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QUAD LEADER SUMMIT



**CHAM
DANCE**



**WOMEN
IN JUDICIARY**



**BAD
BANK**

A MONTHLY PERIODICAL FOR ASPIRANTS OF UPSC EXAMINATION



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GENERAL STUDIES - I

SAMVATSARI

GS-I CULTURE & HERITAGE

Context

- The Prime Minister, Shri Narendra Modi has greeted the people on the occasion of Samvatsari.

About

- Samvatsari is the last day of Paryushana Shwetambar sect of Jainism.
- On this day, Jains forgive and seek forgiveness for their mistakes committed knowingly or unknowingly from all the living beings.
- A yearly, elaborate penitential retreat called "samvatsari pratikramana" is performed on this day.
- After the pratikramana, Jains seek forgiveness from all the creatures of the world, including friends and relatives by uttering the phrase – Micchami Dukkadam or its variants like "Khamau Sa", "Uttam Kshama" or "Khamat Khamna".
- While Samvatsari and Kshamavaani are typically associated with Shwetambar sect and Digambara respectively, there is no major difference between the two days and both are observed as Forgiveness Days.

BATTLE OF SARAGARHI

GS-I MODERN HISTORY

Context

- September 12 marks the 124th anniversary of the Battle of Saragarhi.

What is the Battle of Saragarhi?

- The Battle of Saragarhi was a last-stand battle fought before the Tirah Campaign between the British Raj and Afghan tribesmen.
- On 12 September 1897, an estimated 12,000 – 24,000 Orakzai and Afridi tribesmen were seen near Gogra, at Samana Suk, and around Saragarhi, cutting off Fort Gulistan from Fort Lockhart.
- The Afghans attacked the outpost of Saragarhi where thousands of them swarmed and surrounded the fort, preparing to assault it.
- Led by Havildar Ishar Singh, the 21 soldiers in the fort—all of whom were Sikhs—refused to surrender.
- The post was recaptured two days later by another British Indian contingent.
- The Indian Army's 4th battalion of the Sikh Regiment commemorates the battle every year on the 12th of September, as Saragarhi Day.

Why was Saragarhi important?

- Saragarhi was the communication tower between Fort Lockhart and Fort Gulistan.
- The two forts in the rugged North West Frontier Province (NWFP), now in Pakistan were built by Maharaja Ranjit Singh but renamed by the British.
- Saragarhi helped to link up the two important forts which housed a large number of British troops in the rugged terrain of NWFP.
- Fort Lockhart was also home to families of British officers.

THAMIRABARANI CIVILIZATION

GS-I ANCIENT HISTORY

Context

- A US-based lab has carbon-dated the remaining discovered from an ancient civilization in Tamil Nadu to at least 3,200 years.

About

- The finding has established that the Porunai River (Thamirabarani) civilization dates back to 3,200 years.
- The results of the Beta Analytic Testing showed that rice and soil existed dates back to 1155 BCE.
- This is the oldest civilization perhaps, older than the Vaigai civilization which is believed to be 2,600 years old.



Thamirabarani River

- The Thamirabarani or Tamraparni or Porunai is a perennial river that originates from the Agastyarkoodam peak of Pothigai hills of the Western Ghats.
- It flows through Tamil Nadu into the Gulf of Mannar.
- It was called the Tamraparni River in the pre-classical period, a name it lent to the island of Sri Lanka.
- The old Tamil name of the river is Porunai.



SHANKAR SHAH MARAVI

GS-I MODERN HISTORY

Context

- Union Minister of Home Affairs paid tributes to the great patriot King Shankar Shah and his son Kunwar Raghunath Shah in Jabalpur, Madhya Pradesh.

About

- Shankar Shah Maravi was the king of Garha Kingdom, which was situated in the Indian region of Gondwana.
- He led an uprising against the British colonial occupiers of India, and was put to death along with his son.
- King Shankar Shah and his son Raghunath Shah, both were good poets so they used their poetry to trigger a rebellion against the British in the state.
- The hard-hitting poetry used by the two had struck a chord with the public and Indian soldiers in the British army as well.
- On September 18, 1857; the two (king and the prince) were tied to the cannons but the fearless father-son duo recited an inspirational poem even despite seeing their end in front of them.

PARSHURAM KUND

GS-I CULTURE & HERITAGE

Context

- Union Minister for Tourism laid the foundation stone for the "Development of Parshuram Kund, Lohit District, Arunachal Pradesh.

About

- The project is sanctioned under the Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive' (PRASHAD) Scheme of Ministry of Tourism.
- The components sanctioned include Interventions near the Parking area, Tourist Information Centre, Rain Shelters, Kiosks, interventions near Mela ground, View Points, Souvenir Shops, Water Supply line, Approach Road, Food Court/ Prasadam Centre etc.

Prashad Scheme

- The 'National Mission on Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive' (PRASHAD) is a Central Sector Scheme with complete financial assistance by the Government of India.
- The scheme is launched by the Ministry of Tourism in the year 2014-15 with the vision of focused infrastructure development to harness pilgrimage and heritage tourism destinations for its direct and multiplier effect upon employment generation and economic development.
- The scheme aimed at infrastructure development to envisage world class infrastructural development of the sites with special emphasis on Tourist Facilities including Tourist Facilitation Centers, way-side amenities Parking, Public convenience, Illumination and Sound and Light Shows.

NATIONAL MISSION ON CULTURAL MAPPING

GS-I CULTURE & HERITAGE

Context

- The National Mission on Cultural Mapping (NMCM) has now been handed over to the Indira Gandhi National Centre for the Arts (IGNCA), which is gearing up for a trial run in 75 villages in October 2021.

Details

- The Culture Ministry approved the mission in 2017.
- Culture Ministry was working on the cultural mapping mission to build a comprehensive database of artists, art forms and other resources from organizations under the Ministry.
- The work on creating a database for folk arts and mapping of heritage of villages would be carried out over five years.
- The IGNCA would aim to complete mapping in 5,000 villages by the end of financial year 2021-2022.

CHAM DANCE

GS-I CULTURE & HERITAGE

Context

- Recently, a documentary 'Dance of Liberation of the Lamas' captured the spiritual experience of the Cham.

About

- The Cham Dance is a **vibrant masked and costumed ritual with roots in Buddhism**.
- Associated with the Tibetan Buddhism** it is a religious tradition performed by monks.
- The ritual is performed for the **greater good of humanity, destruction of bad spirits and for moral instruction to viewers**.
- The dance ritual of Cham is till date practiced in Himalayas, especially in places where Tibetan Buddhism prospered in India- **Ladakh, Dharamshala, Lahaul Valley, Spiti Valley & Sikkim, and Bhutan and Tibet**.
- The dance is the highlight of Buddhist festivals and special events of the monasteries.



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RANK 122



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RANK 166



ASHISH GANGWAR
RANK 188



NAMAN KUMAR
RANK 197



PRATIBHA DAHIYA
RANK 214



SHUBHAM BAJAJ
RANK 232

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RIVER UMNGOT- MEGHALAYA

GS-I GEOGRAPHY

Context

- The Meghalaya government has “scrapped” an agreement with private power developers to execute the proposed **210 MW Umngot hydroelectric project** following protests.

What is the issue?

- People of at least a dozen villages **fear the death of Umngot River and their tourism-based livelihood if the 210 MW hydroelectric project comes up.**
- The villages are near the border with Bangladesh in East Khasi Hills district** but the dam is proposed upstream in the adjoining West Jaintia Hills district.
- The project documents say **people of 13 villages along the Umngot are likely to lose 296 hectares of land due to submergence if the dam comes up.**

Umngot River

- The Umngot River attracts many tourists **to Dawki in West Jaintia Hills district, Meghalaya.**
- It is one of the **cleanest rivers in India.**
- Located in **Meghalaya** this river is the **natural boundary between Ri Pnar (of Jaintia Hills) with Hima Khyrim (of Khasi Hills)** over which hangs a single span suspension bridge.
- It is the **gateway to Bangladesh.**

ANATOMY OF THE SUN

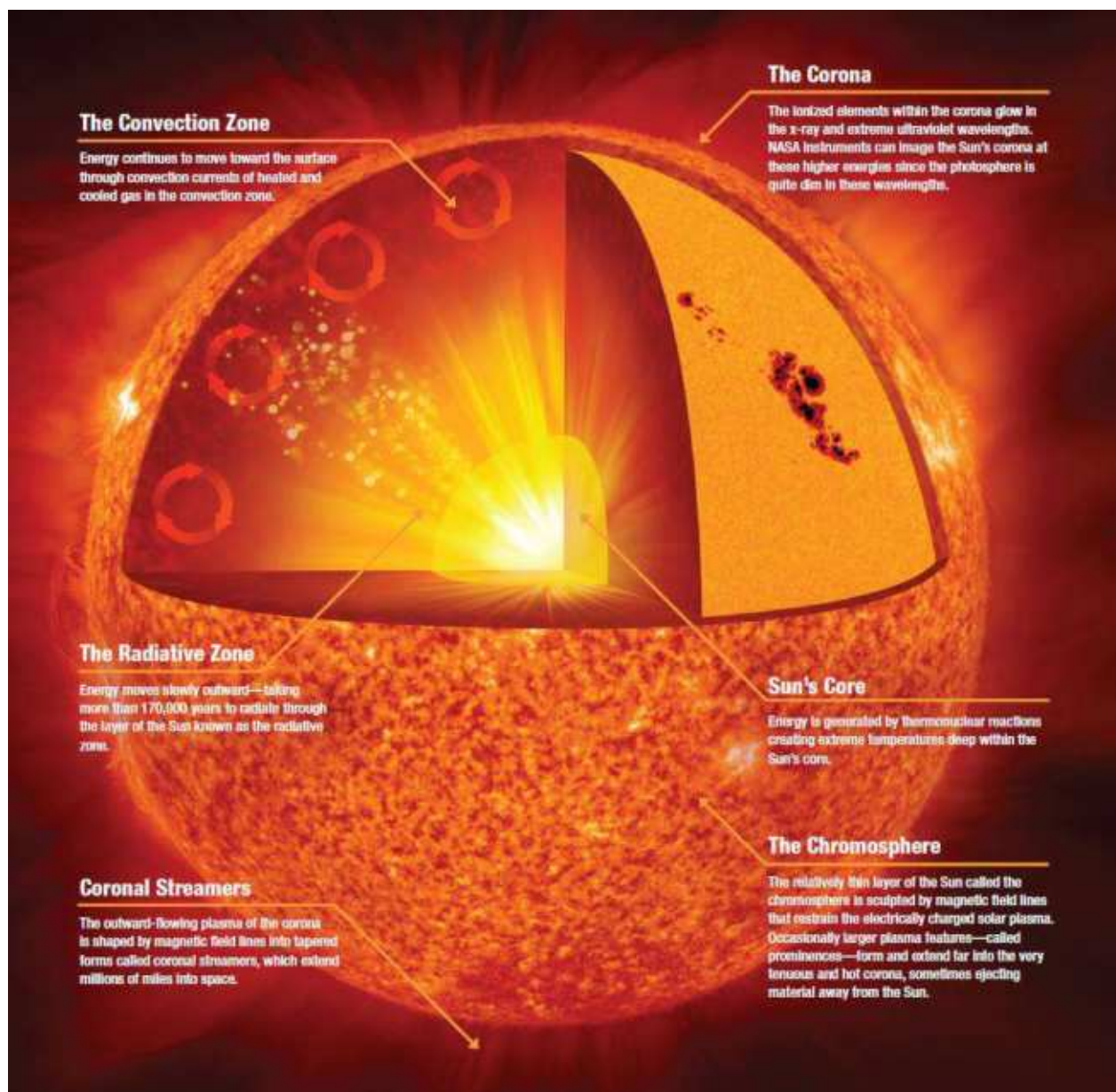
GS-I GEOGRAPHY

Context

- Indian Scientists, along with international collaborators, have measured the magnetic field of an eruption from the Sun's atmosphere (by observing the weak thermal radio emission associated with the erupted plasma for the first time), offering a rare peek to the interior of the Sun.

Layers of the Sun

- Photosphere** - The photosphere is the deepest layer of the Sun that we can observe directly. It reaches from the surface visible at the center of the solar disk to about 250 miles (400 km) above that. The temperature in the photosphere varies between about 6500 K at the bottom and 4000 K at the top (11,000 and 6700 degrees F, 6200 and 3700 degrees C). Most of the photosphere is covered by granulation.
- Chromosphere** - The chromosphere is a layer in the Sun between about 400 km and 2100 km above the solar surface (the photosphere). The temperature in the chromosphere varies between about 4000 K at the bottom (the so-called temperature minimum) and 8000 K at the top (6700 and 14,000 degrees F, 3700 and 7700 degrees C), so in this layer (and higher layers) it actually gets hotter if you go further away from the Sun, unlike in the lower layers, where it gets hotter if you go closer to the center of the Sun. This relatively thin layer of the Sun is sculpted by magnetic field lines that restrain the electrically charged solar plasma. Occasionally larger plasma features, called prominences, form and extend far into the very tenuous and hot corona, sometimes ejecting material away from the Sun.
- Transition Region** - The transition region is a very narrow (60 miles / 100 km) layer between the chromosphere and the corona where the temperature rises abruptly from about 8000 to about 500,000 K (14,000 to 900,000 degrees F, 7700 to 500,000 degrees C).
- Corona** - The corona is the outermost layer of the Sun, starting at about 1300 miles (2100 km) above the solar surface (the photosphere). The temperature in the corona is 500,000 K (900,000 degrees F, 500,000 degrees C) or more, up to a few million K. The corona cannot be seen with the naked eye except during a total solar eclipse, or with the use of a coronagraph. The corona does not have an upper limit. The ionized elements within the corona (or solar atmosphere) glow in the x-ray and extreme ultraviolet wavelengths.
- Coronal Streamers** - The outward flowing plasma of the corona is shaped by magnetic field lines into tapered forms called coronal streamers, which extend millions of miles into space.



PERMAFROST

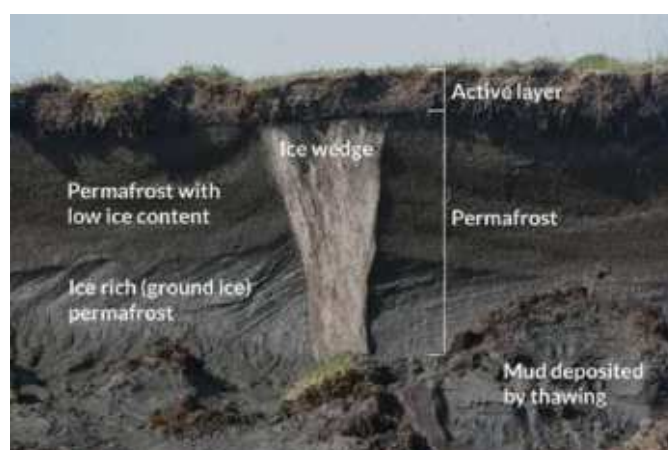
GS-I GEOGRAPHY

Context

- The latest IPCC report has warned that increasing global warming will result in reductions in Arctic permafrost and the thawing of the ground is expected to release greenhouse gases like methane and carbon dioxide.

What is Permafrost?

- Permafrost is any ground that remains completely frozen — 32°F (0°C) or colder—for at least two years straight.
- These permanently frozen grounds are most common in regions with high mountains and in Earth's higher latitudes — near the North and South Poles.
- Permafrost covers large regions of the Earth. Almost a quarter of the land area in the Northern Hemisphere has permafrost underneath.
- Although the ground is frozen, permafrost regions are not always covered in snow.
- Permafrost is made of a combination of soil, rocks and sand that are held together by ice. The soil and ice in permafrost stay frozen all year long.



- Near the surface, permafrost soils also contain large quantities of organic carbon—a material leftover from dead plants that couldn't decompose, or rot away, due to the cold. Lower permafrost layers contain soils made mostly of minerals.
- A layer of soil on top of permafrost does not stay frozen all year. This layer, called the active layer, thaws during the warm summer months and freezes again in the fall.
- In colder regions, the ground rarely thaws—even in the summer.
- There, the active layer is very thin—only 4 to 6 inches (10 to 15 centimeters).
- In warmer permafrost regions, the active layer can be several meters thick.

Thawing of Permafrost

- When surface air temperatures rise, below-ground temperatures do, too, thawing permafrost along the way.
- While global warming is upping temperatures around the world, the Arctic is warming twice as fast as anywhere else—and faster than it has in the past 3 million years.
- Scientists estimate there is now 10 percent less frozen ground in the northern hemisphere than there was in the early 1900s.
- One recent study suggests that with every additional 1.8°F (1°C) of warming, an additional 1.5 million square miles of permafrost could eventually disappear.
- Even if we meet the climate targets laid out during the 2015 Paris climate talks, the world may still lose more than 2.5 million square miles of frozen turf.

Impacts of Permafrost Thawing

The loss of greenhouse gas stores

- When plants and animals die, the microbes that decompose their bodies release carbon dioxide, methane, and other global warming gases into the air.
- A deep freeze effectively hits the pause button on that process and preserves organisms and the gases they would otherwise emit underground.
- When frozen soil thaws, the microbial decomposition of those organic materials—and the release of greenhouse gases—starts anew.

Crumbling infrastructure

- About 35 million people live in a permafrost zone, in towns and cities built on top of what was once considered permanently frozen ground.
- But as that solid ground softens, the infrastructure these communities rely on grows increasingly unstable.
- In the northwest of Canada, now we have a short section of the road where it has been necessary to chill the ground to make the foundation of the road colder than it is, in order to preserve the permafrost.

Altered landscapes

- Thawing permafrost alters natural ecosystems in many ways.
- It can create **thermokarsts**, often characterized by “drunken forests”.
- It can make soil—once frozen solid—more vulnerable to landslides and erosion, particularly along coasts.
- It can alter the flow of rivers and streams, degrade water quality and impact aquatic wildlife.
- Wetlands also deteriorate along with permafrost, as the water sinks further underground without a frozen buffer to keep it in place.
- This can create drier terrain more susceptible to wildfires, which expose even more permafrost to warming.
- The loss of permafrost will contribute to sea level rise.

Risk of diseases

- Just as permafrost locks in carbon and other greenhouse gases, it can also trap—and preserve—ancient microbes. Some bacteria and viruses lie dormant for thousands of years in permafrost's cold, dark confines before waking up when the ground warms.
- A 2016 anthrax outbreak in Siberia, linked to a decades-old reindeer carcass infected with the bacteria and exposed by thawed permafrost, demonstrated the potential threat.

Steps to stop permafrost from Thawing

- Reducing carbon footprint
- Investing in energy-efficient products
- To follow a 1.5°C-consistent pathway, the world will need to decrease fossil fuel production by roughly 6 per cent per year between 2020 and 2030.
- Global CO₂ emissions need to be reduced by 45% over the next decade, and that they fall to zero after 2050.
- By supporting climate-friendly businesses, legislation, and policies, we can help preserve the world's permafrost and avert a vicious cycle of an ever-warming planet.

INDIA'S HYDROGEN POLICY

GS-I GEOGRAPHY

Context

- Indian Railways' green fuel vertical Indian Railways Organisation of Alternate Fuel (IROAF) has launched bids for the development of hydrogen fuel cell-based train on Indian Railways network.
- This project is expected to promote the concept of hydrogen mobility in India.

How Does Hydrogen Fuel Help?

- Hydrogen is the fuel of stars and packs awesome energy. It is also the most abundant element in the universe.
- But on Earth it is found in complex molecules such as water or hydrocarbons.
- The by-product **the burning of hydrogen produces is water.**
- The World Energy Council (WEC) says that **"combusting one kilo of hydrogen releases three times more energy than a kilo of gasoline and produces only water".**
- Then, there are hydrogen fuel cells, which is "an electrochemical cell that converts the chemical energy of hydrogen and oxygen into electricity", whose waste product, again, is water.
- Fuel cells can produce electricity continuously for as long as hydrogen and oxygen are supplied.
- Whether it's used in a fuel cell or burned to create heat, wherever hydrogen replaces fossil fuels, it slows global warming.
- The added advantage of hydrogen is that, apart from transportation, it can be a "decarbonising agent" for industries like chemicals, iron, steel, fertiliser and refining, transport, heat and power.

The case for green hydrogen

- Green hydrogen has specific advantages.
- One, it is a **clean burning molecule**, which can decarbonise a range of sectors including iron and steel, chemicals, and transportation.
- Two, **renewable energy that cannot be stored or used by the grid** can be channelled to produce hydrogen.
- India's electricity grid is **predominantly coal-based** and will continue to be so, thus **negating collateral benefits from a large-scale EV push** — as coal will have to be burnt to generate the electricity that will power these vehicles.
- In several countries that have gone in for an EV push, much of the electricity is generated from renewables — in **Norway** for example, it is 99 percent from hydroelectric power.
- Experts believe hydrogen vehicles can be especially **effective in long-haul trucking and other hard-to-electrify sectors** such as shipping and long-haul air travel.
- Using **heavy batteries in these applications** would be counterproductive, especially for countries such as India, where the electricity grid is predominantly coal-fired.

India's efforts in this field

- India has announced a **National Hydrogen Mission its 75th Independence Day.**
- The aim is to make the country a global hub for the production and export of green hydrogen.
- The potential of hydrogen as a game changer in the energy arena has long been known — its versatility allows it to be utilised in transportation, power generation and industry — and increasing concerns around climate change are driving efforts by countries to quickly induct it into their energy mix to achieve the target of becoming a low-carbon economy.

Green hydrogen Status

- Less than 1% of hydrogen produced in the world is green hydrogen.
- India consumes about six million tonnes of hydrogen every year. This could increase to 28 million tonnes by 2050.

Kinds of Hydrogen

Hydrogen is most likely the energy of the future. However, it takes gobs of energy to produce and the question is what kind of energy is used to produce it.



Brown Hydrogen

Derived from process of coal gasification that produces synthesis gas containing a mixture of carbon dioxide, carbon monoxide, hydrogen, methane and ethylene. A highly polluting substance.



Grey Hydrogen

Obtained from natural gas. It's production generates large amounts of carbon dioxide. It is the cheapest process today but carbon taxes may make it more costly in the near future.



Blue Hydrogen

Also produced by hydrocarbons but the emissions are captured and sequestered in the process. This process is slower and costly but offers promise for the future since it will avoid carbon tax strategies.



Green Hydrogen

It is not created by fossil fuels, instead from the hydrolysis of water by means of electricity obtained from renewable sources like wind and solar. The cost of this hydrogen is dropping at a phenomenal rate and offers promise to make hydrogen the fuel of the near future.

- India has favorable geographic location and abundance of sunlight and wind for the production of green hydrogen.
- India will become a net exporter of green hydrogen by 2030 due to its cheap renewable energy tariffs, according to the Global Hydrogen Council.
- Green hydrogen currently costs or Rs 371-446, which is nearly triple the cost of grey hydrogen.
- The price will decrease further as production and sales increase.

Challenges

- **The problem of critical mass:** Despite its promise, hydrogen technology is yet to be scaled up. Tesla CEO Elon Musk has called fuel cell technology “**mind- bogglingly stupid**”.
- A big barrier to the adoption of hydrogen fuel cell vehicles has been a **lack of fueling station infrastructure** — fuel cell cars refuel in a similar way to conventional cars, but can't use the same station.
- **Safety** is seen as a concern. Hydrogen is pressurised and stored in a **cryogenic tank**, from there it is fed to a **lower-pressure cell** and put through an **electro-chemical reaction to generate electricity**.

What can be done to build a global-scale green hydrogen industry?

- Launch an incentive programme for the production of electrolyzers.
- Implementing complementary solutions that create virtuous cycles for ex. building the hydrogen infrastructure for refueling, heating and generating electricity at airports.
- Optimising distribution networks to decarbonise the gas grid.

Final Thoughts

- Under the Paris Climate Agreement, India pledged to reduce the emission intensity of its economy by 33-35 per cent from 2005 levels by 2030.
- Our ability to produce large quantities of green hydrogen will play a major role in providing an alternative to fossil fuels as we transition to low emissions and work towards a clean, healthy environment.
- Through the use of green hydrogen, we can foresee a sustainable future in handling increased demand of clean energy.
- Scaling up the technology and achieving critical mass remains the big challenge.
- More vehicles on the road and more supporting infrastructure can lower costs.
- India's proposed mission is seen as a step in that direction.



FAROE ISLANDS

GS-I GEOGRAPHY

Context

- The traditional annual killing of whales and dolphins sparked controversy after it emerged that over 1,400 of the marine animals were killed in this year's event in Faroe Islands.
- More than 1,400 **white-sided dolphins** were killed.

Details

- The Faroe are a **North Atlantic archipelago** located 320 kilometres north-northwest of Scotland, and about halfway between Norway and Iceland.
- Like Greenland, it is an **autonomous territory of the Kingdom of Denmark**.
- The Atlantic white-sided dolphin is a distinctively coloured dolphin found in the cool to temperate waters of the North Atlantic Ocean.
- The species is **endemic to the North Atlantic Ocean**.
- The distribution limits are Norwegian sea in the north east; Davis Strait in the north west; North Carolina in the south west and Celtic Sea in the south east (possible range extension to the Azores).



