

THE IAS GAZETTE

A House Journal of **APTI PLUS**

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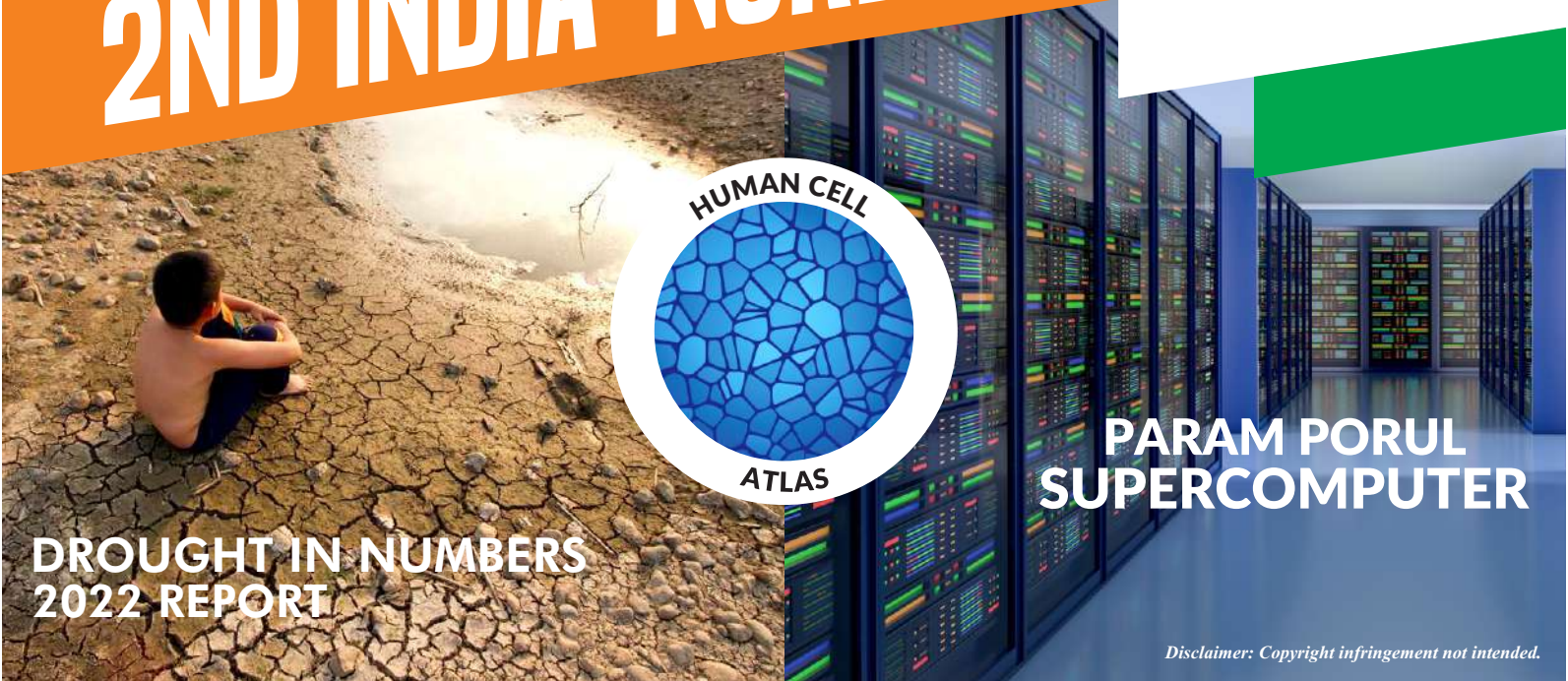
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2ND INDIA-NORDIC SUMMIT



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2022 REPORT**

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THE HINDU | The Indian EXPRESS | live | ET



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IASOYAN
PREDICT THE UNPREDICTABLE

GENERAL STUDIES - I

MARTAND SUN TEMPLE

GS-I CULTURE & HERITAGE



Context

- Controversy erupted after J&K LG's Prayers at Martand Sun Temple, in Anantnag.

Details

- Archaeological Survey of India (ASI) officials said that the Jammu and Kashmir Lieutenant Governor's prayers at the Martand Sun temple in Anantnag were a violation of rules.
 - ASI officials have said that no permission was taken from these prayers.
- Rule 7(1) of the 1959 Ancient Monuments and Archaeological Sites and Remains, states that **meetings, receptions, parties, entertainment or conferences cannot be held at a protected monument without written permission from the Union Government.**
- Rule 7(2) says this should not apply to any event held "in pursuance of a recognised religious usage or custom".
 - According to the rules, **if a protected site was a functional place of worship when it came under the jurisdiction of the ASI, then it would continue to be a place of worship.**
 - Protected sites that were functioning places of worship when the ASI took charge of them include Jamia Mosque, Srinagar, and the Fatehpur Sikri mosque.
- The Martand Sun Temple was not a functional site, so permission had to be sought, the officials said.

Martand Sun Temple

- The **Martand Sun Temple** is a Hindu temple located near the city of Anantnag in Jammu and Kashmir.
- It dates back to the **18th century CE and was dedicated to Lord Surya.**
 - Surya is also known by the Sanskrit-language synonym *Martand*.
- According to Kalhana, the Martand Sun Temple was commissioned by Lalitaditya Muktapida in the 18th century CE.
- It was built on top of a plateau from where one can view the whole of the Kashmir Valley.
 - It was an excellent example of Kashmiri architecture, which **blended the Gandharan, Gupta and Chinese forms of architecture.**
- The temple courtyard was surrounded by 84 smaller shrines.
 - The primary entrance to the temple is situated on the western side.
 - The primary shrine is located in a centralised structure.
 - Various wall carvings of gods, such as Vishnu, river goddesses, such as Ganga and Yamuna, in addition to the sun-god Surya.
- The **temple was destroyed by Sikandar Shah Miri.**
- The ruins and the remnants of the structure were further ruined by several earthquakes.

IRON AGE

GS-I ANCIENT HISTORY

Context

- Recently excavation of Iron in Tamil Nadu 4,200 years ago: a new dating and its significance

Details

- Recently Archaeologists have found agricultural tools and weapons made by smelting iron ore in Tamil Nadu, that date back to thousand years.
- In the village of **Pavadarapatti, traces of the presence of an iron ore smelter** is a sign of the use of iron by the indigenous Tamils.

- The excavations in the Krishnagiri district have revealed that iron was in use in Tamil Nadu as early as 4,200 years ago.
- As per historians, the indigenous Tamils descended from the hills and engaged in agriculture and animal husbandry. **They discovered and used iron for agriculture in the 'Iron Age' before the Sangam period.**

Iron Age in North India

- Coincides with Painted Grey Ware Culture.
- Dated from 1100 to 800 BCE.
- Major Concentration in Ganga-Yamuna valley.
- Laid the foundation of early Political formations.
- Correlates with the Kuru-Panchala kingdom known from Vedic texts.
- This Phase was followed by Northern Black Polished Ware Culture (NBPW), which is associated with Mahajanapada and Mauryan Periods.
- Sites reveal the development of agriculture and Pastoralism, Settlements grew, large Scale Populations increased in the Northern Part of India.
- Iron Age in North India was associated with Painted Greyware Culture, and in South India, it was associated with Megalithic burial mounds

Megalithic or Iron Age in South India

- A Circular tomb using big Stone Slabs built upon the Place of burial is known as a Megalith.
- Blackware was found mostly in burial mounds and not in human habitations.
- In a majority of urn burials, the use of Stone is almost non-existent.
 - However, urn burials are grouped under megalithic because the materials, Pottery, iron objects, and beads of Semi-Precious Stones kept in them are identical to those found in the Stone burials.
- In South, India iron appeared as early as the 12th to 11th centuries BCE.

Significance of Iron Age

- Due to the discovery of iron, **primitive society was replaced by the emerging class society.**
- It supported the formation of states and the **establishment of new trade relations.**
 - The famous Great Silk Road trade route was established during the early Iron Age.
- The wide use of iron ore led to improvements in metal production technology.
- **Iron was widely available, cheaper, stronger and lighter, and therefore iron replaced bronze tools with time.**
- It helped in **raising agricultural productivity and cleared forests to expand agricultural land.**
- The manufacture of iron tools helped to make agricultural work easier and more efficient.
 - Peasants were able to cultivate harder soils, which made it possible to cultivate and grow new types of plants.
- Having **more time meant that people could now take on occupations other than farming, such as selling or trading what they have grown.**
 - This promoted trading activities and helped in the economic development of the territories.

JAGANNATH TEMPLE HERITAGE CORRIDOR PROJECT

GS-I CULTURE & HERITAGE

Context

- Controversy over the undergoing construction work around the Jagannath Temple.

What is the Puri Heritage Corridor Project?

- The Puri Heritage Corridor Project was brought to transform the town into an international place of heritage. In December 2019, the **project was introduced involving the redevelopment of major portions of the vicinity of the temple and town.**
- In February 2020, with an estimated cost of Rs 800 crore, the state assembly passed a resolution to start the first phase of work. Further, the Shree Jagannath Temple Administration (SJTA) also approved the architectural design plan of the project at an estimated cost of Rs 3,200 crore.
- A total of 22 different projects will be executed in a phased manner like Shree Jagannath Temple Administration (SJTA) building redevelopment, Musa river revival plan, Sri Setu, multilevel car parking etc.

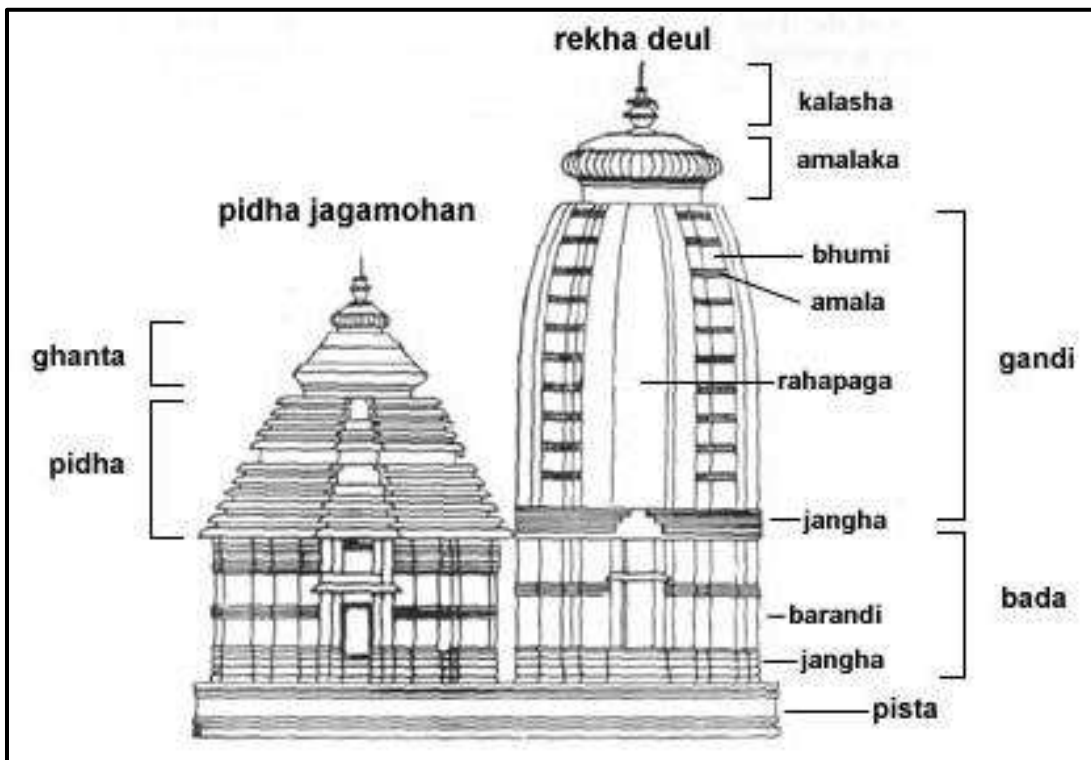
Why ASI is objecting to construction work?

- The Archaeological Survey (ASI) of India is a custodian of Jagannath Temple in Puri, Odisha.
- The ASI has alleged that the project is violating Ancient Monuments and Archaeological Sites and Remains Act as the undergoing excavations and construction is happening around the prohibited zone.

- Under the **Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act**, construction activities within 100 meters around such places of importance are strictly prohibited.
- However, it is mandatory to take approval from the **National Monuments Authority (NMA)** to carry out such construction work.
- The Ministry of Culture established the NMA under the provisions of the AMSAR Act. The body was constituted to provide protection and preservation of monuments by managing and regulating the designated place.

About Jagannath Temple

- The Jagannath Temple is an important Hindu temple dedicated to Jagannath, a form of Sri Krishna in Puri in the state of Odisha on the eastern coast of India.
- The present temple was **rebuilt from the 10th century onwards**, on the site of an earlier temple, and started by Anantavarman Chodaganga Deva, the first king of the Eastern Ganga dynasty.
- It belongs to the **Oriya style of temple architecture**, the huge temple complex is surrounded by a high fortified wall.
- The Puri temple is famous for its **annual RathaYatra**, or chariot festival, in which the three principal deities are pulled on huge and elaborately decorated temple cars.
- Unlike the stone and metal icons found in most Hindu temples, the image of Jagannath (which gave its name to the English term 'juggernaut') is made of wood and is ceremoniously replaced every twelve or 19 years by a replica.
- This temple was called the **"White Pagoda"** and is a part of Char Dham pilgrimages (Badrinath, Dwaraka, Puri, Rameswaram).
- There are four gates to the temple- Eastern 'Singhdwara' which is the main gate with two crouching lions, Southern 'Ashwadwara', Western 'VyaghraDwara and Northern 'Hastidwara'. There is a carving of each form at each gate.
- The **Nilachakra** - Or the Blue wheel perched on top of the temple is made of eight metals or astadhatu.
- In front of the entrance stands the Arunastambha or sun pillar, which was originally at the Sun Temple in Konark.



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KESHAV



AIR 469
SASHI



AIR 494
ABHINANDAN



AIR 497
SHUBHAM



AIR 534
SUDHA



AIR 541
RITESH



AIR 590
RAJESH



AIR 621
RAJNISH



AIR 622
RAJESH K.



AIR 636
SHANTANU



AIR 644
SPARSH



AIR 648
SHUBHAM



AIR 650
DHARAVATH



AIR 658
SAPAVATH



AIR 673
B S MEENA

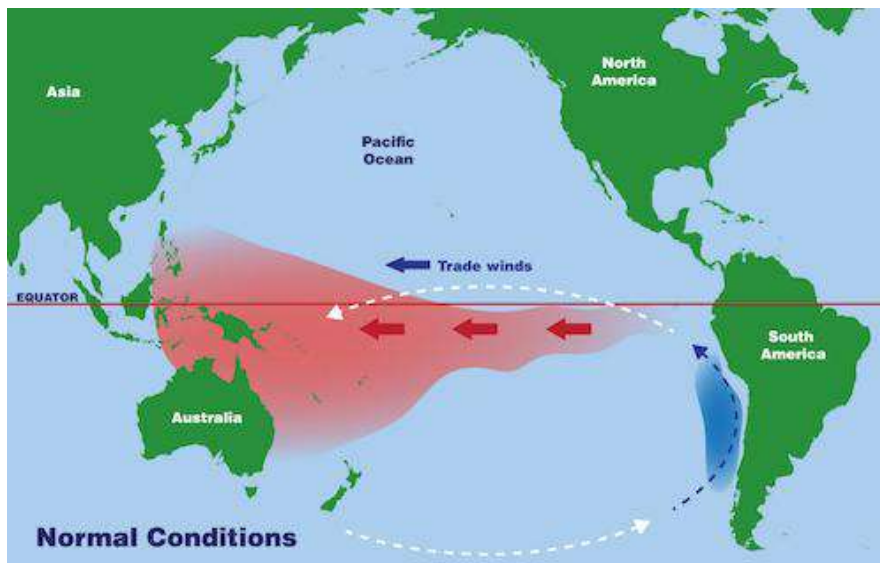
AND MANY MORE...

Context

- This year, La Nina caused worsening and perhaps the longest spell of heat-waves from March to April in north, west and Central India.

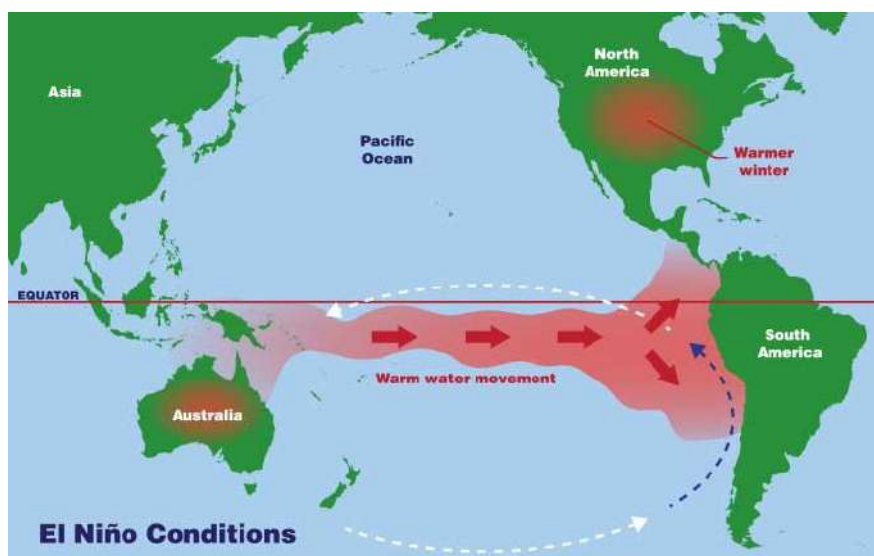
Background

- During normal conditions in the Pacific Ocean, trade winds blow west along the equator, taking warm water from South America towards Asia. To replace that warm water, cold water rises from the depths – a process called upwelling. El Niño and La Niña are two opposing climate patterns that break these normal conditions. This phenomenon is called El Niño-Southern Oscillation (ENSO) cycle.
- El Niño and La Niña can both have global impacts on weather, wildfires, ecosystems, and economies. The monsoon climate of the Indian subcontinent also gets affected.



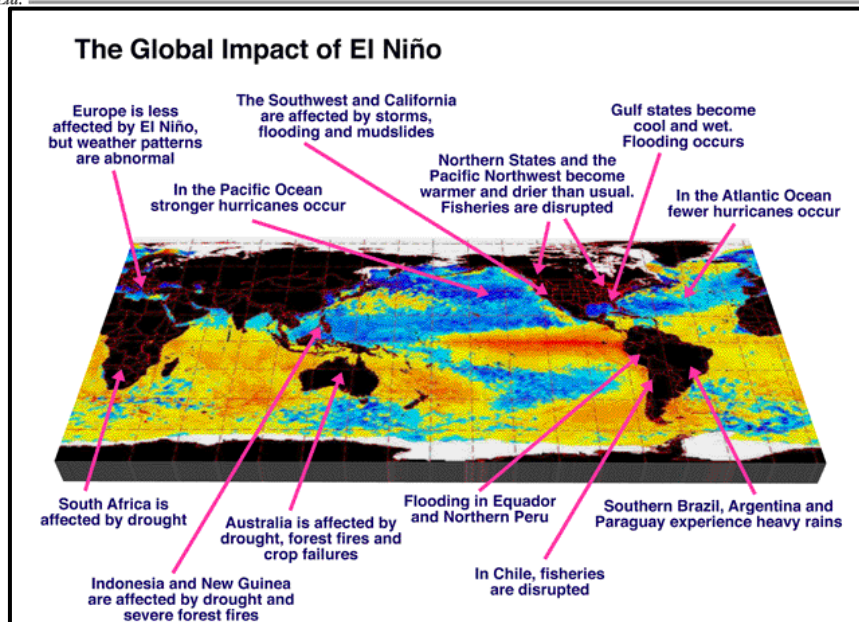
Decoding El Niño

- El Niño is a climate pattern that describes the unusual warming of surface waters in the eastern tropical Pacific Ocean.
- During El Niño, trade winds weaken. Warm water is pushed back east, toward the west coast of the Americas. Off the coast of South America, the thermocline sinks. The cold deep water no longer upwells into the surface layer of the ocean.
- The source of nutrients is cut off, which has a subsequent effect on fishing stocks off South America.
- Nearby, over the eastern tropical Pacific, warm surface water evaporates. This results in more rainfall than usual there.
- Conversely, on the other side of the Pacific, Indonesia and neighboring countries are drier than usual during an El Niño.



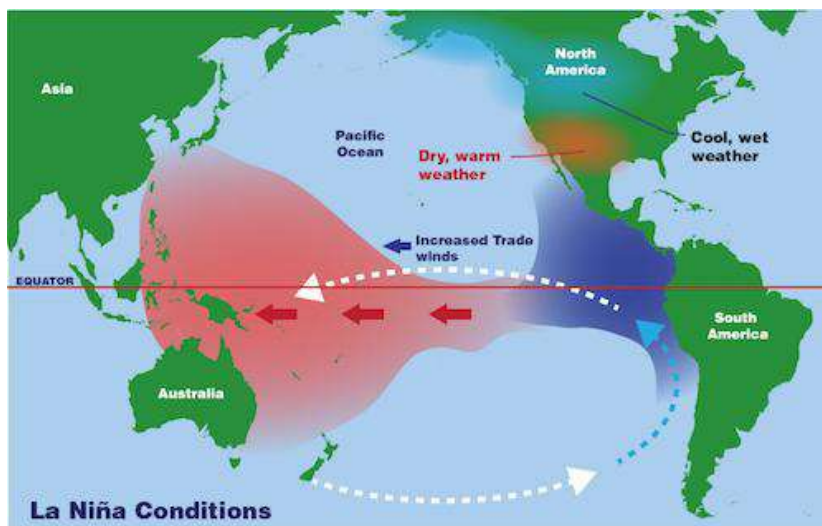
Impact of LA Nina on India

- El Nino during winter causes warm conditions over the Indian subcontinent and during summer, it leads to dry conditions and deficient monsoon. India experienced deficient rainfall during El Nino years 2002 and 2009.
- Crops like Paddy, Maize, Groundnut, Guar, Castor, Tur, Moong and Bajra suffer due to El Nino.



Decoding La Niña

- La Niña has the opposite effect of El Niño. During La Niña events, trade winds are even stronger than usual, pushing more warm water toward Asia.
- Also known as 'El Viejo' or cold event, El Niña is observed when the water temperature in the Eastern Pacific gets comparatively colder than normal, as a consequence of which, there is a strong high pressure over the eastern equatorial Pacific. The difference in pressure between Eastern Pacific and Western Pacific/Asia causes a moisture-laden wind movement from East to West Pacific and Asia.
- These cold waters in the Pacific push the jet stream northward. This tends to lead to drought in the southern U.S. and heavy rains and flooding in the Pacific Northwest and Canada.
- Off the west coast of the Americas, upwelling increases, bringing cold, nutrient-rich water to the surface. Since, La Niña blows all of this warm water to the western Pacific places like Indonesia and Australia get much more convectional rain than usual.
- In a nutshell, La Niña causes drought in the South American countries of Peru and Ecuador, heavy floods in Australia, high temperatures in Western Pacific, Indian Ocean, off the Somalian coast and a comparatively better monsoon rains in India.



Generally, El Niño and La Niña occur every 4 -5 years. El Niño is more frequent than La Niña.

Impact of LA Niña on India

- La Niña is responsible for bringing cold air from Siberia and South China to the Indian subcontinent, which results in a north-south low-pressure system when it interacts with the tropical heating conditions here. The cold conditions associated with these troughs can envelope the southern parts of India as well and can extend till Tamil Nadu. However, they do not affect Northeast India.
- The north-south pressure pattern that sets up over India influences the trade winds that bring rains to India.
- In the winter months, the La Niña causes a very cold wave-like jet stream to flow across Afghanistan, Iran and the Hindu Kush mountains. These strong and cold winds impact the degree of cold in India.
- La Niña results in better than normal monsoon in India.

Anomaly witnessed this year

- La Nina **makes the summer monsoon wetter and the winter colder.** This year, however, the La Nina is being blamed for worsening perhaps the longest spell of heatwaves from March to April in north, west and Central India.
- Reason:** Usually, land temperatures over India begin rising in March, and they are usually punctuated by western disturbances, or moisture from the



Mediterranean region that fall as rain over north and western India. For these currents to make it as far as India, they need a significant difference in temperature between Europe and the latitudes over India. Due to La Nina, this temperature difference was absent and so the western disturbances that came to India was weak and there was hardly any rain.

URBAN HEAT ISLAND

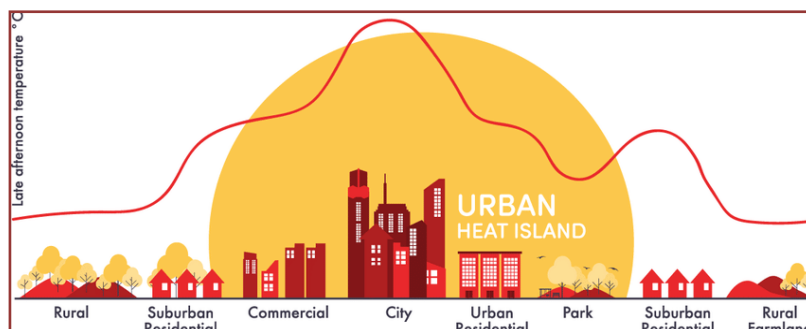
GS-I GEOGRAPHY

Context

- Several parts of the country are reeling under heat wave conditions. Cities, are a lot hotter than rural areas. This is due to a phenomenon called an **“urban heat island”**.

What is an urban heat island?

- An urban heat island is a local and temporary phenomenon experienced when certain pockets within **a city experience higher heat load than surrounding or neighboring areas on the same day.**
- Temperature difference between urban & less-developed areas has to do with **how well the surfaces in each environment absorb & hold heat.**
- The variations are **mainly due to heat remaining trapped within locations that often resemble concrete jungles.** For example, a greener locality like Pashan in Pune often records cooler temperatures than urban areas like Shivajinagar, Chinchwad or Magarpatta. The temperature **variation can range between 3 to 5 degrees Celsius.**



The role of Green Cover

- Rural areas have relatively larger green cover in the form of plantations, farmlands, forests and trees as compared to urban spaces. This **green cover plays a major role in regulating heat in its surroundings.**
- Transpiration is a natural way of heat regulation. This is the scientific process of roots absorbing water from the soil, storing it in the leaves and stems of plants, before processing it and releasing it in the form of water vapour.
- On the contrary, **urban areas lack sufficient green cover or gardens** and are often developed with high-rise buildings, roads, parking spaces, pavements and transit routes for public transport. **As a result, heat regulation is either completely absent or man-made.**
- Black or any dark colored object absorbs all wavelengths of light and converts them to heat, while white reflects it.
- Cities have buildings constructed with **glass, bricks, cement & concrete** — dark-colored materials. Thus, they attract and absorb higher heat content. Thus forms temporary islands within cities where the heat remains trapped. These are urban heat islands that record higher day temperatures than other localities.

What has NASA said on urban heat islands in India?

- NASA recently pointed out **heat islands in urban parts of Delhi**, where temperatures were far higher than nearby agricultural lands.

- NASA's **Ecosystem Spaceborne Thermal Radiometer Experiment (Ecostress)** captured an covering an area of about 12,350 square kilometres, which showed a large red patch around Delhi and smaller red patches around neighboring cities of Sonapat, Panipat, Jind and Bhiwani. These red patches the heat islands, while the rural areas around the cities witnessing lower temperatures.

Eco Stress

Ecostress is an **instrument with a radiometer** which was sent onto the International Space Station in 2018. **It can measure temperatures on the ground, as opposed to the air temperature.** Ground temperatures are likely to be higher during the day than air temperatures and almost the same during the night. Primarily, Ecostress is tasked with measuring the temperature of plants and understanding their water requirements and the impact of the climate on them.

How can urban heat islands be reduced?

- The main way to cut heat load within urban areas is **increasing the green cover; filling open spaces with trees and plants.**
- Other ways of heat mitigation include **appropriate choice of construction materials, promoting terrace and kitchen gardens, and painting white or light colours on terraces wherever possible to reflect heat.**

COAL SHORTAGE

GS-I GEOGRAPHY

Context

- India is expected to face a wider coal shortage over expectations of higher power demand - Power Ministry.

Scenario

- Coal inventories at power plants have declined by 13% since April, which translates to eight days of coal requirement. This is the lowest level at this time of the year in at least nine years. The higher coal demand could also stifle efforts to build power plant inventories.
- Clearly, **supply of coal has not kept pace with the increase in demand.** The top three States with the highest coal reserves – **Jharkhand, Odisha, and Chhattisgarh** – account for approximately 70 per cent of the total coal reserves in the country. Despite the availability of coal, **actual production has gone down in the last three years.** There has been an **upward trend in consumption of coal** in the country.
- The coal **demand fulfilled has been declining over the years.** In 2020-21, only 86.1% of the coal demand was met. This was primarily due to a fall in coal production within the country in 2020-21.

COAL SHORTAGE AND INDIA'S LOOMING POWER CRISIS

WHY IS THERE A COAL SHORTAGE?

- 108 of 173 thermal power plants have critically low levels of stock
- Power demand is hitting record highs due to economic recovery after COVID-19
- Some imported coal-based power plants are not in production due to high international prices of coal
- Poor financial performance of distribution companies has left some of them unable to resume supply at higher prices
- The railways has thus far been unable to transport sufficient coal to thermal power plants to meet current demand and build up stock
- Some states, including Jharkhand and Maharashtra, have large outstanding dues to coal companies

STATES WITH MAXIMUM DEFICIT

(Power shortage in between April 23– April 29)

State/UT	Total demand met*	Shortage	Shortage %
Jharkhand	214.8	45.89	17.60%
Rajasthan	1819.9	288.2	13.67%
J&K & Ladakh	287.7	42.35	12.83%
Haryana	1097.3	152.43	12.20%
Bihar	821.4	62.53	7.07%
Punjab	1200.9	89.15	6.91%
UP	2967.8	138.24	4.45%
Uttarakhand	311	12.16	3.76%
HP	220.8	6.96	3.06%
Meghalaya	38	1.18	3.01%

* In Million Units

- The cost of imported coal in India is expected to rise 35 per cent in the fiscal year 2022-23 compared to the past year.

Key Reasons behind India's acute coal crisis at present

Reduced imports due to Rising Coal Prices

- India is the **fourth-largest coal producer globally.** Yet, the country's power requirement is so huge that a large chunk of coal is imported. Also, India does not have enough reserves of good quality coal especially coking coal that is used as a raw material in steel making and allied industries. Most of it is imported from **Indonesia, South Africa, Russia and Australia.** Thus, the imports are mainly to compensate the lack of good quality coal, especially coking coal. Over the past year, international coal

prices have escalated to a record high, first due to COVID-led disruptions, and more recently due to the Russia-Ukraine war. This has hit imports hard.

Slow movement of goods

- The Railways has often been criticized for the slow movement of goods and coal rakes, critically impacting coal supply.
- Imported coal transportation would require more railway rakes (wagons), a shortage of which is currently the main reason for lower inventories at power stations.

Escalating power demand

- Energy use is at a record high in India and steadily rising, due to the post-COVID pick-up in the economy, leading to increased power consumption by industries. From 106.6 billion units per month in 2019, power demand rose to 124 billion units in 2021 and 132 billion units per month in 2022.

Heat waves

- The ongoing heatwave further increases power consumption, requiring cooling appliances to run continuously, leading to a power shortage. India witnessed a sudden rise in energy demand in March – the hottest in its recorded history. Since the start of April, Jharkhand has been the worst hit, facing an average supply shortage of 10-12 per cent, followed by Andhra Pradesh (10 per cent), Uttarakhand (8-10 per cent), Madhya Pradesh (6 per cent) and Haryana (4 per cent).

Monsoon

- Heavy rains in coal mining areas like Gujarat, Punjab, Rajasthan, Delhi and Tamil Nadu had resulted in lesser coal production. Moreover, prior to the monsoon season, there was inadequate coal-stock build-up in most thermal plants, pushing them below critical levels.

How coal shortage could affect power supply and cost?

- The daily electricity deficit in India has increased from 0.3% to 1% in April 2022. This power deficit has led to an 85% increase in the price of electricity traded on Indian exchanges in March.

Way Ahead

- The catastrophic situation brings focus to India's pledge to switch to sustainable energy sources (like solar and wind power).
- At the Paris Accord (COP26), India declared that by 2030, India would generate 50 per cent of its power requirement from renewable sources. The latest coal shortage and power crisis is a reminder to act faster on that goal.

To Read Comprehensive Article on Coal, Visit: <https://www.iasgyan.in/daily-current-affairs/coal-industry>

FLOODS IN ASSAM

GS-I GEOGRAPHY

Context

- Recently, floods and landslides left 15 people dead and more than 7 lakh affected in Assam. This happened this year, while the monsoons are yet to arrive. Affected areas: Assam's Dima Hasao and Cachar districts. Particularly Dima Hasao's Haflong.

Factors responsible for Floods

- Extraordinarily acute pre-monsoon rains- a 65 per cent excess.
- Changes in "rainfall intensity, arrival and departure times" due to climate change.
- More concentrated rain and heavy rainfall episodes.

Factors responsible for Landslides

- Hectic construction, both of public infrastructures like roads and private property, in recent times.
- Undesirable, un-pragmatic, Un-planned structural intervention on the fragile landscape of hills.
- Rampant riverbed mining.
- Roads being built over streams and spring water sources.
- Massive deforestation for the extension of the railway line and the four-line highway.

Case in point

- Lumding-Badarpur railway line: The affected railway line that connects Lumding in central Assam to Badarpur in south Assam and passes through the hill district of Dima Hasao was expanded into a broad gauge in 2015. The current spate of landslides have affected the line in at least 58 spots.

Way Ahead

- As long as it is top-down it will depend on the masculinist engineering bureaucracies.
- Need of the hour is to keep "traditional knowledge systems in mind" and involving the local community to build "sustainable infrastructure".

Must Read. Comprehensive article on Flood: <https://www.iasgyan.in/daily-current-affairs/floods>
<https://www.iasgyan.in/daily-current-affairs/dima-hasao>

GENERAL STUDIES - II

INDIA'S SEDITION LAW

GS-II POLITY

Context

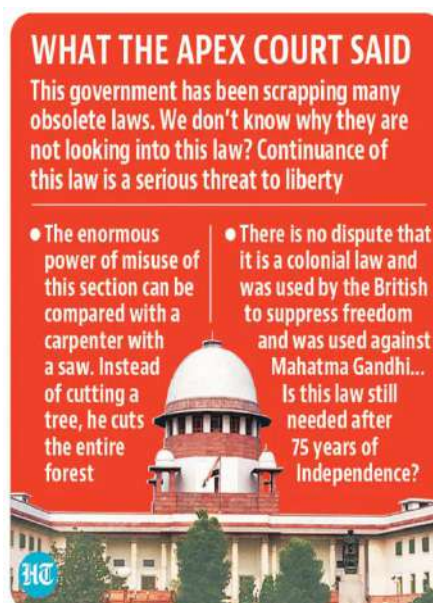
- The Supreme Court of India has suspended all the pending criminal trials under Section 124A and allowed the Union Government to reconsider the law.

Details

- The Supreme Court suspended all the pending criminal trials and court proceedings under Section 124A (sedition) of the Indian Penal Code and allowed the Union government to reconsider the sedition law.
- The court has made it clear that the Centre and States to restrain from registering FIRs, continuing investigations or taking coercive measures under Section 124A while the "reconsideration" of the colonial provision was on.
- The Ministry of Home Affairs highlighted that the Government always expressed unequivocal views in favour of the protection of civil liberties, respect of human rights, and giving meaning to the constitutionally cherished freedoms by the people of the country.
- In the 1962, Kedar Nath Singh case, the Supreme Court upheld the validity of the sedition law while attempting to restrict its scope for misuse.
 - It had held that unless accompanied by incitement or a call for violence, criticism of the government cannot be construed as a seditious offence.

Sedition law

- It was Drafted by Thomas Babington Macaulay in 1837.
 - According to the Macaulay draft, Sedition was defined as an act by 'whoever, by words, either spoken or written, or by signs, or by visible representation, or otherwise, brings or attempts to bring into hatred or contempt, or excites or attempts to excite disaffection towards the Government in India'.
- The Sedition charge was included under Section 124 A of the Indian penal code in 1870.
- It was imposed by the British Colonial government to mainly suppress the writings and speeches of Indian freedom fighters.
 - The Writings of Mahatma Gandhi, Lokmanya Tilak, Jogendra Chandra Bose etc, were suppressed and they were punished under sedition law for their statements on British rule.
- As per Section 124A of IPC, **sedition is a non-bailable offence.**
- It is punishable **with imprisonment from 3 years up to a life sentence, along with a fine or both.**
- A person charged under sedition law is **also banned from a government job and their passport is seized by the government.**
- The sedition charge was abolished by the United Kingdom government in 2010.



WHAT IS SECTION 124(A)?

Under Section 124A of IPC, the offence of sedition is committed when any person brings or attempts to bring into hatred or contempt, or excites or attempts to excite disaffection towards, the govt established by law

- The penal provision is punishable with a jail term ranging between three years to life term

LOW CONVICTION RATE

- Between 2016 and 2019, the number of sedition cases rose by 160% to 93
- But in 2019, the conviction rate was 3.3%
- This means just 2 of the 93 accused were convicted

Concern

- According to the Kedar Nath judgment in 1962, the sedition law was supposed to be applied in rare cases where the security and sovereignty of the country are threatened.
 - However, there are growing examples to show that this law has been used as a tool against political rivals, to suppress disagreement and free speech.
- As per the latest data, more than 25 sedition cases were filed after the anti-Citizenship Amendment Act protests, nearly 22 after the Hathras gang rape, and 27 after the Pulwama incident.
 - In all, 96% of the sedition cases filed against 405 Indians over the last decade were registered after 2014.

- The **conversion rate in these cases is only 3%.**
- The low conviction rate shows that **the police and state authorities are using the sedition laws to create fear amongst the citizens and to silence any criticisms or disagreement against the people in power.**
- The main problem with the sedition law is that it is poorly defined. The terms “bring into hatred or contempt” or “attempt to excite disaffection” can be interpreted in many ways and this empowers the police and government to harass innocent citizens.
- Due to its poor definition, sedition law can be used by the police to falsely accuse individuals as it does not state which acts are seditious and provides a broad outline of what can be classified as seditious.

Way Forward

- The **Constituent Assembly of India opposed the inclusion of sedition** as a restriction on freedom of speech and expression.
 - The constitution makers had seen the sedition provision as a shadow of the colonial mindset that should not exist in free India.
 - **But still, it is continuing under section 124A of the IPC.**
- The **Law Commission report highlighted that;**
 - In a democracy, singing from the same songbook is not a benchmark of patriotism.
 - People should be allowed to show their affection towards their country in their way.
 - A democracy needs constructive criticism or debates, pointing out the loopholes in the policy of the Government is important for the existence of a democratic Nation.
 - Expressions used to criticize the government might be harsh and unpleasant to some, but that does not cause the actions to be branded seditious.
- The Law Commission has suggested that the **sedition law under section 124A should be invoked only in cases where the intention behind any action is to disrupt public order or to overthrow the government with violence and illegal means.**

Evolution of the law

Sedition is a cognisable, non-bailable and non-compoundable offence under Section 124A of Indian Penal Code

BEFORE INDEPENDENCE

1870: The section on sedition is introduced by the British to the IPC

The British rulers used the law to muzzle demands for freedom. For instance, Bal Gangadhar Tilak was the first person to be convicted of sedition in colonial India.

AFTER INDEPENDENCE

1948: In discussions, Indian leaders agree to drop “sedition” from the Constitution

1949: “Sedition” is no longer part of the Indian Constitution adopted on November 26 this year. However, Section 124A remains in the IPC

1951: Nehru govt brings in first amendment under Article 19(1)(a), and puts in “reasonable restrictions” on the right to free speech

1974: Indira Gandhi govt makes Section 124A a cognisable offence that authorises police to make arrests without a warrant

PRESENTLY

2019 data shows that sedition cases rose by 25% and arrests by 41% over the previous year. However, only 3% of cases led to convictions

DISCOURSE ON FEDERALISM

GS-II POLITY

Context

- The current discourse on federalism in India is moving on multiple dimensions; economic, political and cultural, which is increasing asymmetry in Centre-State relations.

