in achieving the target of 450 GW Renewable Energy by 2030.

Challenge in making Green Hydrogen

- **Storing and transportation:** H₂ is a highly flammable gas, it takes up a lot of space and has a habit of making steel pipes and welds brittle and prone to failure.

- **High Cost:** The International Energy Agency put the cost of green hydrogen at \$3 to \$7.50 per kilo, compared to \$0.90 to \$3.20 for production using steam methane reformation.
- **Loss of Efficiency in every process:** Electrolyzer efficiencies range from around 60 percent to 80 percent.

Significance

- Achieve targets pledged under the Paris Climate Agreement i.e. to reduce the emission intensity of its economy **by 33-35 per cent from 2005 levels by 2030.**
- Provide an alternative to fossil fuels
- Provide a transition toward low emissions and work towards a clean, healthy environment.

Why India should opt for Green Hydrogen?

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

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

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

ONE OCEAN SUMMIT

GS-III ENVIRONMENT & ECOLOGY

Context

- France hosted the 'One Planet' Summit dedicated to the Ocean, called the **One Ocean Summit**.

Key details of Summit

- **Aims/ Goal:**
 - to mobilize the international community and take concrete action to reduce adverse effects on the ocean, raising its level of ambition on maritime issues.
 - to raise the collective level of ambition of the international community on marine issues and to translate shared responsibility to the ocean into tangible commitments.
- It focused on the **protection of marine ecosystems and sustainable fisheries, the fight against pollution (especially plastic), climate change, and ocean governance.**
- It was held in the context of the **French Presidency of the Council of the European Union**, with the support of the **United Nations**.
- It brought together determined group of Heads of State and Government, leaders of multilateral institutions, business leaders and civil society policymakers to take ambitious commitments.
- **Initiatives taken for:** marine ecosystem protection and sustainable fisheries, fight plastic pollution, climate change, improved governance of the oceans.

Why ocean matters?

- Ocean **covers more than 70% of the surface of our planet**, yet often remains on the sidelines of international events.
- **Environmental role:** Ocean is a **regulator of major environmental balances** and climate, provider of resources, an important enabler of trade, and an essential link between countries and human communities.
- **Threats to ocean:** climate change, pollution or the overexploitation of marine resources.

Key outcomes

- **UNESCO:** It has announced that **at least 80% of the seabed will be mapped by 2030**, compared to 20% currently, in collaboration with other UN bodies and the private sector. UNESCO is the UN agency in charge of ocean sciences.
- **Coalition on Biodiversity Beyond National Jurisdiction (BBNJ):** This initiative underlines the EU's role as the leading actor on global marine conservation.
- **Zero-tolerance towards illegal, unreported and unregulated (IUU) fishing** is EU's ambitious policy for sustainable

management of marine resources.

- **For addressing plastic pollution:** The EU has adopted two main priorities: **decreasing plastic pollution and accelerating the transition to a circular economy.**
- **Mission "Restore our Ocean and Waters by 2030":** It aims to ensure that the ocean plays a central role in **meeting the 2030 targets of the European Green Deal.** It is aimed at developing and testing solutions in **support of protecting 30% of the EU's sea area, restoring marine and waterway ecosystems, reducing plastic litter at sea, nutrient losses and use of chemical pesticides by 50%, and making the blue economy climate-neutral and circular.**
- **European Digital Twin Ocean:** digital ocean platform to place the EU as a digital champion for the ocean.
- **EU4Ocean coalition:** to enhance ocean literacy by education and investing in research.

COAL GASIFICATION

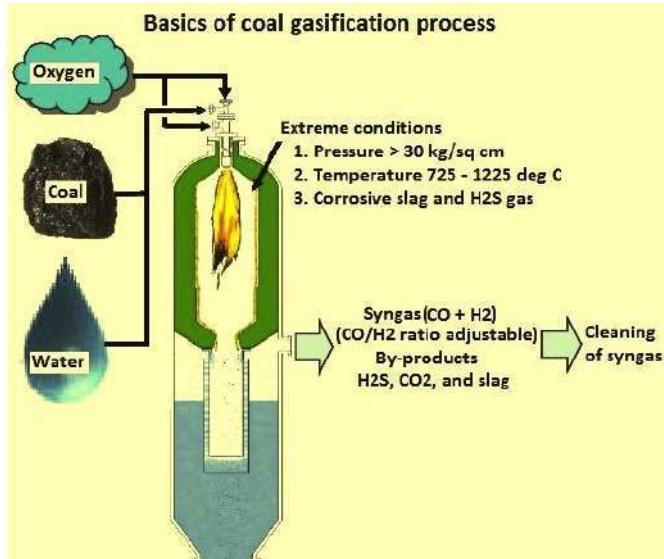
GS-III ENVIRONMENT & ECOLOGY

Context

- As per Union budget 2022-23, four pilot projects for coal gasification and conversion of coal into chemicals required for the industry will be set up for technical and financial viability.

What is Coal gasification?

- Coal gasification is the process of converting coal into synthesis gas (also called **syngas**), which is a **mixture of hydrogen (H₂), carbon monoxide (CO) and carbon dioxide (CO₂)**.
- The syngas can be used in a variety of applications such as in the **production of electricity and making chemical products, such as fertilisers.**
- Even low-grade coal can be used in the process.
- Coal gasification is prominent in China. **China has the biggest number of coal gasification projects** in the world.



Centre for Science and Environment (CSE)'s assessment findings

- Delhi-based non-profit, Centre for Science and Environment (CSE)'s assessment found that **coal gasification process is not attractive from a climate change point of view.**
- Coal gasification plants are **costlier than conventional power plants.**
- CO₂ emissions from syngas production are much higher than conventional natural gas and worse than burning coal for power directly.
- Coal is the main feed for gasification, thus it will not help in India's decarbonisation goals.
- The **efficiency of conversion is also low.**
- International studies have also reiterated that using synthetic natural gas for residential cooking and heating, for electricity generation, or for industrial heat generation, results in 10, 40 and 70 per cent more CO₂ emissions than directly burning coal that provides the same amount of energy in each sector.

NATIONAL CLEAN AIR PROGRAMME

GS-III ENVIRONMENT & ECOLOGY

Context

- Three years into the launch of India's National Clean Air Program (NCAP) in 2019, analysis of pollution data shows there has been a **marginal decrease in pollution levels** in targeted cities.
- **Insufficient expenditure of funds** by the states to ensure air pollution reduction. Several states failed to utilise the funds provided by the Centre under the national clean air programme (NCAP) to control air pollution in their respective states.

About NCAP

- **It was launched in 2019.**
- **Aim:** to reduce pollution by 20-30 % by 2024, particularly in 132 non-attainment cities.
- **Fund allocation:** Under the NCAP, Rs 375.44 crore was provided to 114 cities from 2018-19 to 2020-2021 and Rs 290 crore allocated to 82 cities for 2021-2022. The programme has an allocation of Rs 700 crore envisaged for 2021-2026.
- **Fund utilization data:** Data presented at the NCAP's National Apex Committee recently, shows that most states have underutilised the funds allotted. Only Bihar and Chandigarh used 76% and 81% of the funds received towards NCAP. Uttar

Pradesh, which has many of India's most-polluted cities, used 16% of the allocated Rs 60 crore.

- **Target to bring down pollution by 2024:**

- Country's current annual safe limits for PM 2.5 and PM 10 are 40 micrograms/ per cubic metre (ug/m³) and 60 micrograms/ per cubic metre.
- The NCAP has set a target of reducing key air pollutants PM10 and PM2.5 (ultra-fine particulate matter) by 20-30% by 2024, taking the pollution levels in 2017 as the base year.
- **Membership:** Apart from experts from the industry and academia, the programme is expected to be a collaboration between the Ministry of Road Transport and Highways, Ministry of Petroleum and Natural Gas, Ministry of New and Renewable Energy, Ministry of Heavy Industry, Ministry of Housing and Urban Affairs, Ministry of Agriculture, Ministry of Health, NITI Aayog, and Central Pollution Control Board.

BY 2024, POLLUTION CUT BY 30%

NATIONAL CLEAN AIR PROGRAMME (NCAP)

Cities to be covered: 102

GOAL: To meet annual average ambient air quality standards

MID-TERM (5 YEARS) TARGET: Reducing air pollution by 20-30% by 2024, taking 2017 as base year

HOW: Through city-specific air pollution abatement action plan

BUILD CAPACITY BY SETTING UP:

- 1 National emission inventory
- 2 Air Information Centre for data analysis
- 3 Source apportionment studies
- 4 Guidelines for indoor air pollution
- 5 Rural monitoring stations

INTERNATIONAL SUPPORT AGENCIES: World Bank, German development agency (GIZ), AFD (French funding agency), Swiss Development Corporation, Bloomberg Philanthropies

Why NCAP fund are unutilized?

- It does not have a legal mandate but aims to achieve a 20% to 30% reduction in PM 2.5 (respirable pollution particles) concentrations over 2017 levels in over 100 cities by 2024.
- The number of cities showing improvement in air quality increased from 86 in 2019 to 96 in 2020.

RAMSAR SITES

GS-III ENVIRONMENT & ECOLOGY

Context

- The Union Environment Ministry had notified two new Ramsar sites – **Khijadiya wildlife sanctuary in Gujarat and Bakhira wildlife sanctuary in Uttar Pradesh.**

About Khijadiya wildlife sanctuary:

- **Location:** Khijadiya Bird Sanctuary is a bird sanctuary located in Gujarat, India.
- Uniqueness of this sanctuary is, it have both fresh water lakes, salt and freshwater marshlands.
- The critically endangered Indian bdellium-tree (*Commiphora wightii*) found here.
- It is a freshwater wetland near the coast of the Gulf of Kutch.
- It is located at the watershed of Ruparel river and Kalindri at the North East coastal region of Jamnagar district in the Gulf of Kutch.
- The sanctuary is now part of Marine National Park, Jamnagar, the first marine national park in the country.
- It is located near Narara Island, and has a bio-diversified coral reef.
- The Site contributes to the maintenance of hydrological regimes, erosion protection and nutrient cycling. It is used for recreation and tourism, and scientific and educational activities

About Bakhira wildlife sanctuary

- **Location:** The Bakhira Bird Sanctuary is the largest natural flood plain wetland of India located in Uttar Pradesh.
- The Grey-headed swamphen also called the Indian Purple moorhen is common breeding resident of this sanctuary.
- This Sanctuary was established in 1980.
- It is protected under the Wildlife Protection Act (1972); an "eco-sensitive zone" extends up to a kilometre around its boundary.
- It is internationally important for its birdlife as it supports over 80 species that migrate on the Central Asian Flyway.

Total no. of Ramsar sites in India

- Presently, India has a network of 49 such sites, the highest in South Asia.

The Ramsar Convention

- It is an international treaty for the conservation and wise use of wetlands.
- It is named after the Iranian city of Ramsar, on the Caspian Sea, where the treaty was signed on February 2, 1971.
- The aim of the Ramsar list is "to develop and maintain an international network of wetlands which are important for the conservation of global biological diversity and for sustaining human life through the maintenance of their ecosystem components, processes and benefits".

DONETSK AND LUHANSK

PLACES IN NEWS

Context

- The Donbass region, comprising the Donetsk and Luhansk oblasts of Ukraine, has been at the centre of the conflict since March 2014 when Moscow invaded and annexed the Crimean Peninsula.

About

- Donbass is a region in **south-eastern Ukraine**.
- Parts of this territory is occupied by two separatist groups in the course of the Russo-Ukrainian War calling themselves the **Donetsk People's Republic and the Luhansk People's Republic**.

Crimean Peninsula

- Crimea is a peninsula along the **northern coast of the Black Sea in Eastern Europe**.
- The peninsula is almost entirely surrounded by both the Black Sea and the smaller Sea of Azov.
- It is **located south of Kherson Oblast in Ukraine**, to which it is **connected by the Isthmus of Perekop**.
- It lies west of Krasnodar Krai in Russia, from which it is **separated by the Strait of Kerch**.



The Economist

DAL LAKE AND 'CHAR CHINARI' ISLAND

PLACES IN NEWS

Context

- The iconic island **Char Chinari in the middle of the Dal Lake**, is in the spotlight again.
- Recently, two tall chinar trees were planted on the picturesque island with the Zabarwan hills in the backdrop.
- The 2014 floods left two mighty chinars damaged.

Dal Lake

- About:** Dal is a **lake in Srinagar**, the summer capital of Jammu and Kashmir. It is an urban lake, which is the **second largest in the union territory of Jammu and Kashmir**.
- Other name:** It is **named the "Lake of Flowers", "Jewel in the crown of Kashmir"** or "Srinagar's Jewel". The lake is noted in particular for its **Nelumbo nucifera (lotus flowers)** which **bloom in July and August. Asia's largest Tulip garden is on the banks of Dal Lake**.
- Location:** The lake is located within a **catchment area of Zabarwan mountain valley, in the foothills of the Shankaracharya Hill**, which surrounds it on three sides.
- Islands of Dal lake:** The wetland is divided by causeways into three islands; **Gagribal, Lokut Dal, Bod Dal**.
- Islands with Chinar trees:** Of the three 3 islands, 2 are marked with beautiful Chinar trees: Lokut-dal and Bod-dal each have an island in the centre, known as Rup Lank (or Char Chinari) and Sona Lank respectively.
- Mughal Gardens:** Mughal gardens, Shalimar Bagh and the Nishat Bagh are on the banks of Dal Lake.