Conservation Status

- IUCN: Least Concern
- CITES: Appendix II

Context

- The Odisha government sounded a warning for the cyclonic storm Gulab, which is expected to cross the coast between its southern districts and north Andhra Pradesh with wind speeds of 75-85 kmph on Sunday evening.

About

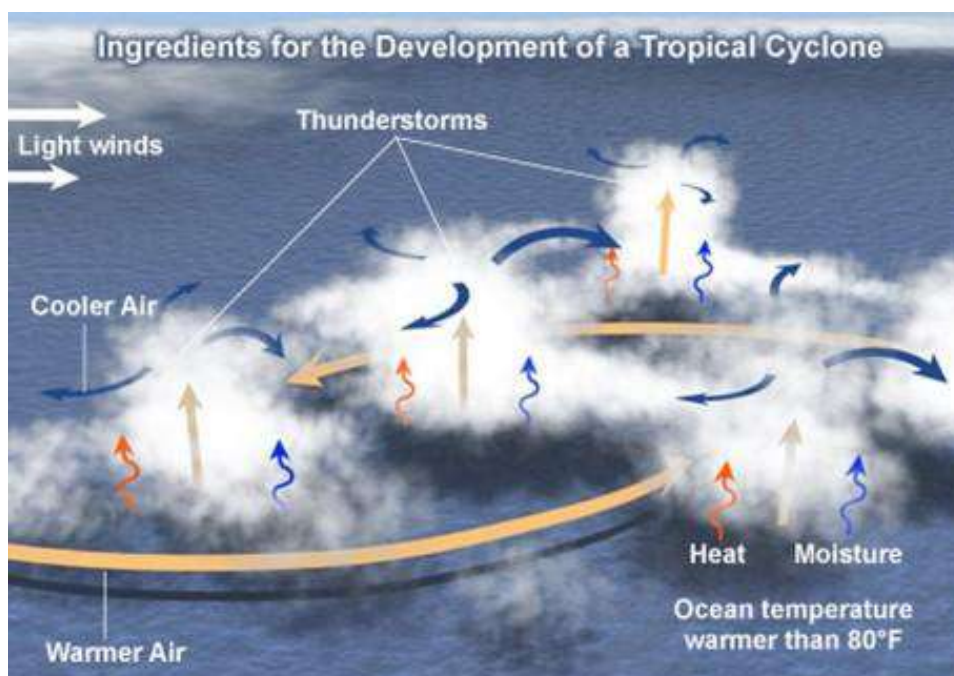
- The deep depression over northwest and adjoining west central Bay of Bengal moved nearly westwards with a speed of seven kmph in last 6 hours, intensified into Cyclonic Storm 'Gulab'.
- Pakistan proposed the name- Gulab.

Cyclones

- A cyclone is a large scale air mass that rotates around a strong center of low atmospheric pressure. Cyclones are usually accompanied by violent storms and bad weather.
- The air circulates inward in an **anticlockwise direction in the Northern hemisphere and clockwise in the Southern hemisphere**. Cyclones are classified as: (i) extra tropical cyclones (also called temperate cyclones); and (ii) tropical cyclones.

What are Tropical Cyclones?

- Cyclones that develop in the regions **between the Tropic of Capricorn and Tropic of Cancer** are called tropical cyclones. Tropical cyclones are intense circular storms that **originate over warm tropical oceans**. They rotate in a counterclockwise direction in the Northern Hemisphere and in a clockwise direction in the Southern Hemisphere.
- They are characterized by **low atmospheric pressure, high winds, and heavy rain**. Drawing **energy from the sea surface** a tropical cyclones maintains its strength as long as it remains over warm water.
- Note:** Extra tropical cyclones occur in temperate zones and high latitude regions, though they are known to originate in the Polar Regions.



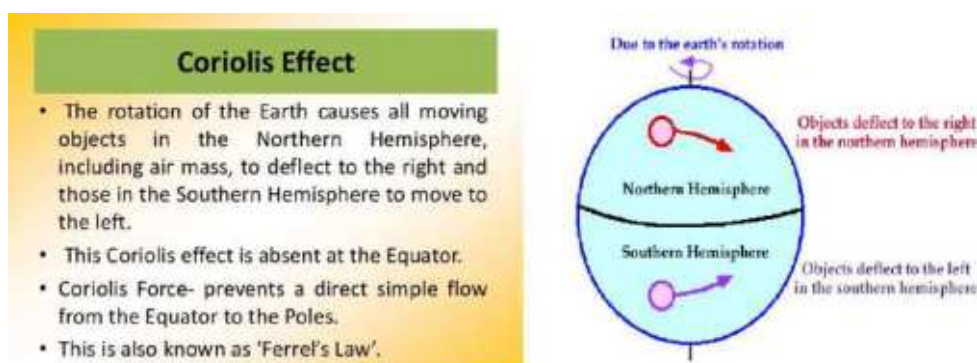
Conditions for development of Tropical Cyclones

- There are six main requirements for tropical cyclogenesis:
 - 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,
 - a pre-existing low level focus or disturbance, and
 - low vertical wind shear
- Note:** While these conditions are necessary for tropical cyclone formation, they do not guarantee that a tropical cyclone will form.

KEY CONCEPTS

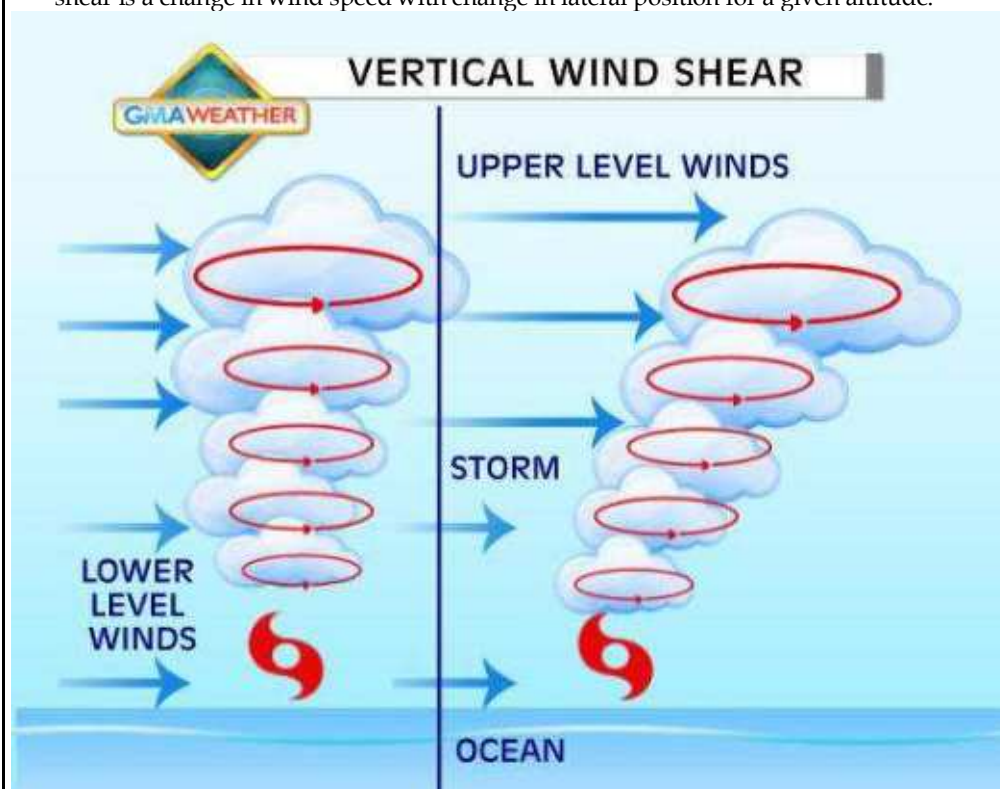
Coriolis effect

- The Coriolis effect is the apparent acceleration of a moving body as a result of the Earth's rotation. It makes things (like planes or currents of air) traveling long distances around the Earth appear to move at a curve as opposed to a straight line. The Coriolis effect is an important determinant of wind direction on a global scale.



Wind shear

- Wind shear sometimes referred to as wind gradient, occurs when there is a change in the direction or speed of wind usually at short distances. Atmospheric wind shear is normally described as either vertical or horizontal wind shear.
- Vertical wind shear is a change in wind speed or direction of winds at increasing heights in the atmosphere. Horizontal wind shear is a change in wind speed with change in lateral position for a given altitude.

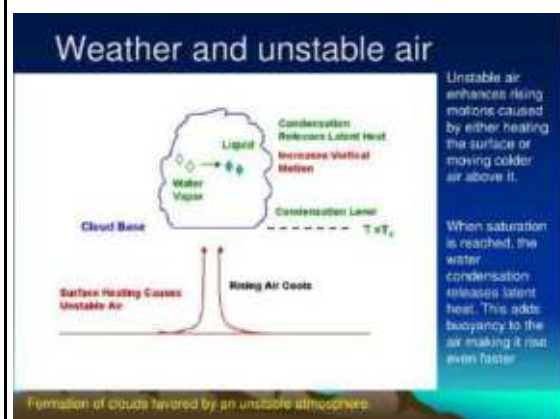


Atmospheric Instability

- Atmospheric stability determines whether or not air will rise and cause storms; sink and cause clear skies; or essentially do nothing.
- If an air parcel is warmer than its surrounding environment, then it will be less dense than its surroundings and will rise like a hot air balloon. This is Unstable Air and has the potential for creating thunder storms if it contains enough water vapor.
- If an air parcel is cooler than its surrounding environment, then it will be denser than its environment and will sink. Think of

this situation as a pebble sinking in water. This is Stable Air which generally leads to clear skies.

- If an air parcel is the same temperature as its surrounding environment, then the parcel will not move of its own accord. This is Neutral Air.



Stable Air	Unstable Air
<ul style="list-style-type: none"> • Stratiform Clouds • Steady Precipitation • Smooth Air • Poor Visibility 	<ul style="list-style-type: none"> • Cumuliform Clouds • Showery Precipitation • Turbulent Air • Good Visibility

How tropical storms are formed

High humidity and ocean temperatures of over 26°C are major contributing factors

Water evaporates from the ocean surface and comes into contact with a mass of cold air, forming clouds

A column of low pressure develops at the centre. Winds form around the column

As pressure in the central column (the eye) weakens, the speed of the wind around it increases



Saffir-Simpson hurricane wind scale

Category 1	Category 2	Category 3	Category 4	Category 5
Minimal damage	Moderate damage	Extensive damage	Extreme damage	Catastrophic
Winds 119-153 kph	Winds 154-177 kph	Winds 178-208 kph	Winds 209-251 kph	Winds 252 kph and more

Source: NHC

AFP

Mechanism of tropical cyclones



Depending on where a tropical storm is born, they are called by unique names:

- Hurricanes – born in the Atlantic ocean;

- Tropical Cyclones – born in South East Asian oceans
- Typhoons – born in the Pacific ocean,
- Willy Willies – born near Australia

Structure of a Tropical Cyclone

The eye

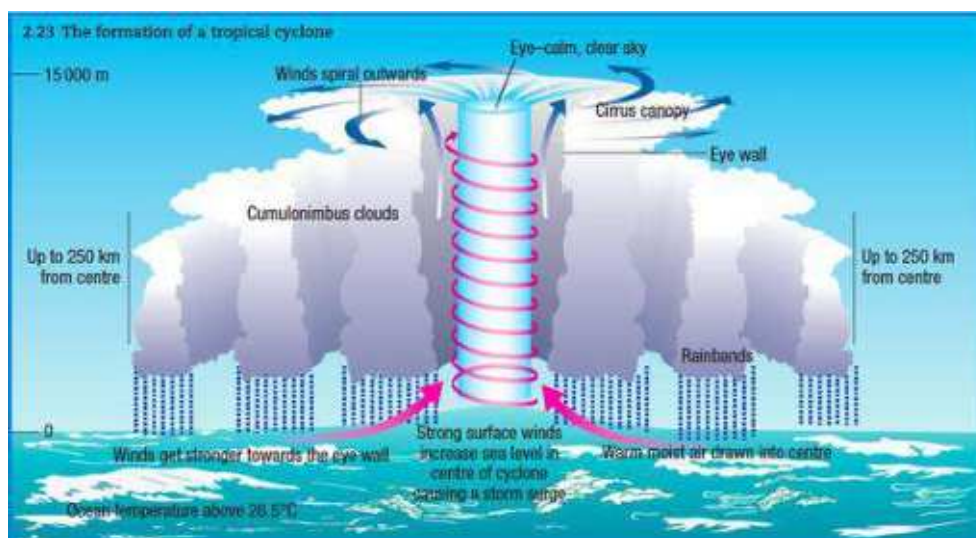
- The eye of the storm is the centre. It is the area of sinking air at the center of circulation. The eye is characterized by **clear skies and calm weather**. It is circular in shape and in size ranges from 8 - 200 km.

The eyewall

- The eyewall is the band around the eye with maximum wind speed, heaviest rainfall and greatest height. It is responsible for the maximum damage caused by a cyclone.

Rainbands

- These are Curved bands of clouds and thunderstorms that trail away from the eye wall in a spiral fashion. These bands are capable of producing heavy bursts of rain and wind. There are sometimes gaps in between spiral rain bands where no rain or wind is found.



How are the cyclones named?

- If the speed of a cyclone is more than 34 nautical miles per hour then it becomes necessary to give it a special name. In 2000, a group of nations called WMO/ESCAP (World Meteorological Organisation/United Nations Economic and Social Commission for Asia and the Pacific), decided to start naming cyclones in the region. The group comprised of **Bangladesh, India, the Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand**. The WMO/ESCAP expanded to include five more countries in 2018 – **Iran, Qatar, Saudi Arabia, United Arab Emirates and Yemen**.
- After each country sends in suggestions, the WMO/ESCAP Panel on Tropical Cyclones (PTC) finalizes the list. These lists are used sequentially and they are not rotated every few years.

Guidelines to adopt names of cyclones

- The proposed name should be neutral to
 - o politics and political figures
 - o religious beliefs,
 - o cultures and
 - o gender
- Name should not hurt the sentiments of any group of population over the globe.
- It should not be very rude and cruel in nature.
- It should be short, easy to pronounce and should not be offensive to any member.
- The maximum length of the name will be eight letters.
- The proposed name should be provided with its pronunciation and voice over.
- The names of tropical cyclones over the north Indian Ocean will not be repeated. Once used, it will cease to be used again. Thus, the name should be new.

Tropical Cyclones and India

- India is the place in the North Indian Ocean that **is most vulnerable to getting hit by tropical cyclones**, from the east or



from the west. On average, 5-6 tropical cyclones make landfall in India each year.

- The subcontinent with a long coastline of 8041 kilometres is exposed to **nearly 10 per cent of the world's tropical cyclones**.
- Of these, majority of cyclones have their initial genesis over the Bay of Bengal and strike the East coast of India.

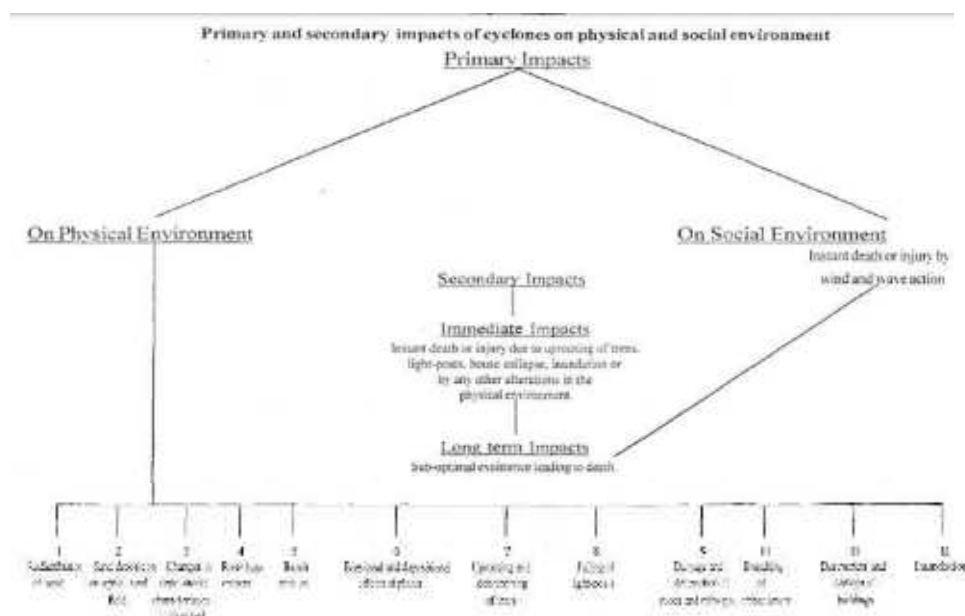
The usual trend: India's east coast is a magnet for cyclones

- Though both are located in the **same latitude band and receive the same amount of solar radiation** from the Sun, the Bay of Bengal is much warmer than the Arabian Sea and many more storms brew over the bay.
1. **Oceanic circulation and heat removal:** The winds over the Arabian Sea are stronger because of the presence of the **mountains of East Africa**. These strong winds force a much more vigorous oceanic circulation and the heat received at the surface is transported southward and into the deeper ocean.
 - The winds over the Bay of Bengal, in contrast, are more sluggish and the bay is unable to remove the heat received at the surface. Hot water temperature is the basic criteria for the development and intensification of cyclones. The average temperature in the Bay of Bengal around the year is high - about 28 degrees.
 2. **Sea surface temperature:** The bay receives more rainfall; it also receives more freshwater from the large rivers, especially the Ganga and the Brahmaputra, that empty into it.
 - This freshens the surface of the bay and stabilizes the water column, making it more difficult for the winds to mix the warm, stable surface layer with the cooler waters below.
 - In the Arabian Sea, there is no such stabilizing effect. As a consequence, the mixing with the cooler waters below is more vigorous. Since a sea surface temperature of about 28°C is necessary for convection to take place in the atmosphere, this condition is satisfied in the Bay of Bengal but not in much of the Arabian Sea. Thus, in spite of their geographical similarities, the two arms of the north Indian Ocean are strikingly different when it comes to climate.
 3. **Pacific Ocean:** Pacific Ocean is a hot bed for cyclonic activities and hence typhoons originating in the Pacific ocean influences the cyclones in Bay of Bengal. This is not the case in Arabian Sea.
 4. **Salinity:** The Arabian Sea is saltier than the Bay of Bengal. As a result, it easily gets heated up and evaporates faster.
 5. **Movement:** According to IMD cyclones originating in Arabian Sea move northwest. So they actually move away from Indian mainland.

Why has Arabian Sea turned into a cyclone hotspot in the recent past?

- According to the India Meteorological Department, the frequency and intensity of cyclonic activity in the Arabian Sea was the highest it had been in over a century, in 2019.
- Five cyclones originated in the area in 2019 – Vayu, Hikka, Kyarr, Maha and Pavan.
- Scientists are in agreement that **rising sea surface temperatures (SST) in the Arabian Sea** are contributing to the formation of an increased number of cyclones.
- SST in the Arabian Sea rose by a staggering 0.36 degrees Celsius, compared with the baseline temperatures between 1981 and 2010.

Impact of Cyclones



Issues in Cyclone mitigation

- Cyclone Amphan is the latest reminder that India needs to upgrade its disaster management systems. In 2019, India saw five million new internal displacements caused by climate disasters.

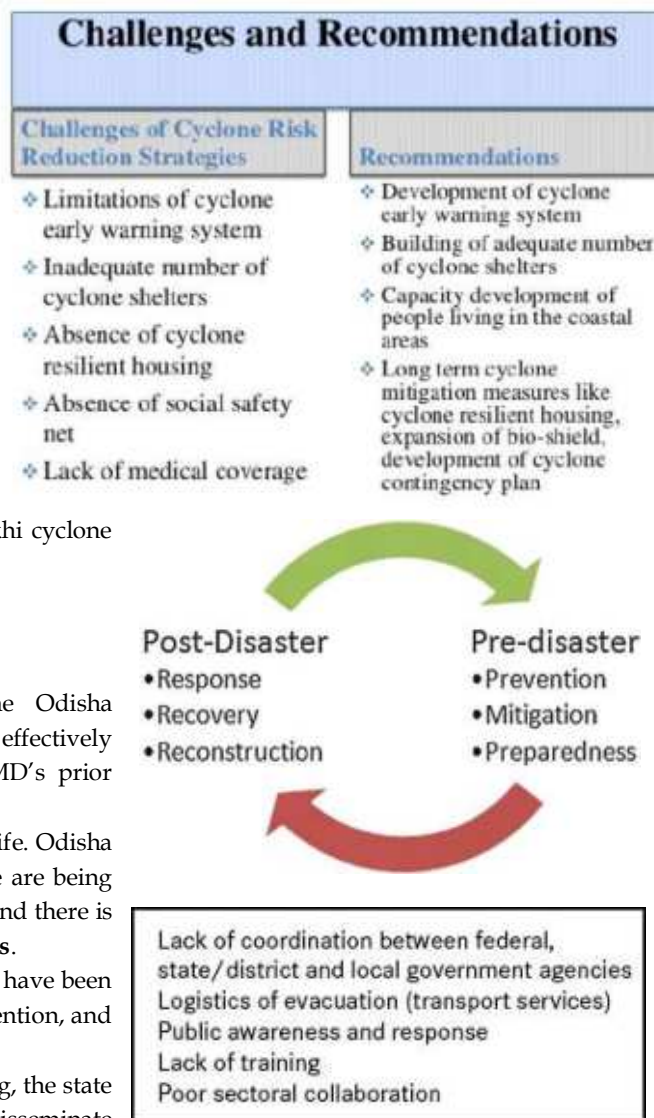
Other issues

- Focus on Post disaster management rather than Pre-Disaster management**
- There should be a fine balance between the two:
- Lack of coordination:** There is a lack of coordination between the agencies of state government, central government with the local communities.
- Communication issues:** Information and Cyclone warnings are not properly disseminated between the concerned agencies. This results in delayed efforts as was evident in Ockhi cyclone disaster.

Case study

- Learning from Odisha's Disaster Mitigation Preparedness**
- Recently, Cyclone Fani wreaked havoc on Odisha. The Odisha government showed a high degree of preparedness and effectively managed to evacuate about 1.2 million people based on IMD's prior predictions.
- The government successfully managed to minimize the loss of life. Odisha has a great community outreach system through which people are being reached on time. It now has a network of **900 cyclone shelters** and there is a **robust mechanism for the maintenance of the cyclone shelters**.
- Each cyclone shelter has a maintenance committee where youth have been involved and trained for search and rescue, first aid medical attention, and for providing cyclone warnings.
- Through a network of these shelters and committees and training, the state has involved the entire community. It is now fairly easy to disseminate warnings and move people into safe cyclone shelters. The state's disaster management systems are monitored twice each year, given the propensity of natural disasters in the state.
- Cyclone Fani was not the first time that a poor state like Odisha has managed to successfully evacuate millions of people during a natural disaster; it also did so during Cyclone Phailin in 2013.
- Odisha has managed to create a sense of community during such disasters that other states can also emulate.

Way ahead



Cyclone Management
Structural precautions <ul style="list-style-type: none"> • Siting or re-siting of buildings in locations with minimal exposure to high-velocity winds, floods & surge prone zones • Use of special cyclone-resistant building materials/ patterns. • Construction of cyclone shelters with flood-proofed access routes • Construction of multi-purpose, multi-story concrete structures • There should be no house between two mountains • Wind load must be calculated before the construction of any structure • For highrise buildings steel structures/ towers are to be provided for upper floors (as they are more ductile than concrete). • The span of bridges must be combined with separate short spans instead of a single long span • Coastal embankment construction
Non-structural Measures <ul style="list-style-type: none"> • Land-use zoning • Warning systems • Emergency agencies, facilities and equipment • Community education • Coastal forestry planning with appropriate mangrove species & vegetation on the embankment

GENERAL STUDIES - II

CENTRAL BUREAU OF INVESTIGATION

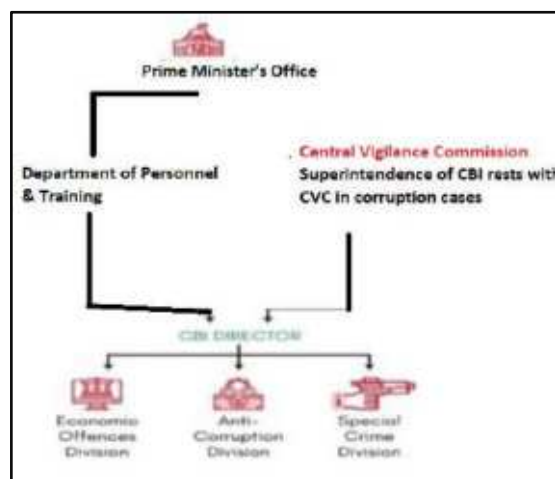
GS-II POLITY

Context

- Jharkhand High Court has expressed disappointment over the CBI's inability to identify three people who had suspiciously crossed the site where Dhanbad Additional Sessions Judge Uttam Anand was knocked down by an auto in July leading to his death.