Details

- The Constitutional Assembly of India purposely adopted a model of federalism which made the Union government and State governments interdependent.
- The Indian federal structure has asymmetry power distribution in nature;
 - The size and composition of the Rajya Sabha and the Lok Sabha favour larger States.
 - Article 3 of the Indian Constitution allows the Union government to change the State boundaries without the consent of the State government.
 - Emergency powers and concurrent list subjects of the 7th Schedule; the Union possesses more authority than the State.
 - The Centralised federal structure of India was not marked by the process of coming together, it was the result of ‘holding together’ and ‘putting together’.
- The Supreme Court of India held that federalism is a part of the basic structure of the Indian Constitution in the *S.R. Bommai vs Union of India* case (1994).

Why centralised federal structure adopted?

- After the Partition of India, the Constitutional Assembly unanimously favour a strong Union with residuary powers to safeguard the unity and integrity of the nation.
- The makers of the Indian Constitution have believed that a centralised federal structure would upset overall trends of social dominance, and help to fight poverty to ensure socio-economic development.
- To promote the objective of building a welfare state.
- To promote inter-regional economic development.

Indian Constitution: Federal System with Unitary Bias

- The **constitution of India establishes a federal system of Government:**
 - 2 levels of Government, a division of powers, a written constitution, the supremacy of the constitution, the rigidity of the constitution, independent judiciary and bicameralism.
- Indian Constitution also contains a **large number of unitary or non-federal features:**
 - A strong Center, a single The constitution, single citizenship, the flexibility of the constitution, an integrated judiciary, the appointment of state governors by the Center, all-India services, emergency provisions and so on.
- The term 'Federation' has nowhere been used in the constitution.**
 - Article 1, describes India as a 'Union of States': the Indian Federation is not the result of an agreement by the states, and no state has the right to secede from the federation.
- The Indian Constitution has been described as 'federal in form but, unitary in spirit', 'quasi-federal', 'bargaining federalism', 'co-operative federalism', 'federation with a centralizing tendency' and so on.

S. No	Unitary Form of Government	Federal Form of Government
1.	Only one Level of Government or Subunits	Two Levels of Government
2.	Mostly Single Citizenship	Dual Citizenship
3.	Sub Units cannot operate Independently	Federal Units are answerable to Central Government
4.	No Division of Power	Division of Power
5.	Centralisation of Power	Decentralisation of Power

Central-States Relations

- The separation of powers is a key aspect of federalism.
- A federal constitution forms a dual polity, with the Union at its centre and the States at its periphery, each endowed with sovereign rights to exercise in the fields given to them by the constitution.
- In its sphere, the state is not subject to the centre; one's authority is to coordinate with the other.
- The **constitution of India divides powers between the centre and the states as follows:**
 - Legislative
 - Administrative
 - Financial

Legislative Relations (Article 245)

- Article 245(1):** Indian Parliament has the power to make laws for the entire Indian Territory or any part of it.
 - The state legislature has the authority to enact laws that apply to the entire state or just a portion of it.
- Parliamentary laws can have an extraterritorial effect (outside of the Indian Territory). The Indian Subjects and their property in any area of the world are governed by the laws of Parliament.
- Rules made by the President have the same force as Acts of Parliament in some UTs such as Andaman and Nicobar, Lakshadweep, and Dadra & Nagar Haveli, and such regulations may repeal or amend legislation established by Parliament for such territory.
- Constitution makers have followed the **Canadian model in allocating subjects between the federal government and the states.**
- In the national interest, Parliament has the right to make laws relating to any matter on the State list, for a limited time, if the Rajya Sabha approves a resolution with the support of two-thirds of the members present and voting in that regard.**
 - The resolution is valid for one year and can be renewed an unlimited number of times, but not for more than one year at a time.
 - This provision does not limit a state legislature's ability to pass laws on the same subject.
- In the event of a conflict between state law and parliamentary law, the latter will take precedence.
- Article 250** of the Proclamation of Emergency authorizes Parliament to adopt legislation for the entire or any part of India's territory concerning all topics on the State list.
- Article 252** provides that if the Legislatures of two or more States pass a resolution stating that it is desirable to have a Law passed by Parliament on any topic in the State List common to these States, Parliament may do so.
- Article 253** gives Parliament the right to enact laws for the whole or part of India's territory to carry out treaties, international agreements, and conventions.

Administrative Relations

- When the constitutional machinery of the state falls under **Article 356, Parliament is empowered to adopt legislation relating to all issues on the State list.**
 - Even after the President's reign, legislation passed by Parliament remains in effect.
 - This indicates that the duration of such a statute does not coincide with the duration of the President's presidency.

Financial Relations

- **Part XII of the Indian constitution** deals with financial relations between the centre and the states.
 - The Finance Commission (Article 280) makes recommendations to the President on the division of net tax receipts between the centre and the states.
- Parliament has sole authority to charge the taxes included in the Union List.
- The state legislature has sole authority to impose the taxes listed on the state list.
 - The taxes included in the Concurrent List can be imposed by both Parliament and state legislatures.
- The Parliament has the residuary power of taxation (that is, the authority to impose taxes not listed in any of the three lists).
 - The parliament has implemented a gift tax, a wealth tax, and an expenditure tax under this clause.

DUAL GOVERNANCE DILEMMA IN DELHI

GS-II POLITY

Context

- The Union Government in the Supreme Court has stated that Delhi, as the nation's capital, must remain under its control.

Details

- A three-judge Bench led by the Chief Justice of India started hearing a petition of the Delhi government to suppress the amendments made to the Government of National Capital Territory of Delhi (Amendment) Act or GNCTD Act of 2021.

Key Features of the Government of National Capital Territory of Delhi (Amendment) Act, 2021

- It amended the Government of National Capital Territory of Delhi Act, 1991.
- It provides a **framework for the working of the Delhi State Legislative Assembly and the government of the National Capital Territory (NCT) of Delhi**.
- It amended certain powers and responsibilities of the Delhi State Legislative Assembly and the Lieutenant Governor.
- The Act highlighted that the term "government" in **any law made by the Legislative Assembly will indicate Lieutenant Governor (LG)**.
- The Act allows the Delhi State Legislative Assembly to make Rules to regulate the procedure and conduct of business in the State Assembly.
 - It provides that the Rules must be agreeing with the Rules of Procedure and Conduct of Business in the Lok Sabha.
- **The Act prohibits the State Legislative Assembly from making any rule** to enable itself or its Committees to:
 - Related to the matters of the day-to-day administration of the NCT of Delhi.
 - Conduct any inquiry concerning the administrative decisions.
 - The Act provides that all such rules made before its enactment will be void.
- The Act requires the **LG to reserve certain bills passed by the Legislative Assembly** for the consideration of the President. These Bills are;
 - Which diminishes the powers of the High Court of Delhi.
 - Which the President may direct to be reserved.
 - Dealing with the salaries and allowances of the Speaker, Deputy Speaker, and members of the Assembly and the Ministers.
 - Relating to official languages of the State Assembly or Delhi government.
- The Act requires the LG to reserve those Bills for the President that incidentally cover any of the matters outside the purview of the powers of the Delhi State Legislative Assembly.
- The Act prescribes that all executive action by the government, whether taken on the advice of the Ministers or otherwise, must be taken in the name of the LG.
- The Act highlighted that on certain matters, LG opinion must be obtained before taking any executive action.

Centre vs Delhi govt again

WHAT THE BILL PROPOSES

- The term "Government" in any law by the legislative assembly will mean "Lieutenant Governor"
- The assembly shall not make rules or committees to consider day-to-day administration or conduct inquiries
- Rule or committee made before the new amendment comes into force "shall be void"
- Before taking any executive action, opinion of the L-G shall be obtained by a general or special order
- L-G shall have power to reserve for consideration any bill, and any of the matters outside the purview of the powers conferred on the legislative assembly

DELHI GOVT'S RESERVATIONS

- Article 239AA says legislature can make laws on any matters on state and concurrent list except for issues relating to public order, police and land.
- SC's Constitution bench in 2018 recognised assembly's right, and said Union has exclusive powers only in the above 3 issues.
- SC said L-G should work with aid and advice of council of ministers
- SC order clarified that L-G has not been entrusted with any independent decision-making power
- While any matter of dispute can be sent to President, the SC said it does not mean every matter should be

Concern

- The Act undermines the role of the state government.
- **The Act will limit the role of the state government.**
- These amendments will make LG, the real executive, this goes against the core concept of democracy and also undermine the constitutional values.
- The Delhi government argues that the amendment undermines the constitutionally guaranteed powers and functions of the elected legislative assembly.
 - The amendments violate the doctrine of the basic structure of the Constitution.
 - The Centre, through its amendments, has given more power to the Lieutenant Governor (LG) than the elected government of the people of Delhi.

Way Forward

- According to Article 239AA of the Constitution of India, **the Parliament has the power to amend or form laws on any matter formulated by the Delhi Assembly.**
- The Act has been introduced for greater transparency, improved governance and more efficient delivery of civic service for the people of Delhi.

J&K DELIMITATION COMMISSION

GS-II POLITY

Context

- Controversy over the final draft report published by Delimitation Commission for the Jammu and Kashmir Assembly.

Details

- The **Final Draft published by the Delimitation Commission for the Jammu and Kashmir Assembly has started a controversy.**
- The Delimitation report has added 6 Assembly seats to Jammu, 1 to Kashmir, and redrawn Assembly as well as Lok Sabha seats.
- Out of the 90 Assembly Constituencies in the region, **43 will be part of the Jammu region and 47 of the Kashmir region.**
- Under the draft published, **some villages in one constituency are surrounded by villages of another.**
- **The Delimitation Commission of Jammu and Kashmir is chaired by retired Justice Ranjana Prakash Desai** and includes Chief Election Commissioner Sushil Chandra and the State Election Commissioner as ex-officio members.
- **As per Article 170**, the states get classified into territorial constituencies after every census, according to the Delimitation Act.

About Delimitation Commission of India

- **Delimitation means the act or process of fixing limits or boundaries of territorial constituencies in a country or a province having a legislative body.**
- **Article 82** - Parliament by law enacts a Delimitation Act after every Census.
- **The Delimitation Commission is appointed by the President of India** and works in collaboration with the Election Commission of India.
- The main task of the commission is redrawing the boundaries of the various assembly and Lok Sabha constituencies based on a current census.
- **The representation of each State is not changed during this exercise. However, the number of SC and ST seats in a state has changed per the census.**
- **The present delimitation of constituencies has been done based on the 2001 census under the provisions of the Delimitation Act, 2002.**
- **The Commission is a powerful and independent body whose orders cannot be challenged in any court of law.**
- The orders are laid before the Lok Sabha and the respective State Legislative Assemblies. **However, modifications are not permitted.**
- **Delimitation commissions have been set up four times in the past; 1952, 1962, 1972 and 2002**, under the Delimitation Commission Acts of 1952, 1962, 1972 and 2002.
- The present delimitation of parliamentary constituencies within states has been done based on the 2001 census.
- **According to the 84th amendment, the present constituencies carved out based on the 2001 census shall continue to be in operation till 2026.**

Functions of Delimitation Commission

- The Delimitation Commission has to determine the number and boundaries of constituencies in such a manner that the population of all seats is the same, as far as practically possible.

- The Commission also identifies the seats to be reserved for the scheduled castes and scheduled tribes communities, in areas where their population is significant.
- The Commission releases draft proposals to the public through the Gazette of India and the official gazettes of states, and also in regional language newspapers.
- It also conducts public sittings wherein the public's opinion is heard through written or oral representations.
- If found appropriate, changes are made to the draft proposal.
- The final order is published in the Gazettes and comes into effect by a date specified by the President.

Delimitation challenges

- The present delimitation is based on the census of 2001, whereas the **total number of seats in the Parliament and the Legislative Assemblies is fixed as per the census of 1971.**
- **The Constitution of India has put a cap on the maximum number of seats in the Lok Sabha to 550 and Rajya Sabha to 250.** Therefore, an increasing number of populations are being represented by a single representative.

PARDONING POWER OF THE PRESIDENT AND GOVERNOR

GS-II POLITY

Context

- The Supreme Court advised the Union government to release the convict in the former Prime Minister Rajiv Gandhi's assassination case, as he already served a sentence of more than three decades.

Details

- The Supreme Court has advised the Union government to act against the Tamil Nadu Governor who chose to "ignore" the State Cabinet's binding advice to release a convict.
- The Governor ignored the state cabinet's advice by highlighting that the President had the authority to decide on the mercy plea.

Governor

- **Part VI of the Indian Constitution** deals with the State government.
- **Articles 153 to 167 in Part VI of the Constitution** deal with the state executive. The state executive consists of;
 - The Governor
 - The Chief Minister
 - The Council of Ministers
 - The Advocate General of State.
- The office of **the governor has a dual role**;
 - The Governor is the chief executive head of the State.
 - The Governor also acts as an agent of the central government.
- Normally, there is a governor for each state, but the **7th Constitutional Amendment Act of 1956** enabled the appointment of the same person as a Governor for 2 or more states.
- Governor is **appointed by the president by warrant under his hand and seal.**
 - It is an independent constitutional office and is not under the control of or subordinate to the Central government.

Pardoning Power of the President and Governor

- **Under Article 72** of the Indian Constitution, the President shall have the power to grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence of any person convicted of any offence where the sentence is a sentence of death.
- **Under Article 161 of the Indian Constitution**, the Governor of a state can grant; Pardons, Reprieves, Respites and Remissions of punishment or Suspend, Remit and Commute the sentence of any person convicted of any offence against any State law.
- Earlier, the Governor cannot pardon the death sentence that was the exclusive power of the Indian President. But in August 2021, the **Supreme Court held that the Governor of a State can pardon prisoners; including death row ones**, even before they have served a minimum of 14 years of a prison sentence.
- **Pardon**;
 - It removes both the sentence and the conviction and completely forgives the convict from all sentences, punishments and disqualifications.
- **Commutation**;
 - It denotes the substitution of one form of punishment for a lighter form.
 - For example, a death sentence may be commuted to life imprisonment.
- **Remission**;

- It indicates reducing the period of a sentence without changing its character.
- For example, a sentence of imprisonment for two years may be remitted to imprisonment for one year.
- Respite;**
 - It suggests awarding a lesser sentence in place of originally awarded due to some special fact, such as the physical disability of a convict or the pregnancy of a woman offender.
- Reprieve;**
 - It means a stay of the execution of a sentence (especially that of death) for a temporary period.
 - Its purpose is to enable the convict to have time to seek pardon or commutation from the Governor/President.

Comparison between Pardoning Powers of President and Governor

President	Governor
<ul style="list-style-type: none"> Authority to pardon, reprieve, respite, remit, suspend, or commute the punishment or sentence of any person convicted of a violation of a Central law. 	<ul style="list-style-type: none"> Authority to pardon, reprieve, respite, remit, suspend, or commute the punishment or sentence of anyone who has been convicted of an offence against state law.
<ul style="list-style-type: none"> Authority to pardon, reprieve, respite, remit, suspend, or commute a death sentence. The sole authority to pardon a death sentence. 	<ul style="list-style-type: none"> He is unable to pardon the death sentence. Even if a state law calls for the death penalty, the President, not the governor, has the authority to grant a pardon. However, the governor has the authority to suspend, remit, or commute a death sentence.
<ul style="list-style-type: none"> Authority to grant pardon, reprieve, respite, suspension, remission, or commutation of punishment or sentence imposed by a court-martial (military court). 	<ul style="list-style-type: none"> He doesn't have this kind of power.

CHIEF ELECTION COMMISSIONER

GS-II POLITY

Context

- Rajiv Kumar was appointed as the Chief Election Commissioner.

Details

- The President of India has appointed **Rajiv Kumar as the Chief Election Commissioner** in the Election Commission of India.
- Rajiv Kumar will assume the charge of the Chief Election Commissioner from the 15th of May.

Election Commission of India

- It is a permanent constitutional body.
- Article 324** of the constitution establishes the Election Commission of India.
- It was established on 25th January 1950.
- It supervises the conduct of elections to Parliament and Legislature of every State and elections to the offices of President and Vice-President of India.
- It consists of the Chief Election Commissioner and two Election Commissioners.
 - Originally, there was only Chief Election Commissioner**, there were no Election Commissioners.

Appointment of Election Commissioners

- The **President appoints** Chief Election Commissioner and Election Commissioners.
- Tenure of 6 years, or up to the age of 65 years, whichever is earlier.**
- The status, salary and perks of election commissioners are equivalent to Judges of the Supreme Court of India.
- The Chief Election Commissioner can be removed from office only through impeachment by Parliament.
 - Other members can be removed by the President in consultation with the Chief Election Commissioner.
- The President may appoint Regional Election Commissioners in consultation with the CEC before elections to the Parliament or Assemblies.
- The Chief Election Commissioner **cannot hold any office of profit after retirement.**
- The Chief Election Commissioner **cannot be reappointed to the post.**

Powers of the Election Commission

- The EC enjoys complete **autonomy and is insulated from any interference from the Executive.**
- It also functions as a **quasi-judicial body** regarding matters related to elections and electoral disputes.
- Its recommendations are binding on the President of India.
- However, its **decisions are subject to judicial review by High Courts and the Supreme Court** acting on electoral petitions.
- During the election process, the entire Central and state government machinery (including paramilitary and police forces) is

deemed to be on deputation to the Commission.

- The Commission takes effective control of government personnel and movable and immovable property for the successful conduct of elections.

Functions of the Election Commission

- Demarcation of constituencies.
- Preparation of electoral rolls.
- Issue notification of election dates and schedules.
- Establish and enforce a code of conduct.
- Scrutiny of nomination papers of candidates.
- Scrutiny of election expenses.
- Allot symbols and accord recognition to political parties.
- Render advice to the President and Governors regarding the disqualification of MPs and MLAs.
- Allot schedules for broadcast and telecast of party campaigns.
- Grant exemptions to persons from disqualifications imposed by judicial decisions.

ELECTION OF LOCAL BODIES

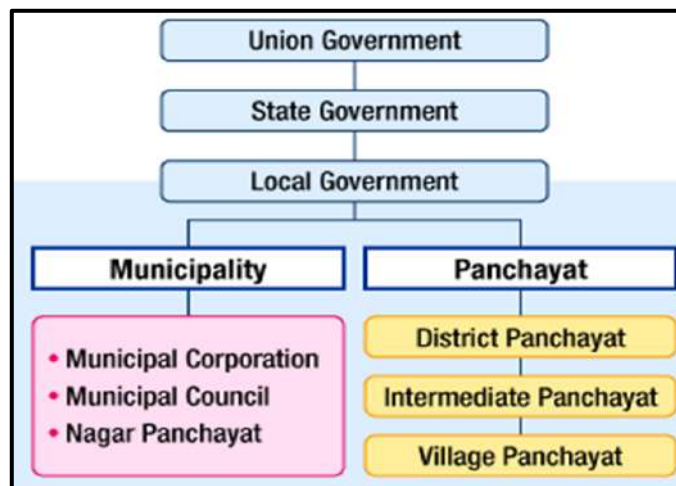
GS-II POLITY

Context

- The Supreme Court has directed all State Election Commission to conduct local body elections every five years.

Details

- The Supreme Court of India has found that from 2019-2020, polls were not held in 23,000 rural local bodies, and 321 urban local bodies in Madhya Pradesh.
- The Supreme Court highlighted that **delaying in conducting elections in local bodies is a sign of the breakdown of the rule of law.**
- The Supreme Court stated that **State Election Commissions across the country cannot neglect their constitutional responsibility to conduct Local Bodies' elections every 5 years.**
- The court in the judgment said that election commissions cannot make **excuses like ongoing delimitation or the formation of new wards to delay elections.**
 - The activity of delimitation or formation of the ward cannot be a legitimate ground to stop any authority from discharging its constitutional duty.



Rural Local Bodies

- In 1992, the **73rd and 74th constitutional amendments** were passed by the Parliament.
 - It **aimed at strengthening local governments** and ensuring uniformity in their structure and functioning across the country.
 - The **73rd Amendment is about rural local governments** (also known as Panchayati Raj).
 - The **74th amendment made the provisions relating to urban local government** (Nagar Palika).
- The **73rd Amendment act added a new Part-IX** to the Indian constitution and consists of provisions from Articles 243 to 243 Q.
 - The act has also added the 11th Schedule to the Indian constitution. This schedule contains 29 functional items of the Panchayats. It deals with Article 243-G.

Key Features of the 73rd Amendment Act

- It introduced a 3 Tier Structure
 - A **Gram Panchayat covers a village or group of villages.** It is the **lowest tier of Panchayati Raj Institution (PRI).**
 - The **intermediary level is known as the Mandal** (Block or Taluka). The intermediary level body need not be constituted in smaller States.
 - At the top is the Zilla Panchayat covering the entire rural area of the District.
- The Amendment also made a provision for the **mandatory creation of the Gram Sabha.**
 - The **Gram Sabha would comprise all the adult members registered as voters in the Panchayat area.**

- Its role and functions are decided by State legislation.
- All members of the 3 levels of Panchayati Raj institutions are elected directly by the people.
 - The tenure of each Panchayat body is 5 years.
 - If the Panchayat dissolves before the end of its five-year term, then fresh elections must be held within 6 months.
- **One-third of the positions in all Panchayat institutions are reserved for women.**
- Reservations for Scheduled Castes and Scheduled Tribes are also provided for at all three levels, in proportion to their population.
- If the States find it necessary, they can also provide for reservations for the other backward classes (OBCs).
- **Reservations also apply to the positions of Chairpersons or at all three levels.**
- 29 subjects, which were earlier on the State list were transferred to the Panchayati Raj institutions.
 - The actual transfer of these functions depends upon the State legislation. Each state decides how many of these twenty-nine subjects would be transferred to the local bodies.
- The State government is required to **appoint a State Election Commissioner** who would be responsible for conducting elections to the Panchayati Raj institutions.
 - The office of the State Election Commissioner is autonomous like the Election Commissioner of India.
 - The State Election Commissioner is an independent officer and is not linked to nor is this officer under the control of the Election Commission of India.
- The State government is also required to **appoint a State Finance Commission** once in five years.

Urban local bodies

- **The 74th Amendment Act has added a new Part IX-A to the Indian Constitution.** This part consists of provisions from Articles 243-P to 243-ZG.
 - The act has also **added a new 12th Schedule to the constitution.** This schedule contains 18 functional items of municipalities.
- All the members of a municipality shall be **elected directly by the people of the municipal area.**
 - For this purpose, each municipal area shall be divided into territorial constituencies to be known as wards.
 - The state legislature may provide the manner of election of the chairperson of a municipality.
- Special provisions for the representation of the following persons;
 - Persons having special knowledge or experience in municipal administration without the right to vote in the meetings of the municipality.
 - The members of the Lok Sabha and the state legislative assembly represent constituencies.
 - The members of the Rajya Sabha and the state legislative council registered as electors within the municipal area.

Twelfth Schedule of the constitution: Powers and Responsibilities of Municipalities	
❖ Urban Planning including town planning	❖ Slum improvement and up gradation
❖ Regulation of land use and construction of buildings	❖ Urban poverty alleviation
❖ Planning for economic and social development	❖ Provision of urban amenities and facilities such as parks, gardens and play grounds
❖ Roads and Bridges	❖ Promotion of cultural, educational and aesthetic aspects
❖ Water supply for domestic purposes,	❖ Burials and burial grounds, cremations, cremation grounds and electric crematoriums
❖ Public Health, sanitation conservancy, and solid waste management	❖ Cattle ponds, prevention of cruelty to animals
❖ Fire services	❖ Vital statistics including registration of births and deaths
❖ Urban forestry, protection of the environment, and promotion of ecological aspects	❖ Public amenities including street lighting, parking, bus stops and public conveniences
❖ Safeguarding the interests of weaker sections of society, including the handicapped and mentally retarded	❖ Regulation of slaughter houses and tanneries

PLACE OF WORSHIP ACT

GS-II POLITY

Context

- Recently the Places of Worship Act of 1991 has been challenged in the Supreme Court.

The Places of Worship Act, 1991

- The Places of Worship Act 1991 was passed by parliament during the Ram Janmabhoomi movement.

- The Act was introduced to promote peace, harmony and brotherhood.
- The main objective of the Act is to maintain the religious character of any such place as it existed on the 15th day of August 1947 (at the time of Independence).
- The act prohibits conversion of any place of worship or changing the religious character of any place from its status at the time of Independence.
- The main purpose behind the Act was to check and control communal hatred and promote peace and harmony in the country.
- The 1991 Act covered all disputed sites to which religious groups had raised a claim.
 - The Ram Janmabhoomi-Babri case was excluded from the provision of the Act.
- Section 4(2) of the Act says that any legal proceeding with respect to the conversion of the religious character of any place of worship existing on August 15, 1947, pending before any court, shall be dropped and no fresh suit or legal proceeding shall be initiated.

MAKE CUTOFF DATE 1192: PIL	
PLACES OF WORSHIP ACT, 1991: Brought by Narasimha Rao govt in 1991 to counter VHP campaign for control of Babri Masjid in Ayodhya, Gyanvapi Mosque in Varanasi and Shahi Idgah in Mathura. The law froze denominational character of all places of worship, barring Babri, as it existed on August 15, 1947	'Law Arbitrary, Irrational' > PIL says Centre created 'arbitrary and irrational' retrospective cut-off date of Aug 15, 1947; argues that Islamic rule was established when Muhammad Ghor defeated Prithviraj Chauhan. Therefore, if any cutoff date was to be fixed, it should be 1192 as after that, thousands of temples and shrines were damaged and converted to mosques > Similar PIL filed by an association of priests also pending with the court

Way Forward

- India was not a constitutional democracy before August 15, 1947. There was no rule of law during the medieval period when a temple was allegedly destroyed.
- In the past, the rule of law did not exist and the polity was characterized by an expansionist attitude.
 - The medieval polity was quite different from the modern Indian political entity.
 - But today, we live in a modern democracy with constitutional values and follow rule of law.
- The recent incidents appear to be a part of an agenda to create deep communal divides and serious injuries to peace and harmony and undermine the country's social and political fabric.
- The Supreme Court in the demolition of the Babri Masjid case has described it as a criminal act.
 - The court said that "the State has a constitutional commitment and constitutional obligations to uphold the equality of all religions and secularism which is a part of the basic features of the Constitution".
 - The Court concluded that the Places of Worship Act 1991 is necessary for upholding our commitment to secularism under the Indian Constitution.
- The Government, Administration and Courts must decide the case based on law and constitutional values instead of the emotions and Majoritarianism political pressure.

DEATH PENALTY

GS-II POLITY

Context

- The Supreme Court of India highlighted the need for a holistic view of prisoners facing the death sentence.

Details

- The Supreme Court stated that for decades, conviction hearings have covered only primary details like the convict's family structure, educational qualifications and work.
 - The Supreme Court also mentioned that "No effort was made to consider information like unfavourable childhood experiences, history of physical and mental health issues, exposure to traumatic events and other social and cultural factors".
- Though the death sentence is seen only in the rarest of rare cases, even in these cases the courts should be well-informed about the convict.

About Capital Punishment or Death Penalty in India

- Capital punishment or the death penalty is a legal penalty for some crimes under the Indian Penal Code or other laws.
- In the Code of Criminal Procedure (CrPC), 1898 death was the default punishment for murder and mandated the judges to give reasons in their judgment if they desired to give life imprisonment instead of the death penalty.
 - The CrPC was created for the first time in 1882 and then amended in 1898.
- By an amendment to the CrPC in 1955, the requirement of written explanations for not imposing the death penalty was terminated.
- With the amendment of CrPC in 1973, life imprisonment became the norm and the death penalty was to be imposed only in extraordinary cases and required 'special reasons'.

- The amendment also divided a criminal trial into two stages; one for conviction and another for sentencing.
- The Code of Criminal Procedure, 1973, also contains a provision that the court must write "Special reasons" justifying the sentence and mention why an alternative sentence would not meet the ends of justice.

Process of Death Penalty

- **Trial Court**
 - After the proceedings as specified by the Code of Criminal Procedure, the judge pronounces the judgments.
- **High Court**
 - After the decision by the Session Court, a high court needs to confirm the death sentence.
 - The high court may confirm the death sentence or pass any other sentence or annul the conviction.
 - The High Court also has the power to withdraw a case pending before a subordinate court and conducts the trial and may award the sentence of death.
- **Special leave petition**
 - After the death sentence is confirmed by the High Court, an appeal by Special Leave Petition under Article 136 of the Constitution may be filed with the Supreme court.
 - Under Article 136, the Supreme Court decides whether the special leave petition deserves to be heard as an appeal or not.
- **Curative petition**
 - The Supreme Court may allow a curative petition to reconsider its judgement or order if it is established that there was a violation of principles of natural justice or suspicion of bias in the role of a judge.
 - The curative petition would be circulated before the same bench which decided on the review petition.
- **Mercy Petition**
 - Articles 72 and 161 of the Constitution give power to the President of India and the Governor to grant pardons and to suspend, remit or commute sentences in certain cases.
 - The president or the governor may consider the case of the convict and may pardon the death sentence.
- **Death warrant**
 - In cases where the death sentence is awarded, the convict should be allowed to use all the legal remedies available such as appeal, review and mercy petitions.
 - The Supreme Court guidelines are needed to be followed before issuing the death warrant.
- **Execution**
 - Death sentence or death penalty is a punishment approved for committing the offence.
 - The act of carrying out a death sentence is known as an execution.

Arguments in support of Capital punishment

- All Guilty people deserve to be penalized in proportion to the severity of their crime.
- **Real justice requires people to suffer in a way suited for the crime.** Every criminal must get what their crime deserves and in the case of murder they deserve death.

Arguments against capital punishment

- Capital punishment is revenge rather than punishment and is a morally doubtful concept.
- Against Real or Proportional justice, as the criminal suffers for many years before execution, it makes the punishment more severe.
- There is always a risk of executing the innocent due to mistakes or defects in the justice system.
- **The death penalty doesn't seem to deter people from committing serious crimes.**
- **The Law Commission of India recommended abolishing the death penalty, except in terror cases.**

Way Forward

- In India, the current position regarding death sentences is quite a balanced one. But the broad judicial discretion given to the court has resulted in an extremely uneven judgment in similar cases; this does not represent a good picture of the Indian Judiciary.
- **The principle laid down in cases like Bachan Singh or Machhi Singh has to be strictly followed** so that the person convicted for an offence of identical nature is awarded a punishment of an identical degree.

INDIA'S FIRST SMART CITIES

GS-II GOVERNANCE

Context

- The Union Government soon to declare India's 'first set of smart cities'.

Details

- The Union government will soon declare Bhopal, Surat, Bhubaneswar, Udaipur, Ahmedabad, Varanasi and Indore as India's 'first set of smart cities'.
- The Smart cities mission was launched in 2015, the aim was to make 100 cities sustainable and citizen-friendly.
 - The mission period ends in June 2023.
- Out of the 100 cities, the seven have taken a lead with most projects completed.

About Smart Cities Mission

- The Government of India launched Smart Cities Mission (SCM) in June 2015.
- 100 Smart Cities have been selected through 4 rounds** of competition from January 2016 to June 2018.
- The purpose of the Smart Cities Mission is to drive economic growth and improve the quality of life of people by enabling local area development and harnessing technology, especially technology that leads to Smart outcomes.
- As per SCM Guidelines, the Government of India provided financial support to the extent of ₹48,000 crores over five years i.e., on an average of Rs 100 crore per city per year.**
 - An equal amount on a matching basis will be contributed by the State Government/Urban Local Body (ULB).
- The implementation of SCM at the city level is done by a Special Purpose Vehicle (SPV) created for the purpose.**
 - At the State level, Mission implementation is coordinated by the State level High Powered Steering Committee (HPSC) chaired by the Chief Secretary of the State.
 - At the National level, the implementation of SCM is monitored by an Apex Committee headed by the Secretary, Ministry of Housing and Urban Affairs (MoHUA).
- The core elements of the Mission;**
 - Adequate water supply
 - Assured electricity supply
 - Sanitation, including solid waste management
 - Efficient urban mobility and public transport
 - Affordable housing, especially for the poor
 - Robust IT connectivity and digitalization
 - Good governance, especially e-Governance and citizen participation
 - Sustainable environment
 - Safety and security of citizens, particularly women, children and the elderly
 - Health and education

Taking New Shape		
City	Total Projects	Completed
Bhopal	940	862
Surat	1,219	1,005
Udaipur	947	739
Bhubaneswar	846	644
Ahmedabad	930	648
Indore	1,042	727
Varanasi	997	700
The Smart Cities Mission was launched on June 25, 2015		

Objectives of the Smart Cities Mission

- Smart Cities focus on their most pressing needs and on the greatest opportunities to improve lives.
 - They tap a range of approaches; digital and information technologies, urban planning best practices, public-private partnerships, and policy change to make a difference. They always put people first.
- The objective is to promote cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and the application of 'Smart' Solutions.
- The focus is on sustainable and inclusive development and the idea is to look at compact areas and create a replicable model which will act as a lighthouse to other aspiring cities.**
- The Smart Cities Mission is meant to set examples that can be replicated both within and outside the Smart City, catalysing the creation of similar Smart Cities in various regions and parts of the country.

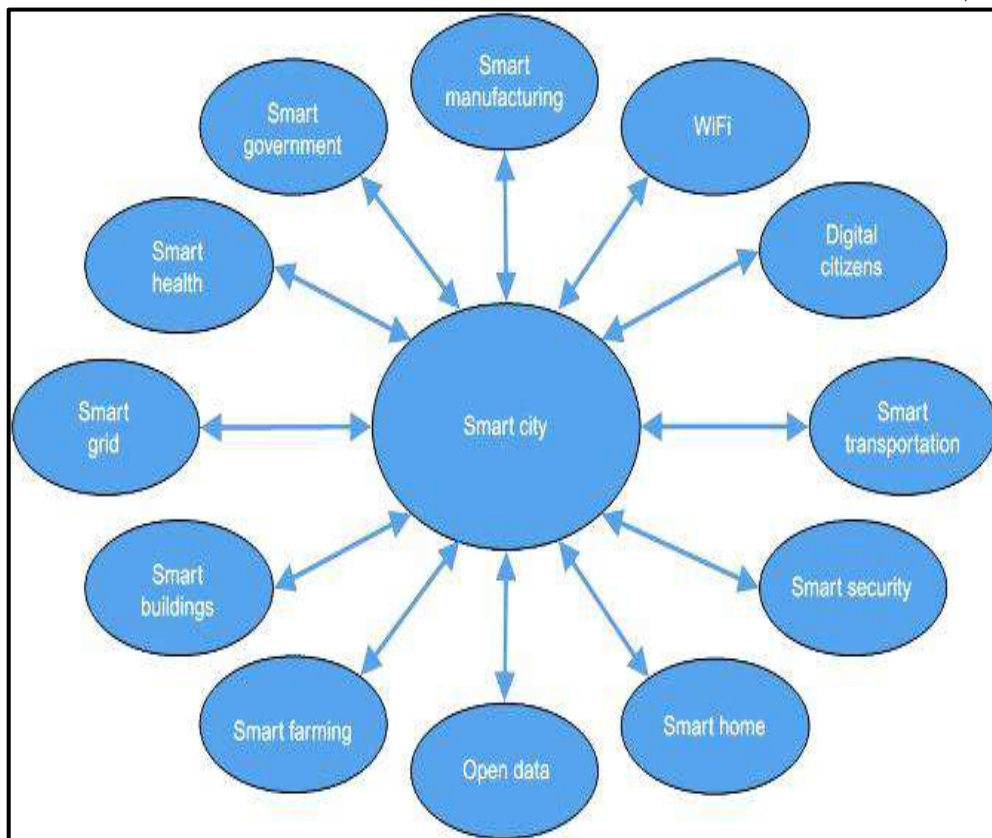
Significance of Smart Cities Mission

- Cities accommodate nearly 31% of India's current population and contribute 63% of GDP (Census 2011).
 - Urban areas are expected to house 40% of India's population and contribute 75% of India's GDP by 2030.
- This requires comprehensive development of physical, institutional, social and economic infrastructure.
 - All are important in improving the quality of life and attracting people and investment, setting in motion a virtuous cycle of growth and development. The development of Smart Cities is a step in that direction.

- The **Smart Cities Mission** is an innovative and new initiative by the Government of India to drive economic growth and improve the quality of life of people by enabling local development and harnessing technology as a means to create smart outcomes for citizens.

Present Status

- As of March 2022, 100 Smart Cities have tendered out 6,928 projects worth ₹ 1,91,238 crore; work orders have been issued in 6,282 projects worth ₹ 1,65,503 crore; 3,576 projects worth ₹ 59,958 crores have been completed.
- So far, the Government of India has released ₹ 29,213.60 crores for 100 Smart Cities, out of which Rs 25,177.65 crores (86%) has been utilised.



ROLE OF MEDIA

GS-II GOVERNANCE

Context

- The Union Information and Broadcasting Minister appreciated the Indian media for its work during the COVID-19 pandemic.

Details

- The Union Information and Broadcasting Minister during the 17th Asia Media Summit has said that Indian media played an important role in promoting the awareness messages on COVID-19, and provided important government guidelines.

World Press Freedom Index 2022

- India ranked 150th in the World Press Freedom Index 2022**, last year it was 142 out of 180 countries.
 - Except for Nepal (76th rank) and Sri Lanka (146th rank) all the neighbouring countries performed poorly than India.
- The report was released by Reporters without Borders.
- Norway (1st) and Denmark (2nd), while North Korea remained at the bottom of the list of the 180 countries.
- The Report stressed that the Indian authorities should respect the right to freedom of expression and release journalists' detained due to politically motivated charges for their critical reporting and stop targeting them and promoting independent media.

Significance of Media

- Media refers to all means of Communication**, everything ranging from a Phone Call to the news on TV.
 - TV, radio and newspapers are a form of media. Since they reach millions of people across the world they are Called Mass Media.
- A balanced report is essential in media** which has to report independently.
- Media plays a very important role in **providing news and discussing events** taking place in the Country and the world.
 - News Stories in the media inform people about important events in the Country.
- Media by focusing on particular issues **influences and Shapes our thoughts**. It is said the media sets the agenda for People.
 - Opinions, attitudes, and Conduct of persons are dependent upon the information available to them.
 - Most of our knowledge of Contemporary events comes to us from newspapers, Radio, Television and movies.
 - Our emotions and attitudes are also formed or influenced to a large extent by the media.
- The media tell us about the working of the Government** and create awareness about the welfare programmes.

Concern

- The media is far from being independent. This is because of the **Control of Government over the media Called Censoring and because big business houses Control the media.**
- **Corporate Funding** - A lot of money is spent on maintaining People and getting the latest technology. To meet this Cost, it needs money.
 - Media, therefore, uses advertising as a tool to raise revenue.
- **Manipulating News for TRPs** is not only a financial scam but also morally and ethically wrong.
- Some Channels are **spreading a hate narrative which is a violation of the fundamental right** of the citizen to know the truth through the media.
- The media has become a **source of disinformation**, and this is also an ethical issue.
 - Both legal and ethical dimensions are equally serious

Way Forward

- The democratic way of life depends upon the existence of free agencies of mass media.
- The **Media must act in a Responsible and Independence manner**; they need to promote Sincerity, Truthfulness, Accuracy, and Impartiality in their work.
- **News reporting must be factual and objective** and Programs relating to Controversial public issues are needed to give fair representation to both sides of the issue.
- The **media should not report glorification of war, over-sentimentality, unnecessary brutality or killing**, passionate love scenes, undue sympathy for immoral or criminal behaviour, or superficiality.
- Government can facilitate the Reform Process. The government may pass a law that any violation will face legal action or criminal action, but **the media needed a strong policy of Self-regulation and at the same time an independent regulation.**

Coming soon...


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ASHA WORKERS**GS-II SOCIAL JUSTICE****Context**

- ASHA workers have won the WHO's 2022 Global Leaders Award.