The Islands with Char Chinar

Roph Lank

- The island located on the Lakut Dal (small Dal) is known as Roph Lank (Silver Island).
- It is marked with the presence of majestic Chinar trees at the four corners, thus known as Char-Chinari (Four Chinars).
- Murad Baksh, brother of the Mughal emperor Aurangzeb, constructed the Roph Lank.

Sone Lank

- The second Chinar Island, known as Sone Lank (Gold Island), is located on the Bod Dal (Big Dal).
- It overlooks the holy shrine of Hazratbal.

Also Read: <https://www.iasgyan.in/blogs/important-lakes-in-india>

DEUCHA PANCHAMI

PLACES IN NEWS

Context

- West Bengal Chief Minister Mamata Banerjee increased the monetary package for the tribals in Deucha Panchami.

About

- Deucha Panchami coal mine is situated in Deucha and Panchamati area in Birbhum district, West Bengal.
- This coal mine or block belongs to Birbhum coalfield area.
- There are about 2102 million tonnes of coal reserves in Deucha Panchami coal block.
- This coal mine is the largest coal mine or coal block in Asia, due to the amount of coal reserves.

FALKLAND ISLANDS

PLACES IN NEWS

Context

- China's support for Argentina's claim to the Falkland Islands, had stirred discussions around the long-standing dispute.

About

- Location:** Falkland Islands are an archipelago (an extensive group of islands) in the South Atlantic Ocean on the Patagonian Shelf.
 - Patagonia refers to a geographical region that encompasses the southern end of South America, governed by Argentina and Chile.
- Parts:** West Falkland and East Falkland, and 776 smaller islands.
- Physical Features:** Mountainous and hilly, with the major exception being the depressed plains of Lafonia (a peninsula forming the southern part of East Falkland).
- Climate Zone:** The islands lie on the boundary of the sub-antarctic oceanic and tundra climate zones. The climate of the islands is cold, windy and humid maritime.
- Biogeography:** The Falkland Islands are biogeographically part of the Antarctic zone, with strong connections to the flora and fauna of Patagonia in mainland South America.



Brief information on the dispute

- Since the 18th century, the Falkland Islands have always been subjected to colonisation and conquests by Britain, France, Spain and Argentina.
- Prior to the 1700s, the islands were uninhabited, with France first establishing a colony there.



in 1764.

- The next year, when the British arrived to claim the islands for themselves, it marked the start of a dispute that has been ongoing ever since.

SOLOMON ISLANDS

PLACES IN NEWS

Context

- The U.S. says it will open an embassy in the Solomon Islands, laying out in unusually blunt terms a plan to increase its influence in the South Pacific nation before China becomes "strongly embedded."

Details

- Location:** Solomon Islands consists of six major islands and over 900 smaller islands in Oceania, to the east of Papua New Guinea and northwest of Vanuatu. The country's islands lie between latitudes 5° and 13°S.
- Historical significance:** The Solomon Islands are famous as a battleground of World War II, the pivotal Battle of Guadalcanal named after the country's largest island where the restive capital Honiara is located. It was then known as the British Solomon Islands Protectorate and became the Solomon Islands before independence in 1978.
- Atolls and Higher Islands:** Rennell Island, Bellona Island, the Santa Cruz Islands, Tikopia, Bougainville and Buka.
- Climate:** extremely humid throughout the year, with a mean temperature of 26.5 °C.
- Risk assessment:** According to the World Risk Report 2021, the island state ranks second among the countries with the highest disaster risk worldwide.
- Active Volcanoes:** Tinakula and Kavachi volcanoes.
- Coral Diversity:** This is the second highest diversity of corals in the World, second only to the Raja Ampat Islands in eastern Indonesia.


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AMBADWE VILLAGE

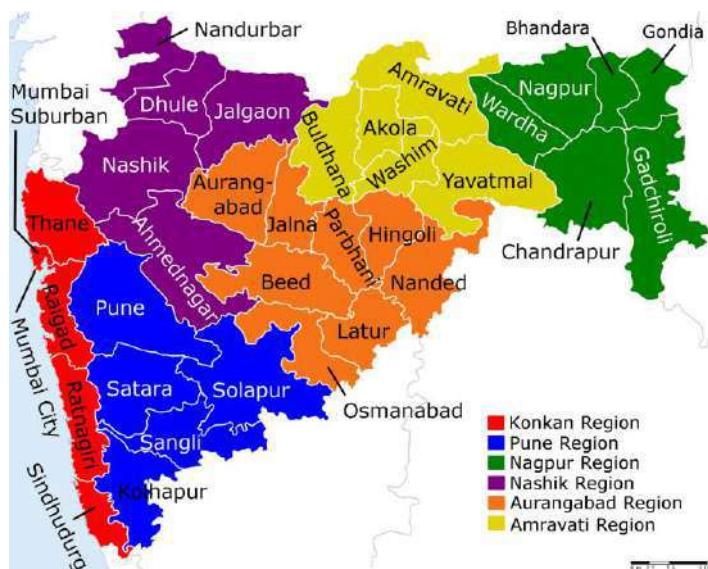
PLACES IN NEWS

Context

- President Ram Nath Kovind said that Ambadwe village, the birthplace of Bharat Ratna Dr. Babasaheb Ambedkar should guide the country towards self-reliance.

Location

- Ambadwe is a village in the Mandangad taluk of Ratnagiri district in Maharashtra.



GREATER MALDIVE RIDGE (GMR)

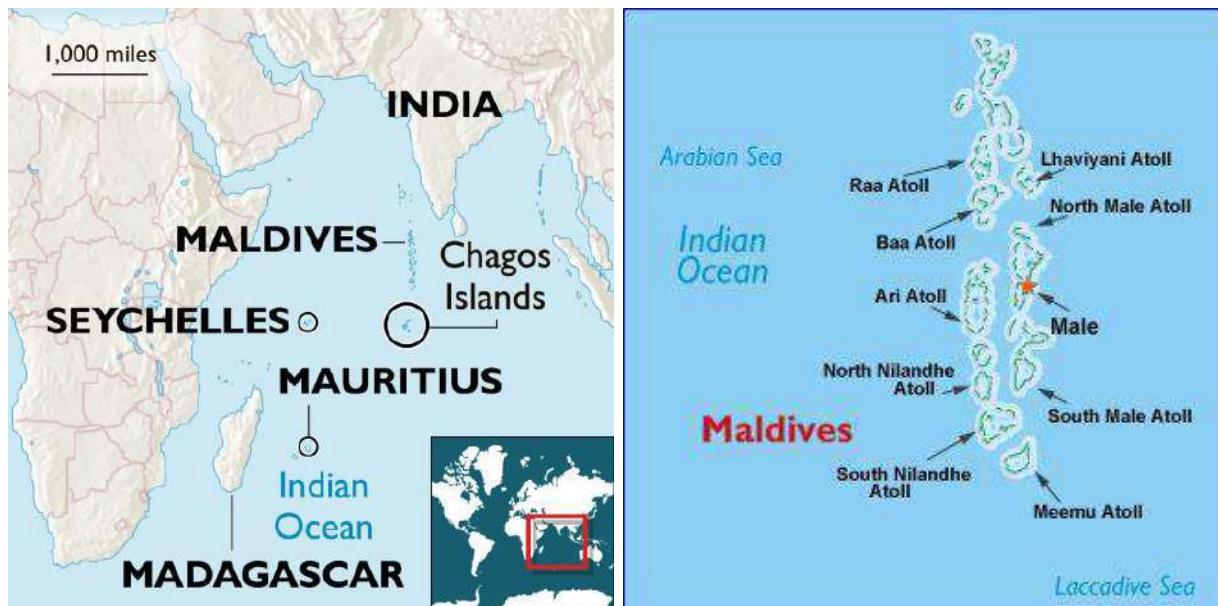
PLACES IN NEWS

Context

- Indian researchers have traced the tectonic evolution and the nature of the Greater Maldives Ridge (GMR).

Maldives Ridge

- The Maldives Ridge is an aseismic ridge that is not associated with earthquake activities.
- This ridge, located in the western Indian Ocean, southwest of India.
- It extends from the western shore of the Indian Peninsula to the Arabian-Indian (or Carlsberg) Ridge.
- The peaks of the Maldives Ridge rise above the water, forming coral islands (atolls) – the Laccadive Islands, Maldives Islands, and Chagos Archipelago.



ETHIOPIA

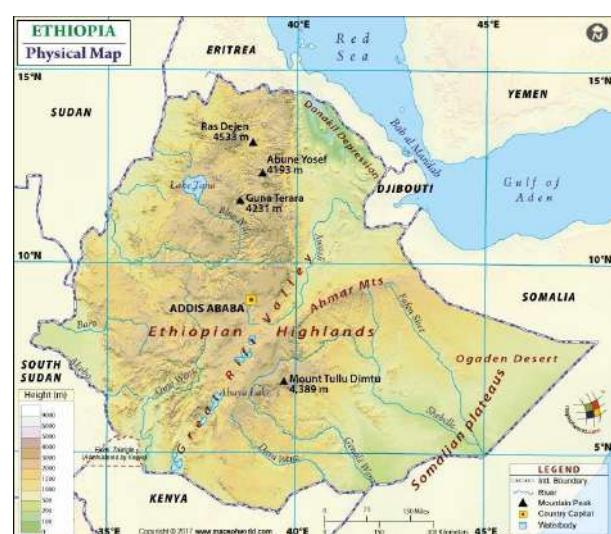
PLACES IN NEWS

Context

- African Union holds summit in Ethiopia.

Details

- About:** Ethiopia is a landlocked country in the Horn of Africa.
- Borders:** Eritrea and Djibouti to the north, Somaliland to the northeast, Somalia to the east, Kenya to the south, South Sudan to the west, and Sudan to the northwest.
- Capital:** The national capital and largest city, Addis Ababa is situated on the foothills of Mount Entoto. It lies west of the East African Rift that splits the country into the African and Somali tectonic plates.
- Physical Features:** The Ethiopian Highlands - largest continuous mountain ranges in Africa; the Rift Valley; the Denakil Depression; Simien Mountains, Amhara-Saint massifs, Ogaden Desert etc.
- Drainage:** Blue Nile (known as the Abay in Ethiopia), the Tekeze, and the Baro rivers.
- Lake:** Lake Tana in the north is the source of the Blue Nile.
- Endemic species:** It has many endemic species, notably the gelada, the walia ibex and the Ethiopian wolf ("Simien fox").
- Climate:** Tropical monsoon, with wide topographic-induced variation.



Read: <https://www.iasgyan.in/daily-current-affairs/tigray-region>

Read: <https://www.iasgyan.in/daily-current-affairs/horn-of-africa>

Read: <https://www.iasgyan.in/daily-current-affairs/rift-valley-lakes>

SHORT NEWS ARTICLES

GS-I CULTURE & HISTORY

Byanjana Dwadashi

Context

- Byanjana Dwadashi, a 500-year-old festival in Odisha symbolises community, food security and balanced diet

About Byanjana Dwadashi

- It is a Vaishnavite festival.
- It commemorates an episode featuring Krishna in the Mahabharata, where Yashoda observes that her son Krishna is pale and weak. In order to fulfill his nutritional requirements, she prepares a lot of delicacies and feeds him.
- It is a celebration of food diversity, variety, community involvement, sharing, cleanliness and devotion.
- It celebrates a variety of food (Byanjana in Odia) on the 12th day (Dwadashi) of the Sukla Paksha or waxing phase of the moon in the month of Margashira (mid-December to mid-January).
- This tradition of celebrating varieties of traditional food and sharing them is prevalent in the Vaishnava mutts of Odisha.
- Festivals like Byanjana Dwadashi which celebrate our traditional food prepared using locally available ingredients with traditional methods are a great way to address hidden hunger or micro-nutrient deficiency.

Karakattam dance

Context

- The Kerala Nattukala Kshema Sabha (KNKS), an outfit that works for the promotion of local art forms in the state, has demanded that Karakattam (also known as Kumbakkali in certain parts) be recognised as the agricultural art form of Kerala.

About Karakattam

- It is a form of folk dance performed at festivals, conferences, roadshows and primarily at Mariamman festivals.
- It is one of the many creative traditions that owe their existence to Mariamman, the rain goddess.
- The dance form has undergone radical change and adaptation in recent years.
- Karakattam and agriculture link: Mariamman pooja is held in the month of Medam after Makarakkoythu (harvest season) in Kerala, and Mariamman is considered to be the goddess of rain.
- Social significance: It is also about reversing the caste dominance. Men and women perform Bharatanatyam on tall stages and receive applause from the elite class.
- Prominent regions: It is mostly famous in Tamil Nadu, it's performed in different parts of Kerala as well.
- Highlights of Karakattam:
 - Performances are characterised by a lot of swaying movements and joyous banter. It requires a lot of practice and dedication. Three tiers of flower arrangements of different colours sit on top of a container filled to the brim with either water, rice, or soil. All of this is balanced on the head of a Karakattam dancer while he or she dances.
 - Other highlights include blowing fire, inserting needles into eyes, and keeping balance while holding a bottle parallel to the ground on the performer's back.

Sri Madhwacharya

Context

- The Prime Minister, paid his obeisances to Sri Madhwacharya on the occasion of Madhwa Navami.