Issues with CBI

- Dependence on central government**
 - CBI can investigate only those cases which are referred to it by State. It cannot suo motto take cases.
 - This gives a chance to political executive to target opposition members and dissenters.
 - Supreme Court had called CBI as 'caged parrot' in 2013 due to its functioning as per the wishes of central government.
- Lack of Financial autonomy**
 - CBI also lacks financial autonomy.
 - It depends entirely on government even for small administrative expenses.
- Lack of Transparency: Lack of transparency in selection procedure of director and also no effective external monitoring system to check misuse of its power.**
- Lack of Legal Backing**
 - CBI charter of duties are not protected by legislation.
 - Its functions are merely based on resolutions which draws its powers mainly from the Delhi Special Police Establishment Act.
- Shortage of Man power**
 - According to a Parliamentary panel, 789 posts in executive ranks, 77 posts of law officers and 415 posts of technical officers and staff were lying vacant.



Suggested Reforms

- Role of Lokpal**
 - Lok Pal provides for appointment of director, CBI through a collegium system which is a step in right direction.
 - Lok Pal should be allowed to decide cases which CBI takes up**, not the executive.
 - CBI to report to Lok Pal for investigation of such cases. Lok pal can supervise and oversee CBI.
- Changes in Legal Mechanism**
 - Substitute archaic DPSE act by new CBI act.** Define the role, jurisdiction and legal powers of CBI.
 - Also give the CBI financial autonomy in the statutory law as has been given to Supreme Court, CAG, etc.
- Personnel administration reforms**
 - Have more establishment in form of judges, prosecutors and support staff for CBI.
 - Have a dedicated cadre for CBI. The current practice of appointing IPS officers may show favouritism towards some political and permanent executive.
- Improvement of functioning:** There's a dire need to improve the capability of the intelligence-collection machinery and upgrade its resources, the intelligence-sharing mechanism.
- Enhanced accountability of CBI:** There should be an accountability commission headed by three retired Supreme Court or high court judges. The committee will look into cases of grievances against the CBI.

Way Forward

- CBI plays a pivotal role in checking corruption at highest levels. The need for autonomy for such an organisation is beyond any question and must be ensured to cleanse our political system.

About Central Bureau of Investigation

Establishment

- The Central Bureau of Investigation (CBI) was set up in 1963 by a resolution of the Ministry of Home Affairs. Later, it was

transferred to the Ministry of Personnel and now it enjoys the status of an attached office.

- The Special Police Establishment (which looked into vigilance cases) setup in 1941 was also merged with the CBI.
- The establishment of the CBI was recommended by the Santhanam Committee on Prevention of Corruption (1962–1964).
- The **CBI is not a statutory body. It derives** its powers from the Delhi Special Police Establishment Act, 1946.

Functions

- The CBI is the main investigating agency of the Central Government.
- It plays an important role in the prevention of corruption and maintaining integrity in administration.
- It also provides assistance to the Central Vigilance Commission and Lokpal.

Composition of CBI:

- The CBI is headed by a Director.
- The Director of CBI has been provided security of two-year tenure in office by the CVC Act, 2003.

Appointment of CBI Director

- The Central Government shall appoint the Director of CBI on the recommendation of a three-member committee consisting of the **Prime Minister as Chairperson, the Leader of Opposition in the Lok Sabha and the Chief Justice of India or Judge of the Supreme Court** nominated by him.

APPOINTMENT TO JUDICIARY

GS-II POLITY

Context

- The Supreme Court Collegium has recommended 68 names, including 10 women, for elevation to the courts.
- This is the first time the Collegium has cleared so many names in one go.

Appointment to Judiciary

Constitutional Provisions

- Judges of the Supreme Court and High Courts are appointed by the President under Articles 124(2) and 217 of the Constitution.
- The President is required to hold consultations with such of the judges of the Supreme Court and of the High Courts as he may deem necessary.
- Article 124(2) says: “Every Judge of the Supreme Court shall be appointed by the President by warrant under his hand and seal after consultation with such of the Judges of the Supreme Court and of the High Courts in the States as the President may deem necessary for the purpose and shall hold office until he attains the age of sixty-five years.

In Practicality

- It is appointed by recommendations of a collegium system.
- **Collegium system is the system of appointment and transfer of judges** that has evolved through judgments of the Supreme Court, and not by an Act of Parliament or by a provision of the Constitution.
- The Supreme Court collegium is headed by the Chief Justice of India and comprises four other seniormost judges of the court.
- The government’s role is limited to getting an inquiry conducted by the Intelligence Bureau (IB) if a lawyer is to be elevated as a judge in a High Court or the Supreme Court.
- It can also **raise objections and seek clarifications regarding the collegium’s choices**, but if the collegium reiterates the same names, the government is bound, under Constitution Bench judgments, to appoint them as judges.

A JURY OF JUDGES		
WHAT IS THE COLLEGIUM SYSTEM?	CRITICISMS	
<ul style="list-style-type: none"> • A forum which decides on appointments, transfers (A/Ts) of judges. • Comprised of Chief Justice of India, 4 Supreme Court Judges • President merely approves CJI's choice 	<ul style="list-style-type: none"> • Born from 'Three Judges Cases' which gave primacy to CJI's call on A/Ts • Judiciary gets greater say than Executive on A/Ts 	<ul style="list-style-type: none"> • Administrative burden of checking professional background data • Closed-door affair, lacks transparency • Exclusivity sidelines talented junior judges, advocates
SOME OF THE CHANGES SOUGHT:		
<ul style="list-style-type: none"> • CJI cannot make unilateral choice • Consulted judges' views need to be in writing • Non-compliance must make CJI choice non-binding • Transfer of judges reviewable only in case of non-compliance 		

Evolution of Collegium System

1st Judges Case:

- The Supreme Court held that the concept of primacy of the Chief Justice of India was not really to be found in the Constitution.
- The Constitution Bench also held that the term “consultation” used in Articles 124 and 217 was not “concurrence” – meaning that although the President will consult these functionaries, his decision was not bound to be in concurrence with all of them.

2nd Judges Case

- It devised a specific procedure called ‘Collegium System’ for the appointment and transfer of judges in the higher judiciary.
- It gave primacy to the CJI in matters of appointment and transfers while also ruling that the term “consultation” would not diminish the primary role of the CJI in judicial appointments.

- The court said that the recommendation should be made by the CJI in consultation with his two senior most colleagues, and that such recommendation should normally be given effect to by the executive.
- It held that executive can ask for reconsideration, but if reiterated the same name, executive will have to make the appointment.

3rd Judges Case

- The recommendation should be made by the CJI and his four senior most colleagues, instead of two leading to birth of new collegium system.
- It also held that Supreme Court judges who hailed from the High Court for which the proposed name came, should also be consulted.
- It was also held that even if two judges gave an adverse opinion, the CJI should not send the recommendation to the government.

Challenges to Collegium system

- The system is **non-transparent**, since it does not involve any official mechanism or secretariat.
- It is seen as a closed-door affair with no prescribed norms regarding eligibility criteria or even the selection procedure.
- There is no public knowledge of how and when a collegium meets, and how it takes its decisions.
- It violates the principle of separation of power as judges are appointing themselves. It has led to tyranny of unelected.
- There is the **lack of a written manual for functioning**, the absence of selection criteria, the arbitrary reversal of decisions already taken, the selective publication of records of meetings.

Possible reforms in collegium system

- At the Supreme Court level, a **secretariat is required since the Supreme Court collegium (its composition varies when comes to the appointment of High Court Judges)** has a decisive role to play in appointing judges to both High Courts and the Supreme Court.
- There is an urgent need to develop **appropriate criteria for determining the merit. ArunJaitley, the then leader of opposition in Rajya Sabha, advocated** the need to develop objective criteria for determining eligibility and suitability of candidate for appointments.
- Need for Transparency in Collegium system:
- Vacancies in the Supreme Court and the High Courts shall be announced in advance.
- The practice of providing regional and demographic representation in the Supreme Court shall be formally acknowledged and their extent earmarked.
- Even with respect to **appointment of judges to the High Courts, the percentage of judges selected/to be selected** from each of the two categories mentioned in the Constitution shall be announced.
- List of candidates, who had applied, nominated or considered by the members of the collegium on their own, shall be maintained.

Conclusion

- Supreme Court itself has accepted that collegium system needs to be reformed. With, more pressure and demand for transparency in working of judiciary, it is high time that court makes system more transparent, participative and representational.



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REPORT ON REFORMS IN URBAN PLANNING CAPACITY

GS-II POLITY

Context

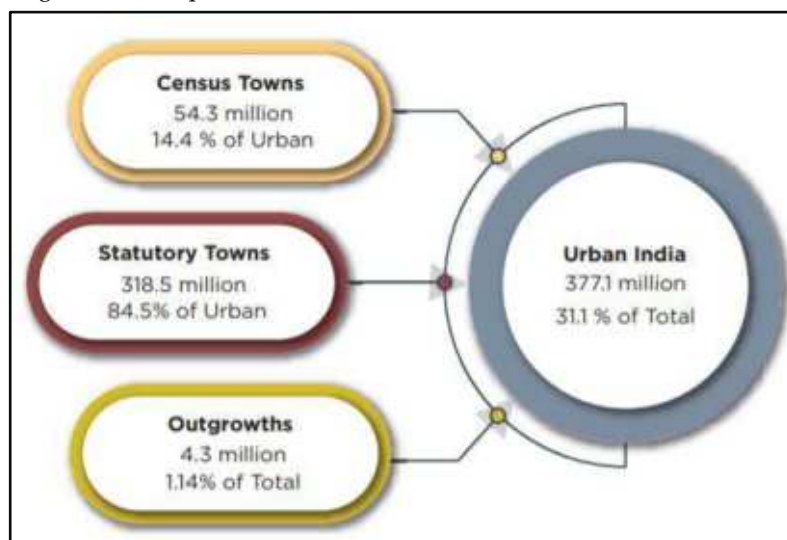
- NITI Aayog has launched a report on measures to ramp up urban planning capacity in India.

Need for Urban Planning Capacity

- In the coming years, urban India will power the growth of the Indian economy.
- Urban challenges, including town planning, need greater policy attention in our country.
- There is a compelling need to plug the gaps in urban planning capacity in the country, else a huge opportunity for rapid, sustainable and equitable growth would be at risk of being missed
- By planning, **Greater synergies among the public and private sectors and education institutions will** provide a massive boost towards making Indian cities more liveable, competitive, and sustainable.
- Over the years, **the country has witnessed the expansion of cities based** on car-centric planning. However, the future of urban mobility and urban living needs to evolve on the back of public transportation.
- The **cities need to be very compact and adopt a circular economy** system to minimize their negative impacts on the environment.
- India's urban story may be lauded globally or suffer irreversible damages in the next 10-15 years depending upon corrective policy measures and actions taken at the beginning of this decade.

Challenges with urban planning

- Our urban planning machinery has not grown at the pace of the demands posed by urbanisation and global technological advancements.
- Urban local bodies face a massive shortage of skilled and trained human resources as well as financial challenges.
- Of the **7933 towns that are accounted as urban, almost half have a status of census towns** and they continue to be governed as rural entities. With business as usual, the country may become a haven for unplanned urbanization.
- Furthermore, **poor quality of planning is a huge limiting** factor to realize the true economic potentials of urbanization.
- Urban planning, which is the foundation for the integrated development of cities, citizens, and the environment, has not received adequate attention.
- 65% of the 7933 urban settlements do not have any master plan.** This leads to piecemeal interventions, haphazard constructions, urban sprawl, and environmental pollution, which can further aggravate issues such as traffic congestion, flooding, etc.
- In many cities, **development control regulations were formulated several decades ago** and have been updated arbitrarily without sufficient empirical evidence on their impacts.
- An inadequate number of urban planners in the State planning machineries and lack of multi-disciplinary teams are serious issues.



Data on Urban India

- India's population stood at 1210 million in 2011, with an urbanisation level of 31.1% (Census of India 2011).
- India's urban population is 11% of that of the world.** This is still more than highly urbanised countries/regions like the United States, Japan, Western Europe, and South America
- India's urbanisation is poised to accelerate in the coming decades. During 2011-36, urban growth will be responsible for 73% of the rise in total population.

Recommendations of the Report

- Programmatic Intervention for Planning of Healthy Cities: Every city must aspire to become a 'Healthy City for All' by 2030. The report recommends a Central Sector Scheme '500 Healthy Cities Programme', for a period of 5 years, wherein priority cities and towns would be selected jointly by the states and local bodies.
- Programmatic Intervention for Optimum Utilization of Urban Land: All the cities and towns under the proposed 'Healthy Cities Programme' should strengthen development control regulations based on scientific evidence to maximize the efficiency of urban land (or planning area). The report recommends a sub-scheme 'Preparation/Revision of Development Control

Regulations' for this purpose.

- **Ramping Up of Human Resources:** To combat the shortage of urban planners in the public sector, the report recommends that the states/UTs may need to a) expedite the filling up of vacant positions of town planners, and b) additionally sanction 8268 town planners' posts as lateral entry positions for a minimum period of 3 years and a maximum of 5 years to meet the gaps.
- **Ensuring Qualified Professionals for Undertaking Urban Planning:** State town and country planning departments face an acute shortage of town planners. This is compounded by the fact that in several states, ironically, a qualification in town planning is not even an essential criterion for such jobs. **States may need to undertake requisite amendments in their recruitment rules to ensure the entry of qualified candidates into town-planning positions.**
- **Re-engineering of Urban Governance:** There is a need to bring in more institutional clarity and also multi-disciplinary expertise to solve urban challenges. The report recommends the constitution of a high-powered committee to re-engineer the present urban-planning governance structure. The key aspects that would need to be addressed in this effort are: i) clear division of the roles and responsibilities of various authorities, appropriate revision of rules and regulations, etc., ii) creation of a more dynamic organizational structure, standardisation of the job descriptions of town planners and other experts, and iii) extensive adoption of technology for enabling public participation and inter-agency coordination.
- **Revision of Town and Country Planning Acts:** Most States have enacted the Town and Country Planning Acts, that enable them to prepare and notify master plans for implementation. However, many need to be reviewed and upgraded. Therefore, the formation of an apex committee at the state level is recommended to undertake a regular review of planning legislations (including town and country planning or urban and regional development acts or other relevant acts).
- **Demystifying Planning and Involving Citizens:** While it is important to maintain the master plans' technical Rigour, it is equally important to demystify them for enabling citizens' participation at relevant stages. Therefore, the committee strongly recommends a 'Citizen Outreach Campaign' for demystifying urban planning.
- **Steps for Enhancing the Role of Private Sector:** The report recommends that concerted measures must be taken at multiple levels to strengthen the role of the private sector to improve the overall planning capacity in the country. These include the adoption of fair processes for procuring technical consultancy services, strengthening project structuring and management skills in the public sector, and empanelment of private sector consultancies.
- **Steps for Strengthening Urban Planning Education System**
 - The Central universities and technical institutions in all the other States/UTs are encouraged to offer postgraduate degree programmes (M.Tech Planning) to cater to the requirement of planners in the country in a phased manner.
 - The committee also recommends that all such institutions may synergize with Ministry of Rural Development, Ministry of Panchayati Raj and respective state rural development departments/directorates and develop demand-driven short-term programmes on rural area planning.
 - 'Planning' as an umbrella term, including all its specializations such as environment, housing, transportation, infrastructure, logistics, rural area, regional, etc., or any other nomenclature approved by AICTE, should be included as a discipline under the National Institute Ranking Framework (NIRF) of MoE to encourage a healthy competition among the institutions.
 - The committee recommends that AICTE may retain the names of specializations based on industry requirements, while limiting them to an appropriate number, as 25 nomenclatures seem too high for market acknowledgement and absorption.
 - Faculty shortage in educational institutions conducting degree and PhD programmes in planning need to be resolved in a time bound manner by 2022.
- **Measures for Strengthening Human Resource and Match Demand-Supply:** The report recommends the constitution of a 'National Council of Town and Country Planners' as a statutory body of the Government of India. Also, a 'National Digital Platform of Town and Country Planners' is suggested to be created within the National Urban Innovation Stack of MoHUA. This portal will enable self-registration of all planners and evolve as a marketplace for potential employers and urban planners.

WOMEN IN JUDICIARY

GS-II POLITY

Context

- Chief Justice of India N.V. Ramana has backed 50% representation for women in the judiciary.

Concerns

- The CJI said women constituted only about 30% of the subordinate judiciary.
- In High Courts, women judges constitute 11.5%, and in the Supreme Court, there are currently just four women Justices out of the sitting 33 (i.e., 12%).
- Of the 1.7 million advocates, only 15% are women.
- Only 2% of the elected representatives in the State Bar Councils are women. At present, there is no woman member in the Bar Council of India.

Reasons behind low no of women in Judiciary

- Lower number of women enter into the subordinate judiciary which makes the whole pool distorted towards the men.
- **Double Jeopardy:** Women faces double jeopardy where they have to take care of their household responsibilities along with professional career. This puts them into disadvantage to male section.
- **Patriarchal Society:** Economic responsibility in the household is considered a male work and women are not encouraged in the house to take up professional careers.
- **High Dropouts:** Women have more dropout rate than male in the secondary education which affects their probability of undertaking a professional career.
- **Break in career:** Women face break in career due to responsibility of child rear which puts them into disadvantage.

Need for More Women in Judiciary

- **Inclusive Judiciary:** It will make judiciary more inclusive and wider representative of the society. Women are more accessible thus will enhance the reach of judiciary.
- **Increased Public trust:** By their mere presence, women judges enhance the legitimacy of courts, sending a powerful signal that they are open and accessible to those who seek recourse to justice.
- **Sensitivity towards marginalised section:** It will bring ethics of care along with ethics of rationality thus ensuring wider social justice along with economic justice.
- **Women judges bring their lived experiences** to their judicial actions, experiences that tend toward a more comprehensive and empathetic perspective- one that encompasses not only the legal basis for judicial action, but also awareness of consequences on the people affected.
- **Fairness to judgment:** By elucidating how laws and rulings can be based on gender stereotypes, or how they might have a different impact on women and men, a gender perspective enhances the fairness of adjudication, which ultimately benefits both men and women.
- **Flip to Women empowerment:** More women as judges would hail as role model to other females thus provide an overall lift to the women empowerment.
- **Constitutional Provision:** Article 15, 15(3), 16, 39(a) seeks to achieve the gender justice in society. By giving great participation to women in judiciary, a move towards gender justice can be achieved.

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TECHNOLOGY AT POLICE DISPOSAL

GS-II GOVERNANCE

Context

- Delhi Police officers say the facial recognition software they have access to right now can marginally narrow down suspects at best and is a far cry from the dystopian real-time surveillance feared by experts and activists.

Usage of the Facial Recognition Software

- The police currently use a "basic" level of FRS, which does not function in real-time.
- The software was used to probe a 2020 north-east Delhi communal riots case, and the January 26, 2021, Red Fort incident, when farmers stormed the monument during a tractor rally against new agriculture laws.
- Election Commission, UIDAI and other Ministries do not share data with the force.

Success of the Software

Helps find missing people and identify perpetrators

- Law enforcement agencies use facial recognition to identify criminals with no other means of identification and find missing people by comparing faces on live camera feeds with those on a watch list.
- They've also used it to find missing children, combining facial recognition with ageing software to predict how children would look several years on and find them even when they've been missing for years.

Protects businesses against theft

- Facial recognition software can be an effective preemptive measure against shoplifting.
- Strengthens security measures in banks and airports**
- Facial recognition also helps improve safety and security in non-retail spaces, like airports and banks.

Challenges:

Threatens individual and societal privacy

- The threat to individual privacy is a significant downside of facial recognition technology. People don't like having their faces recorded and stored in a database for unknown future use.

Imposes on personal freedom

- Being recorded and scanned by facial recognition technology can make people feel like they're always being watched and judged for their behavior. Plus, police can use facial recognition to run everyone in their database through a virtual criminal lineup, which is like treating you as a criminal suspect without probable cause.

Creates data vulnerabilities

- There is also concern about the storage of facial recognition data, as these databases have the potential to be breached.

Provides opportunities for fraud and other crimes

- Lawbreakers can use facial recognition technology to perpetrate crimes against innocent victims too. They can collect individuals' personal information, including imagery and video collected from facial scans and stored in databases, to commit identity fraud.

Conclusion

- As facial recognition technology improves, its challenges will decrease. Other technology could impact its effectiveness, including recognizing body parts or how a person walks.

INTERNET SHUTDOWN

GS-II GOVERNANCE

Context

- India has been tagged as the capital of world internet shutdown.

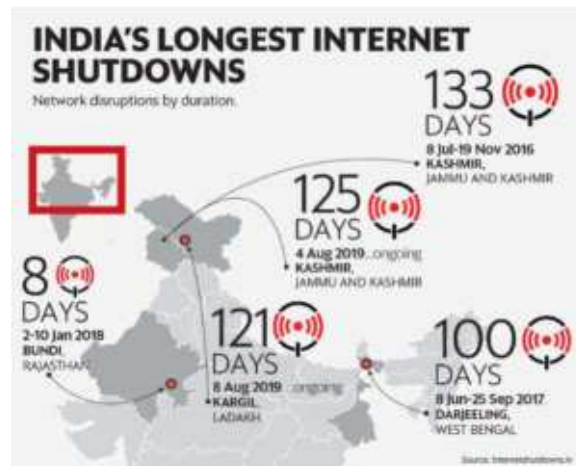
Background

- India saw more instances of Internet shutdown than the year preceding it.
- India's Internet restrictions also accounted for more than 70% of the total loss to the global economy in 2020, and India remains infamous as the Internet shutdown capital of the world.
- Since the revocation of Article 370 in 2019, many parts of Jammu and Kashmir have been under lockdown with no internet and movement restrictions.
- It was justified by the Central Government that the restrictions were based on the state's volatile history, threat of an uprising, law and order, national security and possible misuse of the internet for propagation of terror activities and incitement of the general public.

- However, the people have argued that such blanket restrictions violate the fundamental right and are unconstitutional.
- Also, restrictions of such a wide scale for a period spanning over three months can be invoked only by declaring an emergency under Article 352 of the Constitution.
- Such restrictions cannot be imposed through Section 144 of the Code of Criminal Procedure.
- A declaration of emergency under Article 352 can curb the internet facilities which will be subjected to periodic review of the Parliament, and that way possibilities of abuse could be checked.

Court's observations

- Anuradha Bhasin vs. Union of India, where the top court also ruled that any restriction on Internet access by the Government must be temporary, limited in scope, lawful, necessary and proportionate.
- On Internet shutdown the Supreme Court opined that **Freedom of speech and expression through the medium of internet is a fundamental right under Article 19(1)(a)** of the Constitution.
- Freedom of trade and commerce through the internet is also a constitutionally protected right under Article 19(1)(g).
- **Suspension of internet for indefinite period not permissible.**
- It can only be for a reasonable duration and periodic review should be done.
- Kerala high court's judgment in Faheema Shirin v/s State of Kerala, where the right to internet access was recognized as a fundamental right forming a part of the right to privacy and the right to education under Article 21 of the constitution.
- Considering these issues, it is not surprising that the Supreme Court, in Anuradha Bhasin, permitted the Government to restrict Internet access only in limited circumstances.

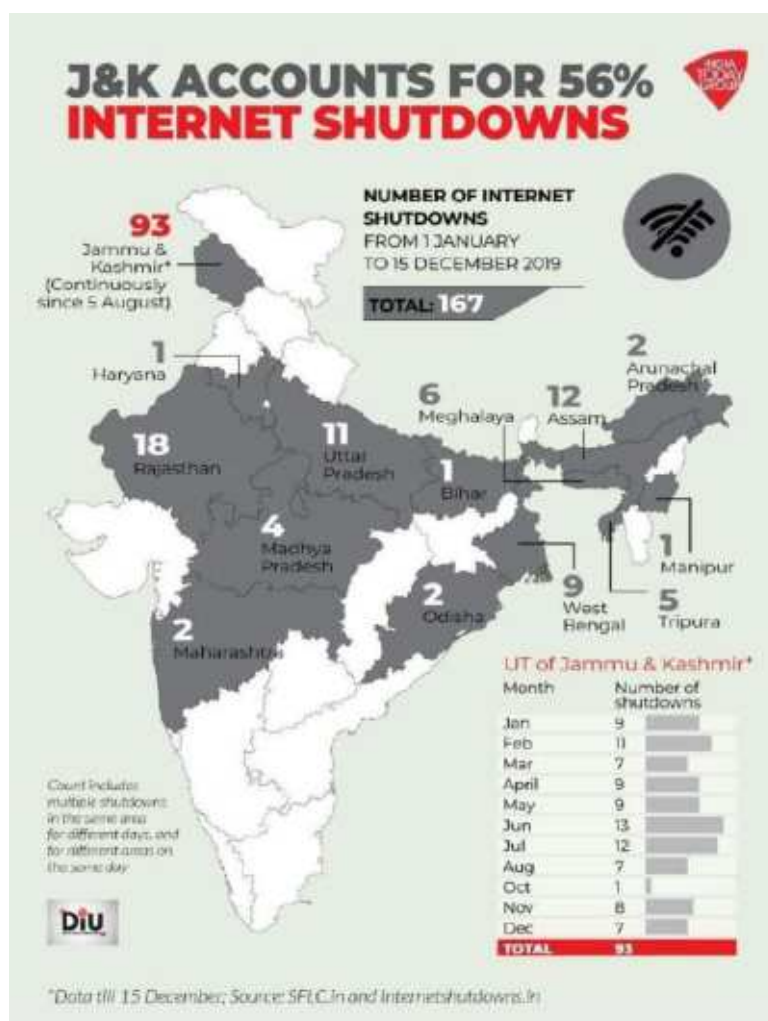


Internet Shutdowns

- India tops the list of Internet shutdowns globally.
- According to Software Freedom Law Center's tracker, there have been **381 shutdowns since 2012, 106 of which were in 2019.**
- The shutdown in Kashmir after Article 370 was the longest ever in any democratic country.
- Legislative provisions on **suspension of Internet services are dealt with under the Information Technology Act, 2000, the Criminal Procedure Code (CrPC), 1973 and the Telegraph Act, 1885**
- India **lost over \$1.3 billion in internet shutdowns across** the country in 2019 – making it the third-most economically affected country after Iraq and Sudan.
- The shutdown is based on analysis of intelligence inputs.
- This is a **preventive measure used by the law & order administration as a last resort to address mass protests, civil unrest**, so as to ensure peace.
- In certain extreme situations where rumours through social media start playing a disruptive role, it may become necessary to have internet shutdowns.