Details

- Accredited Social Health Activist (ASHA) workers won the World Health Organisation's (WHO) 2022 Global Leaders Award.
- The award was announced for its contribution to promoting health, leadership, and commitment to the health care system.
- **ASHA workers provide;**
 - Maternal Care.
 - Immunization for children against vaccine-preventable diseases.
 - Community health care.
 - Treatment for hypertension and tuberculosis.
 - Core areas of health promotion for nutrition, sanitation and healthy living.

ASHA Workers

- Accredited Social Health Activist Workers (ASHA) workers are **female Community Health Workers**.
- They are trained to serve as a **bridge between the community and the Public Health System**.
- They are selected through a process that involves;
 - Community groups.
 - Self-help groups.
 - Anganwadi Institutions.
 - Block nodal officer.
 - District nodal officer.
 - Village Health Committee.
 - The general body of the village.
- **In 2005, ASHA workers were created under the National Rural Health Mission (NRHM).**
- ASHA workers **undergo many training programmes** that facilitate them to perform their roles in community health programmes at the village level.
- They are **responsible for promoting;**
 - Nutrition
 - Basic Sanitation and hygiene practices.
 - Healthy living and working conditions.
 - Awareness about existing health services.
- They have a **medical kit to provide Primary Healthcare**.
- In rural are they are the first responders in Healthcare emergencies.
- ASHA workers encourage women to give birth under safe conditions in hospitals and medical centres.
- Rural people can access basic essential medical provisions like oral rehydration solution (ORS), iron-folic acid tablets, chloroquine, disposable delivery kits, oral pills and condoms from ASHA workers.
- According to the guidelines released by the **National Health Mission, women between 25 and 45 years of age are preferred as ASHA Workers**. Preference is given to candidates who have qualified up to the tenth standard.
 - The education criteria are relaxed only if no qualified person is available.
- The average salary of an ASHA worker is around Rs 6,000-10,000 per month, including a monthly honorarium from the Central and State governments, and incentives.
- They also **receive performance-based incentives for promoting;**
 - India's universal immunization programme.
 - Referral services for the government's programme.
 - Construction of household toilets.
- **ASHA workers work during the Covid-19 pandemic;**
 - They helped in spreading awareness at the grassroots level.
 - They informed the local communities about safety protocols, tracking positive cases, and carrying out the vaccination drive.
- Presently, there are around 1 million ASHA workers across the country.
- ASHA Workers also **face multiple difficulties;**
 - Low payments despite the added responsibilities during Covid-19,

- Not receiving adequate compensation and Incentives.
- Non-payment of dues.
- Poor working conditions.

AYUSHMAN BHARAT SCHEME

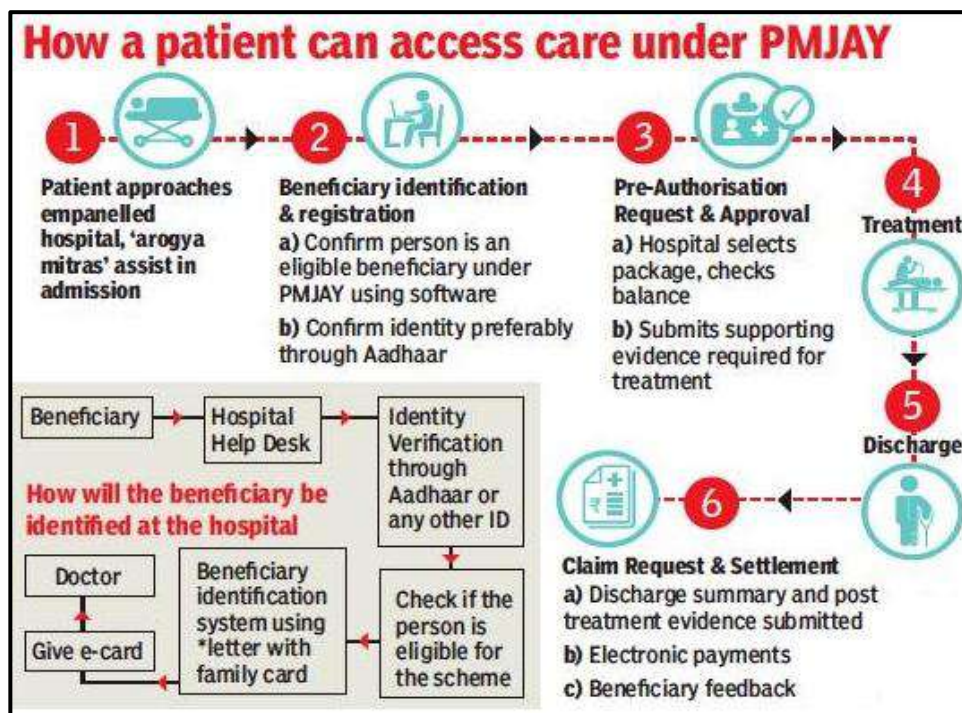
GS-II SOCIAL JUSTICE

Context

- Recently the Union Health Ministry has informed that **more than 18 crore health cards** have been issued under the Ayushman Bharat- Pradhan Mantri Jan ArogyaYojana (AB-PMJAY) scheme.

Ayushman Bharat-PM Jan ArogyaYojana (AB-PMJAY)

- It is a **Centrally Sponsored Scheme** under the Union Ministry of Health and Family Welfare (MoHFW).
- It is an umbrella of two major health initiatives;
 - Health and Wellness Centres.
 - National Health Protection Scheme.
- **Health and Wellness Centres.**
 - 1.5 lakh existing sub-centres will bring the healthcare system closer to people.
 - These centres will provide comprehensive health care, including for non-communicable diseases and maternal and child health services.
- **National Health Protection Scheme.**
 - It provides a Health cover of **Rs. 5 lakh per family per year**. It covers almost all secondary and tertiary healthcare procedures.
 - **No cap on family size and age in the scheme.**
 - It will cover pre and post-hospitalisation expenses. All expenses will be covered from day one of the policy, it also includes transport allowance.
 - Benefits are portable across the country.
 - A beneficiary can take cashless benefits from any public/private authorised hospitals across the country.
- **Eligibility criteria**
 - Beneficiaries decided based on deprivation criteria in the Socio-Economic and Caste Census 2011 (SECC 2011) database.



About Ayushman Bharat National Digital Mission

- It will ensure access to quality healthcare by promoting the use of technologies such as telemedicine and supporting the national portability of health services.
- Citizens can create their ABHA (Ayushman Bharat Health Account) numbers, to link their digital health records.
- The National Health Authority will be the implementing agency of the Ayushman Bharat Digital Mission (ABDM).

- It aims to create a National Digital Health ecosystem that supports universal health coverage in an efficient, accessible, inclusive, affordable, timely and safe manner.

Concerns

- Privacy concerns and misuse of data.
- Exclusion of citizens and denied healthcare due to System failure or technical errors.

Present Status of Healthcare in India

- According to WHO Study, 34% of Indians are physically inactive.
- The fertility rate in 23 States and UTs including all the Southern States is below the Replacement rate while it is higher in several States in Central, east and northeast India.**
- Despite increasing knowledge of Contraceptive methods men have not taken up the responsibility of managing fertility.
- India 3rd the most obese nation after the US and China.
- Non Communicable diseases are top killers' Diabetes, Cancer and heart disease Cause over 70% of deaths.

Steps by the 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**, the establishment of **Special Newborn Care Units**. **Home Based Newborn Care** is being provided by ASHAs.
- MAA** for improving breastfeeding practices. **Pradhan Mantri Dialysis Program**. **Mission Indradhnaush:** Expanding full immunization Coverage, the introduction of new vaccines.
- PM Swasthya Suraksha Yojana** for strengthening the tertiary health Sector.
- POSHAN Abhiyaan** to address Malnutrition. **Iron and folic acid Supplementation** for Prevention of Anaemia, home visits by ASHAs to promote breastfeeding and promote the use of ORS and Zinc for management of diarrhoea in children.
- 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.
- National Health Resource Repository:** Create a reliable, unified registry of the Country's healthcare resources showing the distribution pattern of health facilities and Services between Cities and rural areas. ISRO is a technology Partner for providing data Security.
- Allowed 100% FDI in the Medical devices Sector to promote Make in India. **Kayakalp initiative** to Promote Cleanliness, hygiene and infection control practices in public health facilities.

National Health Policy 2017 targets

- Shifts From communicable to non-communicable diseases.
- Collaborating & regulating the private sector.
- A shift from Sick-care to wellness.**
- Increase Life Expectancy at birth from 67.5 to 70 by 2025.**
- Reduction of TFR to 2.1 at national and Sub-national levels by 2025.**
- Reduce Five Mortality to 23 by 2025 and MMR from current levels to 100 by 2020.
- Reduce infant mortality rate to 28 by 2019.
- Reduce neonatal mortality to 16 and the stillbirth rate to "single-digit" by 2025.
- Reduce premature mortality from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases by 25% by 2025.**

Steps need to be taken

- Reduce the Pressure on Secondary and tertiary hospitals by investing in Preventive and Primary Health Care facilities.**
- Early detection and Prevention.**
- Provide adequate protection to doctors.
- Increasing the Doctor-Patient ratio.**
- Reduce Out of Pocket Expenditure. Increase the number of vaccines under Mission Indradhanush. 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. Ayurveda Doctors and Yoga Teachers for Rural Areas.

PARTICIPATION IN SYSTEM TO BE VOLUNTARY	
AIMS TO	KEY BUILDING BLOCKS
➤ Establish digital health systems and managing health data	● Health ID ● Personal health records ● Digi Doctor ● Health facility registry ● Telemedicine ● e-Pharmacy
➤ Improve quality of health data collection, storage and dissemination	
➤ Provide a platform for interoperability of healthcare data	
➤ Fast-track creation of updated and accurate health registries for the entire country	
GUIDING PRINCIPLES	
	● Voluntary participation ● Privacy and security by design ● Inclusivity ● Seamless portability

- Improve Hospital access, Health worker density, and Access to essential medicine.
- **Mobile Medical Units to Provide outreach Services in rural and remote areas.**

Way Forward

- Based on the foundations laid down in the form of Jan Dhan, Aadhar and Mobile (JAM) trinity and other digital initiatives of the government, Ayushman Bharat Digital Mission is creating a seamless online platform through the provision of a wide range of data, information and infrastructure services, duly leveraging open, interoperable, standards-based digital systems while ensuring the security, confidentiality and privacy of health-related personal information.

STATE OF INEQUALITY REPORT

GS-II SOCIAL JUSTICE

Context

- Dr. Bibek Debroy, Chairman, Economic Advisory Council to the Prime Minister (EAC-PM) has released "The State of Inequality in India Report".

Key Points of the Report

- The report was made by the **Institute for Competitiveness**.
- It presented an overall analysis of the depth and nature of inequality in India.
- The report has compiled the information on inequities across sectors of health, education, household characteristics and the labour market.
- The report studied the **5 key areas** that influence the nature and experience of inequality;
 - Income distribution
 - Labour market dynamics
 - Health
 - Education
 - Household characteristics.
 - The report was prepared based on the data derived from;
 - The Periodic Labour Force Survey (PLFS)
 - National Family and Health Survey (NFHS)
 - UDISE+
- The report first-time **focus on income distribution** to understand the capital flow, the report emphasises that wealth concentration as a measure of inequality does not reveal the changes in the purchasing capacity of households.
- The **top 10% accounts for one-third of all incomes earned in 2019-20**.
- Among different employment categories;
 - Self-employed workers (45.78%)
 - Regular salaried workers (33.5%)
 - Casual workers (20.71%).
- The country's unemployment rate is 4.8% (2019-20), and the worker population ratio is 46.8%.
- Improvement in the Health infrastructural capacity with a shift in focus on rural areas.
- Education and household conditions have improved due to targeted efforts through several social protection schemes, especially in the area of water and sanitation that have increased the standard of living.
 - According to NFHS-5 (2019-21), **97% of households have electricity access, 70% have improved access to sanitation, and 96% have access to safe drinking water.**

Inequality in India: A general analysis

- **Unemployment had reached a 45-year high in 2017-18**, as revealed by NSO's Periodic Labour Force Survey (PLFS).
- **Two-thirds of people in India live in poverty**: 8% of the Indian population lives on less than \$2 a day.
- **Over 30% even have less than \$1.25 per day available** - they are considered extremely poor.
 - This makes the Indian subcontinent one of the **poorest countries in the world**; women and children, the weakest members of Indian society, suffer the most.
- India is the second-most populous country after China with about 1.2 billion people and is the seventh-largest country in the world with an area of 3,287,000 km².
- The highly contrasted country has enjoyed growth rates of up to 10% over many years and is one of the largest economies in the world, with a gross domestic product (GDP) of 1,644 billion US dollars.
 - But **only a small percentage of the Indian population has benefited from this impressive economic boom so far**, as the majority of people in India are still living in abject poverty.
- According to a recently released Oxfam Report, the income of 84% of households in the country declined in 2021.
- India is the **third-largest number of billionaires in the world** after China and the United States, with more billionaires than France, Sweden and Switzerland combined.
- In 2021, the total wealth of 100 of India's wealthiest people reached a record high of Rs 57.3 Lakh Crore (\$ 775 billion). In the same year, **the bottom 50% of the population accounted for only 6% of national wealth**. Oxfam described inequality as

economic violence, adding that lack of access to health care, gender-based violence, hunger and climate change kill 21,000 people each day.

- According to data from the National Sample Survey (NSS) (201718), the out-of-pocket cost (OOPE) of private hospitals is about 6 times that of inpatient treatment in public hospitals and 2 to 3 times that of outpatient treatment. India's average OOPE is 62.67 %, while the world average is 18.12%.

Reasons behind Poverty in India

- Illiteracy and lack of quality education:** Despite more than 15 million graduates being produced every year, there are no jobs available for them due to a lack of quality education. Most of these graduates are studying outdated educational syllabi and hence cannot be productively employed anywhere.
- The vicious trap of poverty:** Prevalence of massive malnourishment, stunting and wasting amongst children which negatively impact their physical and mental potential pushing them deeper into the vicious trap of poverty for the rest of their lives.
- Sub-standard health outcomes:** More than 60% of the household incomes in many families are devoted to health expenditure. This out of pocket expenditure on healthcare is one of the biggest pull factors for poverty.
- Administrative Bottleneck:** Certain government policies favour one sector over the other. Also, there is a lack of rule of law and enforcement of laws such as the Minimum Wages Act.
- Income Inequality:** According to Oxfam, the top 10% of the Indian population holds 77% of the total national wealth. 73% of the wealth generated in 2017 went to the richest 1%, while 67 million Indians who comprise the poorest half of the population saw only a 1% increase in their wealth.
- Discrimination:** Discrimination and poverty go hand in hand. Discrimination can both cause poverty and be a hurdle in alleviating poverty. Ex: Discrimination against women, SC, ST, Disabled, Old age people etc is one of the major causes of poverty among them.
- Nature of job:** Approximately 56% of the total working population is in the agricultural sector. Which is marked by poor landholding, low productivity and disguised unemployment?
- The issue of low employment growth within industrial and service sectors has contributed to stagnant or declining standards of living.
- Inadequate public infrastructure:** Lack of accessibility to primary health care centres, quality public schools, research institutions, roads, waterways, rural markets, etc. act complementary to the rise and sustenance of poverty in India.
- Poor policy structure:** Given the vicious cycle of poverty, government hand-holding is needed to support those above poverty lines to prevent them from slipping below the line.



Way Ahead

- The growth of the population at the current rate should be checked** by the implementation of policies and awareness promoting birth control.
- All efforts should be made to **increase the employment opportunities in the country**, either by inviting more foreign investments or by encouraging self-employment schemes.
- Measures should be taken to **bridge the immense gap that remains in the distribution of wealth among different levels of society**. A 99% one-off windfall tax on the wealth gains of the 10 wealthiest men in Covid19 alone will generate \$ 812 billion.
- Improvement of the Subsidy rates on commodities and the Public Distribution System** should be made.
- Free high school education and an increased number of functioning health centres** should be provided by the government.
- At the household level, the subsidized food grains have enabled people to meet food requirements but there is no certainty of income, particularly during the pandemic time. But **Poverty is not just a measure of hunger**.
- There is a need for Universal Income Support**. Economic Survey 2016-17 has suggested replacing all current cash transfers with universal basic income. The survey wants UBI to replace and not supplement the existing social welfare, and anti-poverty schemes like MGNREGA, PMJSY etc.
- Investments in human capital and public goods** have significant positive impacts on private-sector productivity, with estimated rates of return ranging from 15% to upwards of 45%. The enhanced productivity of human beings or human capital contributes substantially not only towards increasing labour productivity but also stimulates innovations and creates the ability to absorb new technologies.

INDIA-UAE CEPA

GS-II INTERNATIONAL RELATIONS

Context

- The India-UAE Comprehensive Economic Partnership Agreement (CEPA) was activated recently.

Details

- The India - UAE Comprehensive Economic Partnership Agreement (CEPA) was signed in February.
- The India-UAE CEPA is the first major bilateral trade pact that India has signed in the post-COVID-19 world.**

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

- These 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 denote 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.



Salient features of the pact

- India will benefit from **preferential market access provided by the UAE on over 97% of its tariff lines which account for 99% of Indian exports to the UAE in value terms.**
- 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.**

Significance of this pact

- Deepening 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 the "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.**
- An India-UAE Joint Vision Statement was adopted which lays down the contours of the future course of bilateral relations and highlights areas of focus.
- In the energy partnership, they agreed to promote collaboration opportunities to support India's energy requirements, including new energies, and ensure the **provision of affordable and secure energy supplies to India's growing economy.**
 - They also expressed mutual support for energy transition and focused work on a low-carbon future.
- On climate action and renewable, they agreed to support each other's clean energy missions and establish a joint Hydrogen Task Force to help scale up technologies, with a special focus on the production of Green Hydrogen.

- On skills cooperation, they agreed to enhance cooperation in skill development to align with the market needs and address the changing needs for the future of work.

India-UAE Relations

Political

- India and the United Arab Emirates (UAE) established diplomatic relations in 1972.
- The traditionally strong bilateral relations enjoyed by India & UAE received an impetus with the visit of PM Modi to the UAE in 2015 which marked the beginning of a new strategic partnership.
- Sheikh Mohamed bin Zayed Al Nahyan, (MBZ) Crown Prince of Abu Dhabi visited India again as the Chief Guest at India's Republic day celebrations.
- It was during this visit that the bilateral relations were upgraded to a 'Comprehensive Strategic Partnership'.
- PM Modi visited UAE again in 2018 for the World Government Summit in Dubai, where India was the Guest of Honor.
- PM received the UAE's highest civilian award, 'the Order of Zayed' in 2019.
- The visit also witnessed the official launch of the 'RuPay Card' in UAE and the release of a set of stamps issued by Emirates Post commemorating the 150th Birth Anniversary of Gandhi.

Economic & Commercial Relations

- India and UAE have shared trade links through the centuries.
- Trade, which was dominated by traditional items such as dates, pearl and fish, underwent a sharp change after the discovery of oil in the UAE.
- The real impetus, however, started after Dubai positioned itself as a regional trading hub by the early 1990s and at about the same time, the economic liberalization process started in India.
- India-UAE trade is today around US\$ 60 billion, making UAE, India's third-largest trading partner for the year 2018-19.
- Moreover, UAE is the second-largest export destination of India (after the US) with an amount of over US\$ 30 billion for the year 2018-19.
- A consortium led by ONGC was awarded a 10 per cent stake in the Lower Zakum Concession in 2018.- the first time that the Emirate awarded a stake in a functioning oil field to an Indian group.
- NRI Remittances: The annual remittances made by the large Indian community in UAE amount to over US\$ 17.56 billion (2018).

Cultural Relations

- Indian expatriate community of approx. 3 million is the largest ethnic community in UAE constituting roughly about 30% of the country's population.
- Among the Indian States, Kerala is the most represented followed by Tamil Nadu and Andhra Pradesh.
- Today, around 35% of the Indian community is made up of professionally qualified personnel, businessmen & other white-collar non-professionals.
- The Indian community has played a major role in the economic development of the UAE and is respected for its technical competence, sense of discipline & law-abiding nature.
- Indian schools: There are 130 Indian schools in the UAE following the CBSE and Kerala Board curricula with approx 219,000 students.

Defence and Security Cooperation

- There have been regular high level & functional level exchanges between the two countries.
- The ships of the Navies of both countries have regularly made port calls enhancing bilateral defence cooperation.
- UAE Air Force Officers participated as Observers in Trilateral Air Exercise on Humanitarian Assistance & Disaster Relief (HADR) in 2018.
- 'Desert Eagle II', a ten-day air combat exercise, was held in 2016 between the air forces of India and UAE.
- That New Delhi could turn to the UAE for helping to deploy its mid-air refuellers for Rafale jets, and it agreed to extend the facility, is seen to reflect the close relationship that India and Abu Dhabi have built
- While India and UAE are constantly in touch with each other through institutionalised deradicalisation programmes and promote tolerance, Abu Dhabi has turned into a no-go area for anyone looking for a haven after fleeing Indian law enforcement agencies.
- Not only has UAE deported more than 100 Indian fugitives back, but it also helped India with real-time intelligence from Iraq and Syria during the rise of the so-called Islamic State.
- The UAE also helped India keep a watch on the Indian diaspora from getting sucked into the ultra-conservative Sunni movement and stopped them from joining Islamic State jihad.

Why the relations are on the upswing?

- **Diversification of UAE economy:** Foreign trade and the oil and gas sectors were the fulcrum of bilateral relations in the decades preceding the end of the oil era boom. But since then, the UAE has pursued an aggressive strategy of diversifying its

economy, and its relations with India have benefited as a result.

- **Evolving country profile and priorities:** The recent upsurge in relations is a reminder that both the UAE and India have leapfrogged in terms of global reputation and foreign policy since 1981.
- **Key partners in combating extremism:** The UAE and India share a deeply common goal – fighting terrorism, combating extremism and ideologies of hatred.
- The two countries have a common interest in ensuring maritime security in the Indian Ocean and the Gulf region.
- **Common economic goals:** India has now become the world's fastest-growing major economy and the third-largest consumer of oil. On the other hand, the UAE has sovereign funds with a corpus of over a trillion dollars.
- **Rigorous follow up to strategic partnership:** Another reason for the greater depth in relations is the rigorous structure of various committees that have been set up following the high-level visits.

Challenges

- As far as investments are concerned, the systemic problem faced due to the slow implementation of various projects from the Indian side is a major obstacle.
- Indian companies operating in the UAE also face problems **due to a lack of clarity in many aspects of commercial regulations, labour laws and lack of transparency on part of Emirati businesses.**
- There is also a need to smoothen problems faced by Indian migrants due to cumbersome and strict regulations that favour the Emirati employers and at times lead to serious problems for Indian workers, especially unskilled workers.

Analysis

- Since 2014, Indian foreign policy has witnessed significant changes in approach, priority issues, and focus.
- The relationship with United Arab Emirates (UAE) is at the core of an assertive new Gulf policy subsumed under the "Extended Neighborhood Policy."
- Mutually reinforcing economic visions and compatible geopolitical outlooks have laid the basis for a more robust and promising partnership between India and the UAE.
- The Emirates' plans to develop a diversified, knowledge-based 21st-century economy have dovetailed with the Modi administration's blueprint for unleashing India's economic potential.
- Both sides recognize that the security of the Gulf and the Indian Ocean are indivisible. They also appreciate the threat posed by non-state violent extremists to their respective interests.
- Space is a new arena in which India and the UAE have to collaborate through the work of the UAE Space Agency and ISRO. Together, the two space agencies have developed the nano-satellite, Nayif-1 and are likely to work together on Emirates' 'Red planet Mission'.

Way Forward

- The growing engagements between India and the UAE have to be seen within the broader contexts of the UAE's policy of engaging with Asia to improve economic prospects and India's search for foreign investments to expedite economic growth and address the threat of extremism terrorism.
- Medical tourism can be an essential area where India can attract UAE given India's high-quality manpower in the medical sector and improving medical infrastructure in the country.
- There are further untapped potentials in the arena of renewable energy. The cost for production and transmission of solar energy in the UAE is a fraction of that of India and this is a priority area for the UAE government.

2ND INDIA-NORDIC SUMMIT

GS-II INTERNATIONAL RELATIONS

Context

- On May 4, 2022, Prime Minister Narendra Modi took part in the **2nd India-Nordic Summit**.
- The conference was also attended by the prime **ministers of Denmark, Iceland, Finland, Sweden, and Norway.**
- **Denmark is the host country for the summit.**

What is the Background?

- **The first India-Nordic Summit was held in Stockholm in 2018.**
- **The second summit, which was originally slated for June 2021, has been rescheduled.**
- The six nations' commitment to **global security, economic growth, innovation, and climate change** was reaffirmed at the 2018 India-Nordic Summit.

Why Nordic countries are important to India?

- The Nordic countries have a **combined economy of more than \$1.6 trillion.**

- India and the Nordic nations have a total trade volume of \$13 billion in products and services.
- All of these nations are among the highest achievers in a variety of fields, including innovation, renewable energy, green technology, and education.

What is the significance?

- The importance of this gathering for India may be gauged by the fact that the United States is the only other country with which the Nordic states have a summit-level relationship.
- The India Nordic Summit contributes to the expansion of India's diverse collaboration with the Nordic area.
- The topics discussed at this year's conference included post-pandemic economic recovery, climate change, innovation and technology, renewable energy, the developing global security picture, and India-Nordic collaboration in the Arctic.
- In the areas of sustainability, renewable energy, digitalisation, and innovation, the Nordic nations are essential partners for India.
- The Summit's main focus was on how to go forward with the bilateral engagement agenda between India and the Nordic nations.



INDIA-GERMANY RELATIONS

GS-II INTERNATIONAL RELATIONS

Context

- Prime Minister Narendra Modi's visit to Berlin for the **sixth Indo-German Inter-Governmental Consultations (IGC)** is significant for its timing and substantial results. Chancellor Olaf Scholz, despite the shock of the Ukraine crisis, recently visited Japan and then hosted PM Modi.

Background

- There is **no formal strategic cooperation between Germany and India**.
- It's a **green alliance built on trade, investment, technology, functional collaboration, talent development, and long-term sustainability**.
- The Indo-German energy conference, the **environmental forum**, and the collaboration on urban transportation, skill development, and science and technology are just a few of the efforts.

Highlights

- The **Joint Declaration of Intent (JDI)** creating the **Green and Sustainable Development Partnership** was the most significant outcome of the IGC.
- This will **improve the quality and scope of the two nations' current collaboration**.
- Germany is extending a **fresh and extra €10 billion loan to India to develop green projects in the public, private, and public-private partnership (PPP) forms**.
- This twice-yearly ministerial meeting will examine all relationships and give **"high-level coordination and political direction to the Partnership."**
- The IGC is **India's sole such format as any other country. This document reflects India's whole government's commitment to the climate agenda and support for the SDGs**.
- The JDI on Triangular Development Cooperation for projects in third countries is another noteworthy development.
- This will open up opportunities for collaboration in the Indo-Pacific, Africa, and beyond.

Conclusion

- A reorientation of Germany's relationship with India was expected with the new coalition government: it was highlighted in their coalition compact. Its strength and direction were unknown.
- **Angela Merkel's tenure, which began with India in 2011 and spanned five editions, has come to an end.**
- In light of crises such as the pandemic, the economic crisis, and now, Ukraine, a new time is reflecting new objectives.

- As indicated by the IGC, Germany's attitude to India has been positive.
- It is fair to say that this is a watershed point in the Indo-German relationship for both parties.

BRICS FOREIGN MINISTERS MEET

GS-II INTERNATIONAL RELATIONS

Context

- In the recently held BRICS foreign ministers' meeting, External Affairs Minister highlighted **the commitment made by BRICS on sovereign equality, territorial integrity and international law.**
- His remarks at the BRICS foreign ministers' meeting came amid the Russian invasion of Ukraine, on which India maintains that territorial integrity and international law must be respected.

Key points made by the Ministry of External Affairs

- We must not only seek **socio-economic recovery from the Covid-19 pandemic** but also create resilient and reliable supply chains.
- The knock-on effects of the Ukraine conflict have led to sharp increases in the costs of energy, food and commodities. This must be mitigated for the sake of the developing world.
 - **Global recovery should advance food and energy security and prioritise health, digital and green growth.**
- BRICS has repeatedly affirmed respect for sovereign equality, territorial integrity and international law. We must live up to these commitments.
- BRICS should unanimously and specifically support **UN Security Council reform.**
 - **International organisations must see real change**, not just new terminology. A rebalanced and multi-polar world should lead to reformed multilateralism.
 - The process of reform and greater representation of developing countries in the international organisations and multilateral forums, including the UN and its Security Council, so that they could play an important role in global governance.
- Together, we should press for the credible commitment of resources by developed nations for climate action and climate justice.
- **BRICS must display zero tolerance for terrorism, especially cross border terrorism.**
- As a positive, inspiring and constructive force in the international community, the BRICS countries need to firm up belief, brave the storms and waves and take real action to promote peace and development, uphold fairness and justice advocate democracy and freedom, inject stability and positive energy into international relations in a period of turbulence and transformation.

Points made by other foreign ministers

- The BRICS countries shall continue to **work together to contain the spread and effects of the COVID-19 pandemic** and support the leading role of the WHO in combating the pandemic.
- The importance of the ongoing discussions in the WTO including on the TRIPS waiver proposal.
- The ministers called for the **implementation of the 2030 Sustainable Development Agenda.**
- The ministers exchanged views on furthering intra-BRICS cooperation on the three pillars:
 - Political and security
 - Economic and finance
 - People-to-people and cultural exchanges
 - In this regard, they recalled the adoption in 2021 of the revised terms of reference for guiding BRICS engagement.
- Chinese President Xi Jinping put forward the Global Security Initiative (GSI) to promote common security for all countries.
 - GSI was proposed in April 2022 at the Boao Forum for Asia Annual Conference in Hainan province.
 - He also put light on the need to strengthen political mutual trust and security cooperation and maintain close communication and coordination on major international and regional issues.

CHINA TAIWAN ISSUE

GS-II INTERNATIONAL RELATIONS

Context

- US Senator Tammy Duckworth reiterated **America's support for Taiwan** on her second visit in a year to the self-governing island claimed by China.
- China sent 30 military aircraft toward the island in an ongoing campaign of regular flights.
- Taiwan's Defence Ministry said it responded by scrambling jets, putting air defence missile systems on alert and issuing radio warnings.

Recent tussle

- Tensions between China and Taiwan have escalated since October 1st when China observes its National Day to mark the birth of the People's Republic of China.
- Coinciding with the 72nd-anniversary celebrations, **China flew over 100 fighter jets into Taiwan's air defence identification zone**, jangling nerves in Taiwan and setting off an alarm around the world that it was prepping to take over the island by

force.

Background

- Although **largely unrecognised by other countries as such, self-ruled Taiwan sees itself as no less than an independent nation**, and its leaders, including the fiercely pro-independence President Tsai Ing-wen, have vowed to defend its sovereignty against the Chinese goal of “reunification”.
- But **Taiwan is entirely dependent on the US for its defence against possible Chinese aggression** – and that is why every spike in military tensions between China and Taiwan injects more hostility into the already strained relationship between Washington and Beijing.
- Taiwan, earlier known as Formosa, a tiny island off the east coast of China, is where Chinese republicans of the Kuomintang government retreated after the 1949 victory of the communists – and it has since continued as the Republic of China (RoC).
- **The island is located in the East China Sea**, to the northeast of Hong Kong, north of the Philippines and south of South Korea, and southwest of Japan.
- **The US backs Taiwan’s independence, maintains ties with Taipei, and sells weapons to it – but officially subscribes to PRC’s “One China Policy”**, which means there is only one legitimate Chinese government. Just 15, mostly very small, countries recognise Taiwan.
- Starting from the 1990s, and despite the missile crisis, relations between the PRC and RoC improved, and trade ties were established. As the British prepared to exit Hong Kong in 1999, the “One China, Two Systems” solution was offered to Taiwan as well, but it was rejected by the Taiwanese.
- In 2000, Taiwan got its first non-KMT government, when the Taiwanese nationalist Democratic Progressive Party (DPP) won the presidency.
- In 2004, China started drafting an anti-secession law aimed at Taiwan; trade and connectivity, however, continued to improve.
- The 2016 election of President Tsai marked the onset of a sharp pro-independence phase in Taiwan, and the current tensions with China coincided with her re-election in 2020.
- **Taiwan now has massive economic interests, including investments in China, and pro-independence sections worry that this might come in the way of their goals.** Inversely, the pro-reunification sections of the polity, as well as China, hope that economic dependence and increasing people-to-people contacts will wear out the pro-independence lobbies.



Challenge for the US

- As tensions rise, the **world is watching the US, whose status as the world’s pre-eminent power has been dented** by the messy exit from Afghanistan.
- In East and Southeast Asia, several countries including Japan, South Korea, and the Philippines, which are sheltered under the protective umbrella of the US, are losing trust in the USA.
- President Joe Biden has so far walked a thin line between pledging support for Taiwan and keeping the lid on tensions with Beijing.
- China and US had agreed to abide by the “Taiwan Agreement”, under which US support for the “One China Policy” is premised on Beijing not invading Taiwan.
- The AUKUS pact among the US, UK, and Australia, under which Australia will be supplied with nuclear submarines, has imparted a new dimension to the security dynamics of the Indo-Pacific. Taiwan has welcomed the pact, while China has denounced it as seriously undermining regional peace.

Implications for India

- With India facing its problems with China at the LAC, there have been suggestions that it **should review its One China Policy – it has in any case long stopped reiterating this officially – and use not just the Tibet card**, but also develop more robust relations with Taiwan to send a message to Beijing.
- India and Taiwan **currently maintain “trade and cultural exchange” offices in each other’s capitals.**
- In May 2020, the swearing-in of Tsai was attended virtually by MPs.
- In 2016, New Delhi had dropped plans to send two representatives for Tsai’s first inaugural at the last minute.
- Bloomberg has reported that talks with Taipei are ongoing to bring a \$7.5-billion semiconductor or chip manufacturing plant to India.

INDIA-ISRAEL RELATIONS

GS-II INTERNATIONAL RELATIONS

Context

- Tammy Ben-Haim the Consul General of Israel on her recent visit to India maintained that the Israel-Palestine issue does not diminish or negate the India-Israel.
- She emphasized Abraham’s Accords to resolve the issue concerning Palestine.

Abraham Accords

- The **Abraham Accords** are a joint statement made between Israel, the United States and the United Arab Emirates in August 2020.
- Israel signed normalization agreements with four Arab countries – the UAE, Bahrain, Morocco and Sudan and thus maintain peace in the region and this will help resolve Palestine issues.

Israel-Palestine Issues

1947-48	The UN adopts Resolution 181, a partition plan for Palestine into separate Jewish and Arab states which Palestine rejects. The state of Israel is created.
1949	In the first Arab-Israeli war and Israel seizes more land than agreed in armistices. Gaza strip is created.
1967	After a 6-day war and Israel occupy the rest of Palestine including the West Bank, Gaza Strip, Golan Heights (Syria), and Sinai (Egypt). UNSC calls on Israel to withdraw from these areas.
1978	Egypt and Israel sign the Camp David accords.
1993	A plan to implement a two-state solution as part of the Oslo Accords is agreed upon, leading to the establishment of the Palestinian Authority (PA).
2000	Camp David II Summit where Israel and PLO renew status negotiations.
2002	2nd Intifada: Israel re-occupies Palestinian cities in West Bank.
2005	Israel agrees to withdraw from Gaza but maintains control of airspace and some imports/exports.
2008	Israel invades Gaza in Operation Cast Lead
2014	Operation Protective Edge Israel invades Gaza again.

India-Israel Relations

- Israel and India established diplomatic relations in January 1992.
- The two countries have extensive economic, military, and strategic relationships.
- **Political relations:**
 - Political ties between the two countries are friendly.
 - Prime Minister Modi undertook a historic first-ever visit by an Indian PM to Israel from 4-6 July 2017, during which the relationship was upgraded to a strategic level.
- **Economic and Commercial Relations:**
 - India is Israel's third-largest trade partner in Asia.
 - Major exports from India to Israel include precious stones and metals, chemical products, textiles etc.
 - Major imports by India from Israel include precious stones and metals, chemicals and mineral products, base metals and machinery and transport equipment.
 - Potash is a major item of Israel's exports to India.
- **Cooperation in agriculture:**
 - Under a comprehensive Work Plan for cooperation in agriculture signed on 10 May 2006, bilateral projects are implemented through Centres of Excellence.
 - India has benefited from Israeli expertise and technologies in horticulture mechanization, protected cultivation, orchard and canopy management, nursery management, micro-irrigation and post-harvest management, particularly in Haryana and Maharashtra.
 - Israeli drip irrigation technologies and products are now widely used in India.
- **Defence relations:**
 - India is the largest buyer of Israeli military equipment and Israel is the second-largest supplier of military equipment to India after Russia.
 - Military and strategic ties between the two nations extend to intelligence-sharing on terrorist groups and joint military training.
- **Indian Community:**
 - There are approximately 85,000 Jews of Indian origin in Israel (with at least one Indian parent), who are all Israeli passport holders.

GENERAL STUDIES - III

RICE FORTIFICATION

GS-III ECONOMY

Context

- Telangana have installed blending machines to produce fortified boiled rice out of paddy.

Details

- Maximum rice mills in Telangana have **installed rice blending machines to produce fortified boiled rice out of paddy.**
- The mills in Telangana have started to install rice blending machines, as the **Food Corporation of India had agreed to buy fortified boiled rice.**
 - Recently the Food Corporation of India (FCI) **refused to buy boiled rice** this year as they have surplus stocks at godowns.

Rice Fortification

- Rice fortification is a **process of adding micronutrients to normal rice** using a technological process.
- The fortified rice adds micronutrients such as **iron, folic acid and Vitamin 'D' B 12 to the normal rice.**
- The rice fortification is the 5th product after salt, oils, milk and wheat which are targeted for **fortification by the union government by 2024.**
- It will **improve the immunity levels of people and ensure intake of a balanced diet** and remove malnutrition among people, especially children.
- It will be included in mid-day meals for school children and in Public Distribution System (PDS).
- It will increase the number of essential micronutrients in food, which will help in improving the nutritional quality of food and also promote public health benefits by minimizing health risks.
- According to FSSAI guidelines; 1 kg of fortified rice would contain:**
 - Iron (28 mg-42.5 mg).
 - Folic acid (75-125 microgram).
 - Vitamin B-12 (0.75-1.25 microgram).
 - Zinc (10 mg-15 mg).
 - Vitamin A (500-750 microgram).
 - Vitamin B-1 (1 mg-1.5 mg).
 - Vitamin B-2 (1.25 mg-1.75 mg).
 - Vitamin B-3 (12.5 mg-20 mg).
 - Vitamin B-6 (1.5 mg-2.5 mg).
- The cooking of fortified rice does not require any special method. It needs to be cleaned and washed in the normal way before cooking. After cooking, fortified rice maintains the same micronutrient levels as it had before cooking.
- According to the FSSI notification, Fortified rice will be packed in jute bags with the logo ('+F').

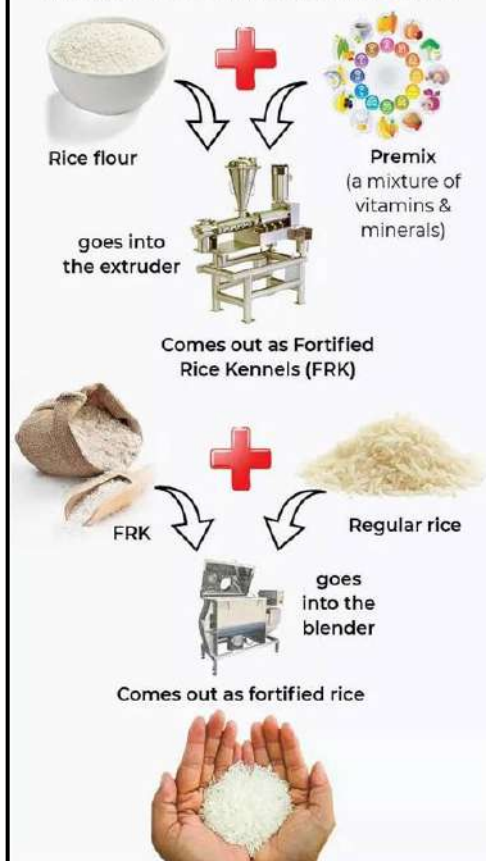
Way Forward

- India has a very **high level of malnutrition among women and children.** According to the official data, every second woman in the country is anaemic and every 3rd child is stunted.
- Fortification of food is believed to be one of the **most appropriate methods to fight against malnutrition.**
- Rice is one of India's important staple foods; it is consumed by about two-thirds of the population.
- Per capita, rice consumption in India stands at 6.8 kg per month. Therefore, fortifying rice with micronutrients is a **good option to supplement the diet of the poor and remove the evil of malnutrition.**

What is rice fortification

Fortification is the process of deliberately increasing the content of an essential micronutrient e.g. vitamins and minerals (including trace elements), in food to increase its nutritional quality and provide public health benefit with minimal risk to public health

The process of rice fortification



LINKING OF E-SHRAM PORTAL WITH PM SURAKSHA BIMA YOJNA

GS-III ECONOMY

Context

- Registered workers at the e-shram portal to get the benefit of insurance cover.