About Sri Madhwacharya

- He was a Hindu philosopher and the chief proponent of the Dvaita (dualism) school of Vedanta.
 - Dvaita (dualism) school of Vedanta: There is a fundamental difference between Atman (individual soul, self) and the Brahman (ultimate reality, God Vishnu), these are two different unchanging realities, with individual soul dependent on Brahman, never identical
- He called his philosophy Tattvavāda meaning "arguments from a realist viewpoint".
- Literary work: His greatest work is Anuvyakhyana, a philosophical supplement to his bhasya on the Brahma Sutras.

- He was a **critic of Adi Shankara's Advaita Vedanta and Ramanuja's Vishishtadvaita Vedanta teachings.**
- Liberation, asserted Madhva, is achievable only through the grace of God.
- The Dvaita school **influenced Vaishnavism, the Bhakti movement** in medieval India, and has been one of the three influential Vedānta philosophies, along with Advaita Vedanta and Vishishtadvaita Vedanta.

Medaram Jathara

Context

- The Ministry of Tribal Affairs allocated Budget of ₹ 2.26 Crores to rekindle Telangana's State Festival of Medaram Jathara.

About Medaram Jatara or Sammakka Saralamma Jathara

- It is a tribal festival of honouring the goddesses celebrated in the state of **Telangana, India.**
- **About:** It is the **second-largest fair of India**, after the Kumbh Mela.
- **Celebrated by:** The second-largest Tribal Community of Telangana- the **Koya tribe** for **four days**.
- It is **biennially celebrated** in the month of "Magha" (February) on the full moon day and organized by the Koyas in collaboration with the Tribal Welfare Department, Government of Telangana.
- **State festival:** Considering the footfall of the festival and its auspicious significance, the Jathara was declared a State Festival in 1996.
- It is conducted in honour of the **Goddesses Sammakka and Saralamma.**
- Medaram is a remote place in the **Eturnagaram Wildlife Sanctuary**, a part of **Dandakaranya**, the largest surviving forest belt in the Mulugu.

Central Advisory Board on Culture

Context

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

About CABC

- It was established to provide policy advice to the Ministry of Culture on developing programmes.
- **Presided over by the Minister of Culture** of the Government of India.

Role of member of CABC

- Provide **policy advice to the Ministry on developing programmes** focused on creativity at different levels in various regions.
- Aid **participative decision-making** and provide an integrated view of the different ideas and interests from various domains of culture
- Advising the Ministry on policies and giving inputs on the development of new need-based cultural programmes.

Tamil and Vattezhuthu inscriptions

Context

- Tamil and Vattezhuthu inscriptions, belonging to the late 9th Century period, have been found at a Vishnu temple in Velankudi village in Sivaganga district.

About Tamil inscriptions

- **Timeline:** It belongs to the period of **early Pandyas**. It could be the late 9th Century or the beginning of the 10th Century.
- **Other features:**
- **Subject matter:** The inscription talks about 'Poonguntra Naatu Poongunrathu Kaatanpalli Aivar'. 'Kaatanpalli' could be a Jain school.
- The beginning of the Tamil inscriptions was incomplete since the **granite slab** on which they were written had been broken to be paved on the floor of the temple.
- **Message of the inscriptions:** A person, named Thennavan Santhan, from the village made a contribution of 'Avi Kinaru'. 'Avi' is the food offered to god. A well had been dug to supply water to the kitchen of the Jain school.

About vattezhuthu inscriptions

- It comprising 16 lines.
- **Message of the inscriptions:** It explains the donation of a lamp and goats made by Sree Valluvan Kuntrakizhavanaana Anukkan. The ghee produced from the milk of the goats was used for lighting the lamp. It says the shepherds met the local leader and handed over the contribution.

Guru Ravidas Jayanti

Context

- The Punjab Assembly poll was postponed to accommodate Guru Ravidas Jayanti.

About Guru Ravidas

- **About:** Sant Ravidas was a 14th-century saint and founder of the Bhakti movement in North India.
- **Founder of:** He was also the founder of Ravidassia religion during the 15th to 16th century CE.
- **Disciple:** Ravidas was the disciple of the Brahmin bhakti-poet Ramananda.
- **Contemporary:** He is traditionally considered as Kabir's younger contemporary.
- **Scripture:** Ravidas's devotional Verses were included in the Sikh scriptures known as Guru Granth Sahib. In the Adi Granth, forty of Ravidas's poems are included, and he is one of thirty six contributors to this foremost canonical scripture of Sikhism.
- **Teaching:** He taught removal of social divisions of caste and gender, and promoted unity in the pursuit of personal spiritual freedoms.
- **Literary works:** The Adi Granth of Sikhs, and Panchvani of the Hindu warrior-ascetic group Dadupanthis are the two oldest attested sources of the literary works of Ravidas. Ravidas's poetry covers topics such as the definition of a just state where there are no second or third class unequal citizens, the need for dispassion, and who is a real Yogi.

GS-II POLITY

Motion of Thanks

Context:

- Recently opposition demanded amendment to the Motion of thanks for usage of Pegasus software and mismanagement of Covid-19.

About President Address

- Article 86(1) of the Constitution provides that the President may address either House of Parliament.
- Article 87 provides for the special address by the President. The article provides that at the commencement of the first session after each general election to the House of the People and at the commencement of the first session of each year, the President shall address both Houses of Parliament assembled together and inform Parliament of the causes of its summons.
- No other business is transacted till the President has addressed both Houses of Parliament assembled together.
- If at the time of commencement of the first session of the year, Lok Sabha is not in existence and has been dissolved, and Rajya Sabha has to meet, Rajya Sabha can have its session without the President's Address.

Content of address:

- The President's Address is the **statement of policy of the Government** and, as such, is **drafted by the Government which is responsible for its contents**.
- The Address contains a **review of various activities and achievements of the Government** during the previous year and **sets out the policies, projects and programmes which Government of the day wishes to pursue with regard to the important national and international issues**
- The **first session after each general election and the first session of every fiscal year is addressed** by the president.
- In this address, the **president outlines the policies and programmes of the government** in the preceding year and ensuing year.

About Motion of thanks:

- The motion of **thanks needs to be passed in the House else it is treated as defeat of the government**.
- Matters which are **not specifically mentioned in the Address** are brought into discussion through amendments to Motion of Thanks.
- Notices of **amendments to Motion of Thanks on the President's Address** can be tabled after the President has delivered her/his Address.
- According to the **Business rules of Rajyasabha**, **Amendments on the Motion of Thanks are to be moved in such form 'as may be considered appropriate** by the Chairman.

SOCIAL ISSUE

Operation AAHT

Context

- Railway Protection Force launches "Operation AAHT" to intensify crackdown on human trafficking.

Human Trafficking

- Human Trafficking, especially of women and children, for sexual exploitation, forced marriage, domestic servitude, organ

transplant; drug peddling etc is an organized crime and the most abominable violation of human rights.

Human Trafficking in India

- Human Trafficking is considered as the **second largest organized crime in India**.
- The **National Crime Records Bureau registers about 2,200 cases of Human Trafficking cases on an average each year**.
- According to Legal Services in India, **every hour, four girls in India enter into prostitution**, three of them against their will

Need of such initiative in Railways

- The Indian Railways which **transport over 23 million passengers each day** (pre-pandemic).
- It is the largest, fastest and most reliable carrier for suspects who trafficked scores of women and children.

Features of "Operation AAHT"

- Special teams will be deployed on all long-distance trains/routes with focus on rescuing victims, particularly women and children, from the clutches of traffickers.
- **The infrastructure and intelligence network of the force would be utilised** to collect, collate and analyze clues on victims, source, route, destination, popular trains used by suspects, identity of carriers/agents, kingpins etc and shared with other law-enforcing agencies.
- The RPF **would act as a bridge cutting across States to assist the local police in the mission to curb the menace**.
- Cyber cells **would start patrolling the web/social media to look for digital footprints of Human Trafficking**.
- The focus would be more on trains originating from districts bordering Nepal, Bangladesh and Myanmar.

Significance

- The RPF rescued more than more than 2,000 women and children between 2017-21, from the clutches of human traffickers.
- Operation Aaht would certainly intensify the crackdown on human trafficking.

PM-DevINE scheme

Context

- Union Minister for Finance and Corporate Affairs announced a new scheme "Prime Minister's Development Initiative for North-East (PM-DevINE)" .

Details

- The Prime Minister's Development Initiative for North-East (PM-DevINE) was announced in the Union Budget 2022-23.
- The Finance Minister announced that the PM-DevINE will be implemented through the North-Eastern Council.
- An initial allocation of Rs. 1,500 crore was made for the new scheme.
- It will fund infrastructure, in the spirit of PM GatiShakti, and social development projects based on felt needs of the North-East.
- This will Support livelihood activities for youth and women, filling the gaps in various sectors.
- It will not replace the existing central or state Schemes for North-East.

PM-DevINE Scheme: Key Factors

- **In the spirit of PM GatiShakti, PM-DevINE would fund infrastructure and social development initiatives in the North-East states.**
- The PM-DevINE program is being undertaken with the following goals in mind. -
 - To provide opportunities for youth and women to earn a living.
 - To bridge gaps in a variety of industries.
 - The PM-DevINE scheme would receive an initial allocation of Rs. 1,500 crore.
 - The North-Eastern Council will execute the PM-DevINE project.
- **Projects can be recommended by both the Center and the North East States under the PM-DevINE scheme; however preference will be given to projects proposed by the states.**
- The PM-DevINE initiative will empower young women to engage in livelihood activities by filling shortages in several sections.

Bamboo link roads

- **Under the PM-DevINE initiative, Bamboo Link Roads will be built in Mizoram. These paths will aid in the transportation of bamboo from the woods.**
- The projected bamboo connecting roads will be 18 feet wide and have a 10 foot broad pavement.

Projects initiated under PM DevINE Scheme

- Promoting Scientific Organic Agriculture in North East Indian (Multi-State).
- Pilot Project for Construction of Bamboo Link Road at Different Locations in Various Districts in the State of Mizoram.
- Construction of Aizawl By-pass on Western Side
- Establishment of Dedicated Services for the Management of Pediatric and Adult Hematolymphoid Cancers in North East India, Guwahati (Multi-State).
- NECTAR Livelihood Improvement Project (Multi-State)

- Gap funding for Eco-friendly Ropeway (Cable Car) from Dhapper to Bhaleydhunga in South Sikkim.
- Gap funding for Passenger Ropeway system for Pelling to Sanga-Choeling in West Sikkim.

INTERNATIONAL RELATIONS

AUKUS pact

Context

- China has equated the India, U.S., Australia, Japan Quad grouping with the AUKUS (Australia, U.K., U.S.) defence pact, calling both "ill-intentioned" Indo-Pacific strategy of U.S.

AUKUS aim

- To "update and enhance shared ability to take on the threats of the 21st century."

What are the terms of the grouping?

- Intent for AUKUS is to preserve a free and open Indo-Pacific in the long term.
- It drew a sharp response from China, whose territorial ambitions across the Indo-Pacific may well have been a key factor behind the formation of this group.
- Beijing's consternation that AUKUS will "undermine" regional peace and "intensify" an arms race.
- Cornerstone of AUKUS: U.S. and the U.K. will transfer technology to build a fleet of nuclear-powered submarines for Australia within 18 months.

Will AUKUS be a game changer?

It is unlikely and the reasons are

- U.S., as a leading global military power, already has a strong presence in the Indo-Pacific, especially in a grouping that includes Australia, India, and Japan – the Quadrilateral Security Dialogue, or Quad.
- U.S., the U.K., Australia, Canada, and New Zealand are members of Five Eyes, an intelligence-sharing alliance, which also has regional security implications.
- AUKUS will not likely deter Beijing's strategic calculus across the region, particularly relating to its maritime ambitions and territorial expansionism.
- AUKUS that has potential to cause a recalibration of China's plans in this realm is the nuclear-powered submarines.
- It will raise the stakes over strategic flashpoints such as the South China Sea and Taiwan.

Does India stand to gain from this development?

- New Delhi may derive secondary benefits from having three advanced nations coming together to support a free and open Indo-Pacific.
- Considering the China's Belt and Road Initiative, fears in India over 'encirclement' by China may be partially mitigated by AUKUS.

India-Oman defence relations

Context

- Oman top defence official Mohammed Nasser Al Zaabi, co-chaired the Joint Military Cooperation Committee (JMMC) with India's Defence Secretary.

About JMMC

- The JMCC is the highest forum of engagement between India and Oman in the field of defence.
- JMCC evaluates and provides guidance to the overall framework of defence exchanges between the two nations.
- The 10th JMCC is expected to comprehensively evaluate the ongoing defence exchanges and provide a roadmap for further strengthening defence ties in the coming years.

Why is Oman important from a defence and strategic point of view?

- Access to Gulf region: Oman is India's closest defence partner in the Gulf region and an important nation for India's defence and strategic interests.
- Strategic partnership: Oman is the only country in the Gulf region with which all three services of the Indian armed forces conduct regular bilateral exercises and staff talks. India has secured access to the key Port of Duqm in Oman for military use and logistical support. This is part of India's maritime strategy to counter Chinese influence and activities in the region.

Port of Duqm

- Location:** It is situated on the southeastern seaboard of Oman, overlooking the Arabian Sea and the Indian Ocean.

Strategic significance:

- It is located, in close proximity to the Chabahar port in Iran.
- With the Assumption Island being developed in Seychelles and Agalega in Mauritius, Duqm fits into India's proactive maritime security roadmap.