International protocols on internet shutdown

- In 2016, the United Nations Human Rights Council released a non-binding resolution condemning intentional disruption of internet access by governments.
- The UN resolution on internet shutdown



reaffirmed that "the same rights people have offline must also be protected online".

Challenges Associated

- In 2020, the Indian economy suffered losses to the tune of \$2.8 billion due to 129 separate instances of Internet suspension, which affected 10.3 million individuals.
- The Internet is a source of information, entertainment, health care, education, livelihood and a platform for the members of Indian society to interact with each other and the world at large.
- Internet activists, law experts, and human rights agencies suggest that there is no real evidence of Internet shutdown actually helping in preventing mass protests or civil unrest. Crashing developing and emerging economies.
- The most **vulnerable individuals are being hit the hardest**.
- Many of the young saw their **careers permanently damaged by the internet** shutdown.
- Internet shutdowns make **human rights a hostage to the whims of the executive**: the fundamental rights to speech, conduct business, access healthcare, express dissent, and movement of the people in a state, are compromised.
- Shutting the **internet results in an information blackout that can also create hysteria, panic and can result in even more discord and mob violence**.
- Internet shutdown is **also causing digital divide and disparity in education especially** in the instances of COVID 19 pandemic.

Conclusion

- Faithful compliance with the Supreme Court is needed to get rid ourselves of the tag of the "internet shutdown capital" of the world and fulfil Digital India's potential.

SOCIAL MEDIA AND BUREAUCRACY

GS-II GOVERNANCE

Context

- The biggest challenge today to Indian bureaucracy is the shift from desk to digital.

Shift includes

- Organizational and bureaucratic response to digital spaces, especially the use of social media.
- transition towards e-office and e-governance

Challenges with usage of social media

Pros:

- It enhances the **access of the civil servants for the people**. Many civil servants have become accessible to the common people and public service delivery issues have been resolved through the use of social media.
- Social media **has also created a positive outlook towards an institution long perceived as opaque and inaccessible**.
- Social media **has increased awareness among people about government policies** and programmes.
- It **provides an opportunity to bureaucrats to shape the public discourse** and engage with the public while being politically neutral.
- When the tendency among the political executive is to receive the very remarks or advice from bureaucrats that they **want to hear, social media ensures that blind obeying is minimized and bureaucrats serve the people**.
- In Modern Times, **both values and facts are getting reshaped due to fake news and systematic propaganda within public policy circles as well**. In such a scenario, the bureaucracy, which is expected to be the epitome of public values and a storehouse of facts, shouldn't be expected to govern in private.
- It has also created an effective system where we could get citizens' feedback in a seamless manner. Social media has changed the dynamics of governance.

Cons:

- **Anonymity**, the defining feature of Indian bureaucracy, gets compromised when a civil servant uses social media.
- As an **organizational form, the bureaucracy is incompatible with social media**. While bureaucracy is characterized by hierarchy, formal relationships and standard procedures, social media is identified by openness, transparency and flexibility.
- Social media is **getting used by civil servants for self-promotion**. Through their selective posts and promotion of these posts by their social media fans, civil servants create a narrative of their performance.
- It is **not a formal set-up where accessibility and accountability are based on uniformity of treatment**. Social media accountability is no alternative to institutional and citizen-centric accountability.
- It is, in fact, **partly unethical to use social media during office hours and justify it when some people who have travelled long distances are waiting outside the office**.

Way Forward

- Bureaucrats should use social media to improve public policies.
- There is a need for institutionalization of social media usage. It is getting institutionalized in many Westminster system-based countries. During the Brexit debate in the U.K., many civil servants shaped public debate through the use of social media even while remaining politically neutral.

Case study

- Recently, IAS officer of Saran, Bihar visited to a Dutch cemetery in the city of Chapra in his district. He posted a message about his visit on Twitter, following which an organization working on conservation approached him. A chain reaction followed, and now the state government is in the process of sanctioning funds for the cemetery's restoration.
- During Covid, social media proved effective in mobilizing essential items to help the needy. Raigarh district crowd-sourced 1.4 million masks for public use, using social media.

NATIONAL HUMAN RIGHTS COMMISSION (NHRC)

GS-II GOVERNANCE

Context

- The National Human Rights Commission (NHRC) has **issued notices to the Centre and the state governments of Delhi, Rajasthan, Haryana and Uttar Pradesh over the "adverse impact"** of the ongoing farmers' protests on industrial units and transportation.

Reasons of the Notice

- There are **allegations of adverse impact on the industrial units, seriously affecting more than 9000 micro, medium, and large companies.**
- Allegedly, transportation is also adversely impacted, causing the commuters, patients, physically challenged people and senior citizens to suffer due to the heavy congestion on roads.
- There are also reports that people have to travel long distances to reach their destinations due to the ongoing farmers' agitation and barricades have been put on the borders.
- There is an allegation that there is breach of the corona protocols by the agitating farmers at the protest site.
- There is further allegation that the inhabitants are not being allowed to move out of their houses due to the blockade of the passage

Action by the NHRC

- The Institute of Economic Growth (IEG) has been requested to examine the adverse impact of the farmers' agitation on industrial and commercial activities/production and disruption of transport services on commercial and normal consumers, including inconvenience and additional expenditure.
- The National Disaster Management Authority have been asked to **submit reports with respect to the adverse impact of farmer agitation on various aspects** and observance of Covid protocols at the protests sites.
- University of Delhi has **been requested to depute teams to conduct a survey and submit the report assessing the disruption of livelihood, lives of people**, impact on the aged and infirm due to protracted agitation by farmers.

About NHRC

- NHRC of India is established on **12th October, 1993 under the provisions of Protection of Human Rights Act, 1993, later amended in 2006.** It is an independent statutory body.
- The NHRC is considered as the **watchdog of human rights in the country, i.e. the rights relating to life, liberty, equality and dignity of the individual guaranteed** by the Constitution or embodied in the international covenants and enforceable by courts in India.
- NHRC looks over the **individual's rights about their life, liberty, dignity and equality that are defined in Section 2(1) of the Protection of Human Rights Act.**
- They are guaranteed by the Constitution of India, embodied in the international covenants and are enforceable by the courts of India as well.

Composition of the Commission

- NHRC is a **multi-member body which comprises a Chairman and seven other members.**
- Three are ex-officio members, out of the seven members. President appoints the Chairman and members of NHRC on recommendation of high-powered 6 member committee consisting of:
 - The Prime Minister as its head,
 - The Lok Sabha speaker,

- o The Rajya Sabha deputy chairman,
- o Opposition Leaders (LoP) of Lok Sabha and Rajya Sabha and
- o The Union Home Minister.
- o Further, a sitting Supreme Court judge or a sitting chief justice of a High Court could be appointed only after consultation with the chief justice of India.
- The **Chairperson and the members of the NHRC are appointed for 5 years or** till the age of 70 years, whichever is former.
- The **President could remove the chairperson or any member** from the office.
- Their removal can be on the charges of proved misbehavior or incapacity, only if proved by an inquiry conducted by a Supreme Court Judge.

Functions

- **Proactively or reactively enquires into breach of human rights** or negligence in the prevention of such breach by a public-servant.
- **By leave of the court, to interfere in court proceeding** relating to human rights.
- To **visit any jail or other institution under the control of** the state-government, where persons are detained or lodged for principles of treatment, reformation or protection, for the study of the living conditions of the inmates and make recommendations.
- **Review the safeguards offered by or under the Constitution**—or any law for the time being in force for the protection of human rights and recommend measures for their effective implementation.

Powers

- The commission **has the authority of a civil court** and can take cognizance of cases if received within one year of occurrence.
- It could **recommend compensation to the victim**, prosecution of the accused. But such recommendations aren't binding.
- It **submits special or annual reports to parliament and state legislatures** along with action taken on their recommendations and causes for non-acceptance of advice.

Limitations of NHRC

- NHRC **does not have any means of investigation**. In majority cases, it enquires the concerned Central and State Governments to investigate the cases of the violation of Human Rights
- It has been **termed as 'India's teasing illusion'** by Soli Sorabjee (former Attorney-General of India) due to its inability to render any practical relief to the aggrieved party. The Supreme Court **also called NHRC "a toothless tiger"**.
- NHRC **could only make recommendations**, without the power to implement decisions.
- Many times NHRC is seen as **post retirement destinations for judges and bureaucrats with political affiliation**; moreover, lack of funds also hinders it's working. 288
- **A lot of grievances go unaddressed because NHRC** shall not investigate the complaint registered after one year of incident.
- Government **often outright rejects the proposal of NHRC** or there is partial compliance to these recommendations.
- State human **rights commissions shall not call for information from the national government**, which means that they are completely denied the power to investigate armed forces under national control.
- National Human Rights Commission powers related to violations of human rights by the armed forces have been largely limited.

Achievement of NHRC

- The Global Alliance of National Human Rights Institutions (GANHRI), a UN body based in Geneva, has re-accredited **India's apex rights watchdog with the 'A' status**, a perfect score.
- Cases are resolved within months and compensation is granted in 90 per cent of them.
- **disposal of more than 17 lakh cases**
- **payment of more than Rs. 1 billion** to victims of human rights violations
- **carrying out over 750 spot enquiries** of human rights violations
- **conducting over 200 conferences to spread awareness** of human rights across the country.
- its role has **been significant in combating encounter killings and custodial deaths**. The commissions's guidelines in 1997 mandates every custodial death and encounter killing be reported to it within 24 hours.
- its interventions in the 2007 Nandigram violence in West Bengal and Salwa Judum-related incidents in Chhattisgarh has been instrumental in developing India's human rights.

Protection of Human Rights (Amendment) Act, 2019

Provisions	Act of 1993 (Original)	Act of 2019 (Amended)
Composition of NHRC:	<ul style="list-style-type: none"> Under the Act, the chairperson of the NHRC is a person who erstwhile a Chief Justice of the Supreme Court. The Act provides for 2 persons having knowledge of human rights to be appointed as members of the NHRC. Under this Act, chairpersons of various commissions such as the National Commission for Scheduled Castes (NCSC), National Commission for Scheduled Tribes (NCST) and National Commission for Women (NCW) are members of the NHRC. 	<ul style="list-style-type: none"> The Bill changes this to allow the chairperson of the NHRC to be a former Chief Justice of the Supreme Court (CJI) or a Supreme Court Judge. The Bill amends this to authorize three members to be appointed, of which at least one will be a woman. Chairmen of the National Commission for Backward Classes, the National Commission for the Protection of Child Rights and the Chief Commissioner for Persons with Disabilities will all be members of the NHRC, according to the bill
Chairperson of SHRC:	<ul style="list-style-type: none"> The Act mandates that the chairperson of a SHRC be a former Chief Justice of a High Court. 	<ul style="list-style-type: none"> A person who has served as Chief Justice or Judge of a High Court would be the chairperson of a SHRC, according to the Amendment of the Bill
Terms of office:	<ul style="list-style-type: none"> The Act provides that the chairperson and members of the NHRC and SHRC will hold office for 5 years or till the age of 70 years, whichever is earlier. Members of the NHRC and SHRCs can also be reappointed for a five-year period under the Act. 	<ul style="list-style-type: none"> The Bill diminishes the term of office to three years or till the age of seventy years, whichever is earlier. The Bill eliminates the five-year limit for reappointment

Means to Empower NHRC

- Appointments to the NHRC need to be made from a wider pool of candidates.** The recommendations of the GANHRI can be considered to relax the criteria for appointment of members from the higher judiciary. There is also a need to advertise the vacancies widely and fill them promptly without any delays.
- The **expert member criteria needs clear definition and well-defined benchmarks** so as to resolve the allegation that it is a post-retirement security for bureaucrats.
- Political representatives should be strictly limited in their engagement** as members of the NHRC so as to ensure independence.
- There is a **need for the NHRC to constitute and maintain an independent cadre of officials that will be able to develop expertise in human rights violation investigation.**
- The **PHRA, 1993 needs to be amended to include mandatory time frame for action taken and response formulation by the Government at the Centre and in the states on NHRC recommendations.**
- The NHRC should be granted contempt powers so as to ensure effective implementation of its recommendations.

APPOINTMENT OF POLICE OFFICER

GS-II GOVERNANCE

Context

- Maharashtra Government is awaiting for the appointment of DGP.
- The state government, in keeping the Supreme Court directions, will select the next Maharashtra DGP from the three officers.

Procedure to appoint DGP as per Supreme Court Direction

- In the 2006 Prakash Singh judgment, the **Supreme Court laid down procedures for appointment of a DGP so that there is no political interference.**
- As per the guidelines, the state government was to **select the DGP from the list of three officers selected by the Union Public Service Commission (UPSC)** that would have gone through the records of all the eligible officers from the state cadre.
- In Maharashtra's case, a list of 20 officers with over 30 year tenure is present with UPSC. While initially the SC had said the person selected should have at least a two-year service period remaining, it was later reduced to six months.
- The Supreme Court also **barred the state government from appointing DGP's on acting basis.**

Conditions of Police in India

- Police stations in **outlying rural areas lack even the basic technology, forensic aid and equipment for crime detection.**
- Many of them are located in **signal gap zones, where mobile phones barely work and internet connectivity is weak or non-**

existent.

- **Overburdened**, as a single police station has to look after 70 to 80 villages in large states
- The **building infrastructures in many cases are still poor and unlivable** — forget about interrogation or detention cells.
- With a **severe manpower deficit**, India's police force is grossly overworked.
- The **heavy pendency of work** is coupled with brazen political interference.
- **Work stress is inordinately high** and the quality of their life is poor and de-motivating.
- The **urgency to improve the crime detection** rate is a matter of constant worry.

Reforms needed

- All police stations need to be provided with **modern-day amenities** and connectivity.
- There is **dire need of state-of-art technology and equipment** to promote hassle-free interrogation and crime detection.
- The police force **needs to be trained at regular intervals** and CBI should impart special training to the state police personnel for questioning suspects.
- **Separation of the law and order and investigation** wings at police stations.
- Strengthening the prosecution apparatus and provision of legal advisors in the district police set up.
- **Sustained focus on Ease of Doing Policing** and measures for empowering police within a well-established accountability framework could prove to be biggest step towards reducing this practice.
- The **recruitment process for the police has to be equipped with modern** psychoanalytical tools to shun the entry of those with a grain of brutality.
- It must implement the Supreme Court's directive on setting up a Police Complaints Authority in every state of India.



Way Forward

- Strict Compliance with the Supreme Court ruling is necessary to get rid of politicization of the police. It will instill rule of law in the country and check criminalization of the politics.



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HIGHER EDUCATION RANKINGS

GS-II SOCIAL JUSTICE

Context

- No Indian University in under top 300 of the Times Higher Education Ranking.

Key Takeaways from the Ranking

- The United States, United Kingdom, Germany and Australia continue to contribute the greatest number of universities to the top 200.
- China (People's Republic of China) is making its presence felt in the university rankings, with 2 universities in the top 20.
- While no Indian university is in the top 200, IISc Bengaluru continues to be the highest-ranked Indian institution in the top 350. Five other Indian institutions, including IIT Ropar and IIT Indore, are in the top 600.
- A record 71 institutes from India have qualified for this year's rankings, up from 63 last year and 49 two years ago.

Reasons behind poor ranking

- Low spending by global standards that it holds back India's economic, technological and strategic ambitions.** India's R&D spending amounts to 0.7% of gross domestic product, a fraction of China's 2.1%, let alone Japan's 3.1%.
- A lax intellectual property regime, foolish sectoral regulations and a protectionist trade policy** have deterred R&D thus reducing industry income.
- Composition of spending is also skewed.** The government and a few strategic sectors, notably atomic energy, space and defense, account for the bulk of the meagre spending.
- The contribution of Indian companies, both private and public sector taken together, to total R&D is just 44% against a global average of 71%.**
- Indian Higher education is marred with the curse of plagiarism.**
- Government policies like paying graduate students cash incentives for publishing in the reputed journal creates a bias towards publishing than high quality science. Indian papers are cited lower compared to those in USA and China.
- Our school system is focussed on rote-learning than critically thinking.** It also affects the quality of research.
- Poor quality infrastructure at institutes is also an issue.

Table 1: Criteria of Times Higher Education World University Rankings

Research: Volume, income, reputation	30%
Citations: Research influence	30%
Teaching: The learning environment	30%
International outlook: People, research	7.5%
Industry income: Innovation	2.5%

Questions on Rankings

- Quantified rankings bring conflict between educational values and market values. Educational values focus on critical thinking, analytical abilities, social agendas and the inculcation of citizenship ideals that are unquantifiable and intangible. While Market values are industry-driven, orient the project of neoliberal higher education training towards developing particular skill-sets for the labour market.
- Rankings are leading to defunding of the public institutions where they are supposed to enhance the income from corporates. It has an attack on dissent, critical education, and any public institution that might exercise a democratising influence on the nation.
- Rankings are one Size fits all model where they do not consider local cultures/societies.
- Rankings increased focus in on research output fuelling the consumerism. It violates the basic principle of university: Teaching.
- Focus on increased international exposure reduces opportunity for local regions.
- Focus on publication has resulted in massification in research journals. Scams have been unearthed about fake journals providing no peer research support.

Steps taken to Improve Rankings

- Government initiated **National Institute Ranking Framework (NIRF)**. Under the NIRF, Educational Institutions are ranked by an independent ranking agency on the basis of objective criteria.
- Imprint has been launched.** Under the IMPRINT, the Government has taken the initiative to address major engineering challenges through the collaborative efforts of the IITs and Indian Institute of Science (IISc).
- Ucchatar Aviskar Yojana (UAY) has been initiated.** The objectives of UAY scheme are to promote innovation in IITs, addressing issues of manufacturing industries; to spur innovative mindset; to co-ordinate action between academia & industry and to strengthen labs & research facilities.
- GIAN scheme** facilitates partnership between Higher Educational Institutions of the country and other countries in order to tap international talent pool of scientists and entrepreneurs.

Context

- THE RAJASTHAN High Court has summoned six persons acquitted in the 2017 Pehlu Khan lynching case following an appeal filed by the victim's sons.

Reasons for rising mob lynching

- **Poor Implementation of minority's laws:** An act of lynching reflects failure of law to protect minorities and punish the culprits. State action is important in strict enforcement of law and punishing the culprits.
- **No law on mob lynching:** There is no comprehensive law on mob lynching in India. This allow culprit to go free unpunished.
- **Lack of accountability and conviction:** Mob has no face. This impunity leads mob to take extreme steps. Thus community and state role increase to stop such crimes. Active participation of civil society against such crimes and helping state and law enforcement agencies in nabbing the criminal is critical.
- **Vote-bank politics:** Sometimes, political mobilisation that uses violence as a tool of politics, support such elements in society. Here community awareness and action against such politicians become necessary to prevent such vote bank politics.
- **Police failure:** Indifferent attitude of Police leads people to take law in their own hands. Also police delays and inability to catch the criminals lead to more such incidents. State should be more proactive in police reforms. Strict action should be taken against any police officials who do not record such incidents in criminal records.
- **Social media menace:** Rise in penetration of Social media and its usage to spread rumours and hatred has exaggerated such incidents. A vigil community with state action on taking action against cyber criminals is must to prevent fake news and rumours.
- **High Unemployment rates:** High unemployment leave millions of youth unengaged. These young brains are often misguided and brainwashed through various ideologies and agendas. State action is important to provide more employment opportunities to youth with focus on economic development of the region.
- **Against social peace:** These crimes impact solidarity of society and idea of Unity in diversity. This create an atmosphere of majority v/s minority. It could aggravate caste, class and communal hatred. Thus community and state need to work together to stop such crimes. Programs especially focused on teaching values of tolerance and secularism is important.

SC guidelines

- There shall be a **"separate offence" for lynching and the trial courts** must ordinarily award maximum sentence upon conviction of the accused person to set a stern example in cases of mob violence.
- The state governments will have to designate a **senior police officer in each district** for taking measures to prevent incidents of mob violence and lynching.
- The state governments need to **identify districts, sub-divisions and villages where instances of lynching and mob violence have been reported in the recent past.**
- The **nodal officers** shall bring to the notice of the DGP about any inter-district co-ordination issues for devising a strategy to tackle lynching and mob violence related issues.
- **Every police officer shall ensure to disperse the mob** that has a tendency to cause violence in the disguise of vigilantism or otherwise.
- Central and the state governments shall **broadcast on radio, television and other media platforms** about the serious consequences of mob lynching and mob violence.
- Despite the measures taken by the State Police, if it comes to the notice of the local police that an incident of lynching or mob violence has taken place, the jurisdictional police station shall immediately **lodge an FIR.**
- The State Governments shall prepare a **lynching/mob violence victim compensation scheme** in the light of the provisions of Section 357A of CrPC within one month from the date of this judgment.
- If a police officer or an officer of the district administration fails to full fill his duty, it will be considered **an act of deliberate negligence.**

Sociology of lynching cases

- The victims are always those living on the margins of the society.
- The cow-vigilantes are motivated by an urge to **impose hegemony of values and cultural homogeneity**, by obfuscating diverse practices and beliefs.
- They dare to defy the process of law, as their acts are powered by majoritarian sentiments.
- This is not an issue within the narrow confines of law and order; it plays out on a broader canvass of **socio-cultural dynamics.**
- It is the tussle between rule of law and belief-systems.
- It is the friction between the privileges of the mainstream and the struggles of survival by the marginalized.

Legal Framework

- Rajasthan and Manipur has made a law to curtail these hate crimes.

Basic features of the law

- Definition: It covers any act of violence, whether spontaneous or planned, by a mob on the grounds of religion, race, caste, sex, place of birth, language, dietary practices, sexual orientation, political affiliation or ethnicity. And two persons are enough to constitute a 'mob'.
- Provisions:
 - Compensation worth Rs. 5 Lakh to the victim
 - Punishable with life imprisonment
 - Such type of laws should be made at Pan India level curbing the mob violence in the nub.



RESERVATION

GS-II SOCIAL JUSTICE

Context

- Political parties should consider making substantive changes to the way reservation is implemented.

Background

- Reservation is a form of **positive discrimination**, created to promote equality among **marginalised sections**, so as to protect them from social and historical injustice.
- Generally, it means giving preferential treatment to marginalised sections of society **in employment and access to education**.
- The National Front government in 1990 implemented** the recommendation of the Mandal Commission i.e the jobs in the central government should be reserved for the **Other Backward Classes** and this led to violent '**anti Mandal**' protests in different parts of the country.
- This dispute between the supporters and opponents of OBC reservations was known as the '**Mandal issue**' and was to play an important role in shaping politics **since 1989**.
- The decision was also challenged in the Supreme Court and came to be known as the "**Indira Sawhney case**".

Reservation for OBCs in Educational Institutions

- 1979, the Central Government appointed the **Second Backward Classes Commission** under the chairmanship of B.P. Mandal.
- The Mandal Commission was appointed in terms of Article 340 of the Constitution to investigate the conditions of the socially and educationally backward classes and suggest measures for their advancement.
- The reservation to OBC was an exception to Article 15 of the Indian Constitution which was added by the **93rd Amendment Act of 2005**.
- The Central Government enacted the Central Educational Institutions (Reservation in Admission) Act, 2006, providing a quota of **27% for candidates belonging to the Other Backward Classes (OBCs)**.

Reservation for EWSs in Educational Institutions

- Another exception to **Article 15** was added by the **103rd Amendment Act of 2019** which provided 10% reservation to Economically weaker section
- This clause provides 10% reservation for economically backward sections who are not included in any reservation criteria

Indra Sawhney case

- Indra Sawhney case 1992** ruled that the total reservation for backward classes cannot go beyond the 50% mark.
- Not only Maharashtra but Tamil Nadu, Haryana and Telangana also exceed the reservation quota above 50%.
- 1990, when the **V P Singh led-government** set out to implement the Mandal report and it was challenged in court.
- The court in this judgment upheld the **27 % quota** that was provided to the Socio economic Backward classes.
- The advanced sections among the **OBCs** (the creamy layer- Economically well off) should be excluded from the list of beneficiaries of reservation.
- Limit should not exceed 50% except in exceptional circumstances and extraordinary situations, this limit can be crossed.