Details

- The Ministry of Union Labour and Employment Ministry is working on a mechanism to process accident insurance claims by unorganised workers registered on the e-Shram portal
- More than 27 crore unorganised sector workers are registered on the portal.**
- The portal was launched with the aim of creating a national database of unorganised workers and ensuring social security schemes for them.
- The workers would be **eligible for ₹2 lakh as accident insurance.**
- The scheme would allow the workers to get the direct benefit transfer (DBT) through an e-Shram unique ID number.

E-Shram Portal

- The Ministry of Labour and Employment has developed the e-SHRAM portal for building a National Database of Unorganized Workers (NDUW).
- The Portal was developed with the **aim of extending the benefits of the social security schemes to unorganized sector workers.**
- It is the first-ever national **database of unorganized workers including migrant workers, construction workers, gig and platform workers, etc.**
- The following is required to register on the portal:
 - Aadhar Number
 - The mobile number is linked with Aadhaar
 - Savings Bank Account Number



Significance of e-Shram portal

- It created a **centralized database of all unorganized workers** including Construction Workers, Migrant Workers, Gig and Platform workers, Street Vendors, Domestic Workers, Agriculture Workers, etc.
- Improve the implementation efficiency of the social security services for the unorganized workers.
- Smooth Sharing of information in respect of registered unorganized workers with various stakeholders such as Ministries/ Departments/ Boards/ Agencies/ Organizations of the Central & State Governments.
- Portability of the social security and welfare benefits to the migrant and construction workers.
- It provides a comprehensive database to Central and State Governments for tackling any National Crises like COVID-19 in future.

JUTE INDUSTRY

GS-III ECONOMY

Context

- Recently, the Calcutta High Court directed the Jute Commissioner to review the rate of raw jute if the notified rate cannot be adhered to.

Background

- The jute industry of West Bengal is facing a major crisis and impacting the livelihoods of thousands of workers and farmers.
- The sector directly provides employment to **about 70 lakh workers in the country and sustains over 40 lakh farm families.**
- With 70 of the 93 (2016 data) mills in India, West Bengal is the hub of India's jute industry, valued at around Rs 10,000 crore. Several mills are on the verge of closing.

Issue

- The issue is the **procurement of raw jute at a higher cost but the final output is being sold at higher rates.**
- The government procures raw jute from farmers at a fixed Minimum Support Price (MSP) which is Rs 4,750 per quintal for the financial year 2022-23.
- This reaches the mill at Rs. 7,200 per quintal, that is, Rs. 700 more than the Rs. 6,500 per quintal cap for the final product.
- **The jute mills do not procure raw material directly from the farmers** because the mills are far from farmers and the process of procurement takes time.
 - No single farmer produces enough to meet the entire demand of a mill. Thus, the middlemen or traders procure raw jute from multiple farmers and then trade it to the mills.

Impact

- As the jute sector provides direct employment to 3.70 lakh workers in the country and supports the livelihood of around 40 lakh farm families, closure of the mills is a direct blow to workers and indirectly, to the farmers whose production is used in the mills.
 - **West Bengal, Bihar and Assam account for almost 99% of India's total production.**

India's Jute Industry

- **India is the world's biggest producer of jute, followed by Bangladesh. Jute is primarily grown in West Bengal, Odisha, Assam, Meghalaya, Tripura and Andhra Pradesh.**
- The jute industry in India is 150 years old. There are about 79 jute mills in the country, of which about 60 are in West Bengal along both the banks of river Hooghly.
- Jute production is a labour intensive industry. It employs about two lakh workers in the West Bengal alone and 4 lakh workers across the country.

Jute as a crop and its benefits

- Jute is the only crop where earnings begin to trickle in way before the final harvest. The seeds are **planted between April and May and harvested between July and August.**
- **The outer layer of the stem produces the fibre that goes into making jute products.** But the leaves can be cooked, **the inner woody stems can be used to manufacture paper and the roots**, which are left in the ground after harvest, improve the yield of subsequent crops.
- Compared to rice, **jute requires very little water and fertiliser.** It is largely pest-resistant, and its rapid growth spurt ensures that weeds don't stand a chance.
- Jute is the **second most abundant natural fibre in the world.** It has **high tensile strength, acoustic and thermal insulation, breathability, low extensibility, ease of blending with both synthetic and natural fibres, and antistatic properties.**
- Jute can be used: for insulation (replacing glass wool), geotextiles, activated carbon powder, wall coverings, flooring, garments, rugs, ropes, gunny bags, handicrafts, curtains, carpet backings, paper, sandals, carry bags, and furniture.
- A 'Golden Fibre Revolution' has long been called for by various committees, but the jute industry is in dire need of basic reforms

Climatic Requirements

- **Temperatures ranging from more than 25 °C and relative humidity of 70%-90% are favourable for successful Jute cultivation.** Jute requires **160-200 cm of rainfall yearly** with extra needed during the sowing period. River basins, **alluvial or loamy soils with a pH range between 4.8 and 5.8 are best for jute cultivation.**
- **Constant rain or water-logging is harmful.** The new gray alluvial soil of good depth, receiving salt from annual floods, is best for jute. Flow ever jute is grown widely in sandy loams and clay loams.
- **Retting is a process in which the tied bundles of jute stalks** are taken to the tank by which fibres get loosened and separated from the woody stalk. The bundles are steeped in water at least 60 cm to 100 cm depth.
- Stripping is the process of removing the fibres from the stalk after the completion of retting.

Problems of Jute Industry in India

- **Emergence of substitute goods against gunny bags and loss of demand for jute goods both at home and abroad:** Indian jute goods have been losing ground in the world market primarily due to keen competition from synthetic substitutes and also supplies from Bangladesh and China.
- **Effects of Partition:** Due to Partition in 1947, the erstwhile best quality jute-producing areas went to the then East Pakistan (now Bangladesh) while the jute mills were mainly concentrated in the Indian Territory.
 - Bangladesh received 82% of the good quality jute growing tract India retained 95% of the mills. The resultant acute shortage of raw jute forced some of the mills to close down.
- **Low Yield Per Acre:** India produces very low quantity of jute per unit of land. In Bangladesh the average yield per hectare is

1.62 tonnes. It is only 1.3 tonnes per hectare in India. The corresponding figure of jute production in China is 1.78 tonnes per hectare. In Taiwan, it is 2 tonnes per hectare.

- **Outmoded Mills and Machinery:** Most of these jute mills were established some 100 or 150 years back. Naturally most of these mills are having backdated machinery.
 - Output of these machines is very low compared to the modern sophisticated machines. Because of use of these for more than a century, productive capacity has gradually declined.
- **Low Demand:** Not many people are aware of plastic alternatives like jute. Besides, the misconception that cotton bags are more durable, presentable and nature friendly has resulted in very few people using jute products.

Steps taken by the Government

- **Nationalization of 'sick' Jute mills:** The National Jute Manufacture Corporation Limited (NJMC) under the Ministry of Textiles has taken over the management of sick Jute mills.
- Under the **Jute Packaging Materials (Compulsory Use in Packing Commodities) Act 1987 (JPMA)**, the government is required to consider and provide for the compulsory use of jute packaging materials for supply. Under unusual circumstances, the central government can allow the use of plastic bags as an alternative for up to 30% of the total requirement for food grains.
- Whenever the market price of raw jute falls below a certain level, **the Jute Corporation of India (JCI) procures raw jute at Minimum Support Price (MSP)**, fixed on the basis of recommendation of the commission for Agricultural Cost and Prices (CACP), from jute growers to safeguard their interest.
- **Incentive Scheme for Acquisition of Plants and Machinery (ISAPM):** Government of India launched ISAPM for Jute Industry and Jute Diversified Products Manufacturing Units in 2013.
- The **National Jute Board** implements various schemes for market development, workers' welfare and promotion of diversification and exports.

Way Forward

- Under the Jute Packaging Act, the percentage of reservation of packaging of foodgrain and sugar into jute bags is reviewed every year. Currently 100% food grains and 20 % sugar is mandated to be packed in jute bags. There is a **need to restore it to 100% for both**.
- **India can cater to global demand** but for that two things are needed: upgrading the skills of the people...to produce different types of products and **upgrading the machinery**.
- Jute needs to **diversify its offering into non-packaging segments** because it has tremendous potential and uses apart from packaging.
- Jute-based lifestyle **products can be produced on a large scale and then sold online across e-commerce companies** in India and even exported to neighbouring countries. It will help the ailing industry and support the rural economy and empower women
- There is a need for **training centres and skills upgrades** for increased productivity and improved jute products.
- Since 2011, no major wage revision had been undertaken in the jute industry. **Implementation of the Minimum Wages Act**, is the need of the hour.
- **All stakeholders, including governments, industry bodies, media, and the jute mill associations, have to work in tandem** to revive the industry and create public awareness about the use of jute products.

RBI'S REPORT ON CURRENCY AND FINANCE

GS-III ECONOMY

Context

- Recently the Reserve Bank of India in its Report on Currency and Finance (RCF) has stated that the Indian economy may take more than a decade to overcome the losses caused by the Covid-19 pandemic.

Highlights of the Report

- The **theme of the RBI report is "Revive and Reconstruct"**.
- The covid-19 pandemic is one of the worst health crises the world has ever faced.
- The report highlighted that **India is expected to overcome Covid-19 losses in 2034-35**.
- India suffered losses in terms of output, lives and livelihoods, which may take years to recover.
- The Russia-Ukraine conflict has also hampered the recovery process.
 - The impact ranged from high commodity prices, weaker global growth outlook and tighter global financial conditions.
- Global Concerns surrounding de-globalisation and its impact on future trade, capital flows and supply chains have increased uncertainties for the Global economy and business environment.

Rebalancing of Monetary and Fiscal Policies

- Price stability is a necessary precondition for strong and sustainable growth.
- Reducing Government Debt below 66% of GDP over the next 5 years is important to ensure India's medium-term growth possibilities.
- The report Suggested some structural reforms:
 - Access to litigation free low-cost land.
 - Raising the quality of labour through public expenditure on education and health and the Skill India Mission.
 - Scaling up R&D activities with an emphasis on innovation and technology.
 - Rationalization of subsidies that promote inefficiencies.
 - Encouraging urban agglomerations by improving the housing and physical infrastructure.
- Promoting Industrial revolution 4.0.
- Better Free trade agreement (FTA) negotiations focus on the transfer of technology and better terms of trade to improve exports and domestic manufacturing.

DIRECT SEEDING OF RICE

GS-III ECONOMY

Context

- Recently the Punjab government has announced an incentive for farmers opting for Direct Seeding of Rice (DSR).

Details

- The Punjab government has recently announced a Rs 1,500 incentive per acre for farmers opting for **Direct Seeding of Rice (DSR), which is known for saving water methods.**
- According to the studies, around 3,600 litres to 4,125 litres of water is required to grow one kg of rice depending upon the paddy variety.
 - Long duration varieties consume more water.

Benefits of DSR

- The direct Seeding of Rice (DSR) technique can help save 15% to 20% water.
 - In some cases, water-saving can reach 22% to 23%.
- It could solve the problem of labour shortage because like the traditional method it does not require a paddy nursery and transplantation of a 30-day old paddy nursery into the main puddled field.
- In DSR, paddy seeds are sown directly into the field with machines.
- It promotes groundwater recharge.
- **It matures 7-10 days earlier than traditional transplanted crops** and provides more time for the management of paddy straw.
- **An increase in yield, one to two quintals per acre higher than traditional transplanted rice.**

DIRECT SEEDING vs TRANSPLANTING	
Direct Seeding	Transplanting
-Relatively cheaper than transplanting	-Relatively costly
-Require less labor	-labor requirement is high
-Average yield is high	-Average yield is lower excepting long aged varieties
-Plants are usually healthier and have stronger, deeper root system	-Plants have not vigorous deep root system
-Final plant cover is random and looks natural	-Final plant cover is regular
-Large amount of seed is required	-Seed requirement is less
-Plant density is higher	-Plant density is optimum
-Weed control is difficult	-Easy of weed control

DSR technique requires some basic arrangements

- Farmers must sow paddy only after pre-sowing irrigation and not in dry fields.
- The field should be laser levelled.
- Spraying of herbicide must be done simultaneously along with sowing.
- Suitable for medium to heavy textured soils including sandy loam, loam, clay loam, and silt loam.
- Not to be cultivated in sandy and loamy sand as these soils suffer from severe iron deficiency, and there is a higher weed problem in it.
- Avoid the land which was under crops other than rice in previous years as these soils are likely to suffer more from iron deficiency and weed problems.

INFLATION

GS-III ECONOMY

Context

- According to the data released by the National Statistical Office, **Retail inflation reached a nearly 8 years high at 7.8% in April.**

Details

- This is the fourth straight month that retail inflation is above the 6% mark, which is the maximum limit for inflation set under the monetary policy framework.
- The **Consumer Food Price increased to 8.4%**.
 - One of the reasons behind higher food inflation is higher wheat prices.
- Fuel and lighting have high inflation at 10.8%.
- Transport and Communication inflation reached nearly 11% in April.



$$\text{Consumer Price Index Formula} = \frac{\text{Cost of Market Basket in a Given Year}}{\text{Cost of Market Basket at Base}} \times 100$$

What is Inflation?

- Inflation refers to a sustained **increase in the general price level of goods and services** in an economy over some time.
- It is the rise in the prices of most goods and services of daily or common use, such as food, clothing, housing, recreation, transport, consumer staples, etc.
- Inflation measures the **average price change in a basket of commodities and services over time.**
- The **opposite and rare fall in the price index of this basket of items is called 'deflation'.**
- Inflation is indicative of the **decrease in the purchasing power** of a unit of a country's currency. Inflation is measured in percentage.
 - Purchasing power is the value of a currency** expressed in terms of the number of goods or services that one unit of money can buy. All else being equal, inflation decreases the number of goods or services we would be able to purchase.
 - For example, if one had taken one unit of currency to a store in the 1950s, it would have been possible to buy a greater number of items than would be the case today, indicating that the currency had a greater purchasing power in the 1950s.
 - If one's monetary income stays the same, but the price level increases, the purchasing power of that income falls.
- Inflation does not always imply falling purchasing power of one's money income since income may rise faster than the price level.
 - A higher real income means a higher purchasing power since real income refers to the income adjusted for inflation.

Measures of Inflation in India

- In India, the **Ministry of Statistics and Programme Implementation measures inflation.**
- There are two main sets of inflation indices for measuring price level changes in India – the Wholesale Price Index (WPI) and the Consumer Price Index (CPI).
 - The GDP deflator is also used to measure inflation.

Consumer Price Index

- Consumer Price Index or CPI is an index measuring retail inflation in the economy by collecting the change in prices of most common goods and services used by consumers.
- CPI is calculated for a fixed list of items including food, housing, apparel, transportation, electronics, medical care, education, etc. The price data is collected periodically, and thus, the CPI is used to calculate the inflation levels in an economy.

Who maintains Consumer Price Index in India?

- In India, there are four consumer price index numbers, which are calculated, and these are as follows:
 - CPI for Industrial Workers (IW)
 - CPI for Agricultural Labourers (AL)
 - CPI for Rural Labourers (RL) and
 - CPI for Urban Non-Manual Employees (UNME).
- While the Ministry of Statistics and Program Implementation collects CPI (UNME) data and compiles it, the **remaining three are collected by the Labour Bureau in the Ministry of Labour.**

WPI

- Wholesale Price Index, or WPI, measures the changes in the prices of goods sold and traded in bulk by wholesale businesses to other businesses.

Who publishes WPI in India and what does it show?

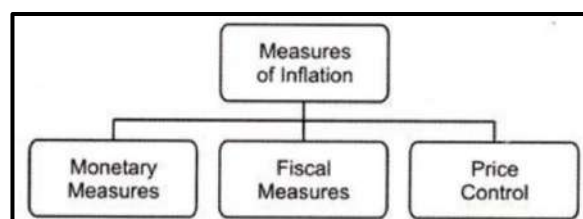
- The numbers are **released by the Economic Advisor in the Ministry of Commerce and Industry**.
- An upward surge in the WPI indicates inflationary pressure in the economy and vice versa.
- The quantum of rising in the WPI month after month is used to measure the level of wholesale inflation in the economy.
 - Base year: 2011-12. (In the calculation of an index the base year is the year with which the values from other years are compared)

GDP Deflator

- The GDP deflator, also called implicit price deflator, is a measure of inflation.
- It is the ratio of the value of goods and services an economy produces in a particular year at current prices to that of prices that prevailed during the base year.
- This ratio helps show the extent to which the increase in GDP has happened on account of just a rise in prices rather than an increase in output.
- Deflator covers the entire range of goods and services produced in the economy – as against the limited commodity baskets for the wholesale or consumer price indices.
- Hence, it is seen as a more comprehensive measure of inflation.

Measures to control Inflation

- Inflation is caused by the failure of aggregate supply to equal the increase in aggregate demand. Inflation can, therefore, be controlled by increasing the supplies of goods and services and reducing money incomes to control aggregate demand.
- Some of the important measures to control inflation are as follows:



Monetary Measures

- Monetary measures aim at reducing money incomes.
- (a) Credit Control**
 - One of the important monetary measures is monetary policy.
 - The central bank of the country adopts several methods to control the quantity and quality of credit.
 - For this purpose, it raises the bank rates, sells securities in the open market, raises the reserve ratio, and adopts several selective credit control measures, such as raising margin requirements and regulating consumer credit.
 - Monetary policy may not be effective in controlling inflation if inflation is due to cost-push factors.** Monetary policy can only help control inflation due to demand-pull factors.

Inflation	
Advantages	Disadvantages
<ul style="list-style-type: none"> Moderate inflation enables economic growth Moderate inflation allows adjustment of real wages Moderate inflation allows adjustment of prices. Inflation is better than deflation – which can cause recession. 	<ul style="list-style-type: none"> Creates uncertainty and lower investment High inflation often leads to lower growth and less stability Reduces international competitiveness To reduce inflation can lead to recession Fall in value of savings If wages don't keep up – lower real wages.

(b) Demonetisation of Currency

- However, one of the monetary measures is to demonetize currency of higher denominations. Such a measure is usually adopted when black money is abundant in the country.

(c) Issue of New Currency

- The most **extreme monetary measure is the issue of new currency** in place of the old currency. Under this system, one new note is exchanged for several notes of the old currency.
- The value of bank deposits is also fixed accordingly. Such a measure is adopted when there is an excessive issue of notes and there is hyperinflation in the country.
- It is a very effective measure. But it is inequitable as hurts the small depositors the most.

Fiscal Measures

- Monetary policy alone is incapable of controlling inflation. It should, therefore, be supplemented by fiscal measures.**
- Fiscal measures are highly effective for controlling government expenditure, personal consumption expenditure, and private and public investment.
- The principal fiscal measures are the following:

(a) Reduction in Unnecessary Expenditure

- The **government should reduce unnecessary expenditure on non-development activities** to curb inflation.
- This will also put a check on private expenditure which is dependent upon government demand for goods and services. But it

is not easy to cut government expenditure.

- Though this measure is always welcome it becomes difficult to distinguish between essential and non-essential expenditure.
- Therefore, this measure should be supplemented by taxation.

(b) Increase in Taxes

- To cut personal consumption expenditure, the rates of personal, corporate and commodity taxes should be raised and even new taxes should be levied, but the rates of taxes should not be so high as to discourage saving, investment and production.
- Rather, the tax system should provide larger incentives to those who save, invest and produce more.

Further, to bring more revenue into the tax net, the government should penalise the tax evaders by imposing heavy fines.

- Such measures are bound to be effective in controlling inflation.
- To increase the supply of goods within the country, the government should reduce import duties and increase export duties.

(c) Increase in Savings

- Another measure is to increase savings on the part of the people.
- This will tend to reduce disposable income with the people, and hence personal consumption expenditure. But due to the rising cost of living, people are not in a position to save much voluntarily.
- For this purpose, the government should float public loans carrying high rates of interest, start saving schemes with prize money, or lottery for long periods, etc.
- It should also **introduce compulsory provident funds, provident fund-cum-pension schemes, etc.**
- All such measures increase savings and are likely to be effective in controlling inflation.

(d) Surplus Budgets

- An important measure is to adopt an anti-inflationary budgetary policy.
- For this purpose, the government should give up deficit financing and instead have surplus budgets.
- It means collecting more in revenues and spending less.

(e) Public Debt

- At the same time, it should stop the repayment of public debt and postpone it to some future date till inflationary pressures are controlled within the economy.
- Instead, the government should borrow more to reduce the money supply to the public.

Like monetary measures, fiscal measures alone cannot help in controlling inflation.

- They should be supplemented by monetary, non-monetary and non-fiscal measures.

Other Measures

- The other types of measures are those which aim at increasing aggregate supply and reducing aggregate demand directly.

(a) To Increase Production: The following measures should be adopted to increase production:

- One of the foremost measures to control inflation is to increase the production of essential consumer goods like food, clothing, kerosene oil, sugar, vegetable oils, etc.
- If there is a need, raw materials for such products may be imported on a preferential basis to increase the production of essential commodities.
- Efforts should also be made to **increase productivity**. For this purpose, industrial peace should be maintained through agreements with trade unions, binding them not to resort to strikes for some time.
- The **policy of rationalization of industries** should be adopted as a long-term measure. Rationalization increases productivity and production of industries through the use of brain, brawn and bullion.
- All possible help in the form of the latest technology, raw materials, financial help, subsidies, etc. should be provided to different consumer goods sectors to increase production.

(b) Rational Wage Policy

- Another important measure is to **adopt arational wage and income policy**. Under hyperinflation, there is a wage-price spiral. To control this, the government should freeze wages, incomes, profits, dividends, bonuses, etc.
- But such a drastic measure can only be adopted for a short period as it is likely to antagonize both workers and industrialists. Therefore, the best course is to link the increase in wages to an increase in productivity.
- This will have a dual effect. It will control wages and at the same time increase productivity, and hence raise the production of goods in the economy.

(c) Price Control

- Price control and rationing are other measures of direct control to check inflation. Price control means fixing an upper limit for the prices of essential consumer goods.
- They are the maximum prices fixed by law and anybody charging more than these prices is punished by law. But it is difficult to administer price control.

(d) Rationing

- Rationing aims at distributing the consumption of scarce goods to make them available to a large number of consumers. It is applied to essential consumer goods such as wheat, rice, sugar, kerosene oil, etc.

- It is meant to stabilize the prices of necessities and assure distributive justice. But it is very inconvenient for consumers because it leads to queues, artificial shortages, corruption and black marketing.

Conclusion

- From the various monetary, fiscal and other measures discussed above, it becomes clear that **to control inflation, the government should adopt all measures simultaneously.**
- Inflation is like a hydra-headed monster which should be fought by using all the weapons at the command of the government.

BAN ON WHEAT EXPORTS

GS-III ECONOMY

Context

- Union Government has prohibited wheat export to manage overall food security. The Directorate General of Foreign Trade issued a notification in this regard.

Details

- There is a **sudden spike in the global prices of wheat** due to several factors and as a result, the **food security of India, neighbouring countries and other vulnerable countries are at risk.**
- Therefore, an amendment in the export policy of wheat has been done to manage the overall food security of the country and to support the needs of the neighbouring countries and other vulnerable countries.
- The export will be allowed based on permission granted by the Government** to other countries to meet their food security needs and based on the request of their government.
- The Government has assured us that there is no crisis of wheat and adequate food stock is available in the country.
- Unregulated trade is the reason behind the rising prices of wheat and the primary goal of the government is to check the inflation.



Food Security

- Food security refers to **ensuring adequate food supply to people, especially those who are deprived of basic nutrition.**
- Food security has been a major concern in India. According to UN-India, there are **nearly 195 million undernourished people in India, which is a quarter of the world's hunger burden.** Also, roughly 43% of children in India are chronically undernourished.
 - India ranks 71 out of 113 major countries in terms of the Global Food Security Index 2021.
- Though the available nutritional standard is 100% of the requirement, India lags far behind in terms of quality protein intake at 20% which needs to be tackled by making available protein-rich food products at affordable prices.
- The Human Rights Measurement Initiative finds that India is doing 56.8% of what should be possible at its level of income for the right to food.

Pillars of Food Security

The three pillars of food security as defined by the World Health Organization (WHO) are:

- Food Access – Having sufficient resources to obtain appropriate foods for a nutritious diet.
- Food Availability – Sufficient quantities of food are available consistently.
- Food use – Appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation.

Laws

- To provide the Right to food to every citizen of the country, the Parliament of India, enacted legislation in 2013 known as the National Food Security Act, 2013.
- Also called the Right to Food Act, this Act seeks to provide subsidized food grains to approximately two-thirds of India's 1.33 billion population.

Steps by Government to ensure food security

- To ensure Food Security Government has taken several steps for instance the **National Food Security Mission, Rashtriya**

Krishi Vikas Yojana (RKVY), the Integrated Schemes on Oilseeds, Pulses, Palm oil and Maize (ISOPOM), Antyodaya Ann Yojana, Pradhan MantriFasalBimaYojana, the e-marketplace, as well as massive irrigation and soil and water harvesting programmes.

- Others include; Public Distribution System (PDS) for food grains; Integrated Child Development Services (ICDS), Midday Meal Scheme, and Food-for-Work (FFW).

Challenges of Food Security

- The challenges India faces to meet its food security are as follows:

Climate change

- Climate change is expected to affect agricultural land use and production due to less availability of water for irrigation and other factors.
- There is climate change in India due to rising temperature and extreme events on the food production systems which impacts agricultural growth adversely.
- Various reports indicate that climate change would result in further intensification of temporal and spatial variation in the availability of water and extreme events of flood and drought.
- There is a strong need to address changes in institution and resource accessibility to tackle the climate-induced natural hazards.

Crop Diversification

- In recent years there has been a great emphasis of agricultural scientists on the implementation of crop diversification.
- The price of food grains like rice and wheat are not encouraging and farmers ended up with very low returns.
- By concentrating on other crops the farmers were encouraged to earn higher profits. The creation of a decentralized food grain bank in each block or district would enable the villagers to get subsidized food. This concept will improve the delivery of food grains and reduce corruption.

A mismatch between water demand and availability

- There is a vast temporal and spatial variation in rainfall and water availability in the country. The majority of water is available during the monsoon period and that too, through a few spells of intense rainfall.
- The average rainfall in India is 117 cm. The demand for water for various purposes is increasing due to population growth, industrialization and urbanization.
- Presently agriculture sector is using about 83% of water resources, but due to demand from other sectors availability may decline to 68% in 2050. Hence, the mismatch between demand and supply of water.

Land fragmentation

- Fragmentation of land is widespread in India and it is believed that the fragmented nature of landholding plays a major role in explaining low levels of agricultural productivity.
- The increasing population has led to a reduction in the availability of land over the decades. There has been an increase in putting agricultural land into non-agriculture uses to accommodate developmental activities leading to land fragmentation and low productivity. Therefore there is a need for a shift in land use and cropping pattern.

Quality seeds and Planting material

- The challenge confronting the seed sector is to make available quality seeds having good genetic potential at an affordable price and across the country to the farmers to enable them to harvest maximum yield in the given agro-climatic conditions.

Agricultural Marketing

- Another critical and crucial challenge is supply chain management in agricultural marketing in India.
- Farmer's access to the market is hampered by poor roads, excessive regulation and poor market infrastructure. Hence steps must be taken for the betterment of agricultural marketing by allowing the private sector and Foreign Direct Investment to improve the marketing and agricultural produce in India.

Globalisation

- Though globalization positively brought various changes like technology development, transport, fast communication and higher growth in the service sector, at the same time it has also resulted in challenges.
- Globalization has certainly intensified interdependence and competition between economies in the world market creating worse conditions for domestic farmers and producers.
 - The impact of globalisation culminated in the establishment of special economic zones (SEZs) which also led to widening the gap between rich and poor sections.

Way Forward

- **Food security can be achieved by closing 'yield gaps,'** increasing crop and livestock production efficiency, reducing waste in the food supply chain; crop/livestock diversification and integration; conserving crop wild relatives and agro-biodiversity, by adopting greenhouse gas abatement, production boosting technologies in agriculture and animal husbandry.
- The application of these measures together could double the food production with available resources without increasing

environmental impacts.

- Smallholder's intensification and linking them with corporate bodies and modern retail food supply chains needs urgent attention since they hold the majority of livestock in the country and can play a major role in food security and environmental stability.
- To avoid the harmful effects of global warming, small changes in our day to day lifestyle are a crucial turning point which needs due attention.
- Techniques of **remote sensing and Geographical Information systems (GIS)** need to be fully explored against various **unpredicted outcomes because of fluctuating climatic conditions.**

SPECIAL DRAWING RIGHTS (SDR)

GS-III ECONOMY

Context

- Recently, the Group of Seven leading industrial nations announced a plan to reallocate \$100 billion out of \$650 billion in new Special Drawing Rights to low-income countries, small island developing states, and the most vulnerable middle-income countries.

About SDR

- Special Drawing Rights often referred to as SDRs, are **interest-bearing international reserve assets used by the International Monetary Fund (IMF).**
- The SDR is based on a **basket of currencies and comes with the currency code, XDR, which it may also be referred to by.** The SDR serves as the **unit of account for the IMF for internal accounting purposes.**
- SDRs are also used as a **supplementary foreign exchange reserve for countries that are IMF members.**

Background

- Special drawing rights were originally introduced in 1969 by the IMF.
- This was due to a lack of US dollars and gold, which at the time were the main assets held in foreign exchange reserves.
- At that time, the SDR was the equivalent of one US dollar, or 0.888671 grams of gold, and was intended to be used in the context of the Bretton Woods fixed exchange rate system. After this system fell apart in 1973, the SDR was instead defined by a basket of major currencies.
- SDRs still serve their original purpose as a supplement to foreign currency reserves, however, less so after 1973. When the US dollar is weak or becomes less attractive, countries may prefer special drawing rights.
- One of the main purposes of SDRs is as a unit of account for internal accounting purposes by the IMF. Holding this basket of major currencies helps the IMF manage the exchange rate volatility of any single currency.

How do Special Drawing Rights Work?

- SDRs are **allocated to each of the countries that are IMF members.** The amount of SDRs that are allocated to each country is **based on their individual IMF quotas.**
- IMF quotas are based **broadly on the relative economic position of the country in the world economy.**
- The quota is **essentially a country's financial commitment to the IMF and its voting power.**
- The IMF **determines whether there is a need for a new allocation of SDRs in the global economy every five years.**
- SDRs **can be traded for freely usable currencies between IMF members through voluntary trading agreements.**
- These agreements are facilitated by the IMF and can be done to adjust reserves or meet the balance of payments needs.
- It is important to understand that **SDRs are neither a currency nor a financial claim on the IMF.** SDRs are a potential claim of IMF members on freely usable currencies.
- When SDRs are initially allocated to an IMF member country, the member is given two positions. The two positions are the **"SDR holdings" and the "SDR allocations."** Countries **receive interest on their holdings and pay interest based on their allocations position.** The interest amount for both positions is based on the SDR interest rate. The two positions' values start the same. Therefore, the interest received and interest paid cancels each other out.

How are the SDR Value and SDR interest rate (SDRi) Calculated?

- The SDR is defined using a basket of major currencies. The currencies are chosen based on how important and widely traded they are in international exchange markets.
- **Every five years, the IMF executive board reviews which currencies should be included in the SDR basket.** This is done to ensure that the SDR is relevant and useful as a foreign exchange reserve.
- **The value of the SDR is determined daily and based on fluctuations in the value of the currencies in the basket.** There is also an associated SDR interest rate (SDRi), which is determined weekly.
- The SDR is also based on the currencies held in the SDR basket. This rate is determined by a weighted average, based on short-

term government debt instruments associated with each of the basket currencies.

FOREIGN DIRECT INVESTMENT (FDI)

GS-III ECONOMY

Context

- India has recorded the highest ever annual FDI inflow of USD 83.57 billion in the Financial Year 2021-22.

What is FDI?

- Foreign direct investment (FDI) is **when a company takes controlling ownership of a business entity in another country.**
- With FDI, foreign companies are **directly involved with day-to-day operations in the other country.** This means they aren't just bringing **money with them, but also knowledge, skills and technology.**
- Generally, FDI takes place when an investor establishes foreign business operations or acquires foreign business assets, including establishing ownership or controlling interest in a foreign company.

Where is FDI made?

- Foreign Direct Investments are **commonly made in open economies that have skilled workforce and growth prospects.** FDI's not only bring money with them but also skills, technology and knowledge.

Automatic Route

- The non-resident or Indian company does not require a prior nod of the RBI or the government of India for FDI.
- Foreign Investment is allowed under the automatic route without prior approval of the Government or the Reserve Bank of India, **in all activities/ sectors as specified in Regulation 16 of FEMA 20 (R).**

Government Route

- The **government's prior approval is mandatory.** The company will have to apply through Foreign Investment Facilitation Portal, which facilitates single-window clearance.
- The application is then forwarded to the respective ministry, which will approve/reject the application in consultation with the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce.
- DPIIT will issue the Standard Operating Procedure (SOP) for the processing of applications under the existing FDI policy.

FDI prohibition

There are a few industries where FDI is strictly prohibited under any route. These industries are

- Atomic Energy Generation
- Any Gambling or Betting businesses
- Lotteries (online, private, government, etc)
- Investment in Chit Funds
- Nidhi Company
- Agricultural or Plantation Activities (although there are many exceptions like horticulture, fisheries, tea plantations, Pisciculture, animal husbandry, etc).
- Housing and Real Estate (except townships, commercial projects, etc).
- Trading in TDRs
- Cigarettes, Cigarettes, or any related tobacco industry.

Status of FDI flows into India

- FDI is an important monetary source for India's economic development. Economic liberalization started in India in the wake of the 1991 crisis and **since then, FDI has steadily increased in the country.**
- India, today is a part of the top 100-club on Ease of Doing Business (EoDB) and globally ranks number 1 in the Greenfield FDI ranking.
- Apart from being a critical driver of economic growth, Foreign Direct Investment (FDI) **has been a major non-debt financial resource for the economic development of India.**
- Foreign companies invest in India to take **advantage of the relatively lower wages, special investment privileges like tax exemptions, etc.** When foreign investment is being made in India, it also helps the country achieve technical know-how and generate employment.
- The Government has taken many initiatives in recent years such as relaxing FDI norms across sectors such as defence, PSU oil refineries, telecom, power exchanges, and stock exchanges, among others.
- India **ranked 43rd on the Institute for Management Development's (IMD) annual World Competitiveness Index 2021.**
 - According to the IMD, India's developments in government efficiency are primarily due to relatively stable public finances (despite COVID-19-induced challenges), and optimistic sentiments among Indian business stakeholders concerning the funding, and subsidies offered by the government to private firms.

Market Size

India has recorded the highest ever annual FDI inflow of USD 83.57 billion in the Financial Year 2021-22.

- In 2014-2015, FDI inflow in India stood at 45.15 USD billion as compared to the highest ever annual FDI inflow of USD 83.57 billion reported during the financial year 2021-22.
- India's FDI inflows have increased 20-fold since FY03-04 when the inflows were USD 4.3 billion only.
- Total FDI inflow into India in the third quarter of FY22 stood at US\$ 17.93 billion, while the FDI equity inflow for the same period stood at US\$ 12.02 billion.

Sectors attracting the highest FDI

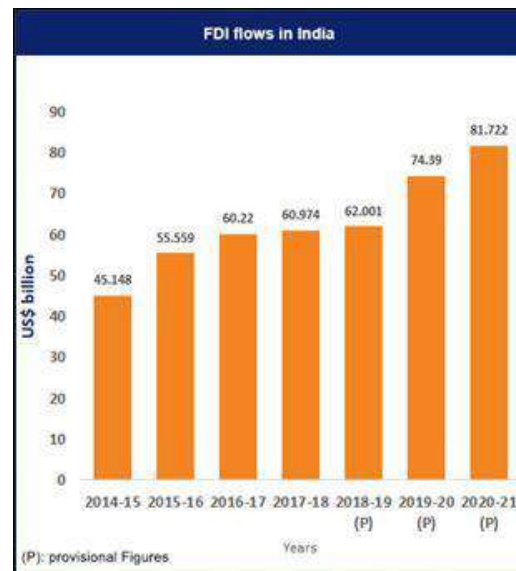
- Data between April-December 2021 indicates that the **computer software and hardware industry** attracted the highest FDI equity inflow of US\$ 10.25 billion, followed by the **automobile sector** at US\$ 5.96 billion, **services sector** at US\$ 5.35 billion, the **trading sector** at US\$ 2.99 billion, **construction activities** at US\$ 1.59 billion, and **drugs and pharmaceuticals** at US\$ 1.21 billion.

Top countries with the highest FDI equity inflow

- Between April-December 2021, **India recorded the highest FDI equity inflow from Singapore** (US\$ 11.69 billion), followed by the **US** (US\$ 7.52 billion), **Mauritius** (US\$ 6.58 billion), the **Cayman Islands** (US\$ 2.74 billion), the **Netherlands** (US\$ 2.66 billion), and the **UK** (US\$ 1.44 billion).

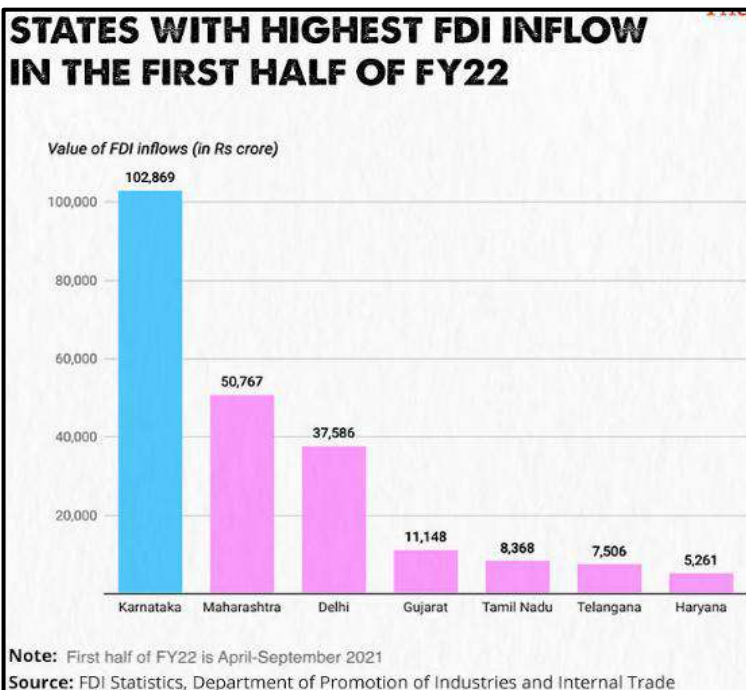
Top States with the highest FDI equity inflow

- Between April-December 2021 **Karnataka registered the highest FDI equity inflow** of US\$ 17.25 billion - 38 % Share, followed by **Maharashtra** (US\$ 9.69 billion), **Delhi** (US\$ 6.39 billion), **Tamil Nadu** (US\$ 2.38 billion), **Gujarat** (US\$ 2.06 billion), and **Haryana** (US\$ 2.03 billion).