Economic significance:

- It has a special economic zone, where about \$1.8 billion investments are being made by some Indian companies.
- In the context of strategic oil reserves near Duqm, India had extended an invitation to Oman to participate in building strategic oil reserves in India.

- Defence cooperation:** Defence exchanges between India-Oman are guided by a Memorandum of Understanding on Military Cooperation. Oman also provides critical operational support to Indian naval deployments in the Arabian sea for anti-piracy missions.
- Bilateral training cooperation** between the two sides is also robust. Oman also actively participates in the Indian Ocean Naval Symposium (IONS).
- Bilateral security collaboration** are undergoing in the fields of counter-terrorism, information-sharing and capacity-building.

Diplomatic relations

- Sultan Qaboos, the longest-reigning leader of Oman, was a friend of India.
- Gandhi Peace Prize 2019 was conferred on late HM Sultan Qaboos, in recognition of his leadership in strengthening the ties between India & Oman.

People to people ties

- There are about 6.2 lakh Indians in Oman, of which about 4.8 lakh are workers and professionals.

HEALTH

Endosulfan

Context

- Kerala government reconstituted Endosulfan Cell in Kasargod.

Details

- About:** Endosulfan is an off-patent **organochlorine insecticide** that is being phased out globally.
- Use:** Endosulfan has been used in agriculture around the world to control insect pests including whiteflies, aphids, leafhoppers, Colorado potato beetles and cabbage worms.
- Impact:** It has **acute toxicity, potential for bioaccumulation**. The health effects of the chemical include neurotoxicity, late sexual maturity, physical deformities, poisoning, among others. People, especially newborns, have suffered deformities, health complications and loss of family members due to exposure to the agrochemical.
- Ban:** Because of its threats to human health and the environment, a global ban on the manufacture and use of endosulfan was **negotiated under the Stockholm Convention in April 2011**.

Endosulfan and Kerala

- Endosulfan pesticide was used widely on crops like cashew, cotton, tea, paddy, fruits and others until 2011, when the Supreme Court banned its production and distribution.
- Over 20 years of aerial spraying on cashew plantations in Kerala and other states has left many with mental and physical disorders in Kasargod.

Lassa Fever

Context

- One of the three persons diagnosed with Lassa fever in the UK has died on February 11.

About

- Discovery:** The Lassa fever-causing virus is **found in West Africa and was first discovered in 1969 in Lassa**.

What are the symptoms of Lassa fever?

Symptoms of Lassa fever typically occur 2-21 days after coming into contact with the virus. Many people who are infected do not show symptoms.

- Fever
- Headache
- Sore throat
- Chest and muscle pain
- Nausea, vomiting and diarrhoea
- Facial swelling
- In severe cases, bleeding from the mouth, nose, vagina or gastro-intestinal tract



Nigeria.

- **Transmission:** The fever is spread by rats, urine or feces of an infected rat, sick person's infected bodily fluids or through mucous membranes such as the eyes, nose or the mouth. Person-to-person transmission is more common in healthcare settings.
- **Endemic:** It is primarily found in countries in West Africa including Sierra Leone, Liberia, Guinea, and Nigeria where it is endemic.
- **Prevention:** Avoiding contact with rats not only in places where the disease is endemic, maintaining hygiene, keeping food in rat-proof containers and laying down rat traps.

GS-III ECONOMY

PCA FRAMEWORK FOR NBFCs

Context

- The Reserve Bank of India has announced a Prompt Corrective Action (PCA) Framework for the Non-Banking Financial Companies (NBFCs), to strengthen the applicable supervisory tools. This will come into effect from October 1, 2022.

Details

- This is in sync with the PCA framework for the banks, whose aim is to ensure the improvement of their financial condition and governance issues.
- The framework now shall apply to all the deposit-taking NBFCs, all the non-deposit taking NBFCs which are in the middle, upper and top layers, including the investment and the credit firms, the core investment firms, infrastructure debt funds, infrastructure finance firms and the microfinance institutions.
- The NBFCs not accepting or not intending to accept public funds, primary dealers and housing finance firms, along with government-owned ones have been excluded.

TRIGGER THRESHOLDS FOR PCA

For NBFCs excluding core investment companies

Indicator	RBI regulatory minimum	RISK		
		Threshold ①	Threshold ②	Threshold ③
CRAR	15%	12% to below 15%	Between 9% and 12%	Below 9%
Tier1 capital ratio	10%	8% to 10%	Between 6% and 8%	Below 6%
Net NPA ratio	NA	6-9%	9-12%	Above 12%

Note: Based on current regulatory minimum
PCA: Prompt corrective action; CRAR: Capital-to-risk weighted assets ratio

PCA actions

Risk threshold 1	Restriction on dividend distribution/remittance of profits; promoters/shareholders to infuse equity and reduce leverage
Risk threshold 2	In addition to mandatory actions of threshold 1, restriction on branch expansion
Risk threshold 3	Besides mandatory actions of thresholds 1 & 2, appropriate restrictions on capital expenditure, other than for technological upgrade within board-approved limits; restrictions/reduction in variable operating costs

Specifications/ Mandatory action

Source: RBI

Objectives

- To enable supervisory intervention at an appropriate time and so that the supervised entity could initiate and implement remedial measures in a timely manner, so as to restore its financial health.
- The PCA framework is also intended to act as a tool for effective market discipline.

What happens if the PCA framework is imposed?

- An NBFC under the PCA framework, caused by triggering the first threshold, will face restrictions on dividend distribution and promoters will be asked to infuse capital and reduce leverage.
- Upon hitting risk threshold 2, the NBFC will be prohibited from opening branches, while on risk threshold 3, capital expenditure will be stopped other than for a technological upgrade.

Tokenization of Payments

Context

- The Reserve Bank of India (RBI) said no entity in the card transaction or payment chain, apart from the card issuers and card networks, will be allowed to store sensitive user data from July 1, 2022. Instead, in transactions card data will be converted to

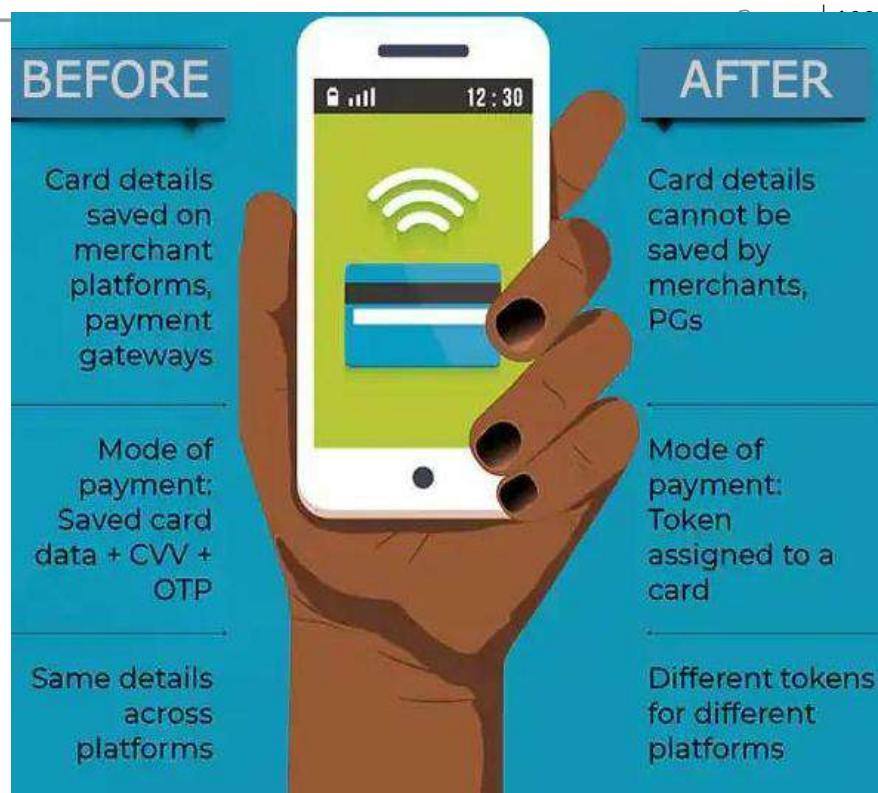
tokens.

What is it?

- **Tokenization** is the process of turning sensitive data into non-sensitive data called "tokens" that can be used in a database or internal system without bringing it into scope. Tokenization can be used to secure sensitive data by replacing the original data with an unrelated value of the same length and format. The tokens are then sent to an organisation's internal systems for use, and the original data is stored in a secure token vault.

Current Status

- Currently, while shopping online or booking a travel ticket, you are required to fill in your card details, which gets stored on the merchant's website and every time you go online to shop from the travel merchant's portal again, you can simply feed your CVV and a one-time password linked to your mobile number.



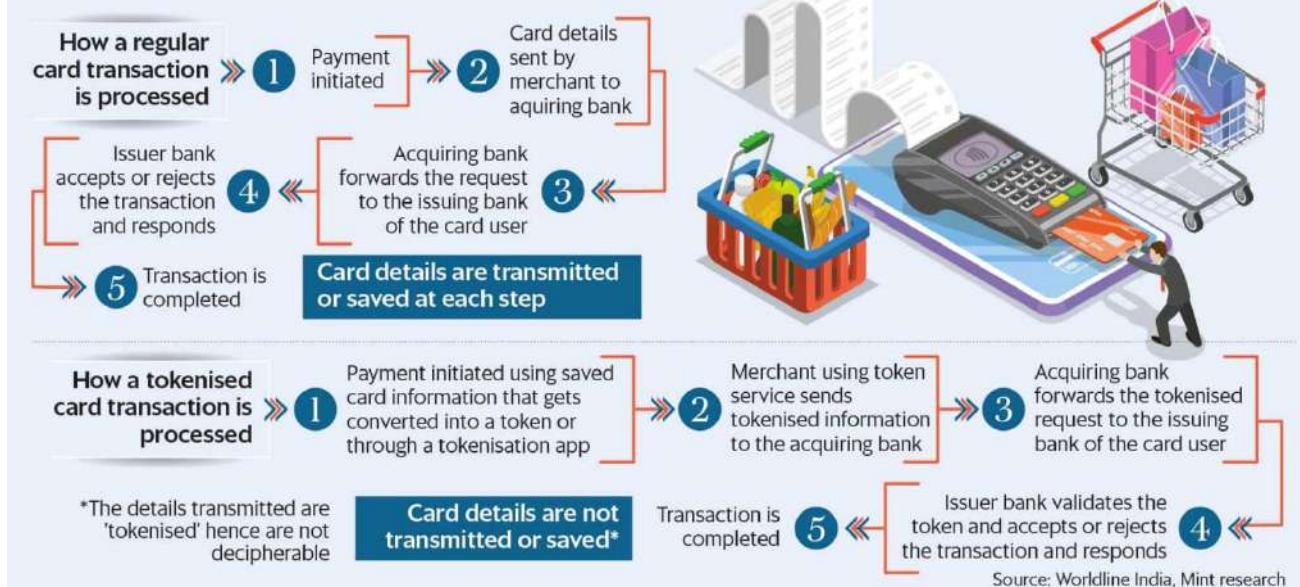
Associated challenges with current status

- The traditional practice was leading to cyber crimes as often, out of negligence, a user just gives their details on an unknown portal, leading to security vulnerabilities.
- If the online site or portal you visit for routine purchases get hacked, all your financial data would get leaked.

Tokenization can help solve the problem as

- Under tokenization, the card details are converted into a unique token, specific to the card and saved with only one merchant at a time.
- The RBI guidelines for the process prohibit all e-commerce platforms from saving the card details on their servers. Hence, you can get a token issued from the bank before you buy an item, and that token can only be used for that portal.
- In case you shop from different portals or use multiple cards on the same portal, you would be issued multiple tokens.

HOW IS A TOKENISED TRANSACTION DIFFERENT?



Deposit Insurance Coverage

Context

- The government amended deposit insurance regulations to reimburse cash up to Rs 5 lakh to an account holder within 90 days of a bank falling under the RBI's embargo.

Details

- The Deposit Insurance and Credit Guarantee Corporation (DICGC), a wholly owned subsidiary of the Reserve Bank of India, provides a cover of Rs 5 lakh per depositor.
- Depositors with more than Rs 5 lakh in their accounts have no legal recourse to retrieve their cash if a bank fails.
- While depositors have the highest level of security for their cash parked with banks, unlike stock and bond investors, an element of danger always lurks on their savings in the event that a bank fails.

What were the norms for deposit insurance earlier?

- Earlier, the depositors typically have to wait 8-10 years following a troubled bank's collapse before being allowed to receive their funds.
- Previously, account holders had to wait years for a troubled lender's liquidation or reorganisation before receiving their covered money.
- The government increased the insurance sum from Rs 1 lakh to Rs 5 lakh last year.
- In the unusual event that a bank fails in India, a depositor may make a claim for up to Rs 5 lakh per account as insurance protection.

What changes were made in the deposit insurance law?

- With the amendments to the law, depositors can now get insurance money within 90 days, rather than having to wait for the ailing banks to be liquidated.
- The DICGC would gather all deposit account information within 45 days of the bank being placed under a moratorium.
- It will analyse the facts over the following 45 days and reimburse investors closer to the 90th day.

How will the scheme be helpful?