Constitutional provisions

- Article 15 and 16** of the Constitution enabled the State and Central Governments to reserve seats in government services for the members of the SC and ST.

- **Article 330 and 332** provides for specific representation through reservation of seats for SCs and STs in the Parliament and in the State Legislative Assemblies respectively.
- **Article 243D** provides reservation of seats for SCs and STs in every Panchayat.
- **Article 233T** provides reservation of seats for SCs and STs in every Municipality.
- **Article 335** of the constitution says that the claims of STs and SCs shall be taken into consideration constitutively with the maintenance of efficacy of the administration.

Judicial view

- **State of Madras v. Smt. Champakam Dorairajan (1951)** case was the first major verdict of the Supreme Court on the issue of Reservation. The case led to the First amendment in the constitution.
- **Indra Sawhney v. Union of India (1992)** case the court examined the scope of reservation
- **Supreme Court in M. Nagaraj v. Union Of India 2006** case while upholding the constitutional validity of reservation for backward sections of the society.
- **Jarnail Singh vs Lachhmi Narain Gupta case of 2018**, Supreme Court upheld that the reservation in promotions does not require the state to collect quantifiable data on the backwardness of the Scheduled Castes and the Scheduled Tribes.

CASTE CENSUS

GS-II SOCIAL JUSTICE



Figure 1: No Copyright Infringement Intended

Context

- SEVENTEEN Muslim organisations, under the umbrella of All India Pasmanda Muslim Mahaz demanded a caste census for minority communities.

Their Arguments:

- Muslims, **contrary to perception, are not a monolithic homogenous community.**
- **Caste persists among Muslims as well and 80 per cent of the Muslim population** belong to other backward classes.
- Development of such communities can take place only if there is data – on who the land owners are, what the economic situation of different communities are etc.
- Since the caste census has not been done since 1931, this is a reason why the benefits of the government's policies have not reached the relatively weaker sections and numerically smaller castes.

Evolution of Caste Census

- The silence around caste in national-level politics was finally breached during the Mandal moment.
- The 1990s were a decisive watershed for our collective understanding of caste, and one of its direct outcomes was the gathering of momentum around the demand for a caste census.
- The 2001 Census saw the first battles, but the opposing forces won relatively
- The 2011 Census witnessed a more even fight, ultimately forcing the UPA government into a backdoor escape via the Socio-Economic and Caste Census, a project designed to fail.

Reasons for Not Conducting the Caste Census

- The main reason for not counting caste has been political, and strong enough to produce (so far) broadly similar responses from both the UPA and the NDA as it can threaten the Vote bank.

- Nehruvian argument offered for not counting caste was also moral-political, namely that doing so would strengthen caste identities, contradicting the official goal of erasing them.
- The technical-practical reasons for opposing caste enumeration – namely, that it is impossible to count something as complex and varied as caste.
- Counting caste in the Census threatens to make visible the only social group in independent India that has never been counted – the so-called “upper” castes.
- Tabulating and categorising similar-sounding caste names and deciding on whether to treat some sections as separate castes or sub-castes of a community will also be a challenging task.

Need for Caste Census

- Public policy must not be formulated on the basis of hazy projections and blurry extrapolations. Accurate data on the caste composition of the population is needed to maximise the gains of policies such as reservation in education and employment.
- caste continues to be an influential determinant in public affairs and access to resources. Hence, there is a need to enumerate it.
- A caste-based census is required to assess the exact ground situation because in at least 30 states and Union territories, the reservation for backward classes has crossed the upper limit.
- **Provide Quantifiable data:** Over the last two decades, the Supreme Court has been raising questions about the basis for reservation levels being high in various States. In particular, it has laid down that there should be **quantifiable data** to justify the presence of a caste in the backward class list, as well as evidence of its under-representation in services.

About Socio-Economic Caste Census 2011

- The Socio-Economic Caste Census of 2011 was a major exercise to obtain data about the socio-economic status of various communities.
- The general census is conducted in a small window of a month, while the caste census is conducted over a longer period of time, and there is a good deal of revision and correction.
- The SECC 2011 had two components: a survey of the rural and urban households and ranking of these households based on pre-set parameters, and a caste census. However, only the details of the economic conditions of the people in rural and urban households were released.
- The caste data have not been released till now.
- While a precise reason is yet to be disclosed, it is surmised that the data were considered too politically sensitive.
- Fear of antagonising dominant and powerful castes that may find that their projected strength in the population is not as high as claimed may be an important reason.

CRIMINALISATION OF MARITAL RAPE

GS-II SOCIAL JUSTICE

Context

- Multiple Judicial rulings have been confusing in regard to the marital rape.

Multiple Judicial Rulings

- In 2017, the Supreme Court, in to Section Independent Thought v. Union of India, refused to delve into the question of marital rape of adult women while examining an exception 375 (rape) of the Indian Penal Code (IPC) which allows a man to force sex on his wife.
- Recent rulings by High Courts have been contradictory – one backed marital rape as a valid ground for divorce, while another granted anticipatory bail to a man while concluding that forcible sex is not an “illegal thing”.

Court Observations regarding Marital Rape:

- Supreme Court highlighted that legislative immunity given to marital rape stemmed from the “outdated notion that a wife is no more than a subservient chattel of her husband”.
- Gujarat High Court has held that “a law that does not give married and unmarried women equal protection creates conditions that lead to the marital rape”.
- According to Gujarat High Court, Marital Rape allows the men and women to believe that wife rape is acceptable. Making wife rape illegal or an offence will remove the destructive attitudes that promote the marital rape.
- In the context of privacy in State of Maharashtra v. Madhukar Narayan Mardikar, the top court observed that no one has a right to violate the person of anyone else, including of an “unchaste woman”.

- In *Suchita Srivastava v. Chandigarh Administration*, the top court backed a “woman’s right to refuse participation in sexual activity or alternatively the insistence on use of contraceptive methods”.
- The court has held that “rape is not only a crime against the person of a woman, it is a crime against the entire society”.

J. S. Verma Committee Observations

- It had recommended the removal of the marital rape immunity.
- The report underscored the fact that marital rape immunity had been withdrawn in most foreign jurisdictions.
- According to the Report, the relationship between the accused and the complainant is not relevant to the inquiry into whether the complainant consented to the sexual activity.

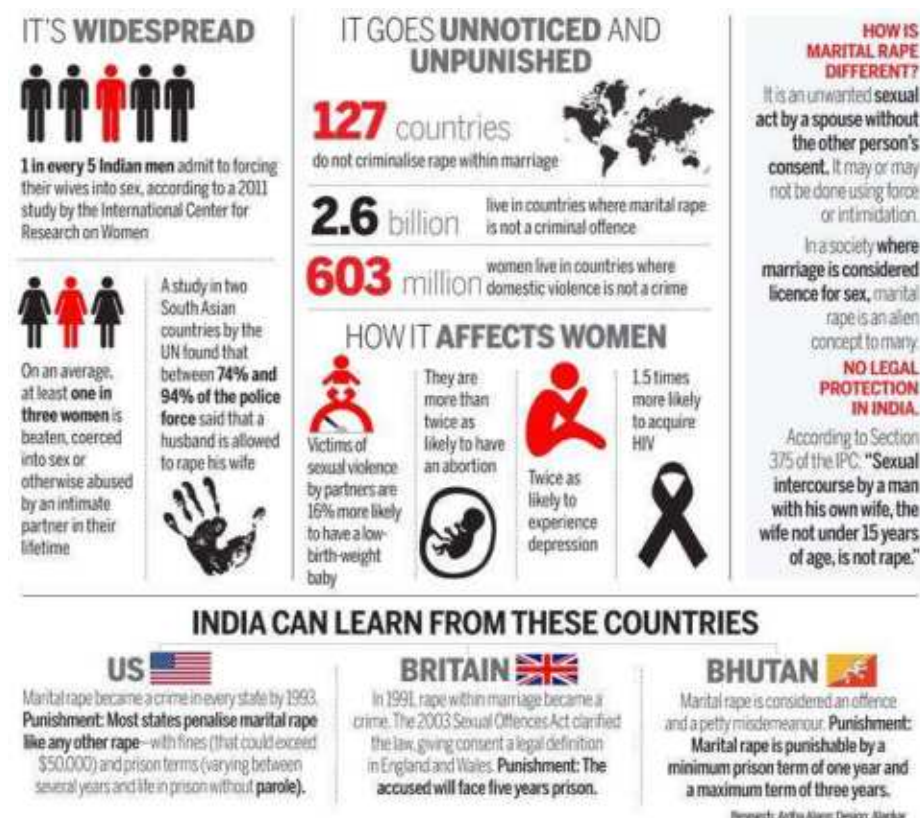


Figure 2: No Copyright Infringement Intended

International Developments

- The European Commission of Human Rights in *C.R. v. UK* had concluded that “a rapist remains a rapist regardless of his relationship with the victim”.
- Canada had repealed provisions in the Criminal Code which denied criminal liability for marital rape in 1983.
- South Africa criminalized marital rape in 1993.
- In Australia, the common law ‘marital rape immunity’ was legislatively abolished in all jurisdictions.

Legal Provisions

- Section 375 of the IPC defines the offence of rape. It lays down which physical acts are required to make out the offence, and it is a very broad definition.
- The second important element of this definition is consent. Where these acts are done without the consent of the woman, then the offence of rape is made out.
- This is the general rule, but there is an exception, which says that sexual acts by a husband with his wife, if she is 18 years of age and above, would not be rape.
- Section 375 creates the legal fiction that a wife always consents to her husband, which in effect means that her non-consent is irrelevant.
- It is of course possible for there to be reprieve for rape within a marriage, but not as rape.
- If there are physical injuries, then there can be reprieve for that separately. Marital rape may be recognised as a form of cruelty, it may be a ground for divorce, but it is not punished as rape, which is a very distinct wrong and has very distinct terms.

Why Still in Law Books

- Parliament did miss an opportunity to enact changes, as recommended by the Justice Verma Committee.
- The official response was that they wanted further discussions around marital rape laws before they could enact it because it involves other questions of law as well.
- The Supreme Court missed a fantastic opportunity to go into these matters in the *Independent Thought* case in 2017.
- a lot of people, including still believe that criminalizing marital rape will somehow threaten the ‘institution of marriage’ and will become some sort of a witch-hunt against husbands.
- The extent of poverty, illiteracy and diversity in this country make the issue complex.

Reasons behind Marital Rape

Challenges in Provisions

- First, the marital rape exception is inconsistent with other sexual offences, which make no such exemption for marriage.

- Thus, a husband may be tried for offences such as sexual harassment, molestation, voyeurism, and forcible disrobing in the same way as any other man but not for the marital rape.
- As a result, **penetrative intercourse that is penile-vaginal is protected from criminal prosecution when performed by a husband with his wife, even when done forcibly or without consent.**
- If there is an underlying rationale to this extremely limited exemption, it is not immediately clear.

Deep rooted Patriarchy

- The marital rape exception is an insult to the constitutional goals of individual autonomy, dignity and of gender equality enshrined in fundamental rights such as Article 21 (the right to life) and Article 14 (the right to equality).
- **In Joseph Shine v. Union of India (2018), the Supreme Court held that the offence of adultery was unconstitutional** because it was founded on the principle that a woman is her husband's property after marriage.
- The marital rape exception betrays a similar patriarchal belief: that upon marriage, a wife's right to personal and sexual autonomy, bodily integrity and human dignity are surrendered.
- **Her husband is her sexual master and his right to rape her is legally protected.**

Destroy the Basic Institution of Marriage

- A commonly cited rationale for preserving the marital rape exemption is that recognising marital rape as a criminal offence would 'destroy the institution of marriage'.
- This was the government's defence in **Independent Thought v. Union of India (2017)**.

Challenges in ascertaining the conviction:

- Another argument frequently raised against the criminalisation of marital rape is that since marriage is a sexual relationship, determining the validity of marital rape allegations would be difficult.

Way Forward

Not Against Institution of Marriage:

- The government defended exception to marital rape in Independent Thought v. Union of India (2017) saying it against the institution of marriage.
- However, rejecting this claim, the Supreme Court observed, "Marriage is not institutional but personal – nothing can destroy the 'institution' of marriage except a statute that makes marriage illegal and punishable."
- In this context, marital rape can be taken out of the exception.

Criminalise the Marital Rape:

- **The United Nations Declaration on the Elimination of Violence against Women defines violence against women** as "any act of gender-based violence that results in, or is likely to result in, physical, sexual, or mental harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or private life.
- In 2013, the **UN Committee on Elimination of Discrimination Against Women (CEDAW)** recommended that the Indian government should criminalize marital rape.

Justice Verma Committee Report:

- The JS Verma committee set up in the aftermath of nationwide protests over the December 16, 2012 gang rape case had also recommended the criminalisation of the marital rape.
- By removing this law, women will be safer from abusive spouses, can receive the help needed to recover from marital rape and can save themselves from domestic violence and sexual abuse.

Women's Rights Awareness Programme:

- Awareness campaign based in Kenya can provide shelter, counselling, practical and legal advice and other services to survivors of gender based violence.
- Educational and prevention programs on local, state, and national levels can be initiated for spreading awareness.

Legal bottlenecks

- It is shocking that Exception 2 to Section 375 of the IPC survives to this day.
- Antithetical to the liberal and progressive values of our Constitution, and violative of India's international obligations under instruments such as the Convention on the Elimination of All Forms of Discrimination against Women, the provision underlines women's subordination to men, especially within marriage.
- In 2017, the Supreme Court, in Independent Thought, had read down the exception so that husbands who raped their minor wives could no longer hide behind it.

Conclusion

- Societal change is very important.
- It is not only patriarchy or misogyny that needs to change, we need to challenge notions about the sanctity of marriage.
- We need to check ourselves every time we indulge in blaming the victim.
- We also need to challenge our conservative mindsets when it comes to discussing sexual offences or offences that take place within the family.

FOREST RIGHTS ACT**GS-II SOCIAL JUSTICE****Context**

- Karnataka ranks ninth in terms of approving applications filed by the Scheduled Tribes (ST) and the Other Traditional Forest Dwellers (OTFD) under the Forest Rights Act (FRA).
- The state has so far received a total of 2,81,349 applications from the communities till February this year pertaining to 16,073 acres, of which 1,80,956 claims were rejected.
- Andhra Pradesh tops the list when it comes to clearing applications from the communities seeking rights over forest land, followed by states like Assam, Bihar, Chhattisgarh, Goa and Gujarat which have expedited the process.

Government Comment

- Under the Forest Rights Act, OTFDs need to prove antecedents of three generations or 75 years of ownership of forest land prior to 2008 to claim rights over the forest land.
- The Gram Sabha is also a highly empowered body under the Act, enabling the tribal population to have a decisive say in the determination of local policies and schemes impacting them.
- The sole responsibility of accepting the applications is not just with the Forest Department, District Committees to look into this
- while most applications filed by STs have been settled, that is not the case with pleas submitted by those from OTFD communities.

Forest Rights Act

- The Act recognises mainly two types of forest dwellers:
 1. Forest Dwelling Scheduled Tribe
 2. Other traditional forest dwellers.
- It gives these communities the right to cultivate the land maximum upto 4 hectare.

Aims of Act

- Grants legal recognition to the rights of traditional forest dwelling communities, partially correcting the injustice caused by the forest laws.
- Makes a beginning towards giving communities and the public a voice in forest and wildlife conservation.

Types of Rights granted**1. Land Rights:**

- Forest dwellers gets the right maximum upto 4 hectares.
- The land cannot be sold or transferred to anyone except by inheritance.
- Those who are cultivating land but don't have document can claim up to 4 hectares, as long as they are cultivating the land themselves for a livelihood.

2. Use Rights:

- Minor forest produce things like tendupatta, herbs, medicinal plants etc "that has been traditionally collected (see section 3(1) (c)). This does not include timber.
- Grazing grounds and water bodies
- Traditional areas of use by nomadic or pastoralist communities i.e. communities that move with their herds, as opposed to practicing settled agriculture.

3. Right to Protect and Conserve:

- For the first time, this law also gives the community the right to protect and manage the forest.
- Section 3(1) (i) provide a right and a power to conserve community forest resources.
- Section 5 gives the community a general power to protect wildlife, forests, etc.

Procedure of Rights

- The gram sabha (full village assembly, NOT the gram panchayat) makes a recommendation – i.e who has been cultivating land for how long, which minor forest produce is collected, etc.
- The gram sabha's recommendation goes through two stages of screening committees at the taluka and district levels.
- The district level committee makes the final decision.
- At both the taluka and the district levels, any person who believes a claim is false can appeal to the Committees.
- One can't appeal beyond the district level committee.

Importance of these Rights

- The act **looks to right the wrongs of government policies in both colonial and independent India toward forest-dwelling communities**, whose claims over their resources were taken away during 1850s.
- The act **also has potential of sustainably protecting forest through** traditional ways along with providing tribes means of livelihood.
- It expands the **mandate of the Fifth and the Sixth Schedules of the Constitution** that protect the claims of indigenous communities over tracts of land or forests they inhabit.
- The **alienation of tribes was one of the factors behind the Naxal movement**, which affects states like Chhattisgarh, Odisha and Jharkhand. The act through identifying IFR and CFR tries to provide inclusion to tribes.
- It has the **potential to democratise forest governance by recognising community forest resource rights over an estimated 85.6 million acres**, thereby empowering over 200 million forest dwellers in over 1,70,000 villages.
- The act will **ensure that people get to manage their forest on their own which will** regulate exploitation of forest resources by officials, forest governance and management as well as tribal rights etc.

Challenges

- The debate on the issue of **the act leading to even more encroachment of already** troubled forest lands has started.
- Though the act **tries to focus on the needs of the forest dwellers**, it **defeats the purpose when the eviction rate of families from** these lands increases as their claims on these lands are not accepted by the government.
- The role of the sub-divisional level committee is always questioned as they have been given the **important right to make a decision on the needs and claims of the marginal communities on the piece of forest lands**.
- **Issues have arisen from the part of forest departments who have been seen unwilling to give their forest lands**. Role of forest department to let the forest dwellers sow in the forest the reap the benefits is criticized as tribes like Baigas have blamed the department to not support their claim over the land.
- The **tribes and communities also lack the capability to prove their occupancy over the forest land** and the law turns out to be weak to strengthen their claim.
- Government's **role of allowing commercial plantations in degraded land is also debated** and questioned as the degraded land makes 40% of forests.

Supreme Court order on Forest rights implementation

- Court has ordered the eviction of lakhs belonging to the Scheduled Tribes (STs) and Other Traditional Forest Dwellers (OTFDs) categories across 16 States, whose claim as forest-dwellers has been rejected under the Forest Rights Act.
- It ordered the Forest Survey of India (FSI) to make a satellite survey and place on record the "encroachment positions."

Way Forward

- Awarding of the community rights must be increased to ensure well-being of the forest.
- Forest department must work in collusion with the tribals in seeking the sustainable development than acting as bureaucratic department.

E-SHRAM PORTAL

GS-II SOCIAL JUSTICE

Context

- E-shram portal needs to be worked upon.

About E-Shram Portal

- Ministry of Labour & Employment has developed eSHRAM portal for creating a National Database of Unorganized Workers (NDUW), which will be seeded with Aadhaar.
- It will have details of name, occupation, address, educational qualification, skill types and family details etc. for optimum realization of their employability and extend the benefits of the social security schemes to them.
- It is the first-ever national database of unorganised workers including migrant workers, construction workers, gig and platform workers, etc.

Objectives

- Creation of a **centralized database of all unorganized workers (UWs) including Construction Workers, Migrant Workers, Gig and Platform workers, Street Vendors, Domestic Workers, Agriculture Workers, etc.**, to be seeded with Aadhaar.
- To improve the **implementation efficiency of the social security services for the unorganized workers.**(ii) **Integration of Social Security Schemes** meant for UWs being administered by MoLE and subsequently those run by other ministries as well.
- Sharing of information in respect of registered unorganised workers with various stakeholders such as Ministries/

Departments/ Boards/ Agencies/ Organisations of the Central & State Governments through APIs for delivery of various social security and welfare schemes being administered by them.

- **Portability of the social security and welfare benefits to the migrant and construction workers.**
- Providing a comprehensive database to Central and State Governments for tackling any National Crises like COVID-19 in future.

Who can register in eShram (NDUW) Portal?

- Any individual satisfying following condition can register on the portal.

An unorganised worker (UW)

- Age should be between 16-59 years.
- Not a member of EPFO/ESIC or NPS (Govt. funded)

Who is Unorganised Worker?

- Any worker who is a home based-worker, self-employed worker or a wage worker in the unorganised sector including a worker in the organised sector who is not a member of ESIC or EPFO or not a Govt. employee is called an Unorganised Worker.



Challenges

- **Issue of Data Security:** data security is one of the vital issue given it is a mega-sized database. There is also a **lack of national level data security law**. Another challenge is regarding sharing of **data with State governments whose data security capacities vary**.
- **Challenge of Coverage:** By excluding workers covered by EPF and ESI, lakhs of contract and fixed-term contract **workers will be excluded from the tag of UW. It excludes millions of workers aged over 59**, which constitutes age discrimination. Given minimal or no social security for them, their exclusion will hurt their welfare.
- **Challenges of Identity:** The nuances of the **unorganised workers' identity are so complex. Apprehensions are raised on how mechanical and assumptions-based portal registration will be able to capture the complexities and dynamics involved regarding them.**
- **Lack of Smart Phone:** Many workers will not have an Aadhaar-seeded mobile or even a smartphone. Aadhaar-seeding is a controversial issue with political overtones, especially in the North-eastern regions.
- **Lack of definition:** Even though the ministry has included gig workers in this process, it is legally unclear whether the gig/platform worker can be classified first as a worker at all (the other three Labour Codes do not include these workers), and second as organised or unorganised workers.
- **Challenges of Coordination:** The central government will have to depend on the state governments for this project to be successful. In many states, the social dialogue with the stakeholders especially is rather weak or non-existent.
- **Challenge of Corruption:** There is the concern of corruption as middle-service agencies such as Internet providers might charge exorbitant charges to register and print the E-Shram cards.

Way Forward

The success of the project depends on:

- The **involvement of a variety of stakeholders apart** from trade unions.
- Massive and innovative dissemination exercises involving multiple media outlets of various languages.
- The **holding of camps on demand by the stakeholders and on their own by the Government, efficiency of the resolution of grievance** redress mechanisms, micro-level operations, etc.
- The involvement of surveillance agencies is crucial.

CRIMES AGAINST CHILDREN

GS-II SOCIAL JUSTICE

Context

- Cyber crime cases are significantly increasing in the case of children.

Background

- Crimes against children include physical and emotional abuse, neglect and exploitation, such as through child pornography or sex trafficking of minors.
- Indian penal code and the various protective and preventive special and local laws specifically mention the offences wherein

children are victims.

- The age of child varies as per the definition given in the concerned Acts but age of child has been **defined to be below 18 years as per The Juvenile Justice (Care and Protection of Children) Act, 2000 Amended.**
- Therefore an **offence committed on a victim under the age of 18 years is considered as crime against children.**

Violence faced by Children

- Most violence against children involves at least one of six main types of interpersonal violence that tend to occur at different stages in a child's development.
- **Maltreatment** (including violent punishment) involves physical, sexual and psychological/emotional violence; and neglect of infants, children and adolescents by parents, caregivers and other authority figures, most often in the home but also in settings such as schools and orphanages.
- **Bullying** (including cyber-bullying) is unwanted aggressive behaviour by another child or group of children who are neither siblings nor in a romantic relationship with the victim. It involves repeated physical, psychological or social harm, and often takes place in schools and other settings where children gather, and online.
- **Youth violence** is concentrated among children and **young adults aged 10-29 years, occurs most often in community settings between acquaintances and strangers**, includes bullying and physical assault with or without weapons (such as guns and knives), and may involve gang violence.
- **Intimate partner violence** (or domestic violence) **involves physical, sexual and emotional violence by an intimate partner or ex-partner. Although males can also be victims, intimate partner violence disproportionately affects females.** It commonly occurs against girls within child marriages and early/Childhood/forced marriages.
- **Sexual violence includes non-consensual completed or attempted sexual contact and acts of a sexual nature not involving contact (such as voyeurism or sexual harassment); acts of sexual trafficking committed against someone who is unable to consent or refuse; and online exploitation.**
- **Emotional or psychological violence** includes restricting a child's movements, denigration, ridicule, threats and intimidation, discrimination, rejection and other non-physical forms of hostile treatment.

Risk factors

- Violence against children is a multifaceted problem with causes at the individual, close relationship, community and societal levels. Important risk factors are:

Individual level

- biological and personal aspects such as sex and age
- lower levels of education
- low income
- having a disability or mental health problems
- identifying as or being identified as lesbian, gay, bisexual or transgender
- harmful use of alcohol and drugs
- a history of exposure to violence.