Government Initiatives promoting FDI

- To boost domestic and foreign investments in India, the central government has taken various steps like – **Reducing corporate tax rates, easing NBFC and bank liquidity problems, improving the Ease of Doing Business, FDI policy reforms, compliance burden reduction, and policy measures to boost domestic manufacturing through public procurement orders, Phased Manufacturing Program (PMP), and various Ministries' Production Linked Incentives (PLI) schemes are among them.**
- The implementation of measures like **PM Gati Shakti, single window clearance and GIS-mapped land bank** is expected to push FDI inflows in 2022.
- To further liberalise and simplify FDI policy for providing Ease of doing business and attract investments, reforms have been undertaken recently across sectors such as **Coal Mining, Contract Manufacturing, Digital Media, Single Brand Retail Trading, Civil Aviation, Defence, and Insurance and Telecom.**
- The government has **amended the rules of the Foreign Exchange Management Act (FEMA), allowing up to 20% FDI in the insurance company LIC through the automatic route.** The Government of India is considering easing scrutiny on certain foreign direct investments from countries that share a border with India.
- In August 2021, the government **amended the Foreign Exchange Management (non-debt instruments) Rules, 2019, to allow the 74% increase in the FDI limit in the insurance sector.**
- In September 2021, the Union Cabinet announced that to boost the **telecom sector**, they'll allow **100% FDI via the automatic route in, up from the previous 49%.**
- In September 2021, **India and the UK** agreed to an investment boost to strengthen bilateral ties for an **'Enhanced Trade Partnership'.**



ETHANOL BLENDING**GS-III ECONOMY****Context**

- The Union Government has revised its 20% ethanol blending in petrol target by 2025-26 instead of 2030.

Details

- The **Union Government has advanced its target for achieving 20% ethanol blending in petrol by 5 years.**
- The Government has amended the National Biofuel Policy-2018 and has now set the new target for 2025-26 instead of 2030.

Biofuels

- Biofuels are **liquid or gaseous fuels primarily produced from biomass —that is, plant or algae material or animal waste.**
- Biofuels can be used to replace or can be used in addition to diesel, petrol or other fossil fuels for transport, stationary, portable and other applications.
- Ethanol and biodiesel are the two main transport biofuels. These fuels can be produced from a variety of biomass.

Categories of biofuels

- First-generation biofuels** - First-generation biofuels are made from sugar, starch, vegetable oil, or animal fats using conventional technology. Common first-generation biofuels include Bioalcohols, Biodiesel, Vegetable oil, Bioethers, and Biogas.
- Second-generation biofuels** - These are produced from non-food crops, such as cellulosic biofuels and waste biomass (stalks of wheat and corn, and wood). Examples include advanced biofuels like bio-hydrogen and bio-methanol.
- Third-generation biofuels** - These are produced from micro-organisms like algae.
- Fourth-generation biofuels** - These are produced from genetically modified (GM) algae to enhance biofuel production.

India's Biofuel Economy

- India is one of the fastest-growing economies and the third-largest consumer of primary energy in the world after the US and China.
- India's fuel energy security will remain vulnerable until alternative fuels are developed based on renewable feedstock.
- The government of India targets to reduce the country's carbon footprint by 30-35% by the year 2030.
- These targets will be **achieved through a five-pronged strategy which includes:**
 - Increasing domestic production
 - Adopting biofuels and renewable
 - Implementing energy efficiency norms
 - Improving refinery processes and
 - Achieving demand substitution.
- The government of India has proposed a target of **20% blending of ethanol in petrol and 5% blending of biodiesel in a diesel by 2030** and introduced **multiple initiatives to increase indigenous production of biofuels.**

Biodiesel and its benefits

- Bio-diesel is an **eco-friendly, alternative diesel fuel prepared from domestic renewable resources** vegetable oils (edible or non-edible oil) and animal fats.
- These natural oils and fats are primarily made up of triglycerides. These triglycerides when reacted chemically with lower alcohols in presence of a catalyst result in fatty acid esters. These esters show a striking similarity to petroleum-derived diesel and are called "Biodiesel".
- As India is deficient in edible oils, non-edible oil may be the material of choice for producing biodiesel. Examples are Jatropha curcas, Pongamia, Karanja, etc.

The benefits of using biodiesel are as follows:

- It reduces vehicle emissions** which makes it eco-friendly.
- It is made from renewable sources and can be prepared locally.**
- Increases engine performance** because it has higher cetane numbers as compared to petrol-diesel.
- It has excellent lubricity.**
- Increased safety in storage and transport** because the fuel is non-toxic and biodegradable.
- Production of biodiesel in India **will reduce dependence on foreign suppliers**, thus helpful in **price stability.**
- Reduction of greenhouse gases** at least by 3.3 kg CO₂ equivalent per kg of biodiesel.

Benefits of India's ethanol blending mandates include:

- **Reduce Import Dependency:** Will save Foreign Exchange (FOREX).
- **Cleaner Environment:** Reducing crop burning and converting agricultural residues/wastes to biofuels will further reduce greenhouse gas (GHG) emissions.
- **Health Benefits:** Prolonged reuse of cooking oil for preparing food, particularly in deep-frying, is a potential health hazard and can lead to many diseases. Used cooking oil (UCO) is a potential feedstock for biodiesel and its use for making biodiesel prevents the reuse of UCO within the food industry.
- **Solid Waste Management:** There are technologies available, which can convert solid waste and plastics to drop-in fuels.
- **Infrastructural Investment in Rural Areas:** Establishing additional 2G biorefineries across the country will spur infrastructural investment in rural areas.
- **Employment Generation:** 2G biorefinery can contribute 1200 jobs across plant operations, village level entrepreneurs and supply chain management.
- **Additional Income to Farmers:** By adopting 2G technologies, agricultural residues/wastes that otherwise are burnt can be converted to ethanol. Farmers can realise an additional revenue source if markets are developed for these residues/wastes.

National Policy on Biofuels - 2018

- The 'National Policy on Biofuels 2018' was notified by the Ministry of Petroleum and Natural Gas in 2018 in supersession of the National Policy on Biofuels, promulgated through the Ministry of New & Renewable Energy in 2009.
- It provided an indicative target of blending 20% ethanol in petrol by 2030.
- NITI Aayog's "Roadmap for Ethanol Blending in India 2020-25" report outlines the journey toward 20% ethanol blending in the country.

Way Forward

- The key tenets of India's Biofuel Policy are unique and forward-looking, with a clear focus on 2G feedstocks and land regeneration. However, in its desire to accelerate biofuel blending targets, the administration has redoubled its focus on food-grain based feedstock. Such a pivot has **significant negative implications in terms of lifecycle GHG emissions, water stress, ethanol pricing, and distortions to the agricultural supply chain – exacerbating unsustainable land-use practices without guaranteeing emissions reduction.**
- The GOI needs to **refocus on 2G production and 3 G production methods**, based on a clear roadmap and backed by policy and financial support.
- While this can delay biofuel blending targets by some years, it will not only **ensure a sustainable reduction in GHG emissions but also provide multiple economic and environmental co-benefits. A long-term, sustainable approach to biofuel production** can help India become a champion for the sustainable transport of biofuels.

GOODS AND SERVICES TAX

GS-III ECONOMY

Context

- India's GDP growth may have slowed to 3.5% in the fourth quarter of 2021-22, from 5.4% in the October to December 2021 quarter, rating agency ICRA has projected.

What is the GDP of a Country?

- **Gross Domestic Product (GDP) is the final monetary value of the goods and services produced within the country during a specified period**, normally a year.
- In simple terms, GDP is the measure of the country's economic output in a year. In India, contributions to GDP are mainly divided into three broad sectors – agriculture, industry, and services.
- **GDP is measured over market prices and there is a base year for the computation.** The GDP growth rate measures how fast the economy is growing. It does this by comparing the country's gross domestic product in one quarter with that in the previous one, and with the same quarter of the previous year.
- Thus, GDP is measured over specific time frames, such as a quarter or a year.
- GDP as an economic indicator is used worldwide to show the economic health of a country.
- For low-income or middle-income countries, high year-on-year GDP growth is essential to meet the growing needs of the population. Hence, the GDP growth rate of India is an essential indicator of the country's economic development and progress.
- Besides measuring the health of the economy and helping the government in framing policies, the GDP growth rate numbers are also useful for investors in better decision-making related to investments.
- Different countries have different methods to calculate GDP.

Components

- The GDP growth rate is driven by GDP's four components. The main driver is personal consumption, which includes the

critical sector of retail sales.

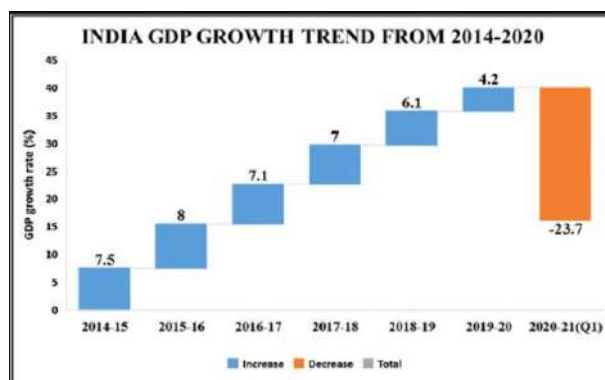
- The second component is **business investment, including construction and inventory levels.**
- The third is **government spending** whose largest categories are social security benefits, defence spending, and Medicare benefits.
- The government often increases spending to jump-start the economy during a recession. The fourth is net trade.
- When the economy is expanding, the GDP growth rate is positive. If the economy grows, so do businesses, jobs and personal income. If it contracts, then businesses hold off investing in new purchases.
 - They delay hiring new employees until they are confident that the economy will improve. Those delays further depress the economy.
 - Without jobs, consumers have less money to spend. If the GDP growth rate turns negative, the country's economy is said to be in a state of recession.
- The GDP growth rate is the most important indicator of economic health. **It changes during the four phases of the business cycle – peak, contraction, trough, and expansion.**

Nominal v/s Real

- **Nominal GDP is the value of all final goods and services that an economy produces during a given year; it is not adjusted for inflation.**
 - It is calculated by using the prices that are currently in the year in which the output is produced.
- Nominal GDP takes into account all of the changes that occurred for all goods and services produced during the year.
 - If prices change from one period to the next and the output does not change, the nominal GDP would change even though the output remained constant.
- **Real GDP, on the other hand, is the total value of all final goods and services that the economy produces during a given year, accounting for inflation.**
 - It is calculated using the prices of a selected base year.
- To calculate Real GDP, you must determine how much of GDP has been changed by inflation since the base year and divide out the inflation each year.
 - Real GDP, therefore, accounts for the fact that if prices change but the output doesn't, nominal GDP would change.
- **In January 2015, the government moved to the new base year of 2011-12 from the earlier the base year of 2004-05 for national accounts.** The base year of national accounts had previously been revised in January 2010.
- In the new series, the Central Statistics Office (CSO) did away with GDP at factor cost and adopted the international practice of valuing industry-wise estimates in gross value added (GVA) at basic prices.

How is GDP calculated in India?

- The **Central Statistical Office, or CSO, is responsible for compiling data for calculating GDP.**
- It aggregates the GDP data by coordinating with several federal and state-run agencies.
- Once the data collection process is completed, the task of calculating the GDP begins. There are two methods to arrive at the GDP number:
 - Known as GDP at factor cost, the first method looks at the economic activity.
 - The second method is the expenditure-based method (at market prices).
- Further, the nominal GDP is calculated using the current market price, and the real GDP is arrived at after adjusting for inflation.
- Among the four sets of GDP numbers, GDP at factor cost is the most commonly used figure and reported in the media.
- While the GDP at factor cost reveals which industry sector is doing well, the expenditure-based GDP is indicative of the status of different areas of the economy; how the trade is doing or whether investments are on the decline.



GDP can be measured by three methods, namely,

Output Method

- This measures the monetary or market value of all the goods and services produced within the borders of the country.
- To avoid a distorted measure of GDP due to price level changes, GDP at constant prices or real GDP is computed. GDP (as per output method) = Real GDP (GDP at constant prices) – Taxes + Subsidies.

Expenditure Method

- This measures the total expenditure incurred by all entities on goods and services within the domestic boundaries of a country.

- GDP (as per expenditure method) = C + I + G + (X-IM) C: Consumption expenditure, I: Investment expenditure, G: Government spending and (X-IM): Exports minus imports, that is, net exports.

Income Method

- It measures the total income earned by the factors of production, that is, labour and capital within the domestic boundaries of a country.
- GDP (as per income method) = GDP at factor cost + Taxes – Subsidies.
- The government releases quarterly GDP numbers every two months, and the final numbers for the whole year are issued on May 31.



RBI'S ANNUAL REPORT 2021

GS-III ECONOMY

Context

- Reserve Bank of India (RBI) released its first annual report **after it adopted an April-to-March cycle** for fiscal 2021-22.
- Annual Report's cover design, with a rupee symbol that looks suitably Covid-19 stressed (if not stricken), seemed to capture RBI's current challenge.

Highlights of the Report

- Headline inflation spiked** on repetitive supply shocks during the year. But there was a reversion to the target as shocks receded.

Headline inflation

It is the raw inflation figure reported through the Consumer Price Index (CPI) that is released monthly by the Bureau of Labour Statistics (BLS). The CPI calculates the cost to purchase a fixed basket of goods to determine how much inflation is occurring in the broad economy.

Headline inflation refers to the change in the value of all goods in the basket.

Core inflation excludes food and fuel items from headline inflation.

Since the prices of fuel and food items tend to fluctuate and create 'noise' in inflation computation, core inflation is less volatile than headline inflation. Headline inflation is more relevant for developing economies than for developed economies.

Read; <https://www.iasgyan.in/daily-current-affairs/inflation-29>

- The **monetary policy remained accommodative** for COVID recovery to take root. Monetary Policy remained vigilant so that inflation remains within the target going forward.

Accommodative monetary policy

When central banks expand the money supply to boost the economy. Measures taken are meant to make money less expensive to borrow and encourage more spending. Managing Inflation before focusing on growth in the sequence of priority.

- Sustained exports and revival in inbound remittances** led to the viability of the balance of payments. Net capital flows contributed to the **accumulation of foreign exchange reserves**.
- The world economy faced a brutal blow.
- Escalation of geopolitical tensions into war.
- Multiple waves of the pandemic.
- Supply chain and logistics disruptions.
- Elevated inflation and bouts of financial market turbulence due to diverging paths of monetary policy.
- Economic costs of the war and sanctions.
- Growth was uneven**. The velocity of money saw only a slight uptick, and India's 'credit gap', was still too weak to emerge from a slump that had haunted our economy since 2013-14.

Velocity of Money

The velocity of money is the **frequency at which one unit of currency is used to purchase domestically-produced goods and services within a given period**. In other words, it is the number of times one rupee is spent to buy goods and services per unit of time.

Credit gap

It is defined as the **difference between the addressable demand of funds in the market and the existing supply of funds in the economy**.

11. Indian economy is relatively better placed to strengthen the recovery that is underway and improve macroeconomic prospects going forward.
12. RBI is factoring in the emerging risks in the FinTech segment. The involvement of BigTechs in the Banking, financial services and insurance (BFSI) segment also brings along the systemic risks.
13. **RBI's Balance Sheet:**
 - At Rs 62 trillion at the end of 2021-22, it was up 51% from end-June 2019 and 5% over the past fiscal year. Some 72% of RBI's assets were held as foreign holdings plus gold (up by 65 tonnes to 760 tonnes).
 - Backed by this asset expansion, "Notes issued" went up by about Rs 10 trillion in 11 quarters and 10% over the past four – to Rs 31 t

Final Thought

- To handle various issues, the Reserve Bank's approach will have to **balance innovation with regulation**, without compromising on any of the principles of risk management.

WORLD OF WORK REPORT BY ILO

GS-III ECONOMY

Context

- Recovery in the global labour market is threatened by multiple and interlinked global crises, as well as increasing inequalities, according to the latest ILO ninth edition of the Monitor on the world of work.

Key findings of the report

- **Multiple global crises are causing a marked deterioration** in the global labour market recovery, with increasing inequalities within and between countries.
- After the significant gains during the last quarter of 2021, the number of hours worked globally dropped in the first quarter of 2022, to 3.8% below the pre-crisis benchmark (fourth quarter of 2019).
- **Multiple new and interconnected global crises**, including inflation (especially in energy and food prices), financial turbulence, potential debt distress, and global supply chain disruption – exacerbated by war in Ukraine – means there is a growing risk of a further deterioration in hours worked in 2022, as well as a broader impact on global labour markets in the months to come.
- While **high-income countries experienced a recovery in hours worked**, **low- and lower-middle-income economies suffered setbacks** in the first quarter of the year with a 3.6 and 5.7 % gap respectively when compared to the pre-crisis benchmark. These diverging trends are likely to worsen in the second quarter of 2022.
- In some developing countries, governments are increasingly constrained by the **lack of fiscal space and debt sustainability challenges**, while enterprises face economic and financial uncertainties and workers continue to be left without sufficient access to social protection.
- 30-60% of workers – 5 cr people – who lost jobs during the lockdown have not joined any work.

About ILO

- It was created in **1919, as part of the Treaty of Versailles that ended World War I**, to reflect the belief that universal and lasting peace can be accomplished only if it is based on social justice.
- The organization has played a role at key historical junctures – the Great Depression, decolonization, the creation of Solidarność in Poland, the victory over apartheid in South Africa – and today in the building of an ethical and productive framework for fair globalization.
- The driving forces for the **ILO's creation arose from security, humanitarian, political and economic considerations**.
- It is the **only tripartite U.N. agency**.
- It brings together governments, employers and workers of 187 member States, to set labour standards, develop policies and devise programmes promoting decent work for all women and men.
- Its headquarters are in Geneva, Switzerland.

VENUS MISSION

GS-III SCIENCE & TECHNOLOGY

Context

- The Venus mission is back in the news as ISRO organized a one-day online meeting on Venus science, with the theme 'Outstanding Scientific Problems on Venus: Need for Space-based Studies'.

Details

- Recently, ISRO has announced that it is expecting to launch the Venus mission by December 2024.

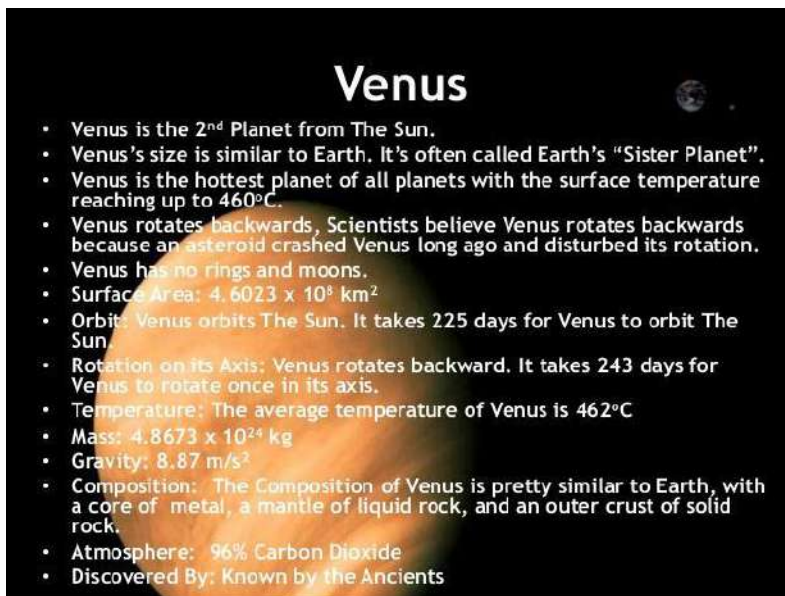
Aim and Objective

- To study the Venusian atmosphere, which is toxic and corrosive in nature as clouds of sulfuric acid cover the planet.
- Investigate the surface processes and shallow sub-surface stratigraphy, including active volcanic hotspots and lava flows, studying the structure, composition, and dynamics of the atmosphere, and investigation of solar wind interaction with the Venusian Ionosphere.

Note: Stratigraphy is a branch of geology in which rock layers and layering are studied.

Significance

- No prior observation of the sub-surface of Venus has been done.
- ISRO will be flying the sub-surface radar for the first time.
- It will penetrate the sub-surface of Venus up to a few hundred meters.



MARSQUAKES AND INSIGHT MISSION

GS-III SCIENCE & TECHNOLOGY

Context

- Recently, NASA's InSight lander detected a quake on Mars, the largest ever observed on another planet.

What are marsquakes, and why do they happen?

- On Earth, quakes are caused by shifts in tectonic plates. Mars, however, does not have tectonic plates, and its crust is a giant plate. Therefore, NASA notes, 'marsquakes' are caused due to stresses that cause rock fractures or faults in its crust.

InSight mission

- NASA's Interior Exploration using Seismic Investigations, Geodesy and Heat Transport (InSight) mission is a robotic lander designed to study the deep interior of the planet Mars.

Objectives of the InSight mission

- Its objectives are to place a seismometer, called Seismic Experiment for Interior Structure (SEIS), on the surface of Mars to measure seismic activity & provide accurate 3D models of the planet's interior; measure internal heat transfer to study Mars' early geological evolution.
- The InSight mission seeks to uncover how a rocky body forms and evolves to become a planet by investigating the interior structure and composition of Mars. The mission will also determine the rate of Martian tectonic activity and meteorite impacts.

Significance

- This could bring a new understanding of how the Solar System's terrestrial planets – Mercury, Venus, Earth, Mars – and Earth's Moon form and evolve.
- The Mission is important because Earth and Mars used to be similar – warm, wet and shrouded in thick atmospheres – before they took different paths 3-4 billion years ago. Mars stopped changing, while Earth continued to evolve.

- With InSight, scientists hope to compare Earth and Mars, and better understand how a planet's starting materials make it more or less likely to support life.

NATIONAL TECHNOLOGY DAY

GS-III SCIENCE & TECHNOLOGY

Context

- Prime Minister Narendra Modi expressed his “gratitude” towards the scientists and their “efforts” that led to the “successful Pokhran tests in 1998” on the occasion of National Technology Day.

About

- National Technology Day is celebrated on May 11 every year to honour the contributions of India's scientific community including scientists, researchers and engineers. It marks the anniversary of the Pokhran nuclear tests of 1998.
- On May 11, 1998, India broke into the small group of countries that hold nuclear weapons. On that day, India successfully carried out nuclear tests at the army's Pokhran test range in Rajasthan. In doing so, India became the sixth country to join the 'Nuclear Club'.
- The tests were the second instance of nuclear testing in India after the first, code-named “Smiling Buddha”, in 1974.
- On the same day in 1998, India tested its first indigenous aircraft Hansa-3 which took flight in Bengaluru.
- The aircraft was meant for surveillance, pilot training, and other reconnaissance purposes. The day also saw the successful test firing of the surface-to-air missile Trishul.
- With multiple technological advancements accomplished on the same day, the Indian government declared May 11 as National Technology Day. It was officially signed by then-Prime Minister Atal Bihari Vajpayee. The first National Technology Day was observed in 1999.
- Since then, the Technology Development Board (TDB)—a statutory body within the Department of Science and Technology at the Centre—has been celebrating the day by honouring technological innovations that have added to the national growth.
- Each year the Board organizes an event where the President of India confers awards to scientists for their contributions.
- The Board also decides a theme for National Technology Day each year. The theme for 2022 is “Integrated Approach in Science & Technology for Sustainable Future”.

HUMAN CELL ATLAS

GS-III SCIENCE & TECHNOLOGY

Context

- Scientists have mapped out more than a million cells across 33 organs in the human body, a new report showed.

Human Cell Atlas

- The Human Cell Atlas (HCA) is an international group of researchers using a combination of new technologies to create cellular reference maps with the position, function and characteristics of every cell type in the human body.
- The international Human Cell Atlas Consortium was co-founded in 2016 by Broad Institute of MIT and Harvard (USA), and Wellcome Sanger Institute (UK). Together they organized a launch event in London, which brought together a collaborative community of approximately 100 world-leading scientists, to discuss how to build a Human Cell Atlas. Since then, the global initiative has grown to encompass more than 2,300 members from over 83 countries around the world.

Objectives of the Atlas

A human cell atlas will

- Catalog all cell types (for example, immune cells or brain cells) and sub-types in the human body.
- Map cell types to their location within tissues and within the body, and see the architecture of each tissue.
- Identify cell states (for example, a naive immune cell that has not yet encountered a pathogen compared to the same immune cell type after it is activated by encountering a bacterium; other examples include different proliferation states).
- Trace the developmental trajectories of cells, such as from a predecessor stem cell in bone marrow to a functional red blood cell.
- Reveal the cells and processes involved during development through to adulthood.
- Provide an openly available, globally representative resource that will allow researchers worldwide to study and understand health and disease.

Contribution

- The Human Cell Atlas is already having immediate, tangible, and transformative benefits including across many diseases.

- This is also notable in the HCA community's contributions to COVID-19 research. HCA Researchers have identified cells susceptible to infection, developed an understanding of how the SARS-CoV-2 virus attacks cells throughout the body, described mechanisms in severe disease, distinguished the immune responses of adults and children, and much more.

Significance of HCA

The Human Cell Atlas is likely to impact almost every aspect of biology and medicine, leading to a richer understanding of life's most fundamental units and principles. Some examples of what a cell atlas is helping scientists and physicians do:

- Provide a reference map for comparing related cells and identifying new cell types, states (behaviors), and how cells transition among them.
- Help interpret genetic variants associated with disease risk or human traits by determining the cells in which such genes are acting.
- Distinguish how cells behave differently in disease and health.
- Serve as the basis for new medical diagnostic tests by identifying new, more fine-grained characteristics linked to health or disease.
- Provide a direct view of human biology in the organism, removing the distorting aspects of cell culture and facilitating better comparison with current animal and other models and analysis of legacy data.
- Discover targets for therapeutic intervention, and
- Drive the development of new technologies and advanced analysis techniques.

Aiming to map every cell type in the human body, the Human Cell Atlas (HCA) will transform our understanding of biology and disease, and could lead to major advances in the way illnesses are diagnosed and treated.

AI CHIPS

GS-III SCIENCE & TECHNOLOGY

Context

- The use of AI chips for NLP applications has increased due to the rise in demand for chatbots and online channels such as Messenger, Slack, and others that use NLP to analyse user messages and conversational logic.

Chip

- A microchip (also called a chip, a computer chip, an integrated circuit or IC) is a set of electronic circuits on a small flat piece of silicon. On the chip, transistors act as miniature electrical switches that can turn a current on or off.
- Microchips store computer memory or provide logic circuitry for microprocessors.
- It has electronic circuits on it and **can hold large quantities of information or perform mathematical and logical operations.**

AI chips

- AI chips (also called AI hardware or AI accelerator) are **specifically designed accelerators for artificial neural network (ANN) based applications.** Most commercial ANN applications are deep learning applications.
- ANN is a subfield of artificial intelligence. ANN is a machine learning approach inspired by the human brain. It includes layers of artificial neurons which are mathematical functions inspired by how human neurons work.
- Thus, 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.

Read More: <https://www.iasgyan.in/blogs/basics-of-artificial-intelligence>

What are its components?

- The hardware infrastructure of an AI chip consists of three parts: **computing, storage and networking.**
- These chips, with their hardware architectures and complementary packaging, memory, storage and interconnect technologies, make it possible to infuse AI into a broad spectrum of applications to **help turn data into information and then into knowledge.**

There are different types of AI chips such as:

1. Application-specific integrated circuits (ASICs),
2. Field-programmable gate arrays (FPGAs),
3. Central processing units (CPUs) and
4. GPUs, designed for diverse AI applications.

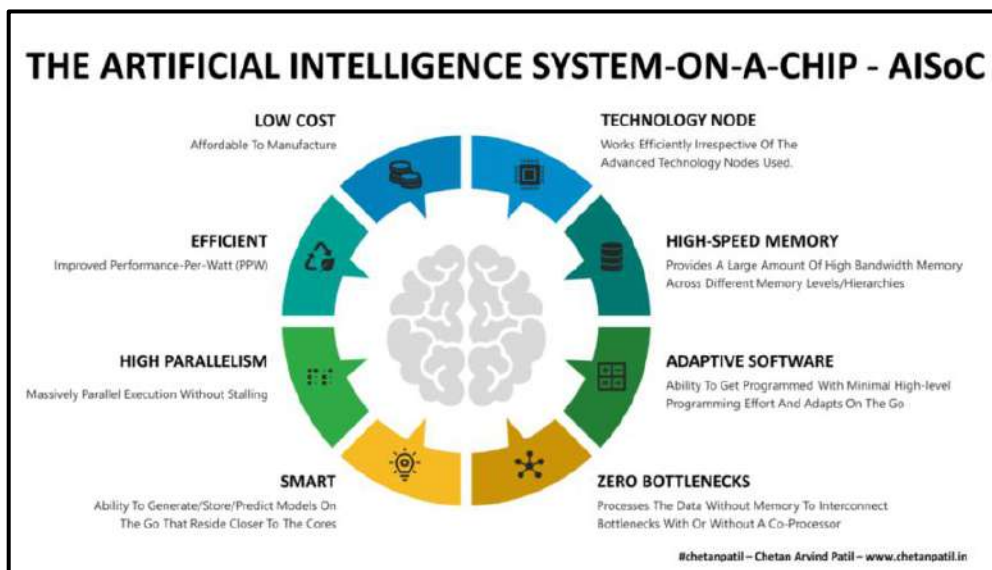
Why are AI chips higher performing than general purpose chips?

- General purpose hardware uses arithmetic blocks for basic in-memory calculations. The serial processing does not give sufficient performance for deep learning techniques.

1. Neural networks need many parallel/simple arithmetic operations
2. Powerful general purpose chips cannot support a high number of simple, simultaneous operations.
3. AI optimized HW includes numerous less powerful chips which enables parallel processing.

The AI accelerators bring the following advantages over using general purpose hardware:

- **Faster computation:** Artificial intelligence applications typically require parallel computational capabilities in order to run sophisticated training models and algorithms. AI hardware provides more parallel processing capability that is estimated to have up to 10 times more competing power in ANN applications compared to traditional semiconductor devices at similar price points.
- **High bandwidth memory:** Specialized AI hardware is estimated to allocate 4-5 times more bandwidth than traditional chips. This is necessary because due to the need for parallel processing, AI applications require significantly more bandwidth between processors for efficient performance.



Example of Few Applications

- Monitoring a system or area from threats like a security system involving real time facial recognition (IP cams, door cameras, etc.).
- Chatbots for retail or businesses that interact with customers.
- Natural language processing for voice assistants.

PARAM PORUL SUPERCOMPUTER

GS-III SCIENCE & TECHNOLOGY

Context

- Recently, PARAM PORUL Supercomputer was inaugurated at NIT, Tiruchirappalli. PARAM PORUL supercomputing facility is established under Phase 2 of the National Supercomputing Mission (NSM).

PARAM PORUL

Technology

- PARAM PORUL system is based on **Direct Contact Liquid Cooling technology** to obtain high power usage effectiveness. This also helps in reducing the operational cost.

Direct Liquid Cooling (DLC) uses the **exceptional thermal conductivity of liquid to provide dense, concentrated cooling to targeted areas**. By using DLC and warm water, the dependence on fans and expensive air handling systems is drastically reduced.

Benefits

- It will **strengthen research in the field of supercomputing**.
- It will also **aid researchers to solve large-scale problems** in different areas of Science and Engineering.
- A major boost to research & development initiatives in Indian academia & industries to reach a position of global esteem.
- It has multiple applications from various scientific domains: **Weather and Climate, Bioinformatics, Computational Chemistry, Molecular Dynamics, Material Sciences, Computational Fluid Dynamics, etc.**

Supercomputer

- A supercomputer is a computer with a high level of performance as compared to a general-purpose. It has a **power to execute many processes simultaneously** on thousand of processors. These types of processors **can execute billions and trillion of instructions per seconds**.

- The performance of a supercomputer is commonly **measured in floating-point operations per second (FLOPS)** instead of million instructions per second (MIPS). Supercomputers were started in 1960s.

National Supercomputing Mission

- Launch:** The National Supercomputing Mission was **launched in 2015** for over a period of seven years.
- Development:** Jointly steered by the Dept. of Science and Technology (DST) & Ministry of Electronics and Information Technology (MeitY).
- Implementation:** By the Centre for Development of Advanced Computing (C-DAC), Pune, and the Indian Institute of Science (IISc)
- Aim:** To connect R&D institutions and academic institutions in the country using a supercomputing grid with more than 70 high performance computing facilities.
- Objective:** To make India one of the world leaders in Supercomputing and to enhance India's capability in solving grand challenge problems of national and global relevance.

Supercomputers in India

- India's fastest supercomputer PARAM Siddhi-AI ranked 63rd among top 500 most powerful non-distributed computer systems in the world. Some other supercomputers of India are **Cray XC40-based Pratyush, Mihir, Param Shivay** etc.
- By 2022, the government aims to install 73 indigenous supercomputers across the country.

Trivia

- The **Fugaku supercomputer** located at RIKEN Centre for Computational Science in Kobe, Japan is **the world's fastest supercomputer**.
- The fastest Indian supercomputer developed by ISRO is **SAGA-220**.
- PARAM Padma was the first Indian machine** ranked on a worldwide supercomputer list.

PARAM SERIES

PARAM is a series of supercomputers designed and assembled by the **Centre for Development of Advanced Computing (C-DAC)** in Pune. (Started in 1987 1987).PARAM means "supreme" in the Sanskrit language, whilst also creating an acronym for "PARAllel Machine".

The fastest machine in the series is the PARAM Siddhi AI which ranks 89th in world with an Rpeak of 5.267 petaflops.

PARAM 8000: The first machine built from scratch unveiled in 1991; **PARAM 8600; PARAM 9000; PARAM 10000; PARAM Padma: The first Indian supercomputer to enter the Top500 list of supercomputers in the world, it ranked 171 in June 2003; PARAM Yuva; Param Yuva II; PARAM ISHAN; PARAM Brahma; PARAM Siddhi-AI.**

Supercomputers under the National Supercomputing Mission: PARAM Shivay; PARAM Sanganak; PARAM Pravega; PARAM PORUL.

Read: <https://www.iasgyan.in/daily-current-affairs/supercomputers-14>

MAGNETRON TECHNOLOGY

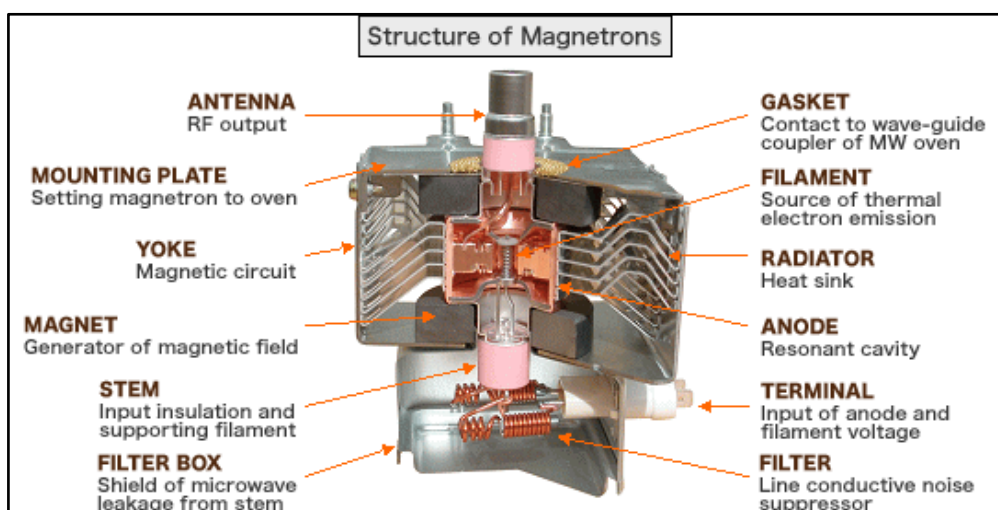
GS-III SCIENCE & TECHNOLOGY

Context

- The government is supporting the indigenous development of high-powered Magnetron technology used mainly for cancer radiation therapy.

Magnetrons

- Magnetron is a **type of vacuum tube which generates signals of the microwave frequency range**, with the help of interactions of a magnetic field and electron beams.



Working Principle and Application

- Magnetron works on a principle of **crossed-field device, which uses the motion of electrons in perpendicular electric and magnetic fields to generate microwave radiation**, used for generating RF Power Source in Linear Accelerator for Medical, NDT & other allied applications.
- Applications for magnetrons include **radar, microwave ovens, and lighting systems**. In radar devices, magnetrons use very short pulses of applied voltage. In microwave ovens, a waveguide leads to a port in the cooking chamber. In lighting systems, such as Sulphur lamps and metal halide lamps, magnetrons also produce a microwave field.

Siddharth II

- It is a **High-powered Magnetron** developed by CSIR-CEERI (Central Electronics Engineering Research Institute), Pilani for commercial use.
- It is a path breaking technology for Oncologists as it **can treat even 2 mm diameter brain tumour with precision radiation** with very little side-effects.
- India's first and most advanced & innovative SBRT enabled Linear Accelerator (LINAC), Siddharth II, is **capable of performing treatment modalities like 3DCRT, VMAT, IMRT, SBRT etc.**

VMAT (Volumetric Modulated Arc Therapy): focuses the radiation on the tumor while protecting healthy tissues.

Intensity-modulated radiation therapy (IMRT) is an advanced type of radiation therapy used to treat cancer and noncancerous tumors.

Stereotactic body radiation therapy, or SBRT, is a cancer treatment that delivers extremely precise, very intense doses of radiation to cancer cells while minimizing damage to healthy tissue.

Significance

- Magnetron holds a huge demand globally, as it is essential for all types of linear accelerators, industrial heating equipment, radar systems, medical applications, NDT & other industries. **England and Japan hold around 80% - 90% of the global market.**
- Currently, our economy is dependent on use of imported magnetron in various applications related to NDT, radar & other industrial applications in addition to medical applications. This technology can be further extended for other applications ensuring **seamless supply of RF source to Medical LINAC Manufacturers across the globe.**
- This machine also fulfils the Prime Minister's mantra of **"Make in India" with "Make for the World"**, as the machine can be exported to many countries in the world.

Trivia: Currently, India is the fourth largest medical devices market in Asia, after Japan, China and South Korea and positioned 20th in the global market.

TRUE RANDOM NUMBER GENERATOR (TRNG)

GS-III SCIENCE & TECHNOLOGY

Context

- Indian Institute of Science (IISc) has developed a **"True Random Number Generator (TRNG)"**, which, can improve data encryption and provide improved security for sensitive digital data such as credit card details, passwords, and other personal information.

What is a TRNG

- A TRNG is a **function or device** based on an unpredictable physical phenomenon, called an entropy source that **is designed to generate non-deterministic data (e.g., a succession of numbers) to seed security algorithms.**
- Connected devices are becoming part of everyday life and we expect them to operate correctly while protecting business and personal information.
- Encrypted information can be decoded only by authorized users who have access to a cryptographic 'key'. But the **key needs to be unpredictable and, therefore, randomly generated to resist hacking.**
- Cryptographic keys are typically generated in computers using pseudorandom number generators, which rely on mathematical formulae or pre-programmed tables to produce numbers that appear random but are not.
- Instead TRNGs are at the **base of securing these devices** as they are used to create and protect secrets and other sensitive information. They are **part of a "chain of trust"** that needs to be established starting with the security operations center (SOC), moving to the application layers and communication to the cloud.
- A TRNG extracts random numbers from inherently random physical processes, making it more secure.

- Predictable random number generators (RNGs) open doors to many possible attacks that can hack devices and compromise data.

- **To be effective, random numbers must be unpredictable, statistically independent** (unrelated to any previously generated random numbers), uniformly distributed (equal probability for any number to be generated) and protected.

True random numbers are crucial for security.

- True random numbers are used for applications such as gaming, gambling, and in cryptography, where randomness is critically important.
- The strength of this encryption depends on the quality of random number generation.
- For example, many cryptographic algorithms and security protocols depend on keys and their strength is defined by the number of key bits that an attacker needs to determine before breaking a system. If keys are compromised, the security strength of the whole system is compromised.