- A total of approximately Rs 1,300 crore will be paid to over 1 lakh depositors who could not access their money as their banks faced financial crises
- Further, approximately 3 lakh depositors were set to receive funds stuck in such accounts.
- The Prime Minister noted that the deposits worth Rs 76 lakh crore were insured under the DICGC Act providing full coverage to around 98 per cent of bank accounts against the international benchmark of 80%.

Deposit Insurance And Credit Guarantee Corporation (DICGC)

- About:**
 - DIGC came into existence in 1978 after the merger of **Deposit Insurance Corporation (DIC) and Credit Guarantee Corporation of India Ltd.** after the passing of the Deposit Insurance and Credit Guarantee Corporation Act, 1961 by the Parliament.
 - It serves as a **deposit insurance and credit guarantee** for banks in India.
 - It is governed by and is a fully owned subsidiary of the Reserve **Bank of India (RBI)**.
- Funds:**
 - The Corporation maintains the following funds :
 - Deposit Insurance Fund
 - Credit Guarantee Fund
 - General Fund
 - The first two are **funded respectively by the insurance premium and guarantee fees received** and are utilised for settlement of the respective claims.
 - The **General Fund is used for meeting the establishment and administrative expenses** of the Corporation

RBI's Monetary Policy

Context

- For the eighth time in a row, the Reserve Bank of India's Monetary Policy Committee (MPC) maintained key policy rates steady.

Details

- It was Decided to Continue with the accommodative policy as long as required to recover and sustain growth on a long-term basis and continue to offset the impact of COVID-19 on the economy, "while ensuring that inflation remains within the goal moving ahead.

Current statistics

- The repo rate is the rate at which the RBI loans money to banks; it is currently at 4%.
- The reverse repo rate is the rate at which the RBI borrows money from banks, and it is currently at 3.35 %.
- The bank rate, currently 4.25 %, is the rate at which the RBI loans short-term cash to banks without security.
- Marginal standing facility kept at 4.25%

Credit Control		
Quantitative Measures		Qualitative Measures
Reserve Ratios	Cash Reserve Ratio (CRR)	Credit Rationing Consumer Credit Control Margin Requirements Moral Suasion Direct Action
	Statutory Liquidity Ratio (SLR)	
Open Market Operations		
Policy Rates	Bank Rate	Credit Rationing Consumer Credit Control Margin Requirements Moral Suasion Direct Action
	Repo Rate	
	Reverse Repo Rate	
	Marginal Standing Facility	

What is the MPC assessment on growth and inflation?

- The MPC has retained the growth target at 9.5% for FY2022.
- India's economy expanded 8.4% in the September quarter from a year earlier.
- The RBI also retained retail or consumer price inflation projection at 5.3% in 2021 -22.

Monetary Policy Committee (MPC)

- Chairman(Ex-officio): Governor of the Reserve Bank of India.
- Member (ex officio): Deputy Governor of the Reserve Bank of India, in charge of Monetary Policy.
- Member (ex officio): One officer of the Reserve Bank of India to be nominated by the Central Board.
- The primary objective of monetary policy is to maintain price stability while keeping in mind the objective of growth.

What if Rates are decreased?

- It results in expansionary monetary policy.
- This is a monetary policy aimed at increasing the money supply in the economy via lowering interest rates, central banks purchasing government securities, and banks' reserve requirements.
- An expansionary monetary policy reduces unemployment and boosts business and consumer expenditure.
- The purpose of expansionary monetary policy is to promote economic growth. However, it is possible that it will result in increased inflation.

What if Rates are increased?

- It results in contractionary monetary policy.
- Goal is to reduce (decrease) the money supply in an economy. Increases in key interest rates, which reduce market liquidity, are used to achieve a contractionary monetary policy.
- The purpose of a contractionary monetary policy is to reduce the economy's money supply.
- Raising interest rates, selling government bonds, and boosting bank reserve requirements are all options.
- When the government tries to keep inflation under control, it uses a contractionary strategy.

View of RBI Governor

- Overall, the recovery that had been interrupted by the second wave of the pandemic is regaining traction, but it is not yet strong enough to be self-sustaining and durable.
- This underscores the vital importance of continued policy support.
- Downside risks to the outlook have risen with the emergence of Omicron and renewed surges of COVID-19 infections in a number of countries.

Rupee: Worst Performing Currency in Asia

Context

- The Indian rupee has become Asia's worst-performing currency, as the rapid depreciation has resulted in foreign investors exiting the Indian stock market.

Details

- Depreciation in rupee is a double-edged sword for the RBI. While a weaker currency may boost exports, it also poses risk of imported inflation, and may make it difficult for the central bank to maintain interest rates at a record low for a longer period of time.

Possible reasons for Current Depreciation of Indian Rupee

- Issues like higher than reasonable valuations,
- Record High Trade Deficit:** India's **trade deficit** has widened to an all time high of about \$23 billion in November, 2021 owing to the higher imports.
- Policy divergence Between RBI and Federal Reserve:** The Reserve Bank of India's divergence with the Federal Reserve over

interest rates gave an impetus for foreign investors to exit Indian equities.

- **Omicron Concerns:** The concerns about the new **omicron virus variant** are aggravating the global markets.
- **Capital Exodus:** The benchmark S&P BSE Sensex Index has fallen sharply by 10% from its all-time high reached in October 2021, owing to a capital outflow from stocks.

Difference between the Appreciation/Depreciation of currency:

BASIS	DEPRECIATION	APPRECIATION
Meaning	It refers to decrease in the value of domestic currency in relation to foreign currency.	It refers to increase in the value of domestic currency in relation to foreign currency.
Causes	(1) Increase in demand (2) Decrease in supply	(1) Decrease in demand (2) Increase in supply
Effect on Exports	It leads to increase in exports because more goods can be purchased with the same amount of currency.	It leads to decrease in exports because less goods can be purchased with the same amount of currency.
Effect on Imports	It leads to decrease in imports because the domestic country needs to pay more to get the same amount of goods and services.	It leads to increase in imports because the domestic country will have to pay less to get the same amount of goods and services.

Impact of rupee depreciation on economy

1. Impact on Trade

- The immediate impact of a depreciating Rupee is on the importers who are hit hard when their Rupee cost per Dollar goes up.
- It is a boon for the exporters as they receive more rupees in exchange for dollars.
- Overall, the export competitiveness improves in an economy, but importers need to shell out more per dollar to make their payments.

2. Impact on economy

- Costly imports have a cascading effect on local prices, which rise subsequently.
- The depreciating Rupee can cause a further spike in domestic fuel prices, which would in turn push up prices of other essential items as transportation costs rise.
- Thus, the depreciation of the rupee would lead to import-led inflation.

3. Impact on International students

- A depreciating Rupee could also hurt those looking for overseas education as their costs swell accordingly

4. Impact on the Foreign exchange (Forex) Reserves

- The RBI intervenes in the forex market to reduce the volatility of the exchange rate. The RBI has to sell dollars from forex reserves to keep Rupee depreciation in check. Hence, this leads to a decrease in the total volume of the forex reserves.

5. Impact on External Commercial Borrowings (ECBs)

- The depreciating rupee also poses a serious risk to external commercial borrowing (ECB) as the cost of borrowing from abroad goes up.

Impact of rupee appreciation on economy

- When the Rupee appreciates, IT firms are **severely hit** as most of their revenue of these firms is accounted for by exports
- Exports become more expensive and less profitable for the domestic exporter because they earn less Rupees when exchanging the dollar.
- It is a cause of serious concern if the objective of the economy is to stimulate investment, create employment and foster growth.
- Impact on International students: An appreciating Rupee could benefit those who are looking for overseas education as their costs decreases accordingly.

World Inequality Report

Context

- As per the 'World Inequality Report 2022', India is among the most unequal countries in the world, with rising poverty and an 'affluent elite.'

Detail:
World Inequality Report

- Published by The World Inequality Lab at the Paris School of Economics.
- It provides estimates of global income and wealth inequality based on the most recent findings compiled by the World Inequality Database (WID).

Highlights of the report:

- Most unequal region is MENA (Middle East and North Africa).
- Europe has the lowest inequality levels.
- Nations have become richer, but governments have become poor.
- Wealth inequalities have increased at the very top of the distribution.
- The top 1% took 38% of all additional wealth accumulated since the mid-1990s, whereas the bottom 50% captured just 2% of it.

Report findings for India:

1. Distribution of Wealth:

- Top 1% of the population holds **more than one-fifth of the total national income** in 2021 and the bottom half holds just 13%.

2. Average Household Wealth:

- It stands at Rs. 983,010 per annum. It is observed that the **LPG reforms** have led to "one of the most extreme increases in income and wealth inequality observed in the world".

3. Gender Inequalities:

- The share of **female labour income is equal to 18%** which is much lower than the average in Asia [21%, excluding China] and this is **one of the lowest in the world**.

4. Carbon inequality

- India is a **low carbon emitter nation**. The per capita consumption of the bottom 50% of the population is just one tonne of carbon dioxide while that of the top 10% of the population is 9 tonnes of carbon dioxide.

5. Rise of Private Wealth:

- There has been a trend of **rising of private wealth in emerging countries such as China and India**.
- In India, the private wealth increases over this period of time is remarkable (from 290% in 1980 to 560% in 2020)

ILO World Employment and Social Outlook Trends 2022

Context

- The ILO recently released a report "World Employment and Social Outlook – Trends 2022".

Details

- The report examines the impacts of the crisis on global and regional trends in employment, unemployment and labour force participation, as well as on job quality, informal employment and working poverty. It also offers an extensive analysis of trends in temporary employment both before and during the COVID-19 crisis.

Findings of the report
1. Rising unemployment levels

- The global unemployment is expected to stand at 207 million in 2022 which is 21 million more than in 2019.

2. Working Hours

- Global working hours in 2022 will be almost two per cent below their pre-pandemic level which is equivalent to the loss of 52

million full-time jobs.

3. Global Labour Force Participation

- It is estimated that in 2022 approximately 40 million people will no longer be participating in the global labour force.

4. Poverty

- The Covid pandemic has pushed millions of children into poverty
- It is estimated that an additional 30 million adults fell into extreme poverty in 2020
- The number of extreme working poor rose by eight million.

5. Regional Differences

- Labour market prospects are uneven across the globe.
- Many low and middle-income countries are struggling more than high-income ones to get back to pre-pandemic levels of employment and job quality
- These countries also have low access to vaccines and limited scope to expand government budgets to address the crisis.
- The outlook is the most negative for Latin America and the Caribbean and for southeast Asia.

6. Different Sectors

- Some sectors like travel and tourism have been particularly hit hard, while some other sectors such as those related to information technology (IT) have thrived.

7. Impact on Women and Young Population

- Women particularly have been hit worse by the labour market crisis compared to men and this trend is likely to continue.
- The closing down of the education and training institutions is likely to have long-term implications for the young people, particularly those who do not have internet access.

8. Expected Recovery

- As the ILO director-general has said: "There can be no real recovery from this pandemic without a broad-based labour market recovery. And to be sustainable, this recovery must be based on the principles of decent work- including health and safety, equity, social protection and social dialogue."

About the International Labour Organisation

- The International Labour Organisation was established in the year 1919 by the Treaty of Versailles as an affiliated agency of the League of Nations.
- It became the first affiliated specialised agency of the United Nations in 1946.
- Its headquarters is located in Geneva, Switzerland.

Objectives

- It promotes internationally recognised human and labour rights.
- It aims to promote and realise standards and fundamental principles and rights at work;
- create greater opportunities for women and men to secure decent employment; enhance the coverage and effectiveness of social protection for all, and; strengthen tripartism and social dialogue.
- It has received the Nobel Peace Prize in 1969 for improving peace among classes, pursuing decent work and justice for workers, and providing technical assistance to other developing nations.

Governing Body

- It is the executive council of the ILO.
- It meets three times a year in Geneva.
- It takes policy decisions of ILO and establishes the programme and the budget, which it then submits to the Conference for adoption.
- The work of the Governing Body and the Office is aided by tripartite committees covering major industries.
- It is also supported by committees of experts on such matters as vocational training, management development, occupational safety and health, industrial relations, worker's education, and special problems of women and young workers.

SCIENCE & TECHNOLOGY

Quantum key distribution

Context

- Recently, DRDO and IIT Delhi scientists demonstrated Quantum Key Distribution (QKD) successfully.
- The technology displayed a Quantum Key Distribution link between Prayagraj and VindhyaChal in Uttar Pradesh; the distance between them was 100 kilometers.

Quantum key distribution

- Quantum key distribution (QKD) is a secure communication method which implements a cryptographic protocol involving components of quantum mechanics.
- It enables two parties to produce a shared random secret key known only to them. This key can then be used to encrypt and decrypt messages.
- The two communicating users would be able to detect the presence of any third party trying to gain knowledge of the key.

Read about Quantum computing here: <https://www.iasgyan.in/blogs/quantum-computing>

Benefits or advantages of Quantum Cryptography

- It revolutionizes secure communication by providing security based on fundamental laws of physics instead of mathematical algorithms or computing technologies used today.
- It is virtually unhackable.
- It is simple to use.
- Fewer resources are needed in order to maintain it.
- It is not possible to copy the data encoded in quantum state. If someone tries to read such encoded data then quantum state changes the existing state.
- The performance of such cryptography systems is continuously improved. This results into its quick adoption in encrypting most valuable secrets of the government and industries.
- Secure communications are vital for defence and strategic agencies across the globe and the distribution of encryption keys is the crucial factor for it.