Close-relationship level

- lack of emotional bonding between children and parents or caregivers
- poor parenting practices
- family dysfunction and separation
- being associated with delinquent peers
- witnessing violence between parents or caregivers
- early or forced marriage.

Community level

- poverty
- high population density
- low social cohesion and transient populations
- easy access to alcohol and firearms
- high concentrations of gangs and illicit drug dealing.

Society level

- social and gender norms that create a climate in which violence is normalized
- health, economic, educational and social policies that maintain economic, gender and social inequalities
- absent or inadequate social protection.

Prevention

WHO's INSPIRE strategy to combat violence against children. Seven strategies are:

- Implementation and enforcement of laws (for example, banning violent discipline and restricting access to alcohol and firearms);
- **Norms and values change** (for example, altering norms that condone the sexual abuse of girls or aggressive behaviour among boys);
- **Safe environments** (such as identifying neighbourhood “hot spots” for violence and then addressing the local causes through problem-oriented policing and other interventions);
- **Parental and caregiver support** (for example, providing parent training to young, first time parents);
- **Income and economic strengthening** (such as microfinance and gender equity training);
- Response services provision (for example, ensuring that children who are exposed to violence can access effective emergency care and receive appropriate psychosocial support); and
- Education and life skills (such as ensuring that children attend school, and providing life and social skills training).



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INDIA-MALDIVES RELATION

GS-II INTERNATIONAL RELATIONS

Context

- Maldives state-owned Fahi Dhiriulhun Corporation signed loan agreements with India's state-owned National Buildings Construction Company (NBCC) and JMC Projects (India) Ltd, to develop 4,000 social housing units in Hulhulmalé (phase 2) island.
- India's state owned Exim Bank extended buyer's credit of approximately \$228 million for the construction of these housing units.

Other recent developments

- Maldives government officially inked a deal with Mumbai-based company AFCONS, for the construction of the Greater Malé Connectivity Project (GMCP).
- It is a \$500-million infrastructure project, which is the largest-ever by India in the Maldives.
- India has been making significant investments in various development projects in the archipelagic state.

10 REASONS WHY MALDIVES IS IMPORTANT FOR INDIA



- 1** Strategically located in the Indian Ocean, Maldives archipelago comprising 1,200 coral islands lies next to key shipping lanes which ensure uninterrupted energy supplies to countries like China, Japan and India
- 2** Since China started to send naval ships to Indian Ocean roughly 10 years ago—and right up to Gulf of Aden in the name of anti-piracy operations—Maldives' significance has steadily grown and now it's at the heart of international geopolitics
- 3** As the pre-eminent South Asian power and a 'net security provider' in the Indian Ocean region, India needs to cooperate with Maldives in security and defence sectors
- 4** China's massive economic presence in Maldives is a major concern for India. With the country now said to owe 70% of its external aid to China, many believe that Yameen has done to Maldives what Rajapaksa did to Sri Lanka. India had to push back at some stage and the current political crisis might just have offered India the right opportunity
- 5** A large section of population which supports the opposition parties like Nasheed's MDP wants India to act against Yameen
- 6** Maldives is also a member of Saarc. It is important for India to have Maldives on board to maintain its leadership in the region. Maldives was the only Saarc country which seemed reluctant to follow India's call for boycott of Saarc summit in Pakistan after the Uri attack
- 7** Under Yameen, radicalisation grew rapidly and it was often said that archipelago accounted for one of the highest numbers of foreign fighters in Syria in terms of per capita. India can ill-afford a neighbour which fails to check Islamic radicalisation
- 8** India and Maldives share ethnic, linguistic, cultural, religious and commercial links. India was among the first to recognise Maldives after its independence in 1965 and later established its mission at Malé in 1972
- 9** There are 25,000 Indian nationals living in Maldives (second largest expatriate community). Indian tourists also account for close to 6% of tourists Maldives receives every year
- 10** India is also a preferred destination for Maldivians for education, medical treatment, recreation and business. According to MEA, more and more Maldivians are seeking long term visa for pursuing higher studies/medical treatment in India

India-Maldives bilateral Relations

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

Historical relations

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

Political relations

- India and Maldives have consistently supported each other in multilateral fora such as the **UN, the Commonwealth, the NAM and the SAARC.**
- High connectivity:** High People-to-People contacts, as Air India operates daily flights to Malé from Thiruvananthapuram, Bangalore and Chennai.

- **Tourism:** The proximity of location and improvements in air connectivity in recent years has led to a very substantial increase in the number of Indians visiting Maldives for **tourism** (around 33,000) and business.
- **Soft diplomacy:** India is a preferred destination for Maldivian for **education, medical treatment, recreation and business.**
- **Diaspora:** Indians are the **second largest expatriate community in the Maldives.**

Why Maldives matters to India?

Strategic location

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



Major challenges

Chinese influence

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



India's position in Male crisis

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

Measures taken so far

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

Way forward

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

QUAD LEADERS SUMMIT

GS-II INTERNATIONAL RELATIONS

Context

- The first-ever in-person Leaders' Summit of the Quad happened at White House.

Key outcomes of summit

- The leaders have put forth ambitious initiatives that deepen our ties and advance practical cooperation on 21st-century

challenges:

- Ending the COVID-19 pandemic, including by increasing production and access to safe and effective vaccines;
- Promoting high-standards infrastructure;
- Combating the climate crisis; partnering on emerging technologies, space, and cyber security; and
- Cultivating next-generation talent in all of our countries.

COVID and Global Health

- Quad leaders recognize that the most immediate threat to lives and livelihoods in our four countries and the world is the COVID-19 pandemic.
- Quad leaders launched the **Quad Vaccine Partnership**, to help enhance equitable access to safe and effective vaccines in the Indo-Pacific and the world.
- Through \$3.3 billion in the **COVID-19 Crisis Response Emergency Support Loan program**, Japan will continue to help regional countries to procure safe, effective, and quality-assured vaccines. Australia will deliver \$212 million in grant aid to purchase vaccines for Southeast Asia and the Pacific.
- Will continue to strengthen and support the life-saving work of international organizations and partnerships, including the **WHO, COVAX, Gavi, CEPI, and UNICEF**; and national governments. At the same time, the leaders are fully committed to strengthening vaccine confidence and trust. To that end, Quad countries will host an event at the 75th World Health Assembly (WHA) dedicated to combatting hesitancy.
- Will support the call for a "**global pandemic radar**" and will improve our **viral genomic surveillance**, including by working together to strengthen and expand the **WHO Global Influenza Surveillance and Response System (GISRS)**.

Infrastructure

- Building on the G7's announcement of **Build Back Better World (B3W) – an infrastructure partnership focused on digital connectivity, climate, health and health security, and gender equality infrastructure** – the Quad will rally expertise, capacity, and influence to strengthen ongoing infrastructure initiatives in the region and identify new opportunities to meet the needs there.
- Launch the **Quad Infrastructure Coordination Group** to coordinate technical assistance and capacity-building efforts.
- Lead on High-Standards Infrastructure this represents thousands of projects, including capacity-building, across more than 30 countries in support of rural development, health infrastructure, water supply and sanitation.

Climate

- Quad countries share serious concern with the Intergovernmental Panel on Climate Change's report findings on the latest climate science, which has significant implications for climate action.
- To address the climate crisis with the urgency it demands, Quad countries will focus their efforts on the themes of climate ambition, including working on 2030 targets for national emissions and renewable energy, clean-energy innovation and deployment, as well as adaptation, resilience, and preparedness.
- **Form a Green-Shipping Network** to deploy **green-port infrastructure** and clean-bunkering fuels at scale.
- **Establish a Clean-Hydrogen Partnership** to **strengthen and reduce costs across all elements of the clean-hydrogen value chain**, leveraging existing bilateral and multilateral hydrogen initiatives in other fora.
- **Enhance Climate Adaptation, Resilience, and Preparedness** to increasing the **Indo-Pacific region's resilience to climate change** by improving critical climate information-sharing and disaster-resilient infrastructure.

People-to-People Exchange and Education

- To build ties among the next generation of scientists and technologists, Quad partners announced the **Quad Fellowship**: a first-of-its-kind scholarship program, operated and administered by a philanthropic initiative and in consultation with a non-governmental task force comprised of leaders from each Quad country.
- The Fellowship will sponsor **100 students per year – 25 from each Quad country** – to pursue masters and doctoral degrees at leading STEM graduate universities in the United States.

Critical and Emerging Technologies

- Quad leaders are committed to working together to foster an open, accessible, and secure technology ecosystem.
- It will work around four sectors: **technical standards, 5G diversification and deployment, horizon-scanning, and technology supply chains**.
- **Establish Technical Standards Contact Groups** to focus on standards-development activities as well as foundational pre-standardization research.
- **Launch a Semiconductor Supply Chain Initiative** to map capacity, identify vulnerabilities, and bolster supply-chain security for semiconductors and their vital components.

- **Support 5G Deployment and Diversification** for fostering and promoting a diverse, resilient, and secure telecommunications ecosystem.
- **Monitor Biotechnology Scanning** trends in critical and emerging technologies, starting with advanced biotechnologies, including synthetic biology, genome sequencing, and bio-manufacturing. In the process, we will identify related opportunities for cooperation.

Cyber security

- **Launch a Quad Senior Cyber Group** to advance work between government and industry on driving continuous improvements in areas including adoption and implementation of shared cyber standards; development of secure software; building workforce and talent; and promoting the scalability and cyber security of secure and trustworthy digital infrastructure.

Space

- **Share Satellite Data to Protect the Earth and its Waters** to exchange Earth observation satellite data and analysis on climate-change risks and the sustainable use of oceans and marine resources.
- **Capacity-Building for Sustainable Development:** The Quad countries will work together to support, strengthen, and enhance space applications and technologies of mutual interest.

About QUAD

Background

- In the aftermath of Indian Ocean tsunami of **2004**, **Australia, Japan, India, and America formed a Regional Core Group in 2004.**
- Then **Japanese PM Shinzo Abe** proposed an **"Arc of Freedom and Prosperity"** in 2006.
- The first meeting of the initial Quad was held in **May 2007 as officials gathered for the ASEAN Regional Forum meeting.**
- Japanes PM Shinzo Abe after returning to office called for a **"democratic security diamond," a Quad 2.0.**

The QUAD 2.0

- The move to set up the quadrilateral also comes in the **backdrop of growing Chinese assertiveness in the South China Sea and China's aggressive posturing.**
- Since its revival in late 2017, the Quad met twice a year in 2018 and 2019.
- In New York in September 2019, the four countries held the first ministerial-level meeting of the Quad "to discuss collective efforts in shared commitments and close cooperation on counter terrorism, mentoring, assistance in disaster relief, airspace security, cooperation, development, finance and cyber security efforts."

Significance of quad- grouping

- All four nations **share a deep interest in maintaining a stable balance of power in the Indo-Pacific** and preventing a regional state from becoming dominant.
- All four states share an interest in **detering the use of forceful or coercive practices to resolve political and territorial disputes in the region.**
- All four states are committed to the current **rules-based economic order** in the Indo-Pacific. This is based on free trade, open investment environments, open competitive tendering, the rule of law, and standards of good governance from which all continue to benefit.
- All four nations support to **strengthen liberal democratic governance** within the Indo-Pacific. The region has not been immune to the global decline in observance of political rights and civil liberties.

How is china responding to quad?

- China's endeavour is to conflate the Quad with the Indo-Pacific vision, and link both to the so-called China Containment Theory.
- In 2016, China itself established a **Quadrilateral Cooperation and Coordination Mechanism with Afghanistan, Pakistan and Tajikistan.**
- More recently, China has established **Quadrilateral Cooperation with Pakistan, Afghanistan and Nepal.**
- The strategic community in China, nevertheless, had branded it an emerging "Asian NATO".

Quad Nations and China

- **USA** had followed a policy to contain China's increasing influence in East Asia. Therefore, **USA sees the coalition as an opportunity to regain its influence in the Indo-Pacific region.**
- **Australia** is concerned about China's growing interest in its land, infrastructure and politics, and influence on its universities.

- **Japan** has expressed concerns related to **China's territorial transgression in the region**.
- China's violation of international norms, particularly its **construction of military facilities on reclaimed islands in the South China Sea**, and its growing military and economic power, pose a strategic challenge to India.

QUAD Significance for India

- **Act East Policy:** It gives a **powerful platform to advance its interests in East Asia**, coordinate strategies with powerful friends and add more strength to its Act East initiative.
- It will **deepen India's ties with US, Australia and Japan** and will provide New Delhi significant leverage in shaping US policies in Afghanistan-Pakistan to the benefit of India.
- Through QUAD India seeks to reassert rule based world order to **counter China's growing power and assertion**.
- **Defence-related spending reduced** in this time of COVID pandemic and associated with lockdowns, Quad will provide heavyweight to India's interests.
- **Sustainable Development in the Indian Ocean Region:** India holds the responsibility to act as the net security provider in the Indian Ocean region.
- **Issue-based alliance or minilateralism:** India has moved beyond non-alignment towards an issue-based alliance with no formal agreements. Therefore, joining Quad will be in line with the present foreign policies of the government.

Challenges

- **Translating intent into action** will require a strengthening of ties in existing fields, as well as non-traditional areas such as cyber/information security, energy and climate change, disaster management, etc.
- Poor Indian and Japanese financial and logistical bandwidth to competitively invest in the IPR compounds the Quad's shortcomings.
- **Complex economic relationships between the Core Quad and China** – for all Quad members, China is either the first or the second largest trading partner, or a key import/export partner.
- If the Quad begins a **Quad-plus initiative**, it will not only be confronting these challenges, but will also have to contend with other issues such as disputes even amongst members, and differing dispositions towards China.

Challenges for India

- **Non-alignment:** India is abandoning its "sacred" tradition of non-alignment.
- **Trustworthiness of US:** US military alliances with Japan and the Philippines has not provided any challenge to Chinese aggression in the region.
- **No clarity on objectives:** India wants advancing the security and economic interests of all countries having legitimate and vital interests in the Asia-Pacific region whereas US is pitching for mutating the Indo-Pacific Quad into a more formal security grouping modelled on NATO.
- **Individual visions of the Indo-Pacific:** It would be difficult to align the combined vision of the grouping with that of their individual visions regarding Indo-Pacific.
- **Internal economic changes:** If India wants to engage the Quad partners on reforming the China-centred economic globalisation, it also requires to engineer many changes on trade-related aspects, which might prove to be difficult, given India's drive for self-reliance

Recommendations for greater collaboration among quad member governments in the years to come:

- **Establish Working Groups On Defense And Infrastructure:** Broadening the current Quad format of foreign ministry senior official-level meetings to include representatives from defense ministries would be a necessary first step toward creating a whole-of-Quad "working 2+2."
- **Develop An Indo-Pacific Infrastructure And Development Coordination Working Group:** it would ensure that all four Quad nations are committed to creating a roadmap to sustainable, high-quality infrastructure for developing countries.
- It would further permit the streamlining of various inter-Quad infrastructure initiatives, including the Japan India sponsored Asia-Africa growth corridor.
- Pursue An Annual Meeting Of Joint Operational Commands And Encouragement Of Exchanges:
- Add **Crisis Response, Humanitarian Aid, And Disaster Relief to the Quad's Agenda**.
- **Appeal To ASEAN:** The Quad should seek to harness consensus with ASEAN as a whole, promoting cooperation in the shared interests among the two.
- **2+2 And Malabar:** Three of the four Quad countries enjoy ministerial-level "2+2" defense and foreign ministers dialogues with one another. India and Australia should upgrade their "2+2" to the ministerial level to close the loop and complete the square.
- **Boost Non-Traditional Security Cooperation:** elevating collaboration on mine-sweeping technologies, anti-piracy operations, pollution control, pandemic responses, joint escorts of international shipping, force structuring, coast guard collaboration, counter-proliferation initiatives, and exchange of information on white shipping.
- Expand Cooperation On Space And Maritime Domain Awareness.

POLLEN CALENDAR

GS-II HEALTH

Context

- Chandigarh now has its first pollen calendar, which can identify potential allergy triggers and provide a clear understanding for clinicians as well as allergy sufferers about their causes to help limit their exposure during high pollen loads.

What is a Pollen Calendar?

- A pollen calendar is used to show the peak pollen times for different types of plant pollen, which causes allergic reactions in certain people.
- A pollen calendar can be a very useful tool in forensic science, because it can be used to place the month, or week, or date of death.
- The use of pollen for criminal investigation purposes is called "forensic palynology"

Need of developing a Pollen Calendar

- About 20-30% of the population suffers from allergic rhinitis/hay fever in India, and approximately 15% develop asthma.
- Pollens are considered major outdoor airborne allergens responsible for allergic rhinitis, asthma, and atopic dermatitis in humans.
- Pollen calendars yield readily accessible visual details about various airborne pollen taxa present form in a particular geographical area throughout the year, with their seasonality in a single picture.

Significance

- The significance lies in bringing airborne pollen seasonal information to the susceptible population, healthcare professionals, policymakers, and scientists to be familiar with the current changes in the environment, which can further help develop mitigation strategies.

SEROTYPE 2 DENGUE

GS-II HEALTH

Context

- The Health Ministry has flagged the emerging challenge in 11 States across India of serotype 2 dengue, which it said is associated with "more cases and more complications" than other forms of the disease.

About Dengue

- It is a tropical disease that occurs in the countries around the Equator.
- Aedes aegypti transmits dengue virus.
- Aedes eggs can remain dormant for more than a year.
- The virus responsible for causing dengue, is called dengue virus (DENV).
- There are four DENV serotypes (DENV-1, DENV-2, DENV-3 and DENV-4), meaning that it is possible to be infected four times.

Reasons behind spread of Dengue

- Poor Urbanization
- Poor town planning
- Improper sanitation
- Dengue cases are often under-reported due to political reasons
- Low number of skilled manpower
- Due to this deficiency of manpower, active surveillance is not being done in India, according to National Vector Borne Disease Control Program.
- There is a lack of coordination between the local bodies and health departments in the delivery of public health measures.
- Medicine practitioners often argue that a proper double blind, randomized, placebo-controlled trial cannot be conducted as it involves huge money and manpower.

Holistic management of Dengue

- These mosquitoes bite during the daytime, so keeping the windows shut in the day hours is also useful.
- Preventing water stagnation
- Spreading chemicals in periodic cycles to kill the larvae.
- Singapore uses successful model of mapping and analyzing data on dengue, using Geographical Information System (GIS).

This involves mapping the streets with dengue cases for vector densities.

- Fluid management is the cornerstone in the management of severe diseases like dengue hemorrhagic fever and dengue shock syndrome.
- WHO recommends fresh whole blood or packed cell transfusion in the event of bleeding.
- Increase the number of personnel in the healthcare sector.
- **Delhi government Mohalla Clinic is a successful model** to engage local community in effective management of Dengue.

Vaccine

- As of 2021, one version is commercially available, **known as CYD-TDV**, and sold under the brand name Dengvaxia.

eSANGEEVANI

GS-II HEALTH

Context

- eSanjeevani, Government of India's National Telemedicine Service, has completed 1.2 crore consultations rapidly shaping into the country's most popular and the largest telemedicine service.

About

- eSanjeevaniOPD is a telemedicine variant for citizens to seek non-COVID19 & COVID19 related outpatient health services.
- It is an **indigenous telemedicine technology** developed by Centre for Development of Advanced Computing (C-DAC) in Mohali.
- Ministry of Health & Family Welfare's National Telemedicine Service eSanjeevani is operational through two modes viz. - eSanjeevani AB-HWC (doctor to doctor telemedicine platform) that is based on hub and spoke model and eSanjeevaniOPD - (patient to doctor telemedicine platform) which provides outpatient services to the citizens in the confines of their homes.
- It is being **implemented at Health & Wellness Centres under Ayushman Bharat Scheme**.
- It was rolled out in November 2019. **Andhra Pradesh was the first State to roll out eSanjeevaniAB-HWC services**.

Significance

- India's eSanjeevani - National Telemedicine Service is **plugging the digital health divide that exists in urban and rural India**.
- It is addressing the shortage of doctors and specialists at ground level while reducing the burden on secondary and tertiary level hospitals.
- In line with the National Digital Health Mission, this digital initiative is also boosting digital health ecosystem in the country.

WHO AIR POLLUTION STANDARDS

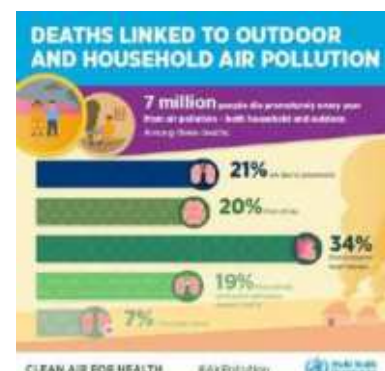
GS-II HEALTH

Context

- The World Health Organization (WHO), in its first-ever update since 2005, has tightened global air pollution standards in recognition of the emerging science that the impact of air pollution on health is much more serious than earlier envisaged.

Highlights of the Report

- The upper limit of annual PM2.5 as per the 2005 standards, which is what countries now follow, is 10 microgram per cubic metre. That has now been **revised to five microgram per cubic metre**.
- The **24-hour ceiling** used to be 25 microgram but has now **dropped to 15 microgram**.
- The **upper limit of PM10**, or particulate matter of size exceeding 10 microgram, is 20 microgram and has now been **revised to 15**, whereas the 24-hour value has been revised from 50 to 45 microgram.
- The new guidelines meant that among 100 global cities, Delhi's annual PM2.5 trends in 2020 was 16.8 times more than the WHO's revised air quality guidelines, while Mumbai's exceeded eight-fold, Kolkata's 9.4, Chennai's 5.4, Hyderabad's 7 and Ahmedabad's 9.8.
- Every year, exposure to air pollution is estimated to cause 7 million premature deaths and result in the loss of millions more healthy years of life.



HAVANA SYNDROME

GS-II HEALTH

Context

- A US intelligence officer travelling with CIA director William Burns has reported symptoms of Havana Syndrome while the two were in India earlier this month.

What is Havana Syndrome?

- Havana Syndrome refers to a set of mental health symptoms.
- It typically involves symptoms such as hearing certain sounds without any outside noise being present, nausea, vertigo and headaches, memory loss and issues with balance.
- It traces its roots to Cuba.
- JAMA study considered microwave weapons "a main suspect"
- Victims may have been subjected to high-powered microwaves that either damaged or interfered with the nervous system.
- It was said to have built a pressure inside the brain that generated the feeling of a sound being heard.

What is Havana syndrome?

The medical mystery named for the Cuban city where U.S. diplomats first experienced sudden, debilitating symptoms in 2016 has been reported by Americans serving in several other countries.

Acute symptoms (often occurring suddenly) may include:

Loud sounds (sometimes described as chirping, clicking or screeching) and pain in one or both ears; many felt the sensations came from a particular direction or were felt when in a specific location

Tinnitus, hearing loss

Intense pressure or vibration inside the head

Difficulty with memory or concentration

Visual disturbances

Nausea

Unsteady gait, loss of balance, vertigo/dizziness

Chronic symptoms (can last weeks, months or longer) may include:

Headache

Impaired concentration, memory loss

Insomnia

Depression

Impaired balance

No definitive cause has been found, but scientific studies have noted many of the acute symptoms are consistent with exposure to directed radio frequency (RF) energy. One theory posits the use of RF energy by a U.S. adversary as a weapon or a tool of espionage.

Source: National Academy of Sciences

AP

SCHEME FOR 'PROMOTION OF MEDICAL DEVICE PARKS'

GS-II HEALTH

Context

- The Department of Pharmaceuticals has notified the Scheme for "Promotion of Medical Device Parks".

About

- The Medical Devices Parks to be developed under the scheme will provide common infrastructure facilities at one place thereby creating a robust ecosystem for the medical device manufacturing in the country and also reducing the manufacturing cost significantly.
- The total financial outlay of the scheme is Rs. 400 crore and the tenure of the scheme is from FY 2020-2021 to FY 2024-2025
- The financial assistance to a selected Medical Device Park would be 70% of the project cost of common infrastructure facilities.
- In case of North Eastern States and Hilly States, financial assistance would be 90% of the project cost. Maximum assistance under the scheme for one Medical Device Park would be limited to Rs. 100 crores.

INVEST INDIA.GOV.IN

Making India a hub for medical devices' manufacturing

Scheme for Promotion of Medical Device Parks

- To develop 4 medical device parks in India in partnership with states
- Govt. will provide grants-in-aid to the states with a maximum limit of INR 100 Cr per medical device park
- Parks will have common facilities specific to medical devices' manufacturing
- INR 400 Cr outlay approved for the next 5 years

Context

- Prime Minister Shri Narendra Modi today launched the Ayushman Bharat Digital Mission through a video conference.