- In IISc's TRNG device, random numbers are generated using the random motion of electrons.
- It consists of an artificial electron trap constructed by stacking atomically-thin layers of materials like black phosphorus and graphene.
- The current measured from the TRNG device increases when an electron is trapped, and decreases when it is released.
- Since electrons move in and out of the trap in a random manner, the measured current also changes randomly. The timing of this change determines the generated random number.
- It cannot be predicted exactly at what time the electron is going to enter the trap. So, there is an inherent randomness that is embedded in this process.

- Min-entropy is a parameter used to measure the performance of TRNGs. Its value ranges from 0 [completely predictable] to 1 [completely random]. IISc's newly developed TRNG device showed **a record-high min-entropy of 0.98**.

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2022

TEST DATES

Mock	Topic	Date	Time
MOCK 01	ESSAY	18 AUGUST 2022	9 AM to 12 PM
MOCK 02	GS-I	19 AUGUST 2022	9 AM to 12 PM
MOCK 03	GS-II	19 AUGUST 2022	2 PM to 5 PM
MOCK 01	GS-III	20 AUGUST 2022	9 AM to 12 PM
MOCK 01	GS-IV	20 AUGUST 2022	2 PM to 5 PM

POLICE REFORMS IN INDIA

GS-III SECURITY & DEFENSE

Context

- The Vice President of India has released a book titled "The Struggle for Police Reforms in India" written by a former IPS officer, Shri Prakash Singh.

Details

- The Vice President of India on the occasion has highlighted that "a progressive, modern India must have a police force which meets the democratic aspirations of the people" and called for implementing reforms in the police forces.
- He stressed the need to upgrade the skills of policemen to effectively tackle 21st-century crimes such as cybercrimes and economic offences which require special investigative expertise due to their sophisticated and often transboundary nature.
- He suggested filling up the huge number of vacancies in police departments and strengthening the police infrastructure in tune with the requirements of modern age policing.
 - He called for particularly strengthening the police force at the grassroots.
 - Stressing that the behaviour of policemen towards the common man should be friendly.
- He said that the attitude of the police must be open-minded, sensitive and receptive to each citizen's concerns.

Far too many reform committee reports remain unimplemented

Over three decades, the National Police Commission and various committees including Ribeiro, Padmanabhaiah and Malimath have urged radical reorganisation of the police force. Despite agreement on the following recommendations made by these committees, most reforms have not been implemented.

Mitigating political interference

The threat of transfer/suspension is the most potent weapon in the hands of politicians. Most committees have recommended states to set up mechanisms to assure fixed tenures and merit-based promotions for police officers.

Separating investigation from L&O

The investigating wing should be separated from law and order functions and officers should be specially trained in modern investigative techniques. Every sub-division should also possess a mobile forensic science laboratory.

Registering all offences

It should be made mandatory for police officers to register all crimes that are reported to them. They should register an FIR even if a given crime does not occur in their jurisdiction and then transfer it to the concerned station.

Complaints against Police

Judicial inquiries should be made mandatory for any alleged incident of rape, grievous hurt or death in police custody, and in cases where two or more persons die during police firing against unlawful assemblies.

Preventing police torture

Training institutes should impart scientific interrogation techniques to replace third degree methods. Senior officers should also pay surprise visits to various stations to identify cases of ill treatment of arrested persons.

Recording of statements

Instead of recording statements given by witnesses in detail, the investigating officer can record the facts revealed by a witness in his own language. A copy of the same should then be handed over to the witness.

Dealing with the weaker sections

Special investigation cells should monitor cases of atrocities against SC/ST and women. This should be combined with special measures to reverse the frequent failure of police to register complaints against upper castes.

Targeting recruitment of women

Only 1.79% of the police force comprises of women. They should be recruited in much larger numbers, made an integral part of the police organisation, and used to deal with crimes against women and children.

Abiding by the Supreme Court

In its judgement of September 2006 the SC had directed state governments to implement police reform without delay. The governments' reservations were dismissed by its January 2007 order. They have to comply by March 31.

Concern

- Indian police force works at only 77% of its sanctioned strength.
- Low People to Police Ratio.
- Lack of Sensitisation of Police Personnel.
- Absence of accountability.
- The politicisation of the Police.
- Losing Public Confidence.
- Existing police personnel are also not adequately trained.

2nd ARC Report on Public Order

- Crime Investigation should be separated from other Policing functions.
- Crime Investigation Agency should be constituted in each State, having full autonomy in matters of investigation and having a minimum tenure.
- Appropriate mechanisms should be developed to ensure Coordination between Investigation, Forensic and Law and Order Agencies, at the Local, District and State levels.
- State Police Performance and Accountability Commission Should be constituted.
- State Police Establishment Committee Should be Set up to deal with all matters of Postings and transfers, Promotions.
- All officers and Staff Should have a minimum tenure of 3 years.
- Municipal Police Service in Metropolitan Cities has a population of more than one million.
- Non-Core Police functions could be outsourced to other agencies.
- Motivate Persons from different Sections of Society to Join Police Service.

- **Rational working hours, Welfare measures for Police Personnel** in the form of improved working conditions, better education facilities for their children, and Social Security measures during Service, as well as Post-retirement.
- A **District Police Complaints Authority** should be Constituted to enquire into allegations against the Police within the district.
- **Need to expand the forensic facilities** and upgrade them technologically. Every district or a group of districts has a forensic laboratory.
 - The syllabus of Forensic Science Should be Continuously upgraded in line with international trends.

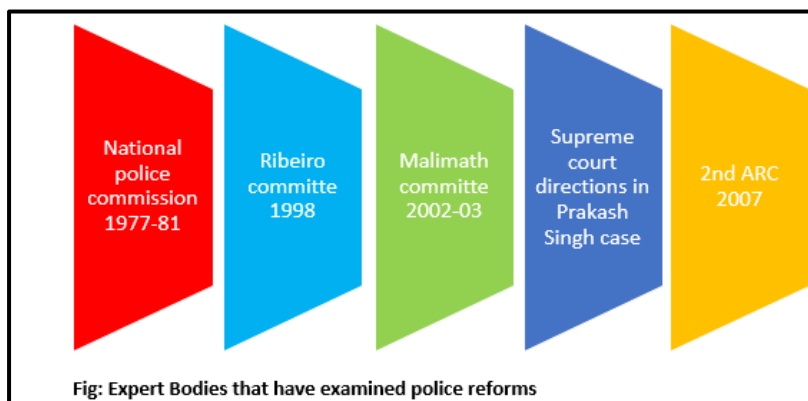


Fig: Expert Bodies that have examined police reforms

- Intelligence agencies should develop multi-disciplinary Capability by utilising the Services of experts. Training should focus on **bringing in attitudinal Change** in Police So that they become more responsive and sensitive to Citizens' needs.
- **All training Programmes should include a module on gender and human rights.** Training Programmes Should Sensitise the Police towards the Weaker Sections. Representation of women in Police at all levels should be increased.
- As far as Possible the deployment of Police Personnel in Police Stations with a significant proportion of religious and linguistic minorities should be in proportion to the population of such Communities within the local jurisdiction of such police stations.
- The administration should be responsive, transparent, vigilant and fair in dealing with all sections of society.
 - Public agencies should follow a zero-tolerance strategy in dealing with violations of laws

Directions of the Supreme Court in Prakash Singh vs Union of India

- Constitute a **State Security Commission in every state that will lay down policy for police functioning**, evaluate police performance, and ensure that state governments do not exercise unwarranted influence on the police.
- Constitute a **Police Establishment Board in every state that will decide postings, transfers and promotions for officers** below the rank of Deputy Superintendent of Police, and make recommendations to the state government for officers of higher ranks.
- **Constitute Police Complaints Authorities** at the state and district levels to inquire into allegations of serious misconduct and abuse of power by police personnel.
- Provide a **minimum tenure of at least two years** for the DGP and other key police officers within the state forces
- Ensure that the DGP of state police is appointed from amongst three senior-most officers based on length of service, good record and experience.
- **Separate the investigating police from the law and order police.**
- Constitute a National Security Commission to shortlist the candidates for appointment as Chiefs of the central armed police forces.

Way Forward

- In a well-ordered democracy, Police are supposed to be a disciplined force trained to uphold the law and enforce the functioning of democracy on Constitutional lines.
- Periodic review of the performance of the police force.
- **Police need to be sensitised about their role in society**, decency of behaviour, trained in body language and strictly advised to refrain from abusive behaviour, attitudinal change, and Police behaviour.
- It is necessary to increase public confidence in the police by upgrading levels of police service delivery. Enhancing accountability will improve police legitimacy and increase public confidence, which, in turn, will reinforce the integrity of the system.
- **The police-to-people ratio should be improved**; Women are grossly under-represented in our police force. They constitute less than 7% of total police strength and need to recruit more and more women police personnel.
- **Efficient, accountable and people-centric police that steadfastly uphold the Rule of Law in all situations.**
- Police forces need to be well-equipped, in terms of personnel, weaponry, forensic, communication and transport support, to perform their role well.
- They need to have the operational freedom to carry out their responsibilities professionally and in satisfactory working conditions while being held accountable for poor performance or misuse of power.

NATIONAL INTELLIGENCE GRID (NATGRID)

GS-III SECURITY & DEFENSE

Context

- The **National Intelligence Grid (NATGRID) campus in Bengaluru** was launched by Union Minister for Home and Cooperation Amit Shah.
- 11 central agencies and police departments from all states and union territories will be able to use the NATGRID technology.
- It will **connect user agencies with data owners, allowing them to access real-time data** for intelligence and investigative purposes.
- The Minister has also stated that the **Union government will develop a national database to monitor** hawala transactions, terrorist funding, counterfeit currency, narcotics, bomb threats, illegal arms smuggling and other terrorist activities.

About NATGRID

- After the **Mumbai terrorist assault in 2009**, the project was launched with a **budget of Rs. 2,800 crores**.
- The terrorist attack on Mumbai on November 26, 2008, revealed the fact that security services lacked a method to search for important intelligence in real-time.
- It is envisioned as a unified and secure database for information on terrorists, financial crimes, and other situations that will aid India's capacities.
- With real-time data and access to secret information like **immigration, banking, individual taxes, aviation and rail travel**, it is envisioned as a **powerful method to follow suspects and prevent terrorist strikes**.

What are the mandate and features?

- It is **required by law to gather and combine a variety of data from government databases**, including tax and bank account information, credit card transactions, visa and immigration records, rail and air travel itineraries, and so on.
- It's an **online database for bringing disparate bits of information together on a single platform**.
- It connects intelligence and investigative agencies and is excluded from the Right to Information Act of 2005 under Section 24(2).
- It will use **Big Data and data analytics technology** to study and analyse massive volumes of data from various intelligence and law enforcement organisations to assist in the tracking of suspects in various situations as needed.
- It plans to implement an **EVA (Entity Extraction, Visualisation, and Analytics) system**.

WOMEN IN COMBAT ROLE

GS-III SECURITY & DEFENSE

In News

- Captain Abhilasha Barak from Haryana becomes the Indian Army's first woman combat aviator.
- In 2018, she joined the Indian Army from the Officers Training Academy, Chennai.
- She was selected as a Contingent Commander for Presentation of Colours to Army Air Defence by President Ram Nath Kovind.

Women in the Indian Armed Forces

- The Indian Army allowed women officers in non-medical roles in 1992.
- In 2007, the United Nations (UN)' first all-female peacekeeping force made up of 105 Indian policewomen was deployed to Liberia (a Country in West Africa).
- Females are not allowed to serve in warfare units like the Infantry, the Armoured Corps and Mechanized infantry.

Concerns

- Physical differences** make women more vulnerable to certain types of injuries and medical problems.
- The **biological processes of menstruation and pregnancy** make women vulnerable during combat situations.
- Lack of privacy and sanitation** can increase the risk of genitourinary infections.
- Women are more attached to their families, particularly their children. This results in greater mental stress.
- Mental stress in women due to isolation, a low number of women in the military.

Way Forward

- Women can be trained as military police jawans, and then, they can be trained for combat.
- For protecting female jawans' dignity, there should be codes of conduct for all.
- It is the **responsibility of the government to create both administrative and social infrastructure for the easy entry of women**.
- Society and Government have to accept that women can also play a crucial role in confronting the enemies.

STATE OF WORLD'S FOREST REPORT 2022

GS-III ENVIRONMENT & ECOLOGY

Context

- The United Nations Food and Agriculture (FAO) has released the State of the World's Forests 2022.

Details

- The State of the World's Forests report is published bi-annually by UN Food and Agriculture (FAO).
- For achieving green recovery and tackling multidimensional planetary crises, including climate change and biodiversity loss, this year the report highlighted the 3 ways;
 - Stopping deforestation and maintaining forests.
 - Restoring degraded lands and expanding agro-forestry.
 - Sustainably using forests and building green value chains.

Highlights of the Report

- Nearly 420 million hectares of forests have been lost between 1990 and 2020, due to deforestation.
- The rate of deforestation was declining.
- 15% of 250 emerging infectious diseases have been linked to the loss of forests.
 - Example: Covid-19, Drug-resistant infections (Antimicrobials), Zika Virus, etc.
- Approximately 124 million more people fell into extreme poverty after Covid-19 and this may promote the use of wood-based fuel (such as firewood, and charcoal) due to the increase in the price of LPG.
- The world population is projected to reach nearly 9.7 billion people by 2050, and the demand for food for this large population will rise by 35 to 56% by the 2050s.
- Demand for forest-based biomass is expected to rise further, mainly due to construction and packaging.
- "More than 140 countries have pledged, through the Glasgow Leaders' Declaration on Forests and Land Use, to eliminate forest loss by 2030 and to support restoration and sustainable forestry".

India State of Forest Report 2021

- The Ministry of Environment, Forests and Climate Change (MoEFCC) has released the India State of Forest Report (ISFR) 2021.
- The biennial report by the Forest Survey of India (FSI) is an assessment of the country's forest resources.
- India's forest and tree cover has risen by 2,261 square kilometres in the last two years with Andhra Pradesh growing the maximum forest cover of 647 square kilometres.
- The total tree-and-forest cover in the country includes an increase of 1,540 square kilometres of forest cover and 721 sq km of tree cover compared to the 2019 report.
- The current forest cover of India is 7,13,789 square kilometres (21.71% of the total geographical area).
- India's total forest and tree cover is now spread across 80.9 million hectares, which is 24.62% of the geographical area of the country.
- The top five states in terms of increase in forest cover are Andhra Pradesh (647 sq km), Telangana (632 sq km), Odisha (537 sq km), and Karnataka (155 sq km) and Jharkhand (110 sq km).
- The gain in forest cover or improvement in forest canopy density may be attributed to better conservation measures, protection, forestation activities, tree plantation drives and agroforestry.
- Among the megacities in the country, Ahmedabad has been the biggest loser when it comes to forest cover.
- States with maximum forest cover:
 - Area-wise, Madhya Pradesh has the largest forest cover in the country followed by Arunachal Pradesh, Chhattisgarh, Odisha and Maharashtra.
- 17 states/UTs have above 33% of the geographical area under forest cover.
- Out of these states and UTs, Lakshadweep, Mizoram, Andaman & Nicobar Islands, Arunachal Pradesh and Meghalaya have more than 75% forest cover.
- Mangrove cover in the country:
 - There is an increase of 17 sq km in mangrove cover in the country as compared to the previous assessment of 2019.
 - The total mangrove cover in the country is 4,992 sq km.
 - The top three states showing mangrove cover increase are Odisha (8 sq km) followed by Maharashtra (4 sq km) and Karnataka (3 sq km).
- The northeast did not show positive results as the current assessment showed a decrease in forest cover to the extent of 1,020 sq km in the region.
- Arunachal Pradesh lost the maximum forest cover of 257 sq km, followed by Manipur which lost 249 sq km, Nagaland 235 sq km, Mizoram 186 sq km and Meghalaya 73 sq km.

COMMUNITY FOREST RESOURCES (CFR) RIGHTS

GS-III ENVIRONMENT & ECOLOGY

Context

- The authorities started cutting trees in Chhattisgarh's **Hasdeo Aranya forests** for the second phase of the Parsa East and Kente Basan (PEKB) coal mining project but had to put the exercise on hold after hundreds of villagers turned up to protest the deforestation in Ghatbarra village.

Details

- Activists claim that the felling of trees in Ghatbarra village was illegal.
- The Ghatbarra forest was given Community Forest Resource (CFR) rights in 2011. Later the CFR rights were cancelled but there is no provision to cancel such conferred rights under the Forest Right Act 2006. The cancellation has been challenged in the high court and is still pending. Hence, the felling of trees is illegal as the issue of CFR has not been finalized yet.
- HasdeoArand is one of the largest contiguous stretches of very dense forest in central India spanning 170,000 hectares and having 23 coal blocks.
- In 2009, the environment ministry categorized HasdeoArand as a "No-Go" zone for mining because of its rich forest cover but eventually opened it again to mining because the policy hadn't been finalised.
- Elephants have a significant presence throughout the year and are an important part of a large migratory corridor.
- Hasdeo Aranya forests are the catchment of Hasdeo River --Mahanadi's largest tributary- which is critical for perennial river flow.** It is also the watershed of HasdeoBango reservoir and thus critical for irrigation of 3 lakh hectares of double-cropped land in the "rice-bowl" state of Chhattisgarh
- The Chhattisgarh government has become only the second state in the country to recognise the Community Forest Resource (CFR) rights of a village inside a national park. The CFR rights of tribals living in Gudiyapadar, a hamlet inside the KangerGhati National Park in Bastar district, were recognised, giving the community power to formulate rules for forest use.



What is a community forest resource?

- The community forest resource area is the common forest land that has been **traditionally protected and conserved for sustainable use by a particular community.**
- The community uses it to access resources available within the traditional and customary boundary of the village, and for seasonal use of landscape in the case of pastoralist communities.
- Each CFR area has a **customary boundary with identifiable landmarks recognised by the community and its neighbouring villages.**
- It may include a forest of any category – revenue forest, classified & unclassified forest, deemed forest, DLC land, reserve forest, protected forest, sanctuary and national parks etc.

What are Community Forest Resource rights?

- The Community Forest Resource rights under Section 3(1)(i) of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act (commonly referred to as the Forest Rights Act or the FRA) provide for recognition of the right to "protect, regenerate or conserve or manage" the community forest resource.
- These rights allow the community to formulate rules for forest use by itself and others and thereby discharge its responsibilities under Section 5 of the FRA.
- CFR rights, along with Community Rights (CRs) under Sections 3(1)(b) and 3(1)(c), which include nistar rights and **rights over non-timber forest products, ensure sustainable livelihoods of the community.**
- These rights give the authority to the Gram Sabha to adopt local traditional practices of forest conservation and management within the community forest resource boundary.

Why is the recognition of CFR rights important?

- Aimed at undoing the "historic injustice" meted out to forest-dependent communities due to curtailment of their customary rights over forests, the **FRA came into force in 2008.**

- It is important as it recognises the community's right to **use, manage and conserve forest resources**, and to legally hold forest land that these communities have used for cultivation and residence.
- It also underlines the integral role that forest dwellers play in the sustainability of forests and the conservation of biodiversity.
- It is of greater significance inside protected forests like national parks, sanctuaries and tiger reserves as traditional dwellers then become a part of the management of the protected forests using their traditional wisdom.
- But while CFR rights are an important empowerment tool, getting a consensus amongst various villages about their traditional boundaries often proves a challenge.

Forest Rights Act

- The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 is also known as the Forest Rights Act.
- The Forest Rights Act (FRA), 2006 **recognizes the rights of the forest-dwelling tribal communities and other traditional forest dwellers to forest resources**, on which these communities were dependent for a variety of needs, including livelihood, habitation, and other socio-cultural needs.
- The Act provides certain individual rights such as Rights of Self-cultivation and Habitation and community rights such as grazing, fishing, and access to water bodies in forests, community right to intellectual property and traditional knowledge etc.
- The Act empowers the forest dwellers to access and use the forest resources in the manner that they were traditionally accustomed to, to protect, conserve and manage forests, protect forest dwellers from unlawful evictions, and also provides for basic development facilities for the community of forest dwellers to access facilities of education, health, nutrition, infrastructure, etc.

CARBON SEQUESTRATION

GS-III ENVIRONMENT & ECOLOGY

Context

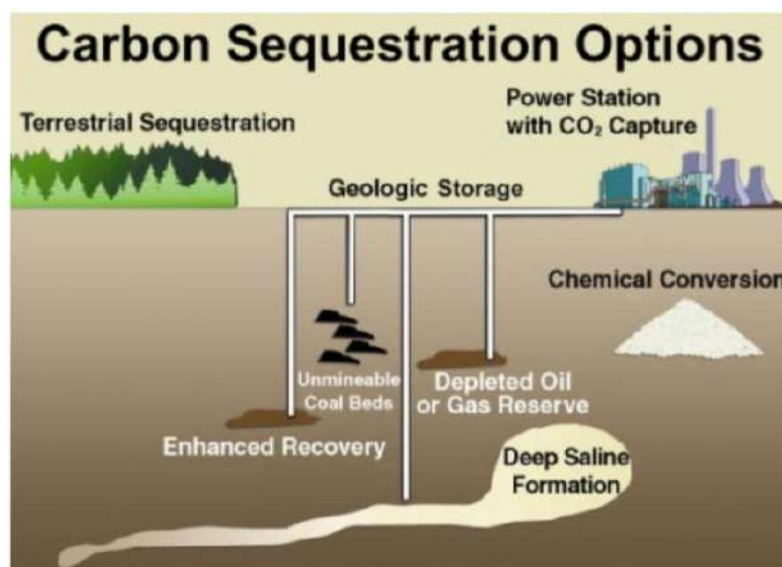
- Oil India Limited has signed a Memorandum of Understanding with the Digboi Forest Division of the Assam Forest Department for a project on Carbon Sequestration and Restoration of Degraded Forest Land in the Upper Dihing Reserved Forest (west block) of the Digboi Forest Division.

The need

- As **global warming worsens and humanity continues to generate greenhouse gases**, the concept of investing in artificial carbon sequestration techniques is gaining traction.
- To avoid the worst consequences of climate change, the Intergovernmental Panel on Climate Change estimates that countries would need to remove between 100 billion and 1 trillion tonnes of carbon dioxide from the atmosphere this century, significantly more than can be absorbed by just growing more trees.

Carbon Sequestration

- The long-term storage of carbon in plants, soils, geologic formations, and the ocean is known as carbon sequestration.
- Carbon sequestration refers to the storing of carbon that happens naturally and as a result of manmade actions.



Types

- **Terrestrial Carbon Sequestration**
 - CO₂ from the atmosphere is collected by trees and plants through photosynthesis and stored as carbon in soils and biomass in a process known as terrestrial carbon sequestration (tree trunks, branches, foliage, and roots).
- **Geologic Carbon Sequestration**
 - CO₂ may be stored in a variety of places, including oil and gas reservoirs, unmineable coal seams, salty formations, and high-organic-content shale formations.
- **Ocean Carbon Sequestration**
 - Large volumes of CO₂ are absorbed, released, and stored by the oceans. This may be accomplished in two ways: by

increasing the productivity of ocean biological systems by iron fertilisation, or by pumping CO₂ into the deep sea.

Challenges

- A rising number of **businesses are investing in so-called engineered carbon removal methods**. However, these technologies are still in their infancy and will require a major upgrade before they can be fully utilised.
- Carbon removal methods are still too costly to be widely used. Artificial carbon sequestration is expensive, energy-intensive, and unproven, with no additional advantages.
- **Deep below, carbon dioxide might be stored. Reservoir design flaws, rock cracks, and tectonic processes** all have the potential to release the gas held in the reservoir into the ocean or atmosphere, resulting in unforeseen consequences like ocean acidification.

What is the potential?

- In comparison to artificial sequestration, natural sequestration is a gradual process. As a result, it may be used in conjunction with natural sequestration to reach the targets necessary to combat climate change.
- As a result of stored carbon in subterranean chambers such as ancient oil reservoirs, aquifers, and coal seams, agricultural yields have improved and oil recovery has improved.
- This new and developing industry is drawing private investors and venture capitalists, who can help create jobs.

TISSUE CULTURE PLANTS

GS-III ENVIRONMENT & ECOLOGY

Context

- Union Government pushes for increasing exports of tissue culture plants.

Details

- Union Government with the Agricultural and Processed Food Products Export Development Authority (APEDA), has conducted a **webinar on “Export Promotion of Tissue Culture Plants such as Foliage, Live Plants, Cut Flowers, and Planting Material” to boost exports of tissue culture plants.**
 - The seminar was organised by the Department of Biotechnology (DBT).
- The top ten countries importing tissue culture plants from India are the Netherlands, USA, Italy, Australia, Canada, Japan, Kenya, Senegal, Ethiopia and Nepal.
 - In 2020-2021, **India’s exports of tissue culture plants** were around US\$17.17 million, **with the Netherlands accounting for around 50% of the shipments.**
- APEDA extended support to export-oriented plant tissue culture laboratories to improve efficiency, quality of plants, and how the latter could meet the phytosanitary norms of the importing countries and enhance their competence in the international market.
- APEDA is running a Financial Assistance Scheme (FAS) to help laboratories upgrade themselves to produce export quality tissue culture planting material.
- India is with its knowledge, biotech experts with tissue culture experience as well as with a low-cost labour force to help produce export-oriented quality planting material.
 - All these factors make India a potential global supplier of an extended and diversified range of quality flora to the international market and, in turn, earn foreign exchange.

Plant tissue culture

- Plant tissue culture is **a collection of techniques that are used to maintain or grow plant cells, tissues or organs under sanitary conditions on a nutrient culture medium of known composition.**
- It is generally used to produce clones of a plant in a method known as micropropagation.
- Different techniques in plant tissue culture may have certain advantages over traditional methods.
- **Significance;**
 - Production of exact copies of plants.
 - Produce good flowers, fruits, or other desirable traits.
 - Quickly produce mature plants.
 - Production of multiple plants in the absence of seeds or pollinators.
 - Regeneration of whole plants from plant cells.
 - Reduced chances of transmitting diseases, pests, and pathogens.

IFPRI REPORT ON CLIMATE CHANGE AND FOOD SYSTEM

GS-III ENVIRONMENT & ECOLOGY

Context

- The International Food Policy Research Institute (IFPRI) has released **Global Food Policy: Climate Change & Food Systems**, which reflects that **India's risk of hunger could increase by 23% by 2030 due to climate change.**
- The projections are based on the IMPACT model developed by the Consortium of International Agricultural Research Centres (CGIAR), which simulates national and international agricultural markets.
 - It evaluates the impact of climate change on aggregate food production, food consumption (kcal per person per day), net trade of major food commodity groups, and the population at risk of going hungry.

Key findings of the report

- India's food production could drop by 16% and the number of those at **risk for hunger could increase by 23% by 2030 due to climate change.**
- The number of Indians at risk from hunger in 2030 is expected to be 73.9 million in 2030 and, if the effects of climate change were to be factored in, it would increase to 90.6 million.
- The aggregate food production index would, under similar conditions, drop from 1.6 to 1.5.
- On a positive note, **climate change will not impact the average calorie consumption of Indians** and this is projected to remain roughly the same at 2,600 kcal per capita per day by 2030 even in a climate change scenario.
- Baseline projections indicate that global food production will grow by about 60% over 2010 levels by 2050 in the context of climate change.
 - Production and demand are projected to grow more rapidly in developing countries, particularly in Africa, than in developed countries, due to projected growth in population and incomes.
- Diets are also shifting toward higher-value foods**, including more fruits and vegetables, processed foods, and animal-source foods, outside of high-income countries.
 - Production of fruit and vegetables is projected to grow more than double in most regions (Central and West Asia and North Africa; East and Southern Africa; and West and Central Africa) by 2050.
 - The demand for processed foods also shows up in the growing production of oil crops: by 2050 production is expected to more than double in Southeast Asia and West and Central Africa.
- Meat production is projected to double in South Asia and West and Central Africa by 2030 and triple by 2050.**
 - By the same year, average dietary energy consumption is projected to increase by about 10% globally to more than 3,000 kcal per capita per day.
 - Despite this growth, per capita consumption levels in developing countries will remain less than half of those in developed countries.
- The regional differences in access to food mean that nearly 500 million people are projected to remain at risk of going hungry.
 - Globally, about 70 million more people will be at risk from hunger because of climate change, including more than 28 million in East and Southern Africa.
- The average temperature across India is projected to rise by between 2.4°C and 4.4°C by 2100.** Similarly, summer heatwaves are projected to triple by 2100 in India and increase at the rate of 0.71 days per decade in Pakistan.

DRAFT NOTIFICATION REGARDING E-WASTE

GS-III ENVIRONMENT & ECOLOGY

Context

- Recently, the Union Environment Ministry has disclosed a draft that incentivises registered electronic waste recyclers.
- The crucial difference from the previous 2016 rules is the generation of EPR, or Extended Producer Responsibility, certificates.
 - Recyclers on processing a certain quantity of waste would be given a certificate** verifying this number by the Central Pollution Control Board (CPCB).
- Electronics goods companies can buy these certificates online from the CPCB to meet their annual targets.
 - Recyclers can also directly contract with a company to recycle a certain quantity of waste and generate certificates that can be accessed from the CPCB.

Background

- According to Global E-waste Monitor 2020, **Global e-waste will increase by 38% in the decade between 2020 and 2030.**
- There were 6 million tonnes of electronic waste in 2019 which is an **average of 7.3 kg per capita**. That is a nearly 21 per cent increase in just five years
- Asia generated the greatest volume of e-waste in 2019.
- Most E-waste in 2019 consisted of small equipment, large equipment and temperature exchange equipment.

- **Less than 18 % of the e-waste generated in 2019 was collected and recycled.**
- The number of countries that have adopted a national e-waste policy, legislation or regulation has increased from 61 to 78 and including India.
 - It is far from the target set by the International Telecommunication Union to raise the percentage of countries with e-waste legislation to 50%.
- The Global E-waste Monitor 2020 is a collaborative product of the Global E-waste Statistics Partnership, formed by the United Nations University, International Telecommunication Union, International Solid Waste Association, and UN Environment Programme.

E-Waste

- E-Waste or Electronic Waste is the **term used to describe old, end-of-life or discarded electronic appliances.**
- It is categorised into 21 types under two broad categories:
 - Information technology and communication equipment.
 - Consumer electrical and electronics.
- E-waste includes components, consumables, parts and spares.
- E-waste contains several toxic additives or hazardous substances such as mercury, brominated flame retardants (BFR), CFCs and HCFCs.
- **The increasing levels of e-waste, low collection rates, and non-environmentally sound disposal and treatment of this waste stream pose significant risks to the environment and human health.**

India specific

- There are 312 authorised recyclers of e-waste in India, with the capacity for treating approximately 800-kilo tonnes annually.
- **About 90% of the country's e-waste is recycled in the informal sector.**
- India's first e-waste clinic for segregating, processing and disposal of waste from household and commercial units has been set up in Bhopal, Madhya Pradesh.
- According to the Central Pollution Control Board (CPCB), India generated more than 10 lakh tonnes of e-waste in 2019-20, an increase from 7 lakh tonnes in 2017-18.

Concerns

- **Toxicity:** E-waste consists of toxic elements such as Lead, Mercury, Cadmium, Chromium, Polybrominated biphenyls and Poly-brominated diphenyl.
- **Effects on Humans:** Some of the major health effects include serious illnesses such as lung cancer, respiratory problems, bronchitis, brain damage, etc due to inhalation of toxic fumes, exposure to heavy metals and alike.
- **Effects on Environment:** E-waste is an environmental hazard causing groundwater pollution, acidification of soil and contamination of groundwater and air pollution due to the burning of plastic and other remnants.

Challenges Related to Management of E-Waste in India

- A key factor in used electronic devices not being given for recycling was because consumers themselves did not do so.
- In India, **about 5 lakh child labourers in the age group of 10-14 are observed to be engaged in various E-waste activities** and that too without adequate protection and safeguards in various yards and recycling workshops.
- There is an absence of any public information on most State Pollution Control Boards (SPCBs)/PCC websites.
- **No clear guidelines are there for the unorganized sector to handle E-waste.**
- Also, no incentives are mentioned to lure people engaged to adopt a formal path for handling E-waste.
- **80% of E-waste in developed countries meant for recycling is sent to developing countries** such as India, China, Ghana and Nigeria.
- **Lack of coordination between various authorities** responsible for E-waste management and disposal including the non-involvement of municipalities.
- End of life computers often contains sensitive personal information and bank account details which, if not deleted leave an opportunity for fraud.

International Conventions and government initiatives

- Originally the Basel Convention did not mention e-waste but later it addressed the issues of e-waste in 2006 (COP8).
- **Nairobi Declaration** was adopted at COP9 of the Basel Convention. It is aimed at creating innovative solutions for the environmentally sound management of electronic wastes.
- **Rotterdam Convention, 2004** seeks to promote an exchange of information among Parties over a range of potentially hazardous that may be exported or imported.
- In India before 2011, e-waste was covered under the Hazardous Waste Management (HWM) Rules.

- In 2011, **under the Environmental Protection Act 1986, the E-waste (Management and Handling) Rules, 2011 were enacted.**
- In 2016, the **E-Waste (Management) Rules, 2016 were enacted which replaced the 2011 Rules.** The Rules were amended in 2018
- CPCB has also issued guidelines for Environmentally Sound Management of E-waste (on Collection, Storage, Dismantling & Segregation, Recycling, and Treatment & Disposal of E-Waste)
- Awareness Program on Environmental Hazards of Electronic Waste initiated by the Ministry of Electronics and Information Technology
- The creation of a Management Structure for Hazardous Substances seeks to raise awareness among people about the 2016 Rules and their implementation.
- Swachh Digital Bharat seeks to create awareness among the public about the hazards of e-waste recycling by the unorganised sector and to educate them about alternate methods of disposing of their e-waste.

NGT's Directions

- Further steps should be taken for scientific enforcement of E-Waste Management Rules, 2016 (EWMR) in light of the reports of the CPCB.
- It noted gaps in collection targets, as the amount of e-waste collected in 2018-19 was 78,000 tonnes against a target of 1.54 lakh tonnes. There are clear governance deficits on the subject.
- The CPCB may consider steps for compliance with Rule 16 requiring a reduction in the use of hazardous substances in the manufacture of electrical and electronic equipment and their components or consumables or parts or spares.
- It took noted that a large number of accidents take place in residential areas on account of **unscientific handling of e-waste.**
- This needs special attention for constant vigilance in such hotspots. This also requires review and updating of sitting norms for e-waste by the CPCB which may be done within three months.
- All the state pollution control boards need to **identify the hotspots** by constant vigil and coordinate with the District Administration at local levels to prevent damage to the environment and public health and meaningful enforcement of rule of law.

E-Waste Management Rules, 2016

- The Ministry of Environment, Forest and Climate Change notified the E-Waste Management Rules, 2016 in supersession of the E-waste (Management & Handling) Rules, 2011.
- Over 21 products (Schedule-I) were included under the purview of the rule. It included Compact Fluorescent Lamp (CFL) and other mercury-containing lamps, as well as other such equipment.
- For the first time, the rules brought the producers under **Extended Producer Responsibility (EPR)**, along with targets. Producers have been made responsible for the collection of E-waste and its exchange.
- Various producers can have a separate **Producer Responsibility Organisation (PRO)** and ensure the collection of E-waste, as well as its disposal in an environmentally sound manner.
- A **deposit Refund Scheme** has been introduced as an additional economic instrument.
- The role of State Governments has been also introduced to ensure the safety, health and skill development of the workers involved in dismantling and recycling operations.
- A provision of penalty for violation of rules has also been introduced.
- Urban Local Bodies (Municipal Committee/Council/Corporation) has been assigned the duty to collect and channel the orphan products to authorized dismantlers or recyclers.
- Allocation of proper space to existing and upcoming industrial units for e-waste dismantling and recycling.

Way Forward

- There is a need for **better implementation methodologies and inclusion policies** that provide accommodation and validation for the informal sector to step up and help us meet our recycling targets in an environmentally sound manner.
- Also, successfully raising collection rates required every actor to be involved, including consumers.
- There is a need to strengthen the domestic legal framework to address the issue of unregulated imports of e-waste.
- Steps should be taken to formalize the informal sector by integrating it with the formal sector.
- Government should introduce **vocational training programs to rightly skill the current unorganized sector employees** to ensure their smooth transition to working with the organized sector.

DROUGHT IN NUMBERS, 2022 REPORT

GS-III DISASTER MANAGEMENT

Context

- Drought in Numbers, 2022 report has revealed that many parts of India fall under the list of regions that are vulnerable to drought globally.

Drought

- Drought is a prolonged dry period in the natural climate cycle that can occur anywhere in the world. It is a slow-onset disaster characterized by the lack of precipitation, resulting in a water shortage. Drought can have a serious impact on health, agriculture, economies, energy and the environment.

The Report

- Drought in Numbers, 2022 report is presented by the United Nations Convention to Combat Desertification (UNCCD).
- The Drought in Numbers report is a collection of data on the effects of droughts on our ecosystem and how they can be mitigated through efficient planning for the future.
- The report also helps inform negotiations surrounding key decisions by the UNCCD's 197 member parties at the 15th Conference of Parties (COP15).
- Drought, land restoration, and related aspects such as land rights, gender equality and youth empowerment are among the top considerations at COP15.

What is COP15?

UNCCD's COP15 focuses on desertification, land degradation, and drought, with the theme for the conference being "Land. Life. Legacy: From scarcity to prosperity." The conference has brought together government representatives, private sector members, and civil society stakeholders to ensure that land continues to benefit present and future generations.

It proposes to tackle "the interconnected challenges of land degradation, climate change, and biodiversity loss" as we are into the UN Decade on Ecosystem Restoration (2021-2030).

The UNCCD's 197 parties, which include 196 member States as well as the European Union, are expected to brainstorm sustainable ideas to further land restoration and drought resilience, focusing on "future-proofing land use." The UNCCD envisions restoring one billion hectares of degraded land by 2030, creating a land degradation-neutral world.

Highlights of the Report

- The report has revealed that many parts of India fall under the list of regions that are vulnerable to drought globally.
- It also stated that India's GDP reduced by 2 to 5% between 1998 and 2017 due to severe droughts in the country.
- Between 2020 and 2022, 23 countries have faced drought emergencies. According to the report, climate change alone will cause 129 countries to experience an increase in drought exposure in the next few decades.
- More than a billion people around the world were affected by drought in 2000-19, making it the second-worst disaster after flooding. Africa was the worst hit, with 134 droughts, of which 70 occurred in East Africa.
- According to the report, if global warming reaches 3°C by 2100, drought losses could be five times higher than today's levels. The largest increase in drought losses is projected in the Mediterranean and the Atlantic regions of Europe.
- Australia's megadrought in 2019-2020 contributed to "megafires" resulting in one of the most extensive losses of habitat for threatened species. About three billion animals were killed or displaced in the Australian wildfires. 84% of all terrestrial ecosystems are threatened by changing and intensifying wildfires.
- The impact of drought is, however, not uniform across genders. Research shows that women and girls in emerging and developing countries suffer more in terms of education levels, nutrition, health, sanitation, and safety as a result of droughts.
- The burden of water collection also disproportionately falls on women (72%) and girls (9%). The report notes that they may spend up to 40% of their caloric intake fetching water.
- In 2022, over 2.3 billion people are facing water stress. Almost 160 million children are exposed to severe and prolonged droughts.

Why is India vulnerable to droughts?






A number of factors make India susceptible to droughts such as:

- Yearly, seasonal and regional variations in rainfall in spite of high average annual rainfall.
- A short span of fewer than 100 days during the south-west monsoon.
- Loss of water during heavy rains as surface runoff.
- Less rainfall over 33 percent of the cropped area in the country.

- Over-exploitation of groundwater resources and poor conservation and storage mechanisms for surface water leading to inadequate water availability in times of scanty rainfall.
- Steady decline in per capita water availability for humans and animals even in non-drought years.
- Rapid deforestation, urbanization and climate change that has been leading to erratic rainfall patterns.
- Limited irrigation coverage leading to excessive dependence of agriculture on rainfall.
- Faulty cropping patterns and over emphasis on water guzzling crops.