Drawbacks or disadvantages of Quantum Cryptography:

- The world wide implementation of this can take up lots of jobs and hence unemployment will increase.
- While traveling through the channel (i.e. optical fiber or air), there is possibility of change in polarization of photon due to various causes.
- Quantum cryptography lacks many vital features such as digital signature, certified mail etc.
- Need of dedicated channel is must between source and destinations which implies high cost. It is impossible to send keys to two or more different locations using a quantum channel as multiplexing is against quantum's principles. This demands separate channels between source and many destinations. This is major disadvantage of quantum communication through optical channel.

Steps taken by the Government

- The Union Government has inaugurated Quantum Communication Lab in India.
- Government is actively supporting indigenously developed Quantum Key Distribution (QKD) solutions.
- The Government has allocated \$1 billion for the National Mission on Quantum Technologies.

Expected Outcome

- It will help in making communication lines safe and secure.
- Open a new chapter in India's growth
- Attract new start-ups in this sector.
- Support India's claim of becoming a Superpower in the Science and technology field.
- Ensure safety of satellite communication lines.

Challenges that need to be tackled

- Low spending on Research - In India, Public expenditures on research have been stagnant between 0.6-0.7 percent of GDP over the past 2 decades.
- Inadequate support of Private sector - In most countries, the private sector carries out the bulk of research. However, in India, the government is the primary source of research funding and primary user of these funds.
- State government support lacking - Government expenditure on Research is almost entirely by the central government.
- Lack of Skilled manpower in India.

Final Thoughts

- With the recent success, India has demonstrated indigenous technology of secure key transfer. It will help in establishing a safe and secure communication line for military and intelligence departments.
- This technology will allow security agencies to plan a suitable quantum communication network for ensuring safety and unity of the nation.

Dark Matter

Context

- Astronomical observations suggest that a significant part of the universe is made up of dark matter which interacts with the rest of the universe only through the gravitational pull.

What is Dark Matter?

- Dark matter is a mysterious substance that composes about 27% of the makeup of the universe. It isn't ordinary atoms - the building blocks of our own bodies and all we see around us. Atoms make up only somewhere around 5% of the universe.
- Dark matter isn't the same thing as dark energy either, which makes up some 68% of the universe.

Properties of Dark Matter

Optically Dark (Dissipationless)

- Dark matter does not shine. Thus, dark matter particles must have very weak electromagnetic interactions.
- As a result dark matter cannot cool by radiating photons, and thus will not collapse to the center of galaxies.
- In other words, the dark matter is very nearly dissipationless.

Collisionless

- In addition to not interacting with "light" matter, the dark matter is collisionless as well.

Dark matter is not clouds of normal matter

- Normal matter particles are called baryons. If dark matter were composed of baryons it would be detectable through reflected light.
- Baryons are heavy subatomic particles that are made up of three quarks. Both protons and neutrons, as well as other particles, are baryons.

Dark matter is not antimatter

- Antimatter annihilates matter on contact, producing gamma rays. Astronomers do not detect them.

Dark matter is not black holes

- Black holes are gravity lenses that bend light. Astronomers do not see enough lensing events to account for the amount of dark matter that must exist.

Dark matter binds galaxies together

- Dark matter exerts 'gravitational force', meaning that it draws other matter towards it.
- And there's so much dark matter that its gravitational force is enough to hold entire galaxies - like our own Milky Way - together.
- That's why dark matter is often likened to a giant spider's web, meshing galaxies in place.

Interaction with matter

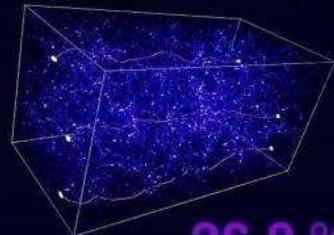
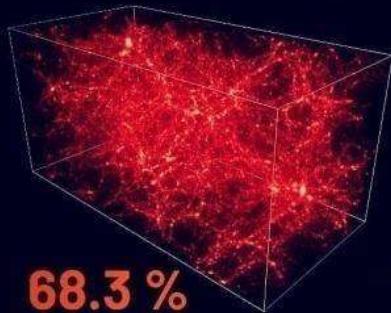
- Dark matter does interact with ordinary matter. But it exhibits measurable gravitational effects on large structures in the universe such as galaxies and galaxy clusters.
- Because of this, astronomers are able to make maps of the distribution of dark matter in the universe, even though they cannot see it directly.

Dark matter is cold in nature

In a nutshell,

Dark matter is invisible; it doesn't emit, reflect or absorb light or any type of electromagnetic radiation such as X-rays or radio waves. Thus, dark matter is undetectable directly.

Dark Energy Vs Dark Matter



@science_cosmo

> Single largest constituent of the Universe.

> Tends to drive Universe apart.

> No interaction with Normal Matter.

> Can be thought as 5th Fundamental force.

> Second largest constituent of the Universe.

> Tends to drive Universe together.

> Interacts with Normal matter by Gravity (Gravitational Lensing).

> Dark matter is Not Antimatter or Black Holes.

Fast Radio Bursts

Context

- Astronomers of National Centre of Radio Astrophysics (NCRA-TIFR) in Pune and the University of California in the U.S. have used the **Giant Metrewave Radio Telescope (GMRT)** to map the distribution of atomic hydrogen gas from the host galaxy of a fast radio burst (FRB) for the first time.

Fast radio bursts

- About:** Fast radio bursts are **extremely bright radio pulses from distant galaxies that last for only a few milliseconds**. Radio waves can be produced by astronomical objects with changing magnetic fields.
- Detection:** The first FRB was discovered in 2007, since when scientists have been working towards finding the source of their origin.



GMRT

- About:** The Giant Metrewave Radio Telescope (GMRT), is an **array of thirty fully steerable parabolic radio telescopes of 45 metre diameter, observing at metre wavelengths**.
- Location:** It is located about 80 km north of Pune at Khodad.
- Aim:** To **determine the epoch of galaxy formation in the universe**.
- Usage:** Astronomers from all over the world regularly use this telescope to observe many different astronomical objects such as HII regions, galaxies, pulsars, supernovae, and Sun and solar winds.
- Recent finding:** In February 2020, it helped in the observation of the biggest explosion in the history of the universe, the Ophiuchus Supercluster explosion.

Recent Research

- The GMRT results indicate the FRB host galaxy has undergone a recent merger and that the FRB progenitor is most likely a massive star formed due to this merger event.
- This is the **first case of direct evidence for a recent merger in an FRB host**, a major step towards understanding the progenitors (ancestor) of FRBs.

DEFENSE & SECURITY

Ex Cobra Warrior 2022

Context

- In a first, the Indian Air Force (IAF) will deploy the indigenous Light Combat Aircraft (LCA) Tejas for multilateral air exercise 'Cobra Warrior' at Waddington, U.K. Five Tejas aircraft will fly to the U.K.

Schedule

- The exercise is scheduled from March 6 to 27.

Participant countries

- Air Forces of Belgium, Saudi Arabia, Sweden and the U.S.

Aim

- The exercise is aimed at providing operational exposure and sharing best practices amongst the participating Air Forces, thereby enhancing combat capability and forging bonds of friendship.
- IAF Light Combat Aircraft (LCA) Tejas will participate in the exercise along with fighter aircraft of the UK and other leading Air Forces.

India Appoints 1st National Maritime Security Coordinator

Context

- Almost 14 years after the 26/11 attacks, the Centre has appointed the first national maritime security coordinator (NMSC).

Objective

- NMSC is created to act as an interface between the civilian and military maritime domain with the objective of enhancing security architecture and energy security of India.

Roles and responsibility

- The NMSC will work in coordination with the National Security Council Secretariat headed by NSA Ajit Doval.
- He will have the responsibility of coordinating between all the agencies involved in maritime security and maritime civil

issues as well.

- Basically, he will act as the interface between military and civilian agencies. However, he will work independently.
- The coordinator will also be tasked with improving the country's blue economy needs.
- He will be the principal advisor to the government on maritime security domain and will act as a nodal point for all issues related to maritime security.
- The NMSC will also ensure cohesive policies and plans in the maritime domain, including on the technology front.

Need for this post

- This post will help strengthen the country's maritime and energy security as well as expanding blue economy and technology requirements.
- The Indian government is set to clear the Deep Ocean Mission for the blue water economy.
- China is penetrator the Indian ocean through Pakistan and Myanmar. The creation of NMSC Will boost to SAGAR(Security and Growth of All in the Region) doctrine.

Former Navy Vice Chief Vice Admiral G Ashok Kumar appointed as the first National Maritime Security Coordinator in the National Security Council Secretariat

P-8I Aircraft

Context

- Aircraft manufacturer Boeing has delivered the 12th P-8I long-range maritime patrol aircraft to the Indian Navy. This completes the follow-on clause for four additional P-8I aircraft contracted in 2016.

About P-8I Aircraft

- The aircraft is designed for long-range anti-submarine warfare (ASW), anti-surface warfare (ASuW), and intelligence, surveillance and reconnaissance (ISR) missions.
- It is a "multi-mission aircraft" with "state of the art sensors, proven weapons systems, and a globally recognised platform".
- With a maximum speed of 907 kmph and an operating range of over 1,200 nautical miles, the P-8Is detect threats and neutralize them if required.

Naval operations

- Indian Navy uses it for maritime operations, but the aircraft was also used in eastern Ladakh in 2020 and 2021, when the standoff with China was at its peak, to keep an eye on Chinese troops and their manoeuvres.
- The first eight of these aircraft are stationed at INS Rajali in Arakkonam, Tamil Nadu, on the eastern coast. The batch of the additional four are part of another squadron at INS Hansa in Goa, named Indian Naval Air Squadron 316.
- The Navy's fleet has surpassed 29,000 flight-hours since their induction in 2013, and is responsible for coastal patrolling, search-and-rescue, anti-piracy, and supporting operations of other arms of the military.

ENVIRONMENT & ECOLOGY

Septemeranthus

Context

- A new genus of a parasitic flowering plant has recently been discovered from the Nicobar group of islands.
- **Name of newly discovered parasitic flowering plant:** Septemeranthus
- **Host plant species:** It grows on the plant species Horsfieldia glabra(Blume) Warb.
- **Special features:**
- It have a **modified root structure** spread on the stem of the tree and are anchored inside the bark of the host tree.
- It has a **distinct vegetative morphology, inflorescence architecture and floral characters.**
- This genus is **endemic only to the Nicobar group of islands.**
- **Habitation:** The plant was found on the periphery of the tropical forest in one of the biodiversity hotspots referred to as the Nicobar group of islands separated from the Andaman group of Islands by a wide gap of 160 km with heavy tidal flows.
- **Ecological role:** They play an important role in providing food for frugivorous birds.

Symbiosis is a close relationship between two species in which at least one species benefits.

Mutualism is a symbiotic relationship in which both species benefit.

Commensalism is a symbiotic relationship in which one species benefits while the other species is not affected.

Parasitism is a symbiotic relationship in which one species (the parasite) benefits while the other species (the host) is harmed.

Wayanad Wildlife Sanctuary

Context

- With the onset of summer, the seasonal migration of wild animals has begun from the adjacent wildlife sanctuaries in Karnataka and Tamil Nadu to the Wayanad Wildlife Sanctuary (WWS).

About Wayanad Wildlife Sanctuary

- Location:** This wildlife sanctuary is located in Wayanad, Kerala.
- It is the second largest wildlife sanctuary in Kerala.
- It is an integral part of the Nilgiri Biosphere Reserve.
- Bordering protected areas:** It is bounded by protected area network of Nagarhole National Park and Bandipur National Park in Karnataka in the northeast, and on the southeast by Mudumalai National Park in Tamil Nadu.
- It is part of the Deccan Plateau and Western Ghats.
- It comes under Protect Elephant.
- This protection area is inhabited by Paniyas, Kurubas, Adiyans, Kurichiyas, Ooralis and Kattunaikkans scheduled tribes.

Dholes or Asiatic wild dogs

Context

- A new study has reported the presence of dholes or Asiatic wild dogs (*Cuon alpinus*) in the high mountains of Central Asia nearly 30 years after their presence was last recorded.

About Dhole

- Native species of:** Central, South, East, and Southeast Asia.
- Habitation and distribution:** The dhole occurs in most of India south of the Ganges, particularly in the Central Indian Highlands and the Western and Eastern Ghats. It is also present in Arunachal Pradesh, Assam, Meghalaya, and West Bengal and in the Indo-Gangetic Plain's Terai region.
- Other names for the species:** Asian wild dog, Asiatic wild dog, Indian wild dog, whistling dog, red dog, and mountain wolf.
- Conservation status:**
 - It is listed as Endangered on the IUCN Red List.
 - CITES Appendix II
 - Protected under Schedule 2 of the Wildlife Protection Act, 1972.
- Factors contributing to declining population:** habitat loss, loss of prey, competition with other species, persecution due to livestock predation, and disease transfer from domestic dogs

Bihar's first floating power plant

Context

- Bihar Renewable Energy Development Agency (BREDA) is set to commission the state's first two MW floating solar power plant in Darbhanga.