Ayushman Bharat

- Ayushman Bharat is a flagship scheme of Government of India, was **launched as recommended by the National Health Policy 2017**, to achieve the vision of Universal Health Coverage (UHC).
- It was launched in September 2018 by the Ministry of Health and Family Welfare.
- It is a **national public health insurance fund of the Government of India** that aims to **provide free access to health insurance coverage for low income earners in the country**.
- Roughly, the bottom 50% of the country qualifies for this scheme.
- It is a **centrally sponsored scheme and is jointly funded by both the union government and the states**.
- By offering services to 50 crore people it is the **world's largest government sponsored healthcare program**.
- This initiative has been designed to meet Sustainable Development Goals (SDGs) and its underlining commitment, which is to "leave no one behind."

Benefits

- It covers all hospitalisation expenses with cashless transactions to beneficiaries.
- Accommodation during hospitalisation.
- Pre and post-hospitalisation costs.
- Any complications arising during the treatment.
- Can be used by all family members.
- No cap on family size, age or gender.
- Pre-existing conditions are included from day one.

Eligibility

Rural

- Household with no adult/male/ earning member within the age group of 16-59 years
- Families living in one room with KucchaKuccha walls and roof
- Families with no members within the age group of 16-59 years
- Household without a healthy adult member and one disabled member
- Manual scavenger families
- Landless households earning a major part of their family income from manual labour

Urban

- Domestic worker
- Beggar
- Ragpicker
- Home-based Artisans/ Tailor Sweeper/ Handicrafts worker/ Sanitation worker/ Mali
- Construction worker/ Labour/ Painter/ Welder/ Security guard/ Coolie
- Washer-man/ Plumber/ Mason
- Electrician/ Mechanic/ Assembler/ Repair worker
- Transport worker/ Rickshaw puller/ Conductor/ Cart puller/
- Waiter/Shop worker/ Assistant/ Peon/Delivery assistant
- Street vendors/ hawker / Cobbler

Who is not entitled to avail coverage under the Ayushman Bharat Yojana?

- The following categories of entities are not covered under the Ayushman Bharat Yojana:
1. People who own a vehicle like a two-wheeler, three-wheeler, or a car
 2. Government employees
 3. People whose monthly income is more than Rs 10,000
 4. Those who have farming machinery and equipments
 5. Those who live in properly build houses
 6. Those who hold a Kisan card
 7. Those owing a motorized fishing boat
 8. Those owing an agriculture land of more than 5 acres
 9. People employed in government-run non-agricultural enterprises
 10. People who have refrigerators and landline phones in their houses

About Ayushman Bharat Digital Mission

- This is to provide a digital health ID to people which will contain their health records.
- The key components of this scheme, which is also called the National Digital Health Mission or the PM Digital Health Mission,

are a health identity card for every citizen, a healthcare professionals registry, and healthcare facilities registries.

- Currently, Ayushman Bharat Digital Mission is being implemented in a pilot phase in six union territories.

Significance

- Based on the foundations laid down in the form of Jan Dhan, Aadhaar and Mobile (JAM) trinity and other digital initiatives of the government, Ayushman Bharat Digital Mission will create 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.
- It will enable access and exchange of longitudinal health records of citizens with their consent.
- This will ensure ease of doing business for doctors and hospitals and healthcare service providers.
- This mission will create interoperability within the digital health ecosystem, similar to the role played by the Unified Payments Interface in revolutionizing payments.

NATIONAL ACTION PLAN FOR RABIES ELIMINATION

GS-II HEALTH

Context

- On the occasion of World Rabies Day, Union Minister for Health and Union Minister of Animal Husbandry unveiled the National Action Plan for dog Mediated Rabies Elimination by 2030 (NAPRE).

Details

- The Ministers urged all the States and UTs to make Rabies a notifiable Disease.
- They also launched “Joint Inter-Ministerial Declaration Support Statement” for Elimination of Dog mediated Rabies from India by 2030 through One Health Approach.

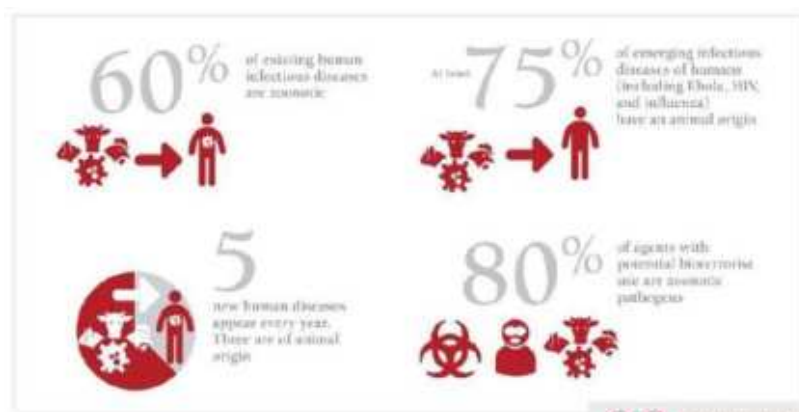
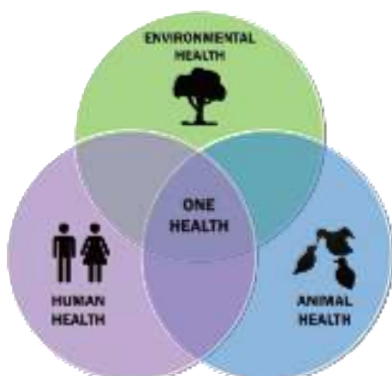
Rabies

- Rabies is a viral disease that causes inflammation of the brain in humans and other mammals.
- Rabies is caused by lyssaviruses, including the rabies virus and Australian bat lyssavirus.
- It can spread to people and pets if they are bitten or scratched by a rabid animal.
- Symptoms:** nausea, vomiting, violent movements, uncontrolled excitement, fear of water, an inability to move parts of the body, confusion, and loss of consciousness.
- Rabies is 100% fatal but 100% vaccine preventable.** 33% of global rabies deaths are recorded in India.



What is One Health Concept?

- One Health is an approach that recognizes that the health of people is closely connected to the health of animals and our shared environment.



To read more about one Health concept visit, <https://www.iasgyan.in/blogs/one-health-concept>

NATIONAL SCHEME FOR PM POSHAN IN SCHOOLS

GS-II HEALTH

Context

- The Cabinet Committee on Economic Affairs (CCEA) has approved the continuation of **'National Scheme for PM POSHAN in Schools'** for the five year period 2021-22 to 2025-26.

Details

- Newly launched Prime Minister POSHAN scheme or PM-POSHAN scheme will provide **one cooked hot meal in government and government-aided schools.**
- The **centrally sponsored scheme will replace the existing national programme for mid-day meal in schools or Mid-day Meal Scheme.**
- Thus, the existing Mid-Day Meal scheme, which provides hot meals to students, will be renamed as the **National Scheme for PM Poshan Shakti Nirman.**
- The scheme will cover 11.8 crore students **enrolled in classes 1 to 8** in over 11.2 lakh schools across the country.
- The scheme **will be extended to students studying in pre-primary or Balvatikas running in government and government aided primary schools.**
- Currently, these students were not included in the scheme.** The government will also promote nutritional gardens in schools.
- Central Government will not decide items** which will be served under the scheme and states can decide on their own.
- States will be allowed to include their local nutritional items as well. Earlier the provision was not there.
- The scheme will provide **supplementary nutrition in aspirational and tribal districts and districts with high prevalence of anemia.**
- The scheme will encourage the participation of Farmers Producers Organizations (FPOs) and Women Self-Help Groups in the implementation of the scheme.

REPORT ON DISTRICT HOSPITALS

GS-II HEALTH

Context

- NITI Aayog released a performance assessment report of district hospitals in India, titled **Best Practices in the Performance of District Hospitals.**

About

- The report is an outcome of collaboration with the **Ministry of Health and Family Welfare and WHO India.**
- The National Accreditation Board for Hospitals and Healthcare Providers, a constituent board of the Quality Council of India, conducted the on-ground data validation.
- This report is the **first-ever performance assessment of district hospitals undertaken across the country.**
- The Health Management Information System (HMIS) **data for the year 2017-18 has been used as baseline** for this exercise.
- The framework classifies hospitals in three categories: **Small Hospitals (less than or equal to 200 beds), Mid-sized Hospitals (between 201-300 beds) and Large Hospitals (more than 300 beds).**

Findings

- Overall, 75 district hospitals across 24 States and Union Territories emerged as top performers on indicators ranging from availability of beds, medical and paramedical staff, core health and diagnostic testing services to outputs such as bed occupancy rate and number of surgeries per surgeon.
- On an average a district hospital in **India has 24 beds per 1 lakh population.**
- The Indian Public Health Standards (IPHS) 2012 guidelines recommend district hospitals to **maintain at least 22 beds per 1 lakh population (based on district population average of 2001 Census)**
- Thus, the average number of beds per lakh population in a district hospital was **higher than the recommended** figure of 22 beds per lakh of population across 21 states and Uts
- District hospitals in India have a range of 1 to 408 beds per 1 lakh population.

Significance

- This report can serve as a foundation for a roadmap of action for developing upgraded and improved district hospitals in the country.



GENERAL STUDIES - III

PRODUCTION LINKED INCENTIVE FOR TEXTILE

GS-III ECONOMY

Context

- Government has approved a Rs 10,683 crore production-linked incentive scheme for the textiles sector.

Details of the Scheme

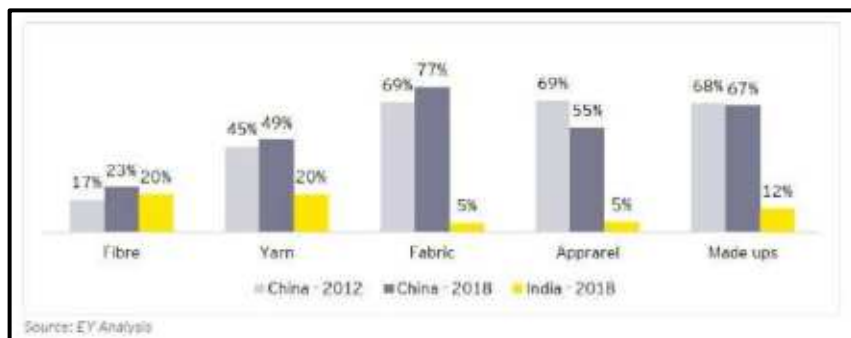
- This scheme will provide incentives to companies that produce more than 50 man-made fiber textiles and fabrics, as well as some technical textile items.
- The scheme is for two types of investments.
- The first entails a minimum of Rs.300 crore in plant, machinery, equipment and civil works in a unit that must register a minimum turnover of Rs. 600 crore once it commences operation.
- The second is for a minimum of ₹100 crore, where the business achieves a minimum turnover of Rs. 200 crore.
- It will decline by one percentage point each year until it is phased out after the fifth year, but it will be tied to incremental turnover.
- The product lines include 40 in man-made fibre apparel, 14 in man-made fibre fabrics, and 10 technical textile segments/products.
- Priority will also be given to investment in aspirational districts, Tier-3, Tier-4 towns, and rural areas.



Figure 1: No Copyright Infringement Intended

Reason behind Focus on Man-Made Fibre

- Currently, Indian production and export of textile and clothing products are largely cotton-based.
- In 2018-19, while Indian textile and clothing exports amounted to about \$36 billion, less than one-third was man-made fibre-based.
- Increase the Share of Man-Made Fibre:** of the total global fibre manufacturing and consumption, 70% is man-made fibre-related, while in India it is just about 35%.
- Annual textile and clothing exports have remained largely stagnant over the last seven years, and stuck in the range of \$30 billion-\$35 billion.
- To Tackle the Competition:** In recent years, countries including Bangladesh and Vietnam have gained a sizeable share in the man-made fibre segment of the global textile trade, making it all the more vital for India to provide policy support to ensure the country remains competitive internationally.
- Cut Down on Imports:** With the government recently removing the anti-dumping duty on viscose staple fibre and Purified Terephthalic Acid, most man-made fibres are now available in India at internationally competitive prices. With an incentive to invest in production too, Indian manufacturing of man-made fibre value-added products is expected to increase and thus bring down imports.



Properties of Man Made Fibre

- These materials are prized as fibres for their strength, resilience, heat and mildew resistance and ability to maintain a pressed shape. It is worth separating man-made fibers from natural fibers such as silk, cotton and wool.

Man Made Fibre (MMF) Industry

- The domestic MMF industry mainly comprises of two components i.e., polyester and viscose, which together accounts for about 94% (in volume terms).
- Under this, polyester accounts for about 77.5% while viscose accounts for the remaining share.
- MMF is primarily used to produce 100% non-cotton fabrics and blended fabrics, which are in turn used in readymade garments, home textiles and other industrial textiles.

Impact on Traditional fibres

- It has minimum investment thresholds and select product lines and hence targets a limited number of players.
- The traditional segments have a large number of industries spread across micro, small and medium enterprises and large-scale operations. They will continue to invest and grow in the fields they are strong in.

Benefits from the Scheme

- The initiative would prioritize institutions that set up shops in underserved areas and create more jobs.
- The government **expects new investments of Rs 19,000 crore over the next five years**, resulting in a total turnover of Rs 3 lakh crore and extra employment prospects for nearly 7.5 lakh people.
- The goal is to boost India's participation in man-made produced fibres which is now less than 3 per cent.

Shortcoming of the Scheme

- Limited product coverage:** The proposed list of products covers only the apparels and not the fabric which is still majorly imported. The scheme doesn't cover synthetic fabrics such as viscose, polyester and nylon, which is a major input for apparels covered under the scheme.
- In the Technical textiles, a proper boost to the same can be provided only by encouraging investments in the fibres and filaments used for producing the end products like safety air bags in cars, diapers, sanitary napkins, surgical materials etc. Merely including the end product may not enable more investments in this sector.
- Each process of the manufacturing is done by multiple players in India. **Therefore, the condition of investing Rs 500 Crore for greenfield investment seems very difficult to achieve** and clearly seems that this condition should be eased out the way it has been done for some other sectors.
- It would be difficult to maintain a growth pattern of 50% on a year-on-year basis which would involve more investment in terms of machinery and capturing more market in given time. This is far more than what is envisaged for the PLI schemes of any other sector.

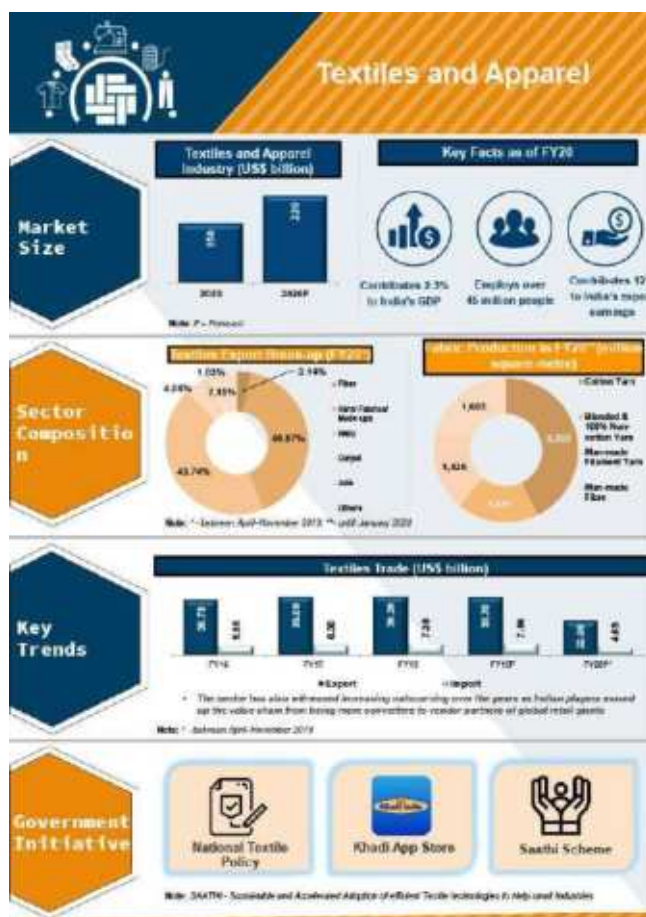
Other Steps taken

- 100% FDI (automatic route) in the textile and apparel sector in India. FDI in the textiles and apparel industry has reached up to \$3.74 bn during 2021.
- India has removed the anti-dumping duty on Purified Terephthalic Acid (PTA), a key raw material for the manufacture of manmade fiber and yarn.

Conclusion

- Transformation of the textile sector is necessary for the inclusive manufacturing led growth. It can act as catalyzer for the employment generation.

Textile Sector of India



BAD BANK

GS-III ECONOMY

Context

- Government has announced “National Asset Reconstruction Company Limited” (NARCL) has already been incorporated under the Companies Act.

Details of the Announcement

- It will acquire stressed assets worth about Rs 2 lakh crore from various commercial banks in different phases.
- Another entity — India Debt Resolution Company Ltd (IDRCL), which has also been set up — will then try to sell the stressed assets in the market.
- The NARCL-IDRCL structure is the new bad bank.
- To make it work, the government has okayed the use of Rs 30,600 crore to be used as a guarantee.

What it means, and how it works

Finance minister Nirmala Sitharaman on Thursday announced measures that paved way for operationalisation of the bad bank, which was originally announced in Union Budget 2021-22

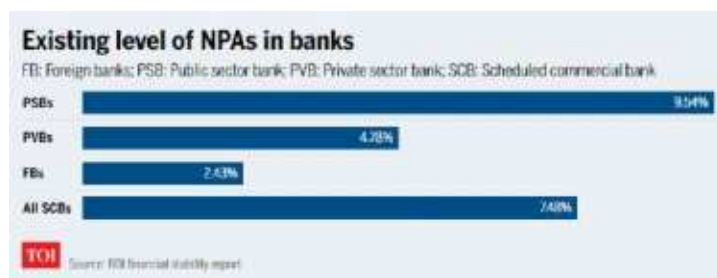


About Bad Bank

- It's an entity **where all the bad loans from all the banks can be parked** — thus, relieving the commercial banks of their “**stressed assets**” and allowing them to focus on resuming normal banking operations, especially lending.
- While commercial **banks resume lending**, the so-called **bad bank**, or a bank of bad loans, would try to sell these “**assets**” in the market.
- The bad bank structure will assist in consolidation of debt, currently fragmented across various lenders, thus leading to faster, single-point decision making, including through Insolvency and Bankruptcy Code (IBC) processes

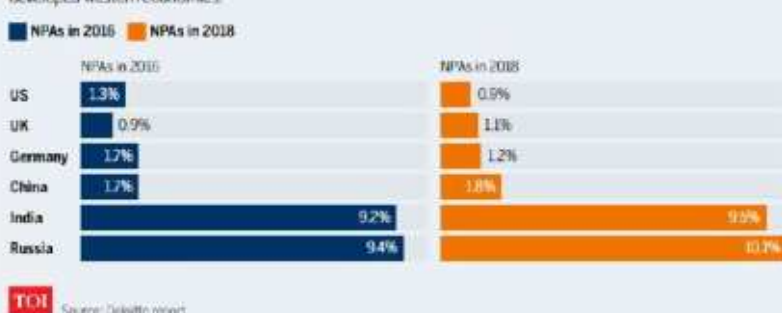
Working Mechanism

- The NARCL will first purchase bad loans from banks.
- It will pay 15% of the agreed price in cash and the remaining 85% will be in the form of “Security Receipts”.
- When the assets are sold, with the help of IDRCL, the commercial banks will be paid back the rest.
- If the bad bank is unable to sell the bad loan, or has to sell it at a loss, then the government guarantee will be invoked and the difference between what the commercial bank was supposed to get and what the bad bank was able to raise will be paid from the Rs 30,600 crore that has been provided by the government.
- A 15 percent cash payment will be made to banks for their toxic assets, 85 percent will be security receipts. There will be a backstop guarantee for the banks,
- Government guarantee will be invoked to cover the shortfall between the amount realized from the underlying assets and the face value of SRs issued for that asset, subject to overall ceiling of Rs. 30,600 crore, valid for 5 years.



Where does India stand

As per World Bank data, share of NPA to gross loans in Indian banking is significantly higher compared to developed western economies.



Positives

- A bank will get rid of all its toxic assets, which were eating up its profits, in one quick move.
- When the **recovery money is paid back**, it will further improve the bank's position. Meanwhile, it can start lending again.
- The decision is in keeping with the government's commitment to reduce non-performing assets (NPAs) of public sector banks (PSBs) through the four “R” strategy -- Recognition, Resolution, Recapitalization and Reform.

- Since the **guarantee is in a form of contingent liability**, it will not lead to immediate cash outflow and therefore is unlikely to impact the fiscal position in near future. It will boost the economic growth.
- It will **incentivize quicker action on resolving stressed assets, thereby** helping in better value realization.
- The five-year limit will encourage banks to not drag the process, adding NARCL has already been incorporated as a company.

Challenges

- The plan of bailing out commercial banks will collapse if the bad bank is unable to sell such impaired assets in the market.
- Taxpayer Money to improve Banking: whether it is recapitalizing PSBs laden with bad loans or giving guarantees for security receipts, the money is coming from the taxpayers' pocket. While recapitalization and such guarantees are often designated as "reforms", they are band aids at best.

CARTELIZATION

GS-III ECONOMY

Context

- The **Competition Commission of India found that three beer companies – United Breweries Ltd (UBL), Carlsberg India Pvt Ltd (CIPL) and Anheuser Busch InBev India –** had colluded to fix beer prices for a full decade – between 2009 and 2018.
- As a result, the CCI slapped a penalty of Rs 873 crore on the companies as well as the All India Brewers Association (AIBA) and 11 individuals for cartelization in the sale and supply of beer in 10 states and Union Territories.

About Cartel

- The agreement that forms a cartel need not be formal or written. Cartels almost invariably involve secret conspiracies.
- The **International Competition Network, which is a global body dedicated to enforcing competition law**, has a simpler definition. The three common components of a cartel are:
 - an agreement;
 - between competitors;
 - to restrict competition.
- "Participants in hard-core cartels agree to insulate themselves from the rigors of a competitive marketplace, substituting cooperation for competition".

Working of Cartel:

- According to ICN, four categories of conduct are commonly identified across jurisdictions (countries). These are:
 - price-fixing;
 - output restrictions;
 - market allocation and
 - bid-rigging

Issues with Cartels

- **Rise in Prices:** A successful cartel raises the price above the competitive level and reduces output. Consumers choose either not to pay the higher price for some or all of the cartelized product that they desire, thus forgoing the product, or they pay the cartel price and thereby unknowingly transfer wealth to the cartel operators".
- **Monopolization of Economy:** Further, a cartel shelters its members from full exposure to market forces, reducing pressures on them to control costs and to innovate. All of these effects adversely affect efficiency in a market economy.

Cartel worse than Monopolies

- **Reduced Product Innovations:** Monopolies are a source of social loss through two sorts of productive inefficiencies. The first sort, reduced product innovation, is a greater problem with cartels than monopolies.
- Monopolies perceive the entry of new players as a threat which encourages them to continuously innovate while cartels are able to continue with their informal agreement.
- **Lack of R& D investment:** Threat of new players make monopolies to undertake investment in research and innovation while cartels enjoy their position by being in sheer position to challenge the any entry.
- **Difficult to track:** Government of the day becomes aware of the monopolistic position and brings law to challenge the position while it is not the same of the cartels as there is a semblance to the competition.

Way Forward

- Experts often suggest providing a strong deterrence to those cartels that are found guilty of being one. Typically this takes the form of a monetary penalty that exceeds the gains amassed by the cartel.

- The threat of stringent penalties can be used in conjunction with providing leniency — as was done in the beer case when Anheuser Busch InBev India was provided with 100% relief from the CCI penalty — in order to incentivize whistleblowers exposing cartels and their functions.

The Competition Act

- The Competition Act, 2002 was passed by the Parliament in the year 2002.
- The Competition Act, 2002, as amended by the Competition (Amendment) Act, 2007, follows the philosophy of modern competition laws.
- The Act prohibits anti-competitive agreements, abuse of dominant position by enterprises and regulates combinations (acquisition, acquiring of control and M&A), which causes or likely to cause an appreciable adverse effect on competition within India.
- In accordance with the provisions of the Amendment Act, the Competition Commission of India and the Competition Appellate Tribunal have been established.
- The Competition Commission of India is now fully functional with a Chairperson and six members.
- The provisions of the Competition Act relating to anti-competitive agreements and abuse of dominant position were notified under this Act.

Objectives

- The objectives of the Act are sought to be achieved through the Competition Commission of India, which has been established by the Central Government with effect from 14th October 2003.
- CCI consists of a Chairperson and 6 Members appointed by the Central Government.
- It is the duty of the Commission to eliminate practices having adverse effect on competition, promote and sustain competition, protect the interests of consumers and ensure freedom of trade in the markets of India.
- The Commission is also required to give opinion on competition issues on a reference received from a statutory authority established under any law and to undertake competition advocacy, create public awareness and impart training on competition issues.

ASSET MONETIZATION

GS-III ECONOMY

Context

- The right to collect toll on existing highways would be offered for 30 years or so to private investors in return for an upfront payment.
- Oil and gas pipelines would similarly be leased to private players as would seaports and airports.
- Assets proposed for monetization include airports, terminals in seaports, railway lines, railway stations, stadiums, warehouses and a host of other government assets with unutilized potential.