Statistics

- As high as **68 percent of the cropped area in India is vulnerable to droughts** of which 33 percent is classified as '**chronically drought-prone**' comprising desert and semiarid regions that receive less than 750 mm mean annual rainfall.
- Thirty-five percent area receives 750 mm to 1125 mm rainfall and is classified as 'drought-prone' that is confined to the arid, semi-arid and sub-humid regions of peninsular and western India. **Rajasthan, Gujarat, Odisha and some north-eastern states like Nagaland are under severe to exceptional drought like conditions.**
- 18 meteorological and 16 hydrological droughts occurred in India in the time span of 1870 to 2018.
- **Over a fifth of India's land area (21.06 per cent) is facing drought-like conditions**, according to recent data released by Drought Early Warning System (DEWS), a real-time drought-monitoring platform.
- The 21.06 per cent area is under different degrees of drought – ranging from abnormally dry to exceptionally dry. While **1.63 per cent area and 1.73 per cent land is under 'extreme dry' and 'exceptional dry' conditions, 2.17 per cent is under 'severe' dry conditions.** As much as 8.15 per cent is under 'moderate' dry conditions. Around **7.38 per cent land is 'abnormally' dry.**

FIVE TYPES OF DROUGHT	
1 METEOROLOGICAL drought refers to an extended period of dry weather patterns.	
2 HYDROLOGICAL drought refers to low water supply in our rivers, lakes, aquifers, and other reservoirs that often follows meteorological drought.	
3 AGRICULTURAL drought occurs when a water shortage significantly damages or destroys agricultural crops.	
4 ECOLOGICAL drought is the most recently defined type of drought and refers to widespread ecological damage caused by the lack of soil moisture.	
5 SOCIOECONOMIC drought refers to when a water shortage affects the supply and demand of drought commodities, such as water, food grains, and fish.	

Institutional structures to deal with droughts in the country

- The Department of Agriculture, Cooperation and Farmers Welfare (DAC&FW) under the Ministry of Agriculture and Farmers Welfare is the apex body that formulates policies and institutional structures for drought management at the national and state levels.
- The department has a Drought Management Cell (DMC) that gathers information from various sources, monitors drought conditions, issues advisories, coordinates with central government and state government ministries and other concerned agencies to mitigate the effects of drought.

Mitigating Droughts

- Drought and poverty are interconnected with millions of very poor people living in drought-prone areas. Considering the spread and impact of the problem, drought mitigation requires careful attention at policy level and effective action on ground.
- Examples of important mitigations measures include: **Water harvesting, protecting water sources against contamination, developing water sources – such as micro dams, ponds and wells, use of reserve sources of groundwater and water rationing/allocation. Restoring pastures and balancing land and water resources.**



Drought mitigation measures	Institutional measures	Water supply increase		
	<ul style="list-style-type: none">• Drought risk management plan• Internal coordination and external collaboration• Public communication	Existing supplies	New supplies	Complex supplies
	Water supply side measures	– Surface storage	– Emergency use of lakes	– Conveyance grids
		– Subsurface storage	– Saltwater conversion	– Conjunctive water use
		– Interbasin transfer	– Fossil waters	– Snow and ice management
		– Water conservation	– Weather modification	
	Institutional measures	Water demand reduction		
		Active strategies	Reactive strategies	
		– Legal restriction and public pressures	– User recycling systems	
	Institutional measures	– Economic incentives	– User production adjustments	
Institutional measures		Drought impact minimization		
		Forecasting	Risk sharing	Damages reduction
	– Forecast and warning	– Insurance	– Drought resistant crops	
	– Follow-up forecast and warning	– Individual protection	– Agricultural techniques adjustment	
		– Disaster aid	– Urban vegetation adjustment	

UNIQUE DISABILITY ID (UDID) SCHEME

GOVERNMENT SCHEMES

Context

- The Union Ministry of Social Justice and Empowerment has asked state governments to speed up the implementation of the Unique Disability ID (UDID) scheme.

 <h1>Unique Disability ID</h1> <p>Department of Empowerment of Persons with Disabilities, Ministry of Social Justice and Empowerment, Govt. of India</p> 		
<h3>Why in news?</h3> <p>The Ministry of Social Justice and Empowerment has asked states to speed up implementation of the Unique Disability ID (UDID) scheme for Persons With Disabilities (PwD) in the 75 districts.</p>	<h3>About</h3> <ul style="list-style-type: none"> The Rural Development Ministry has chosen the UDID programme as part of its Azadi ka Amrit Mahotsav. The initiative sought to cover all 17 Central projects in all 75 districts. 	<h3>UDID</h3> <p>The Unique ID for Persons with Disabilities project is being implemented with the goal of building a National Database for PwDs and issuing each person with a Unique Disability Identity Card.</p>

Details

- The Union Ministry of Social Justice and Empowerment has initiated the **scheme for persons with disabilities (PwD) in the 75 districts across India.**
 - These districts have been selected for their connection with the freedom struggle.
- The Ministry is organising the UDID programme as a part of its **90-day campaign in districts "selected on the basis of unsung heroes of India's freedom struggle"** under Azadi ka Amrit Mahotsav.
- The campaign aimed for 100% coverage of 17 Central schemes in the 75 districts.
- For the UDID project, the departments have to clear all pending applications, digitise data of PwD, issue certificates and generate UDID cards for PwD with 40% disabilities.
- Among the selected districts are;**
 - Ballia in Uttar Pradesh, the native place of Mangal Pandey.
 - Purba Midnapore in West Bengal, the home district of Matangini Hazra.
 - Alirajpur in Madhya Pradesh, the native place of Chandra Shekhar Azad.
- The UDID project was launched in 2016, the Ministry has made it mandatory for states to issue disability certificates through the UDID portal from June 1, 2021, as opposed to the offline mode.
 - So far, 72,06,947 UDID cards had been issued.

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TRANSNISTRIA

PLACES IN NEWS

Context

- As the Russia-Ukraine War completes over two months, Transnistria, the tiny breakaway region of Moldova, risks being dragged into the conflict.

Where is Transnistria?

- Transnistria, officially the Pridnestrovian Moldavian Republic (PMR), is an **unrecognised breakaway state that is internationally recognised as part of Moldova**.
- Transnistria state **lies between Moldova to its west and Ukraine towards its east**. Often described as a "remnant of the Soviet Union", Transnistria declared independence like Moldova did soon after the break-up of the Soviet Union in 1991.
- When Moldovan troops attempted to take over the territory in 1990-1992, Transnistria was able to resist them because of Russian soldiers. Since then, it has remained free of Moldovan control. However, most countries continue to see Transnistria as part of Moldova.
- Transnistria **controls most of the narrow strip of land between the Dniester river and the Moldovan-Ukrainian border**, as well as some land on the other side of the river's bank. Its **capital and largest city is Tiraspol**.

Tensions in Transnistria

The small region wedged between Moldova to its west and Ukraine to its east risks being dragged into the ongoing conflict

TRANSNISTRIA FACTFILE	Map
<ul style="list-style-type: none"> Split from Moldova in 1991-92 war, amid collapse of the Soviet Union. Becomes a self-declared independent state not recognised internationally Referendum in 2006 saw 97.2% vote in favour of joining Russia Its a separatist region that permanently hosts estimated 1,500 Russian "peacekeeping" troops Population: 4,70,000 Area: 4,000 sq km 	
<h4>RECENT DEVELOPMENTS</h4> <p>Apr 25-27, 2022: Transnistria officials claim series of incidents:</p> <ul style="list-style-type: none"> Explosions hit state security HQ in Tiraspol. Separatist authorities blame Ukrainian "infiltrators" Blasts at Mayak radio centre damage Soviet-era masts used to broadcast Russian news Attack on military unit in village of Parcani, just outside Tiraspol Shots fired from Ukraine towards Kolbasna village, location of large Russian arms depot 	

Russia could use flare-up of tensions as pretext for invasion. If Russia reinforces Transnistria, it might then move on to Ukraine's key port city of Odesa

ODESSA

PLACES IN NEWS

Context

- Russia forces pounded the vital port of Odesa, as part of an apparent effort to disrupt supply lines and weapons shipments.

About

- Odesa is a **port city on the Black Sea in southern Ukraine**.
- It is a **major seaport and transport hub located in the south-west of the country, on the northwestern shore of the Black Sea**.
- Odesa is sometimes called the "Pearl by the Sea" "Odessa-mama" and "The Humour Capital", as well as "Southern Palmyra".
- It is north of the estuary of the Dniester river and some **443 km south of the Ukrainian capital Kyiv**.



SHORT NEWS ARTICLES

GS-I CULTURE & HISTORY

B.V. Doshi

In News

- Architect Balkrishna Vithaldas Doshi has received the Royal Gold Medal 2022.
- The Royal Gold Medal is the world's highest honour for architecture.



Basava Jayanthi

Context

- On the occasion of the 12th-century social reformer Basaveshwara's birth anniversary, the Prime Minister paid tribute to him.

Who is Basaveshwara?

- Basaveshwara or Basavanna was a Shiva-focused Bhakti saint and social reformer in Karnataka in the 12th century.
- He was a politician, philosopher, poet, and Lingayat saint.
- The Kalyani Chalukya/Kalachuri dynasty ruled throughout his lifetime.
- He was active during both dynasties' reigns, although his influence peaked during King Bijjala II's reign in Karnataka, India.

Highlights

- Basava is said to be the creator of the Lingayats in tales and hagiographic literature.
- Basava was the poet-philosopher who revitalised, improved, and invigorated an already existent tradition, according to current research based on historical evidence such as the Kalachuri inscriptions.
- Basava's Lingayat theology was a type of qualified non-dualism in which the individual Atman (soul) is God's body and there is no distinction between Shiva and Atman (self, soul).
- Basava's ideas are found in the Vedanta school, in a form more akin to Ramanuja, the 11th century Vishishtadvaita philosopher.

Haflong Hindi

- It is a type of "native" Hindi associated with Assam's hilly area 'Dima Hasao'.
- Through merchants and construction workers who worked on a mountain railway system, Hindi reached the Dima Hasao area of Assam, a district formerly called North Cachar Hills, in the late 1800s primarily.
- After the railway line was completed in 1899, the non-tribal settlers and diverse communities across the hills had developed a simple language to communicate among themselves. It came to be known as Haflong Hindi.
- Haflong Hindi was named after the headquarters of the district where the Dimasas are the dominant community.
- Haflong Hindi follows the Tibeto-Burman grammar; it does not follow the Hindi grammar, and has words taken from Nepali and Bengali.
- It does not use numbers as in Hindi.
- Haflong Hindi has not found its way into literature.

Sangita Kalanidhi Awards

- Renowned vocalist 'Neyveli R. Santhanagopalan' has won the award for 2020,
- Mridhangam maestro Tiruvarur Baktavatsalam has won for 2021.
- Violinists 'Lalgudi GJR Krishnan' and his sister GJR Vijayalakshmi have won for 2022.
- Sangeetha Kalanidhi titles are awarded for excellence in Carnatic musician by the Madras Music Academy.

GEOGRAPHY

Jog Falls

Context

- Karnataka, which was supportive of the Jog Development Projects and had recommended 'in principal approval' of environmental clearance for a five-star hotel, suffered a setback with the Centre asked whether any environmental impact study has been carried out.

Jog Falls

- Jog Falls is a **waterfall on the Sharavati river located in the Western Ghats** near Sagar Taluk of Shivamogga District, Karnataka. It is the **second highest plunge waterfall in India**.
- Another popular name for the beautiful Jog Falls is **Gerusoppa Falls**.
- At 253 m (830 ft) it is the **third-highest waterfall in India** after the Nohkalikai Falls with a drop of 335 m in Meghalaya and the Dudhsagar Falls with a drop of 310 m in Goa.

Sharavati is a river which **originates and flows entirely within the state of Karnataka**. It originates at a place called **Ambutheertha**. It is one of the few westward flowing rivers of India and a major part of the river basin lies in the Western Ghats. It **joins the Arabian Sea at Honnavar** in Uttara Kannada district. The river is **dammed at Linganamakki**. The major tributaries of the river are **Nandihole, Haridravathi, Mavinahole, Hilkunji, Yennehole, Hurlihole, and Nagodihole**. The river itself and the region around it are rich in biodiversity and are home to many rare species of flora and fauna.

Ujh Multipurpose Project

Context

- Union Minister called on Jal Shakti Minister to discuss the progress of Ujh Multipurpose Project in **Kathua region** of Jammu & Kashmir.

About

- The Ujh project is a multipurpose (Hydropower, Irrigation and Drinking) River valley scheme & is **first of its kind in Jammu and Kashmir**.
- The **proposed project is on the River Ujh**, which is one of the **main tributary of River Ravi**. Capacity of Ujh Multipurpose Project has been proposed as 186 MW.

Project benefits

- Provision of water for irrigation.
- Provision of water for drinking: 20 cusec water for Kathua district.
- Power generation.
- Development of Tourism.
- Development of fisheries.
- Development of industries.
- Infrastructure improvement.

Ujh River

- The Ujh river **originates in Kailash mountains** (near Bhaderwah hills, part of the PirPanjal Range) at an altitude of 4,300 metres.
- It flows a distance of nearly 100 kilometres, some of it in Pakistani Punjab, **before joining Ravi near Chak Ram Sahai in Indian Punjab**.
- The average width of the river in the plains is about 1.2 kilometres. Four streams, **Bhini, Sutar, Dunarki and Talan join Ujh at Panjtirthi**.
- The water of Ujh river is used for drinking, irrigation and to feed a number of small canals and khuls of the Kathua district.
- Ujh Barrage has been constructed on this river at Jasrota village.

Sela Tunnel

Context

- The strategically-significant Sela Tunnel project in Arunachal Pradesh is nearing completion.

About

- Sela is a strategic tunnel (longest twin-lane tunnel above 13,000 feet in the world) under construction in located **in West Kameng district of Arunachal Pradesh.**
- Sela Tunnel will ensure all-weather connectivity between Guwahati in Assam and Tawang in Arunachal Pradesh. It will be connected with NH 13 by a new 12.4 km road.
- This project, being **executed by the Border Roads Organisation**, includes two tunnels and a link road.
- While Tunnel 1 will be 980 metres long single-tube, Tunnel 2 will be 1,555 metres with one bi-lane tube.
- Tunnel 2 will be **one of the longest tunnels to have been constructed above an altitude of over 13,000 feet.**
- The Sela tunnel **will be on the BCT Road – the Balipara, Charduar and Tawang axis,** which is more than 300 km long.



Benefits of the Project

- All-weather connectivity to Tawang and other forward areas in the sector.
- It will reduce the distance between Dirang and Tawang by 10 km.
- The project will provide a new alignment on the axis towards the LAC, and allow movement of military and civil vehicles all through the year.
- Reduction in more than one hour of travel time from Tezpur to Tawang.
- Sela Tunnel, will play a crucial role in bolstering national security by speedy mobilisation of troops and equipment and ensuring the region's socio-economic development.

GS-II POLITY

National Data and Analytics Platform (NDAP)

Context

- The NITI Aayog has launched a National Data and Analytics Platform (NDAP).

Details

- The NITI Aayog has launched a National Data and Analytics Platform (NDAP) to **provide government data in a user-friendly format**, to facilitate data-driven decision making and research.
- The platform would **formalise data across government sources** and make it easy for users to explore information.
- The portal will help policymakers, academics and researchers to easily examine data without having to process it.
- The portal includes 200 datasets from more than 46 ministries at the time of the launch.

NITI Aayog

- Planning Commission Inspired by the USSR/Soviet Model, Prime Minister established a Planning Commission in 1950 to design the five-year Plans for India.
 - In 2015, it was replaced by a new organisation named National Institution for Transforming India (NITI)
- Promote Cooperative Federalism**
 - Governing Council of NITI Aayog has Lieutenant Governors of Union Territories and State Chief Ministers.
 - NITI Aayog Constituted a Committee of State Chief Ministers to examine important issues.
- Promote Competitive Federalism**
 - NITI Aayog has Prepared online dashboards to rank the States on various indicators of development Such as;
 - Sustainable Development Goals (SDG) India Index.
 - Health Index.
 - School Education Quality Index.
 - Digital Transformation Index.

- Launched Aspirational District Programs for monitoring the Progress of backward districts.
- NITI Aayog has not been given the mandate or Powers to impose Policies on States.
 - NITI Aayog is a think tank or an advisory body.
- The **Powers for allocation of funds have not been given to the NITI Aayog**. The Powers are with Finance Ministry.
- **As a 'think-tank', Niti Aayog has helped the government In framing various Policies on;**
 - Clean energy
 - Methanol based economy
 - Infrastructure human development etc.
 - The model acts on agricultural land leasing, livestock Selling etc.
- NITI Aayog regularly organizes Seminars, Workshops, and Conferences.
- NITI initiated Atal Innovation Mission (AIM) to help Startups. NITI is developing National Program on Artificial Intelligence.
- NITI's approach is modernised, forward-looking, and less bureaucratic; NITI Aayog is playing an important role as a think tank for Economic growth, Human development and Good governance in India.

Article 142

Context

- The Supreme Court of India has exercised its power under Article 142 of the Constitution and ordered the release of the convict in the assassination case of former Prime Minister Rajiv Gandhi.

Details

- The Supreme Court considered the convict's long period of imprisonment, his satisfactory conduct in jail and during parole, his educational qualifications acquired during incarceration, his chronic medical records and the 2018 State Cabinet recommendation made to the Governor, to release all seven convicts involved in the case.
 - **Article 161** empowers the Governor to grant pardons, reprieves, respites or remissions of punishment or to suspend, remit or commute the sentence of any person convicted of any offence against any State law.
- **Under Article 142 of the Indian Constitution, the Supreme Court in the exercise of its jurisdiction may pass such directive or make such order as is necessary for doing complete justice** in any cause or matter pending before it.
 - The orders shall be enforceable throughout the Indian Territory in such a manner as prescribed by or under any law made by Parliament, or by the order of the President

Sex Work as Profession: SC

Context

- The Supreme Court of India in its order has recognised sex work as a Profession.

Key Points of the Supreme Court order

- The Supreme Court has **recognised sex work as a "profession**.
- The Court has ordered the authorities that the **sex workers are also entitled to dignity and equal protection under the law**.
- **Directed the police departments** that they should neither interrupt nor take any criminal action against adult and consenting sex workers.
- Underlined that According to the Indian Constitution every individual in this country has a **right to a dignified life under Article 21**.
- Clearly ordered that the **sex workers should not be "arrested or penalised or harassed or victimised"** while raiding brothels.
- Court mentioned that **"voluntary sex work is not illegal and but running the brothel is unlawful"**.
- If a minor is found living in a brothel or with sex workers, **it should not be assumed that the child was trafficked**.
- Police must not discriminate against sex workers when they complain of sexual harassment.
 - **Sex workers also face sexual assault**.
 - They must be provided with every facility including immediate medical and legal care.
- The **media should not disclose the identities of sex workers**, during arrest, raid and rescue operations.
- Voyeurism is a criminal offence, the court reminded.
- The Union Government and State Governments must involve sex workers or their representatives to reform laws and create welfare policies.

Bhil Pradesh

In News

- **Tribals of Rajasthan and Gujarat are demanding 'Bhil Pradesh'.**
- The demand for a **separate Bhil Pradesh by uniting 39 districts spread over 4 states:**
 - 16 districts from Gujarat.
 - 10 districts from Rajasthan.
 - 7 from Madhya Pradesh.
 - 6 from Maharashtra.

Background

- In 1913 after the Mangarh massacre, **Social reformer and spiritual leader Govind Guru first raised the demand for a separate Bhil state for tribals.**
 - The massacre was sometimes referred to as the "Adivasi Jallianwala".
 - Hundreds of Bhil tribals were killed by British forces in 1913 near the border of Rajasthan and Gujarat.
- The demand for Bhil Pradesh was continuously made since Independence.
 - Over the decades, the demand was raised and intensified.
- In the last few years, The Bharatiya Tribal Party (BTP), a political party based in Gujarat, has intensified the movement for the creation of a separate Bhil Pradesh.

GOVERNANCE

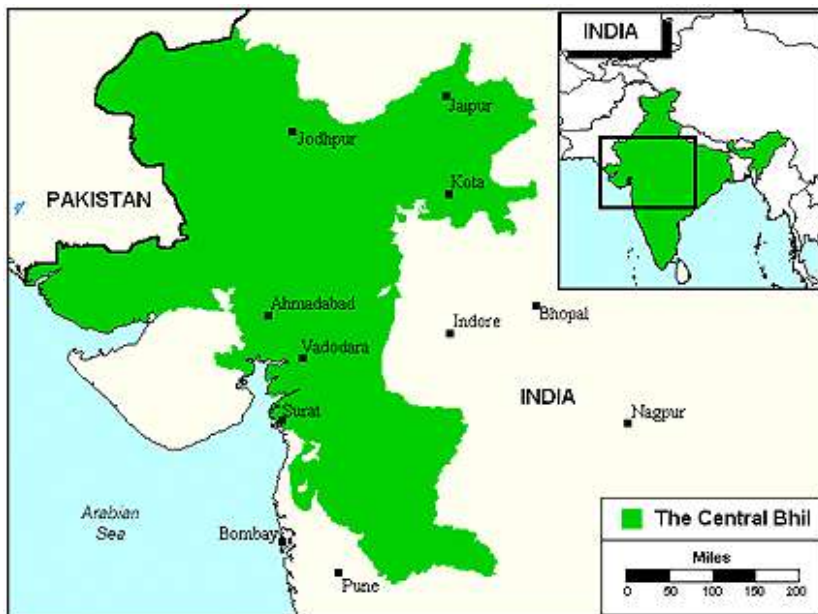
Look Out Circular

Context

- Recently the Punjab and Haryana High Court quashed a Lookout Circular (LOC) against a petitioner.

About lookout circular (LOC)

- Lookout circular is a notice **to stop any individual wanted by the police, investigating agency or even a bank from leaving or entering the country.**
- A large number of **agencies can issue lookout circulars;**
 - Central Bureau of Investigation (CBI)
 - Enforcement Directorate
 - Directorate of Revenue Intelligence (DRI)
 - Income Tax department
 - State police and intelligence agencies are also authorized to generate LOCs.
- The officer who issues a lookout circular **should not be below the rank of a district magistrate or superintendent of police** or a deputy secretary in the Union Government.
- Details such as the **First Information Report (FIR) number and the court case number** are to be mandatorily provided with **the name, passport number and other details** to issue a lookout circular.
- The LOCs can be modified; deleted or withdrawn **only at the request of the originator.**
- **Banks are also authorized to generate LOCs** against persons who could be detrimental to the economic interests of the country.
- Many citizens have moved to courts to get the LOC quashed.
- The Ministry of Home Affairs has stated that **"LOCs cannot be shown to the subject" at the time of detention nor can any prior intimation be provided.**
 - The Home Ministry has recently informed the Punjab and Haryana High Court that the LOC guidelines are a secret document and the same cannot be shared with the 'accused' or any unauthorized stakeholder.
- As per rules and guidelines, a **LOC will stay valid for a maximum period of 12 months.**
 - It may extend, but only after a fresh request from the agency.



SOCIAL JUSTICE

Swachh Sarvekshan 2023

Context

- The Ministry of Housing and Urban Affairs (MoHUA) has launched the 8th edition of SwachhSarvekshan (2023) under Swachh Bharat Mission Urban 2.0.

Details

- The Ministry has stated that the SwachhSarvekshan has evolved into an inspiration tool, instead of just an assessment tool.
- SwachhSarvekshan is the largest Urban sanitation survey in the world.**
 - The 7th edition of SwachhSarvekshan 2022 covered 4,355 cities, 85,860 wards, 2.12 lakhs locations visited, 5.5 lakhs documents assessed, 1.14 Crores citizen feedback recorded, 23.38 lakhs photos and videos collected as evidence and 17.24 lakhs data points collected.
- The theme of SwachhSarvekshan 2023 is 'Waste to Wealth'.**
- In the 8th edition, additional weightage has been given to;
 - Source segregation of waste.
 - Enhancement of the waste processing capacity of cities to match the waste generation.
 - Reduction of waste going to the dumpsites.
 - Phased reduction of plastic.
 - Plastic waste processing.
 - Encourage waste to wonderful parks and zero waste events.
- The ranking of Wards within the cities will be also promoted through SwachhSarvekshan 2023.

Swachh Sarvekshan

- Swachh Sarvekshan was initiated by the Ministry of Housing and Urban Affairs in 2016 as a competitive framework to encourage cities to improve the status of urban sanitation.
- SwachhSarvekskans are conducted under the Swachh Bharat Mission (Urban).
- It has promoted a spirit of healthy competition among cities and towns of India.
- The Primary goal of Swachh Sarvekskans is to encourage large scale citizen participation and create awareness amongst all sections of society about the importance of working together towards making towns and cities better places to reside in.
- The performance of each city is evaluated on six parameters:**
 - Municipal solid waste, sweeping, collection and transportation.
 - Municipal solid waste, processing, and disposal of solid waste.
 - Open defecation free and toilets.
 - Capacity building and e-Learning.
 - Provision of public toilets and community toilets.
 - Information, education and communication, and behaviour change.

Present Status

- According to the dashboards maintained by ministries, more than 100 million individual household level toilets have been constructed in rural areas and 6 million household toilets in urban areas.
- Nearly 6 million community and public toilets have also been constructed in the urban areas.
- More than 4,200 cities and more than 600,000 villages across the country have declared themselves open defecation free (ODF).
- More than 81.5 thousand wards in urban areas now have 100% door to door collection of solid waste and nearly 65 thousand wards practice 100% segregation of waste at source.
- According to UNICEF, the number of people without a toilet has been reduced from 550 million to 50 million.
- The World Bank reports that 96% of Indians who have a toilet use it.
- A study concluded that the construction of toilets under the program led to a reduction in the incidence of sexual assault against women.

INTERNATIONAL RELATIONS

Indo-Pacific Economic Framework

Context

- India is set to Join U.S. President Joe Biden's new trade initiative named Indo-Pacific Economic Framework (IPEF) announced through a virtual medium.

About IPEF

- IPEF grouping will include seven out of 10 members of the Association of South-East Asian Nations (ASEAN), all 4 QUAD countries, and New Zealand; together it represents 40% of global GDP.
- The negotiations for the IPEF are expected to centre around four main pillars:
 - Trade
 - Supply Chain Resiliency
 - Clean Energy and Decarbonisation
 - Taxes and Anti-corruption measures
- The IPEF would not be a 'free trade agreement' and will not negotiate a reduction in tariffs or increase market access.
- The three ASEAN countries closer to China – Myanmar, Cambodia and Laos are not members of the IPEF.
- The IPEF is part of Biden's commitment to keeping American families and workers at the centre of the country's economic and foreign policy. And **strengthening ties with allies and partners to increase shared prosperity**.
- One of the IPEF's roles in the Indo-Pacific will be to set and **follow standards for the digital economy and cross-border data flows and data localization**, areas where India has had some strong differences with the USA and its allies.
- The framework also seeks to counter inflation through more resilient supply chains, promoting more commitments from every member country on clean energy and decarbonisation, and commitments to a fair economy

Armenia-Azerbaijan Conflict

Context

- Rising Anti-Government protest in Armenia over the Nagorno-Karabakh region.

Details

- The **Nagorno-Karabakh territory is the reason for the dispute between Armenia and Azerbaijan** for years.
- The Nagorno-Karabakh region is a mountainous and heavily forested region that under international law is **recognised as part of Azerbaijan**.
 - However, ethnic Armenians reject Azerbaijan's rule.
 - Azerbaijan's troops were pushed out of the region following a war in the 1990s.
 - Since then, the ethnic Armenians have been in administrative control of Nagorno-Karabakh, with support from Armenia.



India-China Dispute in the Pangong Tso Area

Context

- Recently, the Ministry of External Affairs (MEA) has confirmed that a second bridge has been built by China across the Pangong Tso in eastern Ladakh.

Issues with the bridges

- The official statement said that both the bridges that are being constructed by China are in the area that has been **illegally occupied by China since the 1960s**.
- China is constructing a second bridge in an area held by it around the strategically key **Pangong Tso Lake in eastern Ladakh** and it could help the Chinese military to quickly mobilise its



troops in the region.

- The bridge is being constructed alongside its earlier bridge. **India has neither accepted such illegal occupation of its territory nor has accepted the unjustified Chinese claims or such construction activities.**
- Toto ensures the nation's security interests; the Government of India has stepped up the development of border infrastructure, especially since 2014, including the construction of roads, bridges, etc.
- As per MEA, India **too has been constructing bridges, roads and tunnels in the border regions** as part of overall efforts to enhance military preparedness whereas China has recently completed the construction of the first bridge in the area.
- India has committed to the **objective of creating infrastructure along the border areas** to not only meet **India's strategic and security requirements** but also **facilitate the economic developments** of these areas.
- Beginning on 5 May 2020, Chinese and Indian troops engaged in aggressive melee, face-offs, and skirmishes at locations along the Sino-Indian border, including near the disputed Pangong Lake in Ladakh and the Tibet Autonomous Region, and near the border between Sikkim and the Tibet Autonomous Region.
 - Additional clashes also took place at locations in eastern Ladakh along the Line of Actual Control (LAC).

International Booker Prize

Context

- Geetanjali Shree **has won the International Booker Prize.**

Details

- She was **awarded for her Hindi novel Ret Samadhi.**
 - Her novel was **translated into English as Tomb of Sand by Daisy Rockwell.**
- She is from Manipur.
- Her book was selected among 135 books.
- It was the first time that the translation of a Hindi language book had been nominated for the award.
- The book narrates the journey of an 80-year-old widow who travels to Pakistan following the death of her husband.

India-Denmark Green Strategic Partnership

Context

- **Prime Minister Narendra Modi met with Mette Frederiksen, his Danish counterpart, and the two leaders are anticipated to address a wide variety of matters of mutual interest to strengthen the bilateral relationship.**

What is the Background?

- During a virtual meeting in September 2020, a "**Green Strategic Partnership**" was formed.
- During Prime Minister Frederiksen's visit to India in October 2021, this partnership was transformed into a **results-oriented five-year action plan.**

What are the latest developments?

- The new Green Strategic Partnership between India and Denmark assists in **developing a stronger long-term partnership between the two nations.**
- The alliance will strengthen **cooperation in renewable energy, environmental policy, commerce, climate policy, and research and technology, according to the announcement.**
- As part of a **five-year Joint Action Plan**, both countries agreed to expand existing partnerships into the health and agricultural sectors, as well as sign four government-to-government agreements that will contribute to deepening cooperation in the areas of **water, science and technology, and climate change.**
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Uighurs

Context

- The 'Xinjiang police files' that were leaked recently revealed that the Chinese Communist Party (CCP) led by Xi Jinping is involved in brazen human rights abuse against Muslims in Xinjiang.
- The communist leaders are involved in practising human rights atrocities against thousands of Uyghurs through a network of detention centres and prisons in the Xinjiang region.

Who are the Uyghurs?

- There are about 12 million Uyghurs, mostly Muslim, living in Xinjiang, which is officially known as the Xinjiang Uyghur Autonomous Region (XUAR).
- The Uyghurs speak their language, which is similar to Turkish, and see themselves as culturally and ethnically close to Central Asian nations. They make up less than half of the Xinjiang population.
- Recent decades have seen a mass migration of Han Chinese (China's ethnic majority) into Xinjiang, allegedly orchestrated by the state to dilute the minority population there.
- China has also been accused of targeting Muslim religious figures and banning religious practices in the region, as well as destroying mosques and tombs.
- Uyghur activists say they fear that the group's culture is under threat of erasure.

Xinjiang

- Xinjiang lies in the northwest of China and is the country's largest region.
- Like Tibet, it is autonomous, meaning - in theory - it has some powers of self-governance. But in practice, both regions are subjected to major restrictions by the central government.
- Xinjiang is a mostly desert region and produces about 20% of the world's cotton.
- The region is also rich in oil and natural gas and because of its proximity to Central Asia and Europe is seen by Beijing as an important trade link.



India-USA Investment Incentive Agreement

Context

- India and USA signed the Investment Incentive Agreement (IIA) in Tokyo, Japan which is expected to enhance investment support from America's development finance institution in a wide range of sectors.

About IIA

- The IIA was signed by foreign secretary Vinay Kwatra and Scott Nathan, the chief executive officer of the US International Development Finance Corporation (DFC).
- The agreement is considered a legal requirement for DFC to continue providing investment support in India.
- The agreement supersedes another similar pact signed between the governments of India and the US in 1997.
- Cooperation under DFC

- The proposals worth four billion dollars are under consideration by Corporation for providing investment support in India.
- The Corporation has provided investment support in sectors like COVID-19 vaccine manufacturing, healthcare financing, renewable energy, financial inclusion and infrastructure among others.
- DFC or its predecessor agencies have been active in India since 1974 and have provided investment support worth \$5.8 billion, of which \$2.9 billion is still outstanding.

India-U.S. Relations

- India-U.S. **bilateral relations have developed into a "global strategic partnership"**, based on shared democratic values and increasing convergence of interests on bilateral, regional and global issues.
- **Regular exchange of high-level political visits** has provided sustained momentum to bilateral cooperation, while the wide-ranging and ever-expanding **dialogue architecture** has established a long-term framework for India-U.S. engagement.
- Today, the India-U.S. bilateral cooperation is broad-based and multi-sectoral, covering trade and investment, defence and security, education, science and technology, cyber security, high-technology, civil nuclear energy, space technology and applications, and clean energy, environment, agriculture and health.
- Vibrant **people-to-people interaction** and support across the political spectrum in both countries nurture our bilateral relationship.

NATO

Context

- Finland and Sweden **set to apply to join NATO**, which could be considered a historic move for the Nordic nations (traditionally neutral countries).
- Finland and Sweden have both been reviewing their security policies following Russia's invasion of Ukraine, which showed the Kremlin is willing to attack a neighbouring nation.

About NATO

- North Atlantic Treaty Organization (NATO) is a **military alliance established by the North Atlantic Treaty (also called the Washington Treaty) of April 1949**, by the United States, Canada, and several Western European nations to provide collective security against the Soviet Union.
- **NATO promotes democratic values and enables members to consult and cooperate on defence and security-related issues to solve problems**, build trust and, in the long run, prevent conflict.
- Its **headquarters is in Brussels, Belgium**.

Impact of NATO's expansion

- Expanding NATO could complicate its ability to achieve consensus, weaken the security of those countries not brought in, increase demands on defence budgets when they are already overstretched, and alienate Russia.
- Even Russia will look to rejuvenate Warsaw Pact.
- After Finland and Sweden, the NATO and USA combined have the largest-military power, and Russia will look to counter it by aligning with China.
- India will have to frame a cautious foreign policy from the long-term prism by maintaining relations with all the players.



GS-III

ECONOMY

Railways Restructuring

Context

- Recently the Indian Railways has reported the closure of the Special Railway Establishment for Strategic Technology and Holistic Advancement (SRESTHA).

Key Announcements

- SRESTHA was established in 2016, it was part of the Research Designs and Standards Organisation (RDSO), and it was entrusted with the role of taking up long-term railway research projects requiring technological improvement.
- As part of the railways restructuring plan, the railways have decided to merge 32 Directorates of the RDSO and brought them under 7 verticals;
 - Administration
 - Infrastructure
 - Rolling Stock
 - Traction and Power Supply
 - Signal and Telecommunication
 - Resource and Testing
 - Traffic and Psychology.
- It was also announced that the Geotech Engineering Directorate would be merged with the Track and Bridges & Structures Directorate.
- The railways also proposed to create new posts in the rank of Executive Director, to be posted at the Integral Coach Factory, Rail Coach Factory, and Modern Coach Factory.
- The railway's restructuring plan of the country's largest employer and transporter is resulting in the closure or merger of many establishments and private participation in its functioning.

ONGC

News

- Oil and Natural Gas Corporation (ONGC) has become the **first Indian Exploration and Production (E&P) company to get authorised to trade domestic gas on Indian Gas Exchange.**
- ONGC is an Indian oil and gas explorer and producer.
- It functions **under the Ministry of Petroleum and Natural Gas.**
- ONGC is a **Maharatna Public Sector Undertaking (PSU)** of the Indian Government.
- It is the largest crude oil and natural gas company in India, contributing around 70% to Indian domestic production.
- Its headquarters is situated in New Delhi.

Pradhan Mantri Suraksha Bima Yojna

- Pm Suraksha Bima Yojna, **available to people in the age group 18 to 70 years** with a bank account.
- Premium of Rs.12 per annum.
- Risk Coverage:
 - Rs 2 Lakh in case of death.
 - Rs 2 lakh in a case of total and irrecoverable loss of both eyes or loss of use of both hands or feet or loss of sight of one eye and loss of use of hand or foot.
 - RS 1 lakh in case of loss of sight of one eye or loss of use of one hand or foot.
- Any person having a bank account and Aadhaar number linked to the bank account can join the scheme.
 - The premium amount will be auto-debited every year by the bank from his/her account.

CSIR-Aroma Mission

Context

- India's first 'Lavender Festival' was organised at Bhaderwah, Jammu and Kashmir.

Details

- India's first National Institute of High Altitude Medicine** is being built in Bhaderwah.

- It will generate employment, open research opportunities and promote development for the region.
- **Lavender Cultivation has the potential to double farmers' income.**
- Lavender cultivation has employed about 5,000 farmers and young entrepreneurs in geographically remote areas of J&K.
 - More than 1,000 farming families are cultivating it on more than 200 acres.

CSIR- Aroma Mission

- The **CSIR-AROMA Mission aims to develop and transfer aroma-related science and technology** to reach the end users/clients of CSIR: Farmers, industry and society.
- Aromatic plants are **used as natural medicines because of their medical properties**. Aromatic Plants include lavender, damask rose, etc.
- Aromatic plants are mainly **used for oil extraction that is used in various industries**: Cosmetics, Pesticides, flavouring and fragrance, Insect repellents and herbal beverages.
- The Aroma Mission was started to promote the cultivation of aromatic crops.
- The twin aim of the mission is to **increase production to meet domestic demand** and also to become a global leader in production and export.
- Technical support from CSIR-Central Institute of Medicinal and Aromatic Plants (CSIR-CIMAP), Lucknow.
- Government to **Promote cooperatives for marketing activities**, promotion of cultivation and processing of high-value aromatic plants, development of agro technologies, setting up of processing facilities, promoting Skill development, infrastructure support, Credit facilities, etc.

Expected outcome of the Mission

- Bring about an additional area of 5500 ha under aromatic crop cultivation.
- **Promoting aromatic crops in rain-fed/degraded land** across the country.
- Enhance technical and infrastructural support to farmers/growers all over the country.
- **Promote market buy-back mechanisms** to ensure profitable prices for the farmers/growers.
- This mission also aims to promote Job Creation, Rural Development, and Women empowerment.
- By increasing aromatic crop production, India could take a big step towards achieving the goal of 'Atmanirbhara Bharat'.

Purchasing Managers Index (PMI)

Context

- India's manufacturing sector recorded an improvement in new orders and output in April.

Details

- As per the S&P Global India Manufacturing Purchasing Managers' Index (PMI) India's manufacturing sector recorded an **improvement in new orders and output in April**.
 - A reading above 50 on the survey-based index indicates an expansion in business activity.

Key points of the report

- Overall export increased in April after a fall in March, but **consumer goods producers reported a decline**.
- Rising commodity prices pushed up input costs.
- Most producers did not change their employee strength in April, but a few reported a small increase.
- Major highlights of the report were an intensification of inflationary pressures, as energy price volatility, global shortages of inputs and the war in Ukraine pushed up purchasing costs.

Purchasing Managers' Index (PMI)

- PMI is compiled based on responses to questionnaires of about 400 manufacturers.
 - It surveys changes in the perception of key business as compared with the previous month.
- The **objective** is to provide information about the present and future business conditions to company decision-makers, analysts, and investors.
- It is **calculated separately** for the manufacturing and services sectors and then a **composite index** is also produced.
- The PMI is based on numbers **from 0 to 100**.
 - Anything **above 50 means expansion** and a score below 50 reflects contraction.
 - **Index at 50** indicates no change.
- If the **PMI of the last month is higher** than the PMI of the current month, then it reflects that the economy is tightening.
- It is **generally released at the start of every month**.
- It is believed to be a good leading indicator of economic activity.

SCIENCE & TECHNOLOGY

Sofia Telescope

Context

- NASA has decided to shut down Stratospheric Observatory for Infrared Astronomy (SOFIA) mission telescope that found water on Moon.