More about news

- As many as 40,04 photovoltaic (PV) panels, each capable of generating 500-watt electricity, will be installed in a pond in Darbhanga by Delhi based firm AVAADA.
- The solar power plant will be directly connected to the utility power grid from where power will be supplied to consumers.
- The project is a part of efforts to tap as well as to generate mass awareness about solar energy.
- The state is likely get a 2 megawatt floating solar power generation unit in Darbhanga within a month.
- Avaada had signed a power purchase agreement with BREDA for 25 years. BREDA will supply power from the plant to local consumers through North Bihar Power Distribution.
- The main benefit of a floating solar power plant is that the water will cool the solar panels, ensuring their efficiency when temperatures rise, resulting in increased power generation.
- The floating power plant will help meet two goals: Produce green energy from solar panels and promote fish farming.
- It could prove to be a boon in utilising waterbodies for beneficial purposes and giving a new lease of life to waterbodies.

Sea cucumber

Context

- The Indian Coast Guard (ICG) team seized 30 sea cucumber.

About sea cucumber

- Sea cucumbers are in high demand in China and Southeast Asia for food and traditional medicine.
- It is primarily smuggled from Tamil Nadu to Sri Lanka.
- Protection status:** Sea cucumber in India is treated as an endangered species listed under schedule I of Wildlife Protection

Act of 1972 thereby putting an end to the sea cucumber fishery and trade from the country.

- It serves a useful role in the marine ecosystem as they help recycle nutrients, breaking down detritus and other organic matter.
- The sea cucumber is an integral part of the coral ecosystem in the sea surrounding Lakshadweep. Calcium carbonate is one of the by-products of sea cucumber's digestion of sand.
- Lakshadweep administration has created the world's first conservation area for endangered sea cucumbers

Crimson Rose

Context

- Thousands of Crimson Rose butterflies fly across ocean from India towards Sri Lanka.

About Crimson Rose

- It is a large butterfly with a mix of black, white and crimson colours on its wings and body.
- It is known for crossing the sea to migrate to Sri Lanka.
- Certain other butterfly species found in Tamil Nadu are also known for their migration in response to the climate and food availability.



Koalas

Context

- Australia's koalas have officially been classified as 'endangered'. Government has upgraded the conservation status of the marsupials from 'vulnerable' to 'endangered'.

Factors that lead to up gradation of status

- Prolonged drought, black summer bushfires, cumulative impacts of disease, spread of chlamydia, a sexually transmitted disease known to cause blindness and cysts in the koalas reproductive tract, urbanisation and habitat loss.

Significance of this move

- The Endangered status of the koala means they and their forest homes should be provided with greater protection under Australia's national environmental law. Not only will this protect the iconic animal, but many other species living alongside the

About koalas

- Koala species have inhabited parts of Australia for at least 25 million years. Today, only one species remains — the *Phascolarctos cinereus*.
- Habitat:** They are found in the wild in the southeast and eastern sides of Australia — in coastal Queensland, New South Wales, South Australia and Victoria.
- Threats:** habitat loss, particularly due to agriculture and the construction of urban settlements.
- Diet:** They survive on a strict diet of up to a kilogram of eucalyptus leaves every day.

KOALA FACTS
The name koala comes from an indigenous word.

- Koalas are marsupials.
- Koalas usually give birth to only 1 joey at a time.
- The koala diet results from its species' evolution.
- Koalas get their water from eucalyptus leaves.
- Indigenous Australians had a clever method to hunt koalas with.
- A koala's diet also has disadvantages of its own.
- Eucalyptus leaves also offer low nutrition and large amounts of poisonous eucalyptus oil.
- Indigenous Australians have some taboos when it comes to hunting koalas.
- Baby koalas spend a few more months with their mother after leaving the pouch.
- Climate change has another effect on koalas.
- Climate change is a major threat to koalas.
- Male koalas mark their territory.
- Koalas can live for over a decade.
- Koalas have few natural predators.
- Koalas also suffer from parasites.
- Koalas particularly suffer from Chlamydiaceae bacteria.
- Koalas have their own version of AIDS.
- Female koalas mature sexually faster than males koalas.
- Koalas have always suffered from bushfires.

Gee's Golden Langur

Context

- The Assam Forest Department move of converting the Kakojana Reserve Forest into the Kakojana Bamuni Hill Wildlife Sanctuary is opposed by Assam villagers.

About Kakojana Reserve Forest

- It is one of the better-known homes of the golden langur (*Trachypithecus geei*).

- It inhabited by the Koch-Rajbongshi, Boro, Garo, Rabha and Gorkha communities.
- Some of the areas inside the forest as sacred and its sanctity should be maintained.
- It is home to rarest & highly endangered species like Binturong, Jungle Fowl, Pangolin, Hornbill, Leopard, Porcupine, Python, Lesser Adjutant Stork etc.



About Golden langur

- Gee's golden langur, also known as simply the golden langur, is an **Old World monkey**.
- **Endemic species:** It is found only in Assam and Bhutan.
- **Conservation status:**
 - It is a **Schedule-I species** under the **Wildlife Protection Act of 1972**.
 - It is listed as among the world's 25 most endangered primates.
 - It is listed as "rare species" in the Red Data Book of International Union for Conservation of Nature.
 - It is listed under the **Appendix I of CITES**.

Aravalli Biodiversity Park

Context

- Aravalli Biodiversity Park in Gurugram declared as **India's first "other effective area-based conservation measures" (OECM) site**.
- The proposal to declare Aravalli Biodiversity Park an OECM site was sent by the **National Biodiversity Authority** to the IUCN in December 2020.

About other effective area-based conservation measures" (OECM) tag:

- It is a conservation designation for areas that are achieving the effective **in-situ conservation of biodiversity outside of protected areas**.
- **Definition of OECM:** A geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in situ conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio-economic, and other locally relevant values.
- **Given by:** This tag is given by the **International Union for Conservation of Nature (IUCN)** to areas that are not protected but support rich biodiversity.
- **No legal implications:** OECM tag does not bring any legal, financial or management implications, but designates the area as a biodiversity hotspot on the international map.
- **Significance:** Help this biodiversity hotspot to get worldwide recognition.

About Aravalli Biodiversity Park

- **Located in:** Gurugram, Haryana.
- It had several mining pits and large, barren valley-like spaces. That is restored with native plants that helped in **seasonal water accumulation**, making them special micro-habitats within the larger Aravalli landscape.
 - The Aravallis, are one of the oldest mountain ranges in the world.
- **Vegetation:** The natural vegetation of the park falls within the Northern Tropical Dry Deciduous Forest and Northern Tropical Thorn Forest types recognised by **Champion and Seth**.
- The area is highly degraded due to **past mining** and infested with **Prosopis juliflora**.
- It has **medicinal plant conservatory** to promote conservation, education and awareness on the importance of plants in health care system.
- **Sacred Grove** has been developed in this park. Which have plant species with religious importance such as Ficus, Aegle, Nyctanthes arbor tristis, Sapindus, Madhuca etc.

India's Forest area gain

Context

- As per annual Economic Survey, India has **increased its forest area** in the past decade and **ranks third globally** in average annual net gain in forest area from 2010-2020. India added an average of 2,66,000 hectares of additional forest area every year during the period.

Key highlights

- **Global scenario:** The top 10 countries account for 66% of the world's forest area are **Brazil** (59%), **Peru** (57%), Democratic Republic of Congo (56%) and Russia (50%).
- **India specific:**
 - Forests covered **24%** of India's total geographical area accounting for **2%** of the world's total forest area in 2020.

- **Forest cover in terms of area under forests:** Among Indian States, **Madhya Pradesh** with 11% of India's total forest cover, had the largest area under forests in 2021, followed by **Arunachal Pradesh (9%)**, **Chhattisgarh (8%)**, **Odisha (7%)** and **Maharashtra (7%)**.
- **Forest cover to the geographical area:** **Mizoram (85%)**, **Arunachal Pradesh (79%)**, **Meghalaya (76%)**, **Manipur (74%)** and **Nagaland (74%)** were the top five States in terms of highest proportion of forest cover to the geographical area of the State in 2021.
- India's increase in forest cover (2011-21) is attributed to enhancement in **very dense forest cover**, which rose by 20% during the period. Open forest cover also improved by 7% cent during the period.
- Most of the increases in India's forests have occurred outside areas traditionally marked as 'forest' and **consists of plantations and orchards**.

Black Percher

Context

- Black Percher a dragon fly species sighted in Seshachalam Hill for the first time.

About Black Percher or Black Ground Skimmer (*Diplacodes lefebvrii*)

- It is a species of dragon fly.
- **Conservation status:**
 - It is labelled as of '**least concern**' the International Union for Conservation of Nature and Natural Resources (IUCN) Red List of threatened species.
- **Habitat and distribution:** It is a common species native of Africa and southern Eurasia. It can be found in almost any type of freshwater habitat.



The Seshachalam Hills

- These are hilly ranges part of the **Eastern Ghats** in southern Andhra Pradesh state, in southeastern India.
- The ranges are bounded by the **Rayalaseema** uplands to the west and northwest, and the **Nandyal Valley** to the north.
- **Tirupati**, a major Hindu pilgrimage town is located in the hills.
- **Protected reserve forest:** In 2010, it was designated as a **Biosphere Reserve**. It has large **reserves of red sandalwood**, which is used in medicines, soaps, spiritual rituals, etc.

White-Cheeked Macaque

Context

- Scientists find White-Cheeked Macaque in Arunachal Pradesh.

Significance of this discovery

- The rare species has **not been reported after a single sighting in 2015**.
- It marks a **new addition to mammals of India**.

White-Cheeked Macaques

- **Habitation and distribution:** It is found only in Tibet and Arunachal Pradesh in northeastern India.
- They are distinct from other macaques found in the region by displaying white cheeks, long and thick hairs on the neck area, and a longer tail.
- **Conservation status:**
 - This species' exact conservation status has not yet been determined
 - It has **not been yet included** in the Wildlife (Protection) Act, 1972 of India.
- **Species of Macaque found in India:** White-Cheeked Macaques, Arunachal Macaque, Assamese Macaque (*Macaca assamensis*) and Rhesus Macaque (*Macaca mulatta*).
- **Threat to this species:** Hunting by locals for consumption and habitat degradation due to urbanisation and infrastructure development.



Sariska Tiger Reserve

Context

- With Better habitat management tiger population flourished in Sariska Tiger Reserve. Now it depicts an appropriate balance between the prey and predator.
- The tiger population in the wildlife sanctuary has gone up to 25.

About Sariska Tiger Reserve

- **Located in:** This tiger reserve is located in **Rajasthan**.

- It became part of India's **Project Tiger** in 1978.
- Tiger relocation:** It is the first reserve in the world with successfully relocated tigers.
- It is an **important biodiversity area** in the Northern Aravalli leopard and wildlife corridor.
- It is rich in mineral resources, such as **copper**.
- It is a part of the **Aravalli Range** and the **Khathiar-Gir dry deciduous forests ecoregion**.

Other protected areas of Rajasthan



Basai wetlands

Context

- Environmentalists and enthusiasts seek protection for Basai wetlands, a 'bird paradise'.

About Basai Wetland

- Located in:** It is located in Gurgaon district in Haryana.
- It is recognised as an **Important Bird Area (IBA)** by the BirdLife International housing 20,000 birds of over 280 species including migratory birds and endangered birds.
- It is recognised as a **key biodiversity area** by the International Union for Conservation of Nature (IUCN), the Wildlife Institute of India.
- It lies in one of the paleochannel of the **Sahibi River**, a **tributary of Yamuna**, which originates from the Aravalli range in Rajasthan.

What are Wetlands?

- Definition:** These are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time during the year, including during the growing season.
- Wetlands support **both aquatic and terrestrial species**.

Ecological importance of wetlands

- The wetlands provide a wide range of important resources and ecosystem services such as groundwater recharge, water purification, flood moderation, erosion control and climate regulation

Categories of wetlands

- Two general categories of wetlands are recognized: **coastal or tidal wetlands and inland or non-tidal wetlands**.

Functions of wetland:

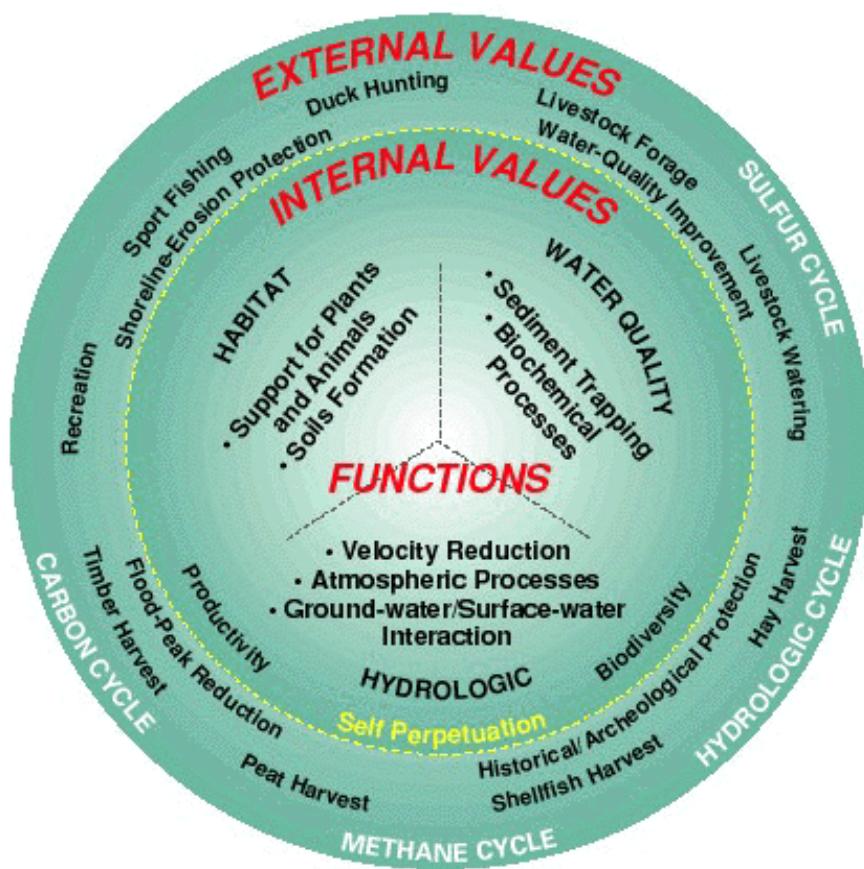


Figure 51. Wetland functions and internal and external value

Muttayapalem Reserve Forest

Context

- Environmentalists are opposing the proposal to alienate certain areas under Muttayapalem reserve forest area for development activities, stating that such activities are harmful to the coastal environment.
- The reserve forest area is **breeding ground for Olive Ridley turtles** and many species of migratory birds.