Details

- SOFIA is a **2.7-meter infrared telescope** sitting inside a Boeing 747SP airplane, flying at an altitude of 38,000-45,000 feet (about 12 kilometres) above the surface.
- SOFIA was a **joint project of NASA and the German Aerospace Center (DLR)** to construct and maintain an **airborne observatory**.
- During 10-hour, overnight flights, it **observes celestial magnetic fields, star-forming regions, comets, nebulae, black holes and the galactic centre**.
- SOFIA was designed to observe cosmic objects in far-infrared wavelengths.



Important Discoveries by SOFIA

- It discovered **water molecules on the sun-facing side of the Moon at the site- Clavius Crater**, located on Moon's southern hemisphere.
- SOFIA also **discovered helium hydride – the first molecule formed in the Universe** almost 14 billion years ago.
- SOFIA is the only instrument after Herschel that has the **capability of observing singly ionized carbon**, which is now understood to be an important tracer of the molecular gas in the local universe.
- SOFIA also **identified atmospheric circulation patterns in Jupiter**.
- It also **mapped the magnetic field within G47, one of Milky Way's spiral arms**. Magnetic fields can set the rate at which stars form in a cloud. They can guide the flow of gas & affect the quantity & size of the densest pockets of gas that will eventually collapse to form stars.

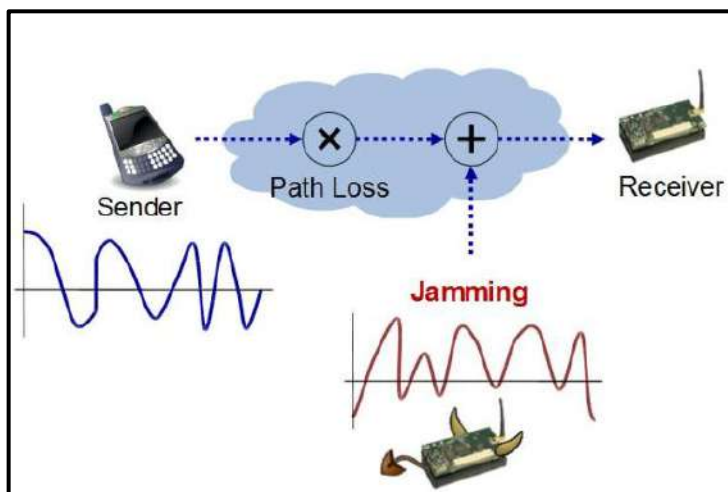
Wireless Jammer

Context

- Recently, Central Consumer Protection Authority has issued an advisory to e-commerce entities against the illegal sale and facilitation of wireless jammers.
- The sale and use of any wireless device without authorization and license under the Indian Telegraph Act is illegal.

Wireless jammers

- A Jammer is, a **signal blocking device, which transmits synchronized radio waves on the same frequency range of the device** that one needs to blur, therefore **preventing devices from transmitting data in the chosen area**.
 - Radar/Cell Phone Jammers
 - A Handheld jammer that can stop satellite signals
- All jamming device types have three main parts, as follows:
 - An antenna to connect the device.
 - A power supply or battery.
 - Circuitry, which includes a voltage-controlled oscillator, tuning circuit, noise generator and radio frequency (RF) amplification.
- Handheld jammers are capable of disrupting signals **within nine to 30 meters**, while more powerful jammers create a huge bubble stretching as far as a mile or 1.6 kilometres.
- A mobile communications jammer device transmits on the same frequency range as a cell-phone **to create strong cell tower interference and block cell-phone signals and call transmission**.
- Jammers are **usually undetectable**, and users may experience minimal effects such as poor signal reception.



- Wireless jammers are **capable of disrupting the authorized telecom & other wireless networks**. Therefore facilitation/ sale by the online platforms as well as any other off-line dealer/ seller for general consumption is viewed as an illegal activity.

Unique Disability ID (UDID) Scheme

Context

- As part of the celebrations of 75 years of Independence, the Union Social Justice and Empowerment Ministry has asked states to speed up implementation of the Unique Disability ID (UDID) scheme for persons with disabilities (PwD) in the 75 districts across India.

About

- About:** UDID project was **launched in 2016**. "Unique ID for Persons with Disabilities" project is being implemented with a view of creating a **National Database for PwDs**, and to issue a Unique Disability Identity Card to each person with disabilities.
- Objective:** The Objective of this project is to enable the PwDs to obtain the new UDID card / Disability Certificate **to avail schemes and benefits provided by the Government through its various Ministries and their Departments**. This card will be **valid pan-India**.
- Significance:** The project will not only **encourage transparency, efficiency and ease of delivering the government benefits** to the person with disabilities, but also ensure uniformity. The project will also **help in stream-lining the tracking of physical and financial progress of beneficiary at all levels** of hierarchy of implementation – from village level, block level, District level, State level and National level.

HS200 Solid Rocket Booster

Context

- The Indian Space Research Organisation (ISRO) has successfully carried out the static test of the HS200 solid rocket booster.

About

- Designed and developed by the Vikram Sarabhai Space Centre (VSSC) in Thiruvananthapuram the **HS200 booster is the 'human-rated' version of the S200 rocket boosters used on the geosynchronous satellite launch vehicle Mk-III (GSLV Mk-III)**, also called the LVM3.
- The GSLV Mk-III rocket, which will be used for the Gaganyaan mission, will have two HS200 boosters that will supply the thrust for lift-off.
- The 20 mt long HS200 booster with a diameter of 3.2 metres & is the **world's second largest operational booster using solid propellants**.
- Loaded with 203 tonnes of solid propellant, the HS200 booster was recently tested for a total duration of 135 seconds.
- The successful completion of this test marks a major milestone for the human space flight mission of ISRO, the Gaganyaan.
- Of the three propulsion stages of the GSLV Mk-III, the second stage uses liquid propellant while the third is a cryogenic stage.

Super Capacitor Device

Context

- Researchers have developed a low-cost device that can selectively capture carbon dioxide gas while it charges. Then, when it discharges, the carbon dioxide can be released in a controlled way and collected to be reused or disposed of responsibly.

Details

- The super-capacitor device, which is **similar to a rechargeable battery**, is the size of a coin, and is made **in part from sustainable materials including coconut shells and seawater**.
- The super-capacitor **could help power carbon capture and storage technologies at much lower cost**. The most advanced carbon capture technologies currently require large amounts of energy and are expensive. The charging-discharging process of this super-capacitor potentially uses less energy than the amine heating process used in industry now.

A capacitor is a **device that stores electrical energy in an electric field**. A supercapacitor (SC), is a high-capacity capacitor with a capacitance value much higher than other capacitors, but **with lower voltage limits**, that bridges the gap between electrolytic capacitors and rechargeable batteries. It typically **stores 10 to 100 times more energy per unit volume or mass than electrolytic capacitors**, can accept and deliver charge much faster than batteries, and tolerates many more charge and discharge cycles than rechargeable batteries. **Applications:** in automobiles, buses, trains, cranes and elevators, where they are used for regenerative braking, short-term energy storage etc.

Pulitzer Prize

Context

- A team of four Indian photographers from Reuters news agency have won the 2022 Pulitzer Prize for feature photography.

About

- The Pulitzer Prize is an award for achievements in newspaper, magazine, online journalism, literature, and musical composition within the United States.
- It was established in 1917 by provisions in the will of Joseph Pulitzer, and is administered by Columbia University.
- Prizes are awarded yearly in twenty-one categories. In twenty of the categories, each winner receives a certificate and a US\$15,000 cash award. The winner in the public service category is awarded a gold medal.
- In 2008, it was announced that content published in online-only news sources would also be considered, and, since 2016, print and online magazines, too, have been eligible to apply in all journalism categories.



Thomas Cup

Context

- India's men's badminton lifted the Thomas Cup title with a commanding 3-0 win over Indonesia.

About

- The Thomas Cup, sometimes called the World Men's Team Championships, is an international badminton competition among teams representing member nations of the Badminton World Federation (BWF), the sport's global governing body.
- The Thomas Cup competition was the idea of Sir George Alan Thomas, a highly successful English badminton player of the early 1900s.
- The championships have been conducted every two years since the 1982, amended from being conducted every three years since the first tournament held in 1948-1949.
- Of the 30 Thomas Cup tournaments held since 1948-1949, only six countries have won the title. Indonesia is the most successful team, having won 14 times.
- India is the current champion, having won its first title after beating title holders Indonesia 3-0 in the 2022 edition.

MARS

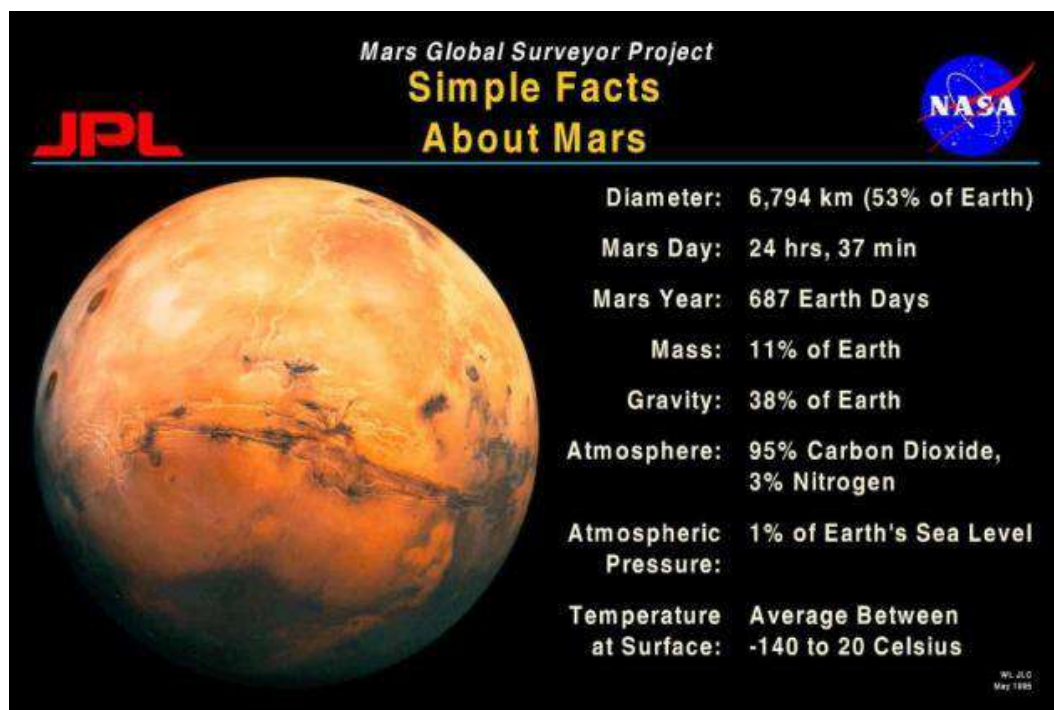
Context

- According to a new study Mars' dramatic shift from a warm and wet planet to a cold and dry one may have been chiefly driven by greenhouse gases other than carbon dioxide (CO₂).

Details

- Presence of riverbanks and deltas, prove that Mars was once home to rivers and lakes. Mars' climate was warm enough for lakes and rivers to develop 3-3.6 billion years ago.
- Presently, the atmosphere is too cold and thin to support the existence of liquid water on the surface.
- Many scientists think the loss of atmospheric carbon dioxide is responsible for this alteration. But recent study shows that this can be linked to the greenhouse effect only.

Mars has two small moons named Phobos and Deimos.





5G Test Bed

Context

- Prime Minister Narendra Modi inaugurated the country's first 5G testbed.

Test Bed

- A testbed is a **platform for experimentation of large development projects**. Testbeds allow for rigorous, transparent, and replicable testing of scientific theories, computational tools, and new technologies.

5G Test Bed

- The government sanctioned a 5G testbed that includes smart technologies as part of testing 5G-connected systems.
- Engineers test 5G products in a 5G testbed environment before a commercial rollout. This allows them to get a sense for how the product is performing in a reasonable approximation of real-world applications.

Significance

- In the absence of a 5G testbed, startups and other industry players were required to go abroad to test and validate their products for installation in a 5G network.
- It **will enable start-ups and industry players to test their products locally**, thereby reducing dependence on facilities abroad.
- The testbed will enable a supportive ecosystem for the Indian telecom industry and startups which **will help them validate their products, prototypes, solutions and algorithms in 5G and next-generation technologies**.

SECURITY & DEFENSE

Integrated Battle Groups

Context

- The Indian Army is in the advanced stages of putting together Integrated Battle Groups (IBGs) by reconfiguring its combat formations.
- The Indian Army has identified the holding formation on the Western front and a strike formation on the eastern or northern borders.

About IBG

- The IBGs are agile, brigade-sized, and self-sufficient combat formations.
- In case of hostilities, they can swiftly strike against the enemies.
- Every IBG will be tailor-made and will be based on the three Ts; Threat, Terrain, and Task.
- The IBGs will be self-contained fighting formations with the elements of every arm and service mixed as per the terrain and operational requirements.

- Each IBG will have troop strength of around 5,000, bigger than a Brigade (3000-3,500) but smaller than a division (10,000-12,000).
 - These will have a mix of every arm and service like Infantry, Artillery, Armoured, Engineers, Signals, Air Defence, and others.
- In the initial phase, the Army has decided to reconstitute its standing forces into 12 modernised IBGs.
 - The forces reassigned and reconstituted would be smaller but swifter with greater combat thrust.

AIP Technology

Context

- AIP Technology related to the Navy's P-75 India (P-75I) project was in the news recently.

AIP Technology

- Air-independent propulsion (AIP) technology is a kind of marine propulsion technology that allows a non-nuclear submarine to function without access to atmospheric oxygen.
- AIP could replace the diesel-electric propulsion system of non-nuclear vessels.
- Non-nuclear submarines running on AIP can be **virtually silent**.
- AIP is usually **used as an additional source**, with the traditional diesel engine handling surface propulsion.
 - The process generates electricity, which in turn recharges the boat's batteries.
 - The system is also used for providing hotel services, ventilation, lighting, heating etc.
- AIP can be added to an existing submarine.
- AIP does not provide the power to replace atmospheric dependent propulsion.

Navy's P-75 India (P-75I) project

- Project 75 or P-75, are a planned class of **diesel-electric submarines** that are to be built for the Indian Navy.
- Under the P-75 project, the Indian Navy to acquire **6 conventional, diesel-electric submarines**, that will also have some advanced capabilities including air-independent propulsion, Special operations forces, Anti-ship warfare, Anti-submarine warfare (ASW), and other features.
- All 6 submarines are expected to be **constructed in India, under the Make in India initiative** of the Union Government.

Warships of Indian Navy: Surat and Udaygiri

Context

- The Defence Minister has launched 2 frontline warships of the Indian Navy; 'Surat' and 'Udaygiri' at Mazagon Docks Limited (MDL), Mumbai.

Details

- 'Surat' is the 4th Guided Missile Destroyer of the P15B class.
- 'Udaygiri' is the 2nd Stealth Frigate of P17A class.
- Both warships have been designed by the Directorate of Naval Design (DND) and built at MDL, Mumbai.
- It will add strength to the Indian Navy's arsenal.
- The new warships are examples of India's growing indigenous capability.
- The Defence Minister has highlighted that India is a responsible maritime stakeholder in the region.
 - India supports consensus-based principles and peaceful, open, rule-based and stable maritime order.
- Indigenous construction of warships is in line with the Indian Government's vision of 'Aatmanirbhar Bharat'.

Project WARDEC

Context

- AI-Powered wargame centre WARDEC will use artificial intelligence to design virtual reality wargames.

Details

- The Army Training Command signed a memorandum of understanding (MoU) with Rashtriya Raksha University (RRU) to develop a 'Wargame Research and Development Centre' in New Delhi.
- The project is named 'WARDEC', it will use artificial intelligence (AI) to design virtual reality wargames.
- It will be used by the Indian Army to **train soldiers and test strategies through "metaverse-enabled gameplay"**.
- It will prepare the Indian army for counter-terror and counter-insurgency operations.



- The centre will be set up in a military zone in New Delhi.
- Soldiers will test their skills in the metaverse where their surroundings will be simulated **using a combination of virtual reality (VR) and Augmented reality (AR)**.
- Apart from the armed forces, the BSF, CRPF, CISF, ITBP and SSB can also use the metaverse-enabled simulation exercises for better training.
- The use of AI can provide a real experience as it can simulate a battlefield close to reality.

Exercise Bongosagar

In News

- The 3rd India-Bangladesh Naval Bilateral Exercise 'Bongosagar' was held at Port Mongla, Bangladesh on 24 May 22.
- It aims to improve the capacity of interoperability and joint operational skills through maritime exercises and operations.
- **Note:** Exercise **Sampriti** is a bilateral defence cooperation exercise between India and Bangladesh Armies.

INS Nirdeshak

In News

- 'Nirdeshak' is the 2nd of the 4 Survey Vessels (Large) (SVL) projects being built for the Indian Navy.
- The officer **launched the ship with the chanting of invocation from Atharva Veda**.
- The ship has taken the name from an old Indian Naval Survey named 'Nirdeshak' that was decommissioned after 32 years of service in Dec 2014.
- The Survey Vessel (Large) ships have a deep displacement of about 3400 tons and a complement of 235 personnel.
- The ship is designed to operate at a cruise speed of 14 knots and a maximum speed of 18 knots.
- The Ships would be used to **undertake full scale coastal and deep-water hydrographical surveys of Ports and navigational channels**.
 - The ships would also **collect oceanographic and geophysical data** for defence as well as civil applications.
- The ships are also capable of providing limited defence, besides serving as Hospital ships during emergencies.
- It will have over **80% indigenous content**. Thereby, **Promoting make in India and also generating employment** and capability build-up within the country.

ENVIRONMENT & ECOLOGY

Wild Boars

Context

- Recently the Kerala Government has authorised the local bodies to cull wild boars that pose a danger to crops or human life.

Details

- The State Government of Kerala had appointed wildlife wardens.
 - **Under Section 11-B (1) of the Wildlife (Protection) Act 1972, the Chief Wildlife Warden (CWW) is authorised to issue special orders to kill wild animals if the officer is satisfied that a certain animal has become harmful to human life or property.**
- Over 2,600 wild boars have been killed based on orders issued by the Chief Wildlife Warden (CWW).

Wild Boars

- They are sometimes called the **European wild boar**.
- They are swift, **nocturnal, and omnivorous and are good swimmers**.
- They have **sharp tusks**, and they are **normally unaggressive, but they can be dangerous**.
- They are found in temperate and tropical habitats, semi-desert to tropical rainforests, temperate woodlands, and grasslands.
- They are the **largest of the wild pigs** and are found in western and northern Europe, North Africa, India, and China.
- They are categorised as "**Least Concern**" under the IUCN List.

Trimeresurus Mayaae

Context

- **Trimeresurus Mayaae, a new species of snake has been discovered at Umroi Military Station in the Ri-Bhoi district of Meghalaya.**
- Locally it is known as U Thlen, it is believed to be a malevolent and evil spirit that takes the form of a huge, man-eating snake.

About *Trimeresurus Mayae*

- In Mizoram, the snake is named Maya's pit viper in honour of the late mother of Col Yashpal Singh Rathee, Maya.
- A new cryptic species of a green pit viper is described from northeast India, based on specimens collected from the state of Mizoram and Meghalaya.
- The new species is a member of the subgenus *Viridovipera* and is a sister to *Trimeresurus medoensis* based on molecular data for mitochondrial cytochrome b gene, whereas resembles *Trimeresurus Gumprecht*
- A species of the genus *Trimeresurus*, characterized by
 - Hemipenes are short and strongly spinose.
 - **Body green in both males and females.**
 - Interstitial skin black.
 - Moderate size, with a maximum total length of 750 mm.
 - Conspicuous bicoloured postocular stripe in males, thin and white below, wide and bright red above, faint white or no postocular stripe present in female
 - Vivid, wide bicoloured ventrolateral stripe, deep red below/white above in males, extending along the lower half of the tail, white in females
 - **Eyes rust coloured in males, green in females.**
 - Tail mostly rusty or reddish-brown.

Peoples Biodiversity Register

Context

- Kolkata prepared a detailed register of biodiversity and became the first major metropolitan city in India to do this.

Details

- **The Mayor of Kolkata revealed 520-page documentation of 399 plants and 283 animal species.**
- The species include:
 - Trees
 - Chinese vegetables
 - Medicinal plants
 - Other plants
 - Butterflies
 - Fish
 - Birds
 - Mammals
- The People's Biodiversity Register is a detailed report about the flora and fauna within the city, and it also highlights its land, uses and human activities.
- The report was prepared by Kolkata Municipal Corporation's Biodiversity Management Committee (BMC).
- According to the Mayor, The Register would help in fighting climate change.
- He announced that soon urban forestry zones will be set up to improve Kolkata's greenery cover.
 - The Forest Survey of India 2021 had flagged the West Bengal's Capital for the least greenery among all metro cities.

Sela Macaque

Context

- Scientists at the Zoological Survey of India (ZSI) have described a **new species of macaque from western Arunachal Pradesh**, which is genetically different from the other species of monkeys reported from this region.

About Sela Macaque

- 'Sela macaque' (*Macacaselai*) **name is derived from a local tribal woman 'Sela'.**
- The 'Sela pass' is named after her who supported Indian soldiers during the attack and invasion by the Chinese army in Tawang, Arunachal Pradesh.
- The ZSI has chosen this name to respect the brave local girl — Sela for the newly defined macaque species, which is also a phylogenetic divergent of the Arunachal macaque.
- Sela macaque is **genetically closer to the Arunachal macaque** and there are many physical characteristics similar between these two species like a heavy-build shape and long dorsal body hair.
- There are some distinct morphological characteristics; the Arunachal macaque has a dark face and dark brown coat colour while the Sela macaque has a pale face and brown coat colour.
- According to villagers, the Sela macaque is a major cause of crop loss in the West Kameng district of Arunachal Pradesh.
- The Arunachal Macaque is an endangered and recently discovered cercopithecine primate from Western Arunachal Pradesh.

Snow Leopard

Context

- Snow leopard conservationist Charudutt Mishra wins Whitley Gold Award.

Details

- He was awarded the **Whitely Gold Award** for his efforts to involve local communities in conserving the Snow leopard.

Snow Leopard

- Due to their position as the top predator in the food web, Snow leopards act as an indicator of the health of the mountain ecosystem.
- They are found in the mountainous regions of central and southern Asia.
- In India, they are found in;
 - **Western Himalaya:** Jammu and Kashmir, Himachal Pradesh.
 - **Eastern Himalaya:** Uttarakhand and Sikkim and Arunachal Pradesh.
- Hemis National Park in Ladakh is known for the good population of Snow Leopard.
 - Hemis, Ladakh is known as the Snow Leopard capital of the world.
- **Protection**
 - The Snow leopard is listed under the **vulnerable category** in the IUCN-World Conservation Union's Red List of the Threatened Species.
 - It is listed in **Appendix I of the Convention on International Trade of Endangered Species (CITES)**.
 - Trading of animal body parts is illegal in signatory countries.
 - Listed in **Schedule I of the Indian Wildlife (Protection) Act 1972**.
 - Listed in the Convention on Migratory Species (CMS), the highest conservation status for the species, both globally and India.
- **SECURE Himalaya:** The Global Environment Facility (GEF)-United Nations Development Programme (UNDP) funded the project on the conservation of high altitude biodiversity and reducing the dependency of local communities on the natural ecosystem.
- Snow Leopard is on the list of 21 critically endangered species for the recovery programme of the Ministry of Environment Forest and Climate Change.
- The Snow Leopard conservation breeding programme is undertaken at Padmaja Naidu Himalayan Zoological Park, Darjeeling, West Bengal.

Pantanal Wetland

Context

- Several Brazilian scientists have warned that the Pantanal Wetland is at risk of collapse.

Details

- The **Pantanal in South America is the world's largest wetland**.
- The Pantanal wetland spans over 179,000 sq km in **Brazil, Paraguay and Bolivia** in South America.
- According to the latest study, the Wetland is at the risk of collapse due to a series of decisions that failed to understand its impact on Earth's biodiversity and ecosystems.
- The wetland is threatened by local land-use patterns, deforestation in the Amazon rainforest, climate change on a global scale, severe drought and massive fires, etc.
- The Wetlands contain a mixture of decomposed organic material, partially submerged in a layer of water, lacking oxygen.
- Home to a variety of species, but their high carbon content makes them uniquely vulnerable to incineration if they are drained.



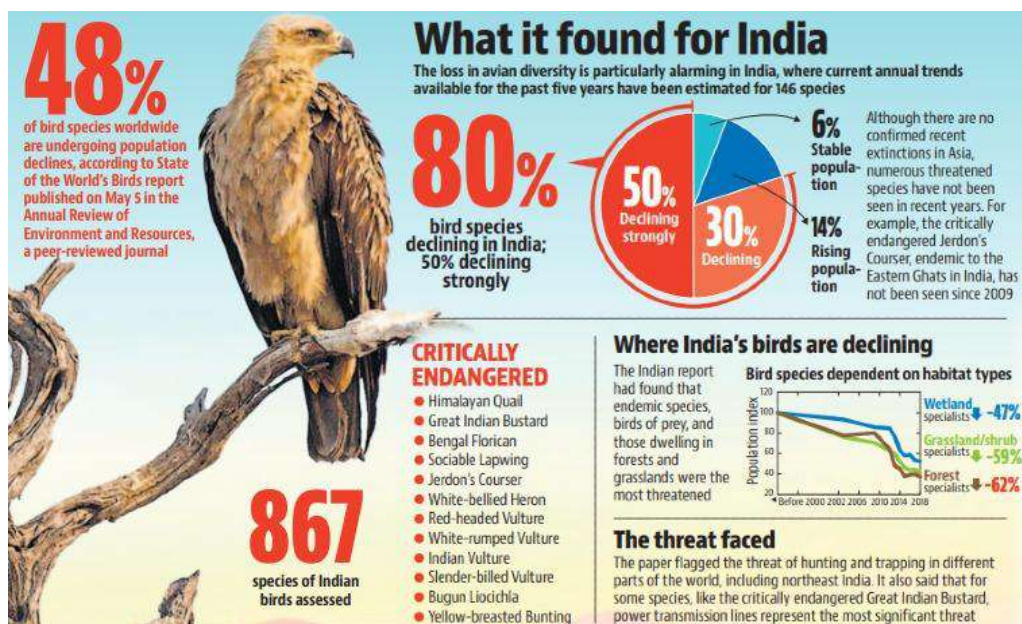
State Of World's Birds Report

Context

- The State of the World's Birds, an annual overview of environmental resources **published by the Manchester Metropolitan University (MMU)**.
- The report attributed the threat to almost half of the 10,994 recognised extant species of birds to the expanding human footprint on the natural world and climate change.

Key findings of the report

- Humans eat 14% of the world's surviving species of birds. However, this is not the only reason why 48% of the extant bird species are undergoing population decline, a study by nine renowned avian experts and conservationists has revealed.
- The **degradation and loss of natural habitats**, as well as direct overexploitation of many species, are the key threats to avian biodiversity.
- The use of 37% of the surviving bird species as common or exotic pets and 14% as food are examples of direct overexploitation, the report indicates.
- The review found that 5,245 or about 48% of the existing bird species worldwide were known or suspected to be undergoing population decline.
 - While 4,295 or 39% of the species had stable trends, about 7% or 778 species had increasing population trends. The trend of 37 species was unknown.
- The study underlines bird watching, a global pastime involving millions of people, as a form of avian conservation but **warns of "local negative impacts" of birds** feeding valued at \$5-6 billion per year and growing by 4% annually.
- Avian diversity peaks globally in the tropics and it is there that we also find the highest richness of threatened species.
 - We know **less about the fortunes of tropical bird species than we do about temperate ones**, but we are now witnessing the first signs of a new wave of extinctions of continentally-distributed bird species, which has followed the historic loss of species on islands like the dodo.
- The study, which involved Birdlife International, and the India-based Nature Conservation Foundation (NCF), reviewed changes in avian biodiversity using data from the International Union for Conservation of Nature's Red List to reveal the changes in fortunes of all the global bird species.
- Apart from tropical forests, the threat of natural grasslands has been particularly worrying for North America, Europe and India.
 - If unique ecosystems like grasslands are to retain their diverse birdlife, governments and research groups must prioritise such landscapes and their inhabitants for conservation and ensure that they do not become plantations or woodlands.



Seoul Declaration

Context

- Seoul Declaration focuses on identifying key areas that can help in the fight against multiple crises that humanity faces today.

Details

- 141 participant countries signed **Seoul Declaration to promote evidence-based forest and landscape decision-making and effective forest management**.
- The **objective is to restore degraded land across the globe**.
- The Seoul Declaration aims to **triple the investment in forest and landscape restoration by 2030**.
- The world needs to **scale up political will and increase financial and technical investments** to fight against forest degradation.
- Need to find a solution that must be inclusive for farmers, smallholders, forest communities, indigenous peoples, women and youth and respectful of their rights.
 - Need to empower them to participate in the decision-making process and sustainable forest management.
- The Declaration highlighted that the health of forests and humans is closely related and forest degradation can have "serious negative impacts on human health and well-being".
- It stated that forests must be maintained in a healthy and productive state to reduce the risk of future pandemics and to provide other essential benefits for the physical and mental health of mankind.

Agenda for COP15

- The fifteenth session of the Conference of the Parties (COP15) of the United Nations Convention to Combat Desertification (UNCCD) at Abidjan, Côte d'Ivoire, in May 2022, will bring together leaders from governments, the private sector, civil society and other key stakeholders from around the world to drive progress in the future sustainable management of land and will explore **links between land and other key sustainability issues**.
- A draft report has been prepared and will be discussed during the COP15.
- Drought, land restoration, and related enablers such as land rights, gender equality and youth empowerment are among the top items on the Conference agenda. Through its decisions adopted by UNCCD's 197 Parties, COP15 is expected to galvanize **sustainable solutions for land restoration and drought resilience**, with a strong focus on future-proofing land use.

About UNCCD

- The United Nations Convention to Combat Desertification (UNCCD) was **established in 1994 to protect and restore land and ensure a safer, just, and more sustainable future**.
- The UNCCD is the **only legally binding framework set up to address desertification** and the effects of drought.
- There are 197 Parties to the Convention, including 196 country Parties and the European Union.
- The Convention – based on the principles of participation, partnership and decentralization – is a **multilateral commitment** to mitigate the impact of land degradation, and protect land to provide food, water, shelter and economic opportunity to all people.
- The Convention unites governments, scientists, policymakers, the private sector and communities around a shared vision to restore and manage the world's land.
- This work is crucial to ensure the sustainability of the planet and the prosperity of future generations.

Dust Storms

Context

- Dust storms across the west Asian country were captured in satellite images by NASA on May 5 and May 16.

Details

- In West Asian Countries, dust storms strike every summer and winter.
 - However, **their intensity and frequency have increased in the last few years**.
- The topsoil layers are in a vulnerable position to erosion by the wind, helping generate dust and sand storms.
- The **weak environmental management policy** of West Asian countries is also to blame.
- A group of Scientists thinks that climate change could have been an important driver in increasing the frequency and intensity of these storms.
 - **Long-term changes** in air temperature, rainfall, wind speed, soil moisture and relative humidity due to climate change may have had some part to play in fuelling the dust storms.
 - A severe drop in the annual rainfall rate due to climate change can trigger sand and dust storms.
- **Environmental changes** like the drying of marshes, land degradation and desertification are also responsible.
- The west Asian countries need to build better water management practices and adopt suitable irrigation methods to minimise the number of dust storms.

Impact on India

- Dust storms can **travel over thousands of kilometres from west Asia and enter India** either through land or the Arabian Sea.
- Dust from the Arabian Peninsula reaches over the western parts of India, in Rajasthan after passing through Iran, Iraq, Afghanistan and Pakistan.
- The dust **can reach the Indo-Gangetic plain too**, depending on temperature, wind speed and other meteorological conditions.
- Dust storms can transport a range of pollutants:

◦ Pesticides	◦ Biological components	◦ Gases
◦ Heavy metals	(bacteria, fungi and spores)	
◦ PM10 and PM2.5	◦ Potential allergens	
- The **dust settles on the Himalayas**, As a result, it absorbs more sun, quickening its melting, studies suggested.
- Over the Indo-Gangetic Plains, the dust can mix with the anthropogenic emissions of the cities.

Ramgarh Vishdhari Wildlife Sanctuary

Context

- The Union Minister for Environment, Forest and Climate Change (MoEFCC) has notified **Ramgarh Vishdhari Wildlife Sanctuary in Rajasthan as the 52nd Tiger Reserve in India**.
- It will help in conserving biodiversity and bring ecotourism and development to the area.
- The newly notified tiger reserve includes the tiger habitat between Ranthambore Tiger Reserve in the northeast and Mukundra Hills Tiger Reserve on the southern side and facilitates the dispersal of tigers from Ranthambore Tiger Reserve.

About Ramgarh Vishdhari Wildlife Sanctuary

- The Ramgarh Vishdhari Sanctuary will be spread across 1,071 sq km.
- A 302 sq Km area in the notified tiger sanctuary will be left as critical habitat for Tigers and the rest of the area will act as a buffer zone for the Ranthambore National Park.
- Ramgarh Vishdhari Wildlife Sanctuary was established in 1982.
- The core areas of the sanctuary have 8 villages and are home to large numbers of wild animals like sambhars, caracals, wild boars, Nilgai, and striped hyenas.

Barb Fish

News

- Scientists at the Kerala University of Fisheries and Ocean Studies (Kufos) have standardised the techniques for artificial breeding of Olive barbs (KuruvaParal)
- They are the freshwater species; indiscriminate fishing and changes in habitat conditions have brought the species to the brink of extinction.
- The conservation measures are supported under the United Nations Development Programme (UNDP)

Lancet Report on Pollution and Health

Context

- A recent study, **The Lancet Planetary Health by the Lancet Commission on Pollution and Health** reflects that air pollution caused nearly nine million deaths in 2019, or about one in six deaths worldwide.

Key highlights of the report

- The health impacts of pollution remain enormous and low- and middle-income countries bear the brunt of this burden.
- The 2017 Lancet Commission on Pollution and Health, using data from the 2015 Global Burden of Disease (GBD) study, found that pollution was responsible for an estimated nine million deaths – 16% of all deaths globally.
- Water pollution was responsible for 1.36 million premature deaths. Lead contributed to 900,000 premature deaths, followed by toxic occupational hazards at 870,000 deaths.
- **The decline in deaths from traditional pollution since 2000** (household air pollution from solid fuels and unsafe water) is most evident in Africa.
 - This can be explained by water supply and sanitation improvements, antibiotics and treatments, and cleaner fuels.
- **Ambient air pollution was responsible for 4.5 million deaths in 2019**, up from 4.2 million deaths in 2015 and 2.9 million in 2000.
- Deaths from hazardous chemical pollutants increased from 0.9 million in 2000 to 1.7 million in 2015, to 1.8 million in 2019, with 900,000 deaths attributable to lead pollution in 2019.
- Overall, deaths from modern pollution have increased by 66% in the past two decades, from an estimated 3.8 million deaths in 2000 to 6.3 million deaths in 2019.
- **Excess deaths due to pollution have led to economic losses totalling US\$ 4.6 trillion in 2019**, equating to 6.2% of global economic output.

DISASTER MANAGEMENT

International Conference on Disaster Resilient Infrastructure

Context

- The Coalition for Disaster Resilient Infrastructure (CDRI) in partnership with the United States Agency for International Development (USAID) commenced the International Conference on Disaster Resilient Infrastructure 2022.

ICDRI

- **About:** The International Conference on Disaster Resilient Infrastructure (ICDRI) is the **annual conference of the Coalition for Disaster Resilient Infrastructure (CDRI)**.
- **Aim:** It brings together member countries, organizations and institutions **to strengthen the global discourse on disaster and climate resilient infrastructure**.

CDRI

- **About:** CDRI is a multi-stakeholder global partnership of national governments, UN agencies and programmes, multilateral development banks, the private sector, academic and knowledge institutions.
- **Mandate:** CDRI is led and managed by national governments, where knowledge is generated and exchanged on different aspects of disaster resilience of infrastructure. The aim is to **promote disaster-resilient infrastructure**. Its objective is to

promote research and knowledge sharing in the fields of infrastructure risk management, standards, financing, and recovery mechanisms.

- **Initiative and partners:** Launched by India, at the 2019 UN Climate Summit, the Coalition for Disaster Resilient Infrastructure (CDRI) includes -

Afghanistan, Argentina, Australia, Bhutan, Chile, Fiji, France, Germany, India, Italy, Jamaica, Japan, Maldives, Mauritius, Mongolia, Nepal, Netherlands, Peru, Sri Lanka, Turkey, the United Kingdom and the United States of America.

- **Supporting Partners**-The World Bank Group, The Asian Development Bank, The United Nations Development Programme (UNDP), The United Nations Office for Disaster Risk Reduction (UNDRR), The Private Sector Alliance for Disaster Resilient Societies (ARISE) and Coalition for Climate Resilient Investment (CCRI) are supporting partners.

Cyclone Asani

Context

- The deep depression over the Andaman Sea did not eventually intensify into a tropical storm that it was supposed to i.e - Cyclone Asani.

How was Asani named?

- The name of the cyclone is given by Sri Lanka. The word Asani means 'wrath' in Sinhala.

What are tropical cyclones?

- Tropical cyclones are low pressure systems that form over warm tropical waters.
- Tropical cyclones can continue for many days, even weeks, and may follow quite erratic paths.
- Tropical cyclones are dangerous because they can produce extreme winds, heavy rainfall with flooding and damaging storm surge that can cause inundation of low-lying coastal areas.

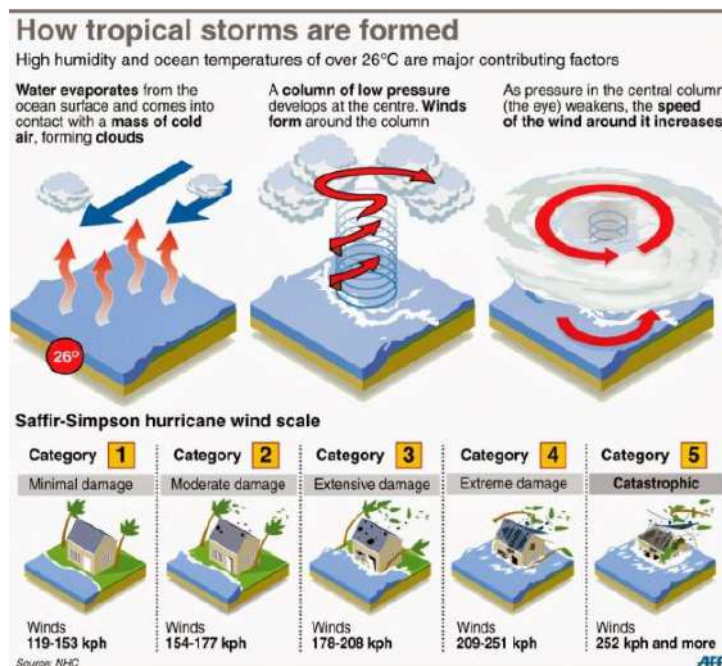
Conditions for development of Tropical Cyclones

- Sufficiently warm sea surface temperatures (higher than 26° C),
- Atmospheric instability,
- High humidity in the lower to middle levels of the troposphere,
- Enough Coriolis force to sustain a low pressure center,

Some Cyclones that hit India

- Cyclone Jawad - Bay of Bengal
- Cyclone Gulaab- Bay of Bengal
- Cyclone Tauktae-Arabian Sea
- Cyclone Yaas- Bay of Bengal
- Cyclone Nisarga-Arabian Sea
- Cyclone Amphan- Bay of Bengal

Read: <https://www.iasgyan.in/daily-current-affairs/cyclone-asani>



- A pre-existing low level focus or disturbance, and
- Low vertical wind shear.

- Cyclone Kyarr - Arabian Sea
- Cyclone Hikka- Arabian Sea
- Cyclone Fani- Bay of Bengal
- Cyclone Bulbul- Bay of Bengal
- Cyclone Kyarr-Arabian Sea



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