Muttayapalem Reserved Forest

- Location:** This forest reserve is located in Andhra Pradesh.
- It is part of **Central Asian Flyway**, and many species of migratory birds, including the Whimbrel, come to this place during winter.
- “Forest area” is an area recorded as forest in the government records. Often this term is also written as “recorded forest area”.
- The recorded forest area is categorized into “**Reserved Forest**”, “**Protected Forest**” and “**Unclassed Forest**”.
 - Reserved Forest:** An area notified under the provisions of India Forest Act or the State Forest Acts having full degree of protection. In Reserved Forests all activities are prohibited unless permitted.
 - Protected Forest:** An area notified under the provisions of India Forest Act or the State Forest Acts having limited degree of protection. In Protected Forests all activities are permitted unless prohibited.
 - Unclassed Forest:** An area recorded as forest but not included in reserved or protected forest category. Ownership status of such forests varies from state to state.

Sultanpur Bird Sanctuary

Context

- Homestays would soon be allowed in the villages around Sultanpur National Park in Gurugram to promote tourism and provide an opportunity to the visitors to catch a glimpse of rural life in Haryana.

About Sultanpur National Park

- Location:** Sultanpur National Park (formerly Sultanpur Bird Sanctuary) is located at Sultanpur village in Haryana.
- It is a **Ramsar site**.
- It is part of **Central Asian Flyway**. Every year 50,000 birds of more than 100 species reach Sultanpur.

MCQs

1. Consider the following statements about the Aurobindo Ghose:

1. He was associated with the Anushilan Samiti and Alipore Conspiracy.
 2. He developed a spiritual practice called Integral Yoga.
 3. He was editor of the Bande Mataram newspaper.
- Which of the statements given above is/are correct?
- a) 1 and 2 only b) 2 and 3 only
c) 1 and 3 only d) 1, 2 and 3

2. With reference to the tokenisation of debit and credit cards, consider the following statements:

1. It refers to replacement of actual credit and debit card details with an alternate code, which will be unique for card, token requestor and device.
2. It aims to enhance the security of online transactions made using debit and credit cards

Which of the statements given above is/are correct?

- a) 1 only b) 2 only
c) Both 1 and 2 d) Neither 1 nor 2

3. With reference to the Tablighi Jamaat, consider the following statements:

1. It was founded in India in 1926.
2. Converting people from other faith into Islam is one of the focus areas of this organization.

Which of the statements given above is/are correct?

- a) 1 only b) 2 only
c) Both 1 and 2 d) Neither 1 nor 2

4. With reference to the PESA Act, consider the following statements:

1. It extends the provisions of panchayats to the Sixth Schedule Areas that have preponderance of tribal population.
2. All posts of chairpersons of PRIs in the areas covered under PESA are reserved for tribal community.
3. Under PESA Act, Gram Sabha is endowed with ownership of Minor Forest Produce

Which of the statements given above is/are correct?

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

5. With reference to the SDG Urban Index 2021-22, consider the following statements:

1. It is published by Ministry of Housing and Urban Affairs.
 2. Chandigarh tops this Index followed by Bangalore.
- Which of the statements given above is/are correct?
- a) 1 only b) 2 only
c) Both 1 and 2 d) Neither 1 nor 2

6. With reference to the ACROSS scheme, which of the following statements is/are correct?

1. It is implemented by the Ministry of Science and Technology.
2. Its goal is to address different aspects of weather and climate services.

3. It is an umbrella scheme under which eight sub-schemes are subsumed.

Select the correct answer using the code given below:

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

7. With reference to the Bharat Gaurav scheme, consider the following statements:

1. It aims to promote and attract tourism business through liberalizing a part of Indian Railways operations.
2. It gives operators complete freedom to develop a business model in which Indian Railways will only physically run the trains and charge a fee.

Which of the statements given above is/are correct?

- a) 1 only b) 2 only
c) Both 1 and 2 d) Neither 1 nor 2

8. The Representation of the People Act, 1950 deals with

1. Allocation of seats and delimitation of constituencies for elections
 2. Preparation of electoral rolls
 3. Offences and disputes related to elections
- Select the correct answer using the code given below:
- a) 1 and 2 only b) 2 and 3 only
c) 1 and 3 only d) 1, 2 and 3

9. Consider the following statements about the Sutlej river:

1. It is a tributary of the Indus River.
2. The waters of the Sutlej are allocated to India under the Indus Waters Treaty.
3. It originates in Tibet and enters India through the Shipki La pass.

Which of the statement mentioned above is/are correct?

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

10. In context of the United Nations Convention on Biological Diversity (CBD), Consider the following statements:

1. It is a legally binding convention.
2. It covers all ecosystems, species and genetic resources.
3. The CBD is an outcome of the Earth Summit discussions held in Rio de Janeiro in 1992.

Which of the statements given above is/are correct?

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

11. Consider the following statements:

1. Wasteland is defined as land that is not suitable used for agriculture or commercial use or as forest land.
2. The Wasteland Atlas is published biannually by the Ministry of Agriculture and Farmers' Welfare.

Which of the statement mentioned above is/are correct?

- a) 1 only b) 2 only
c) Both 1 and 2 d) Neither 1 nor 2

- 12. Consider the following statements about the Atal Bhujal Yojana:**
1. It is a Central Sector Scheme for facilitating sustainable ground water management.
 2. Funds under the scheme shall be provided to the states as loans with a minimal interest rate.
 3. The World Bank is financing this scheme through the Program for Results instrument.

Which of the statements given above is/are correct?

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

13. With reference to the privilege motion, consider the following statements:

1. Any member from either house can move a motion against the member who he/she thinks is guilty of the breach of privilege.
2. The speaker of Lok Sabha and the Chairperson of Rajya Sabha can either take a decision on the privilege motion or can refer it to the privileges committee of Parliament.

Which of the statements given above is/are correct?

- a) 1 only b) 2 only
 c) Both 1 and 2 d) Neither 1 nor 2

14. With reference to the Investor Education and Protection Fund Authority, Which of the following statements is/are correct?

1. It has been established under the Companies Act 2013.
2. It works to refund unclaimed shares, dividends and other amounts to the rightful claimants.
3. It works under the administrative control of Securities and Exchange Board of India.

Select the correct answer using the code given below:

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

15. With reference to the Norovirus, which of the following statements is/are correct?

1. It is an animal-borne disease.
 2. It transmits through contaminated water and food.
- Select the correct answer using the code given below:
- a) 1 only b) 2 only
 c) Both 1 and 2 d) Neither 1 nor 2

16. Consider the following Statements

1. Mohenjo-daro is located off the right bank of the Indus river in Pakistan.
2. The most famous building found at Mohenjo-Daro is a great bath.

Which of the above Statements is/are Correct ?

- a) 1 only b) 2 only
 c) Both 1 and 2 d) Neither 1 nor 2

17. With reference to the Kaiser-i-Hind butterfly, consider the following statements:

1. It is State butterfly of Maharashtra.
2. It is protected under Schedule I of Wildlife (Protection) Act, 1972.

Which of the statements given above is/are correct?

- a) 1 only b) 2 only
 c) Both 1 and 2 d) Neither 1 nor 2

18. Consider the following statements:

1. Radioactive contamination is more prevalent in groundwater as compared to surface water.
 2. Radioactivity in drinking water can be determined by a gross alpha test.
- Which of the statements given above is/are correct?
- a) 1 only b) 2 only
 c) Both 1 and 2 d) Neither 1 nor 2

19. With reference to the Landraces, Consider the following statements:

1. These are commercially grown crops, which are developed through genetic engineering to express a certain trait over others.
 2. They have a large pool of genetic material, which can withstand both abiotic and biotic stresses.
- Which of the statements given above is/are correct?
- a) 1 only b) 2 only
 c) Both 1 and 2 d) Neither 1 nor 2

20. In context of the Special category states (SCS), which of the following statement is/are correct?

1. In a special category state, the Centre-state funding of center sector schemes is split in the ratio of 90:10.
2. The Indian Constitution provides for declaring special states on the basis of historical disadvantage, difficult or hilly terrain and strategic location along the border.
3. With adoption of the Fourteenth Finance Commission recommendations, the concept of SCS effectively disappeared.

Select the correct answer using the code given below:

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

21. With reference to the Integrated ombudsman scheme, Which of the following statements is/are correct?

1. Banks, NBFCs and non-scheduled primary co-operative banks with a deposit size of Rs 50 crore and above are covered under this scheme.
2. This scheme is jurisdiction neutral.
3. Under this scheme, the regulated entity will not have any right to appeal in cases where an award is issued by the ombudsman against it for not furnishing timely information.

Select the correct answer using the code given below:

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

22. Consider the following statements about the Parker Solar Probe:

1. It is the first spacecraft to fly into the low solar corona.
2. Goal of this mission is to understand the origin and expansion of Universe.
3. It became the first NASA spacecraft named after the Greek God.

Which of the statements given above is/are correct?

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

23. In context of the Commission for Air Quality Management in National Capital Region and

Adjoining Areas (CAQM), consider the following statements:

1. Recently, it got replaced by Environment Pollution (Prevention and Control) Authority.
2. In cases of conflict between orders issued by state pollution control boards or Central Pollution Control Board orders of CAQM prevails.

Which of the statements given above are correct?

- a) 1 only b) 2 only
 c) Both 1 and 2 d) Neither 1 nor 2

24. In context of the Langas and Manganiyars, consider the following statements:

1. They are the groups of hereditary professional musicians, whose music has been supported by wealthy landlords and aristocrats for generations.
2. It forms a vital part of Manipur's cultural landscape.

Which of the statements given above are correct?

- a) 1 only b) 2 only
 c) Both 1 and 2 d) Neither 1 nor 2

25. Consider the following statements about the Essential Commodities (Amendment) Act, 2020:

1. It enables the state governments to impose stock limits and restrict movement of essential commodities.
2. As per this act, central government can regulate the supply of food stuff only under extraordinary circumstances such as war, famine, exceptional price rise and grave natural calamities.

Which of the statements given above are correct?

- a) 1 only b) 2 only
 c) Both 1 and 2 d) Neither 1 nor 2

26. With reference to the Technology Development Fund (TDF) scheme, consider the following statements:

1. It has been established to promote self-reliance in space Technology as a part of the 'Make in India' initiative.
2. It is a programme of Ministry of Science and Technology executed by ISRO.
3. It encourages participation of public/private industries especially MSMEs to create an eco-system for enhancing cutting edge technology capability.

Which of the statements given above are correct?

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

27. Consider the following statements about the Section 144 of the Criminal Procedure Code (CrPC):

1. It empowers the magistrate of any union territory or state to pass an order to prohibit the gathering of 4 or more than 4 people in a particular area.
2. It empowers the authorities to curb internet access in the particular region.
3. It can force people to stay indoors for a specific period of time.

Which of the statements given above are correct?

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

28. Consider the following statements about the Messenger RNA (mRNA) vaccine:

1. In this technique, a single-stranded RNA molecule coded for a disease specific antigen used for generating immune response.
2. mRNA vaccines are expensive and less safer than the traditional vaccines.

Choose the correct code:

- a) 1 only b) 2 only
 c) Both 1 and 2 d) Neither 1 nor 2

29. Consider the following statements about Jamdani style of weaving:

1. It is listed under the UNESCO Intangible Cultural Heritage of Humanity.
2. In India, this style of weaving flourished during the Mughal period.

Choose the correct answer:

- a) 1 only b) 2 only
 c) Both 1 and 2 d) Neither 1 nor 2

30. Consider the following statements about the 'Contempt of Court':

1. Civil contempt means the publication of any matter that scandalizes or tends to lower the authority of any court.
2. It is one of the restrictions on freedom of speech and expression.

Choose the correct code:

- a) 1 only b) 2 only
 c) Both 1 and 2 d) Neither 1 nor 2

ANSWERS

1. d	7. c	13. c	19. b	25. b
2. c	8. a	14. a	20. c	26. c
3. a	9. d	15. c	21. d	27. a
4. b	10. d	16. c	22. a	28. a
5. d	11. a	17. d	23. b	29. c
6. b	12. d	18. c	24. a	30. b