About the Programme

- At its core, the idea is to lease out brownfield projects, proceeds from which can be used to finance greenfield projects.
- The ownership of the assets monetized, though, will remain with the government, with the private players taking on the operational risk.
- While roads, railways and power account for around 65 per cent of the proceeds of the programme, the list of assets detailed is spread across sectors such as telecom, aviation, mining and warehousing, suggesting a more wide-ranging programme.

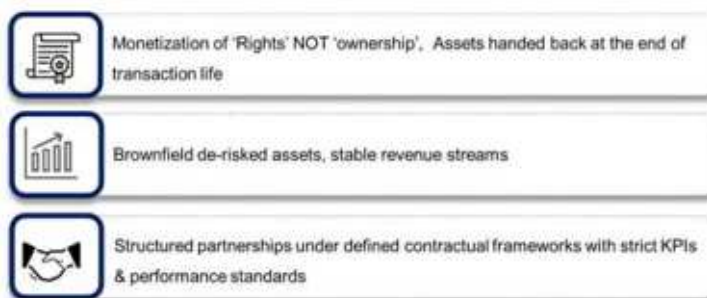
Benefit of the Programme

- Asset monetization, based on the philosophy of Creation through Monetization, is aimed at tapping private sector investment for new infrastructure creation.
- This is necessary for creating employment opportunities, thereby enabling high economic growth and seamlessly integrating the rural and semi-urban areas for overall public welfare.
- The strategic objective of the programme is to unlock the value of investments in brownfield public sector assets by tapping institutional and long-term patient capital, which can thereafter be leveraged for further public investments.
- NMP is envisaged to serve as a medium-term roadmap for identifying potential monetization-ready projects, across various infrastructure sectors.
- The NMP is aimed at creating a systematic and transparent mechanism for public authorities to monitor the performance of the initiative and for investors to plan their future activities.
- Asset Monetization needs to be viewed not just as a funding mechanism, but as an overall paradigm shift in infrastructure operations, augmentation and maintenance considering private sector's resource efficiencies and its ability to dynamically adapt to the evolving global and economic reality.

- New models like Infrastructure Investment Trusts & Real Estate Investment Trusts will enable not just financial and strategic investors but also common people to participate in this asset class thereby opening new avenues for investment.

Framework of Asset Monetization Programme

- Monetization through disinvestment and monetization of non-core assets have not been included in the NMP. Further, currently, only assets of central government line ministries and CPSEs in infrastructure sectors have been included.
- Process of coordination and collation of asset pipeline from states is currently ongoing and the same is envisaged to be included in due course.
- This includes selection of de-risked and brownfield assets with stable revenue generation profile with the overall transaction structured around revenue rights.



Estimated Potential

- The period for NMP has been decided so as to be co-terminus with balance period under National Infrastructure Pipeline (NIP).
- The aggregate asset pipeline under NMP over the four-year period, FY 2022-2025, is indicatively valued at Rs 6.0 lakh crore.
- The estimated value corresponds to ~14% of the proposed outlay for Centre under NIP (Rs 43 lakh crore).
- The sectors included are roads, ports, airports, railways, warehousing, gas & product pipeline, power generation and transmission, mining, telecom, stadium, hospitality and housing.
- In terms of annual phasing by value, 15% of assets with an indicative value of Rs 0.88 lakh crore are envisaged to be rolled out in the current financial year (FY 2021-22).

Criticisms

- **Leasing was not the best option because outright sale would bring in greater value and avoid the ticklish questions** of asset stripping and maintenance of the leased assets.
- **Leased assets would not be properly maintained.** After all, no one washes a hired car.
- Whether monetization is intended to substitute the skill and efficiency of the private sector for the supposed lethargy of government control.
- The move would bring greater concentration of power in the hands of the private sector are not relevant.
- When the private sector bids for these projects, they would probably require institutional finance for at least part of their outlay and this would result in a "crowding out" of other investments.

Way Around

- The agreement to lease could contain clauses that mandate the return of assets in the same condition in which they were offered, normal wear and tear excepted.
- If leasing out a government asset brings improved efficiency in management that would be an additional bonus.
- Every time the government cedes some ground by opening sectors hitherto reserved exclusively for itself, it runs this risk. This has not prevented them from allowing private operators to operate freight trains or terminals in seaports.
- Public sector undertakings (PSUs) raise funds from banks and even the National Highways Authority of India (NHAI) resorts to public funding. We do not ban PSUs or the NHAI from raising funds in the market.
- Necessary checks can easily be built into the offer documents that will ensure that the scheme does not create or reinforce monopolies of any sort.

PM KUSUM

GS-III ECONOMY

Context

- Recently, government reviewed the progress of the PM-KUSUM scheme and reaffirmed the government's commitment to accelerating solar pump adoption.

About PM Kusum

- Ministry of New and Renewable Energy (MNRE) has launched the **Pradhan Mantri Kisan Urja Suraksha evam Utthan Mahabhiyan (PM KUSUM) Scheme** for farmers for installation of solar pumps and grid connected solar and other renewable power plants in the country.

- The scheme aims to add solar and other renewable capacity of 25,750 MW by 2022 with total central financial support of Rs. 34,422 Crore including service charges to the implementing agencies.

The Scheme consists of three components

- Component A: 10,000 MW of Decentralized Ground Mounted Grid Connected Renewable Power Plants of individual plant size up to 2 MW.
- Component B: Installation of 17.50 lakh standalone Solar Powered Agriculture Pumps of individual pump capacity up to 7.5 HP.
- Component C: Solarisation of 10 Lakh Grid-connected Agriculture Pumps of individual pump capacity up to 7.5 HP.



Challenges

- Off-grid pumps have been the most popular, but the nearly 2,80,000 systems deployed fall far short of the scheme's target of two million by 2022.
- Limited awareness about solar pumps.
- Many farmers struggle to pay 30-40% of upfront costs in compliance with scheme requirements. Further, they cannot access bank loans without collateral.
- Progress on the other two models has been rather poor due to regulatory, financial, operational and technical challenges. Only a handful of States have initiated tenders or commissioned projects for solar feeders or grid-connected pumps.
- Discoms often find utility-scale solar cheaper than distributed solar (under the scheme) due to the latter's higher costs and the loss of locational advantage due to waived inter-State transmission system (ISTS) charges.
- delays in leasing or converting agricultural lands for non-agricultural purposes such as solar power generation.
- Current obstacles to their adoption include concerns about their economic viability in the presence of high farm subsidies and farmers' potential unwillingness to feed in surplus power when selling water or irrigating extra land are more attractive prospects.

Benefits

- KUSUM aims to help farmers access reliable day-time solar power for irrigation, reduce power subsidies, and decarbonise agriculture.
- It allows farmers to earn additional income by selling solar power to discoms, and discoms to procure cheap power close to centres of consumption.
- Need to address counter-party risks and grid-unavailability risks at distribution substations, standardise tariff determination to reflect the higher costs of distributed power plants, and do away with the waiver of ISTS charges for solar plants.
- The solar pumps will save the expenditure incurred on diesel for running diesel pump and provide the farmers a reliable source of irrigation through solar pump apart from preventing harmful pollution from running diesel pump.

Way Forward

- Extend the scheme's timelines. Most Indian discoms have a surplus of contracted generation capacity and are wary of procuring more power in the short term.
- Delays in leasing or converting agricultural lands for non-agricultural purposes such as solar power generation allowing faster conversion of the land.
- Bring out-of-the-box solutions like Karnataka's pilot of a farmer-developer special-purpose vehicle to help farmers install solar power plants on their farms.
- Adopting solutions like smart meters and smart transformers and engaging with farmers can build trust.

RURAL DEBT

GS-III ECONOMY

Context

- Recently published The All-India Debt and Investment Surveys (AIDIS), carried out by the National Statistical Office reveals that non-institutional sources have a strong presence in the rural credit market, notwithstanding the high costs involved in borrowing from them.

Finding of the Report

- The average debt per household in rural India is Rs 59,748, nearly half the average debt per household in urban India.
- As per the latest AIDIS report, the IOI is 35 per cent in rural India – 17.8 per cent of rural households are indebted to institutional credit agencies, 10.2 per cent to non-institutional agencies and 7 per cent to both.
- The share of debt from institutional credit agencies in total outstanding debt in rural India is 66 per cent as compared to 87 per cent in urban India.
- Institutional credit is taken mainly for farm business and housing in rural India.
- The report shows that the top 10 per cent of asset-owning households have borrowed 80 per cent of their total debt from institutional sources, whereas those in the bottom 50 per cent borrowed around 53 per cent of total debt from non-institutional sources.
- Except Goa and Sikkim, the rural households' average debt has increased in all other States with more than 200% increase in some of the States.
- Almost all States have registered a steep decline in non-institutional credit in rural areas, indicating the increase in formalization of the economy.

Mapping farm debt

among other things, the NABARD survey measured incidence of indebtedness (IOI), the proportion of households reporting outstanding debt



Incidence of indebtedness as per the survey is 52.5% for agricultural households and 43.8% for non-agricultural households. All India IOI taking all rural households together is 47.4%

- Average amount of outstanding debt (AOD) for indebted agricultural households is ₹1,04,602
- Outstanding debt for indebted non-agricultural households is ₹76,731. Overall extent of indebtedness taking all households combined is ₹91,407
- 43.5% agricultural households reported to have borrowed any money from some source or the other
- 60.4% of agricultural households borrowed from institutional sources alone
- 30.3% borrowed from only informal sources and 9.2% of agricultural households borrowed from both sources
- 56.7% of non-agricultural households and 58.6% of all households borrowed from institutional sources

SOURCE: NABARD, SURVEY REFERENCE YEAR: 2015-16

Formal Credit

- Easy, timely access to formal-sector credit enables households to invest in income-generating activities.
- Dependence on institutional sources is often seen as a positive development, signifying broadening financial inclusion.

Challenges

- Reliance on non-institutional sources denotes vulnerability and backwardness.
- Continuing dependence on informal credit points to inter-linkages between labor/input markets and the rural credit market.
- Rate of interest charged on 45 per cent of institutional debt is between 10 and 15 per cent, whereas on 44 per cent of non-institutional debt it falls between 20 and 25 per cent.
- The data indicates that better-off households have greater access to formal-sector credit and use it for more income-generating purposes. The top 10 per cent rural households in terms of asset ownership spend almost two-thirds of their institutional debt and 40 per cent of non-institutional debt on farm/non-farm business, whereas the bottom 10 per cent spend half of their total debt on household expenditure.

Why Non Institutional Credit

- Access to credit is complicated by the interplay of social identities. The average asset ownership of Scheduled Caste and Scheduled Tribe households in rural areas is one-third as compared to upper-caste households. The low asset ownership of marginalized social groups curtails their access to institutional credit.
- Lack of marketable collateral, credit demand for consumption purposes and informational constraints have been the primary reasons for a large proportion of the rural population being excluded from institutional finance.

Conclusion

- The credit policy needs to be revamped to accommodate the consumption needs of the rural poor and to find alternatives for collateral to bring the rural households within the network of institutional finance.

UDDESH KAAM NAGRIK UDAN

GS-III ECONOMY

Context

- Government has written to Chief Ministers of Manipur and Haryana, Lieutenant Governors of Union Territories of Andaman & Nicobar Islands and Jammu & Kashmir and Administrator of Union Territory of Dadra and Nagar Haveli, for their personal intervention in expediting aviation infrastructure under Regional Connectivity Scheme (RCS) – UDAN (UdeDeshkaAamNagrik).

About UDAN Initiative

- UdeDeshKaAamNaagrik (UDAN) was launched as a regional connectivity scheme under the Ministry of Civil Aviation in 2016
- It is an innovative scheme to develop the regional aviation market
- It aims to create affordable yet economically viable and profitable flights on regional routes so that flying becomes affordable to the common man even in small towns
- The scheme envisages providing connectivity to un-served and underserved airports of the country through the revival of existing airstrips and airports. The scheme is operational for a period of 10 years
- Under-served airports are those which do not have more than one flight a day, while unserved airports are those where there are no operations.

Objectives of UDAN

- To make travel affordable and accessible to all
- It aims to boost inclusive national economic development by the development of air transport infrastructure in all regions and the creation of job growth
- **Ensuring connectivity to the under-served areas in the country** by the revival of existing airports and airstrips
- Ministry aims to **operationalize around 1000 routes and develop more than 100 airports** in the next five years
- The Ministry aims to **achieve this by focusing on operationalizing routes** in the priority areas.

Viability Gap Funding (VGF)

- It signifies a grant, one-time or deferred, **provided to support infrastructure projects that are economically justified but fall short of financial viability.**
- This scheme entails making the routes financially viable, without insisting on the financial viability of the regional airports, by lowering the cost of flight operations and through financial support in the form of VGF will be available to flight operators on specific routes for the first 3 years of operation.

Previous Phases of UDAN

UDAN 1.0

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

UDAN 2.0

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

UDAN 3.0

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

UDAN 4.0

- the operation of helicopters and seaplanes has also been incorporated
- It is in line with the Act East Policy of the Central Government



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Achievements of UDAN

- Played a major role in adding new airports and routes to the aviation landscape of the country.
- Three rounds of UDAN have already been undertaken and so far close to 50 lakh passengers have travelled in UDAN flights covering airports in 19 States and 2 UTs.
- The Scheme has been able to fulfil the vision of Hon'ble Prime Minister and keep up the motto of "Sab Uden, Sab Juden".
- During COVID-19 pandemic hundreds of Lifeline UDAN flights are operating these days to transport tons of medical cargo to various parts of the country.
- The remote and hilly areas are also getting covered.
- The Civil Aviation Ministry has operationalized 274 UDAN routes that have connected 45 airports and three heli-ports.
- Created a virtuous circle wherein the UDAN routes feed the national network and the national routes further create new opportunities for the people across the country who then generate demand for more regional routes.

Challenges of UDAN

Lack of adequate Infrastructure

- Lack of instrument landing systems (ILS) leads to flight cancellations and the repeated cancellations make it difficult to build traffic on the route on a sustained basis.
- Inclement weather conditions make it difficult for flights to land on the airports located on mountainous terrains on most days.

Unplanned Traffic route

- Unplanned Traffic routes further result in inaccurate network design which ultimately results in a flight delay.

Under Capacity

- India's metro airports are largely choked and they have already run out of capacity in terms of landing and parking slots. Passenger traffic in these airports continues to gallop at nearly 18-20% every year.

Time slots

- Finding convenient time slots for every route has become an administrative challenge. This is because the number of runways is not increasing in high traffic airports and the airport capacity lags passenger traffic growth.

Disconnectedness

- New regional airlines have faced a major challenge in connecting the metro airports to the new Udan routes since they don't have pre-existing slots in them.

Way Forward

- To generate steady, predictable traffic, a hub and spoke design should be followed by connecting the large metro airports to the new Udan routes, as opposed to a point-to-point service.
- The existing airlines should respond by ordering aircraft that could almost double the existing aircraft capacity in another three years.

SOLAR ENERGY

GS-III ECONOMY

Context

- Indian Companies are targeting setting up of large scale solar energy production plants.

Challenges faced by solar energy sector

- **Land scarcity:** Per capita land availability is a scarce resource in India. Dedication of land area for exclusive installation of solar cells might have to compete with other necessities that require land.
- **Fall in prices:** Due to government incentives, the price of solar power has been falling which can disincentivize the producers and affects quality of solar energy installations in India.
- **Issues with Rooftop Solar:**
 - Homeowners at large have not been installing solar panels at roof top. This is because small deployments naturally cost more than grid-scale farms. Homeowners do not generally consume all the energy it generates and is being unable to sell it due to issues with net metering.
 - Rooftop solar segment needs support of firm battery market and the legal enforcement of contracts because developers run the risk of the host establishment not honoring the contract when tariffs change.
- **Shortfall in manufacturing capacity:** As per the Ministry of New and Renewable Energy, India's average annual solar cell manufacturing capacity is about 3 GW. However, India's average annual demand is 20 GW.
- **Dues of DISCOMs:** A major concern is payment delays by already debt-ridden DISCOMs. As of July 2019, state DISCOMs owe Rs9,73,562 crore to the renewable energy companies.

- **Covid-19 Impact on Solar power sector:** Solar power projects have halted due to production slowdown in China and the lockdown orders in India. Further, developers have been facing delays in procurement of modules, solar cells, and other components.

Reasons for India's Solar Energy Push

- To ensure Energy Security as India's energy demands are largely fulfilled by non-renewable source of energy
- To ensure Environmental Sustainability as Solar energy is clean form of energy resource
- There is abundance of free solar energy in almost all parts of country as India is a tropical country
- It can help India to be self-reliant in energy sector
- It can promote green energy in rural area which is crucial for agri-business in farms for running irrigation, green-houses, and crop and hay dryers, making agriculture risk free.

India's efforts and Government initiatives

- **One Sun One World One Grid' (OSOWOG) initiative proposed by India to set up a framework for facilitating global cooperation** which aims at building a global ecosystem of interconnected renewable energy resources that can be easily shared
- **Solar mini-grids project by Ministry for New and Renewable Energy (MNRE) to take renewable energy** to remote areas. It also aims to promote universal energy access by 2025 and reduce electricity costs and tariffs
- **National Solar Mission, a major initiative of the Government of India and State Governments to promote ecologically sustainable growth** while addressing India's energy security challenge
- The **Indian Renewable Energy Development Agency (IREDA) is a Non-Banking Financial Institution** under the administrative control of MNRE for providing term loans for renewable energy and energy efficiency projects
- National Institute of Solar Energy, an autonomous institution under MNRE which is apex body for R&D
- Establishment of solar parks and ultra-major solar power projects and enhancing grid connectivity infrastructure.

Way forward

- It is necessary to have better coordination among center and states for effective implementation of integrated policies
- India needs to enhance its solar manufacturing capacity as it cannot just rely on large scale solar deployment by importing solar equipment
- There is an immediate necessity to develop the entire value chain ecosystem to become competitive and achieve sustainable growth in the long run
- The government needs to provide support to solar power producers with liquidity via financial incentives
- Investment in R&D programmes, as well as human resource development is necessary. Training regarding the various stages of solar cell manufacturing supply chain can be made a part of the National Skill Development Mission
- A decentralized approach will be suited for Indian landscape and there has to be greater use of residential and commercial buildings to deploy more panels.

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WORLD COCONUT DAY

GS-III AGRICULTURE

Context

- Union Ministry of Agriculture and Farmers Welfare celebrated World Coconut Day to commemorate the foundation day of the International Coconut Community (ICC).

Details

- The theme for the 23rd World Coconut Day celebrations this year is **"Building a safe, inclusive resilient and sustainable coconut community amid Covid-19 pandemic and beyond"**.
- Coconut Development Board celebrates Coconut Day every year to create increased awareness on the importance of coconut and focus national and international attention on coconut sector.

Some statistics

- Indonesia is the world's leading coconut producer followed by Phillipines.
- India is the third largest coconut producer** in the world.
- Kerala is the largest producer of coconut in India followed by Karnataka and Tamil Nadu.
- These three states account for nearly 85 per cent of the country's total output.

Favorable conditions to grow

- Coconut requires an equatorial climate with high humidity.
- The ideal mean annual temperature is 27 degree C with 5-7 degrees diurnal variation.
- The palm does not withstand prolonged spells of extreme variations.
- A well-distributed rainfall of 1300-2300 mm per annum is preferred.

Closing thoughts

- Since the farmers are small and marginal, the future of our domestic coconut industry lies in our ability to
 - aggregate and pool farm level coconut production,
 - take up processing and value addition for better income realization and
 - give major thrust to product diversification and finding industrial utilization of various by-products and their value addition.

The International Coconut Community (ICC)

- The International Coconut Community (ICC) is an intergovernmental organization of coconut producing countries organized in 1969 under the aegis of the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP).
- The ICC Secretariat is located in Jakarta, Indonesia.
- ICC currently has 20 coconut producing member countries accounting for over 90 percent of world coconut production and exports of coconut products.
- The ICC member countries include eight Asian countries: India, Indonesia, Malaysia, Philippines, Sri Lanka, Thailand, Vietnam and Timor Leste, nine Pacific countries: Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Papua New Guinea, Samoa, Solomon Islands, Tonga and Vanuatu, one Caribbean country: Jamaica, one African country: Kenya and one country in South America: Guyana. Membership to the Community is open to all coconut producing countries, with the unanimous consent of the existing members and by acceding to the agreement establishing the Coconut Community.

Coconut Development Board (CDB)

- Coconut Development Board (CDB) is a statutory body established under the Ministry of Agriculture for the integrated development of coconut and coconut-related. The Board which came into existence in 1981, functions under the administrative control of the Ministry of Agriculture, , with its headquarters at Kochi in Kerala.

BIMSTEC COUNTRIES' AGRICULTURAL MEETING

GS-III AGRICULTURE

Context

- India hosted the 8th Meeting of Agriculture Experts of Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) Countries virtually.

Highlights

- The Chairman highlighted the UN Food System Summit 2021 and the transformations that are happening in the agriculture and food systems globally.
- It was exhorted to enhance the engagement and deepen the cooperation in agriculture and allied sectors amongst the BIMSTEC Member States by encouraging the exchange of knowledge, germplasm, students and experts.
- Biosafety and biosecurity concerns were emphasized upon.
- Digital agriculture was promoted along with the trade of technologies for developing resilient agriculture, food systems and value chains.
- The BIMSTEC Member States appreciated the greater engagement of India offering six slots of scholarships each for Master and PhD programmes in agriculture and its other initiatives for capacity development and training including the development of seed sectors.
- The cooperation in the areas of high impact trans-boundary diseases of livestock and poultry; aquatic animal diseases and bio-security in aquaculture and digitalization to promote precision farming was also discussed in the meeting.

BIMSTEC

- The Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) is an international organisation of seven South Asian and Southeast Asian nations.
- The BIMSTEC provides a unique link between South and South-East Asia with 5 countries - Bangladesh, Bhutan, India, Nepal and Sri Lanka from South Asia and two countries - Myanmar and Thailand from South-East Asia coming together on one platform for cooperation in 14 key economic and social sectors of the economy.
- The BIMSTEC was founded in 1997 with an ambition to pursue mutual trade, connectivity and cultural, technical and economic development in the region.
- Initially, six sectors- trade, technology, energy, transport, tourism and fisheries were included for sectoral cooperation which was later expanded to 14 areas of cooperation.
- Agriculture is one of the 14 sectors.
- 22 per cent of the global population lives in BIMSTEC countries, agriculture & allied activities are central to the economic and social development of the region.

2021 UN Food Systems Summit in September or October 2021, the UN Secretary-General will convene a Food Systems Summit with the aim of maximizing the co-benefits of a food systems approach across the entire 2030 Agenda and meeting the challenges of climate change.

NATIONAL FARMERS' DATABASE

GS-III AGRICULTURE

Context

- The Centre has created a National Farmers' Database with records of 5.5 crore farmers.

Details

- The national database was created by taking data from existing national schemes such as PM-KISAN, soil health cards and the insurance scheme PM Fasal Bima Yojna.
- With the help of State governments, a total of eight crore farmers would be included by the end of the year.
- The Government urged states to study the Karnataka model for digital agriculture presented at the conference.

Significance

- The database could be used for targeted service delivery with higher efficiency and in a focused & time bound manner.
- It was the core for the proposed Agristack digital agriculture ecosystem.
- Already, companies like Microsoft, Amazon and Patanjali had been asked to develop technology solutions for farmers using data from the database.

APMC and Karnataka Model

- An Agricultural Produce Market Committee (APMC) is a marketing board established by state governments in India to ensure farmers are safeguarded from exploitation by large retailers, as well as ensuring the farm to retail price spread does not reach excessively high levels.
- APMCs are regulated by states through their adoption of a Agriculture Produce Marketing Regulation (APMR)

Features of APMC

- Facilitating contract farming model.

- Special market for perishables
- Allowing farmers and private persons to set up their own market.
- Relaxation of licensing norms.
- Single market fee
- APMC revenue to be used for improving market infrastructure.

Note: However, not all states have passed the bill. Some states have passed but neither framed rules nor notified it. Thus, inter-state barriers continue.

Shortcomings in APMC system

- The rates of commodities started varying in every region all across India, leading rates to be highly fragmented.
- Fees of trading in APMC went high.
- There is a limited number of APMC mandis which leads to insufficient market options for farmers to sell their produce.
- Even after imposing and collecting high fees, the infrastructure of the APMC was inadequate and lead to a high wastage of harvests.
- As it was mandatory for agents/middle man in APMC to have a license, there were limited agents with whom farmers can sell their produce which prompted less income for farmers.
- Monopoly of APMC
- Cartelization
- High Commission, taxes and levies on farmers by APMCs
- Blockage of payment to farmers by agents and arhatiyas (middlemen).
- Entry Barriers – License fee in these markets are highly prohibitive.
- Politicization of APMCs

Karnataka Model

- Of all the APMC (agricultural produce market committee) reforms in India, Karnataka's Rashtriya eMarket Services Pvt. Ltd, or ReMS, has been arguably the most popular one.
- To put it simply, Karnataka took the mandi (farmers' market) system to the virtual world when it set up ReMS as a joint venture between the state government and NCDEX e Markets Ltd or NeML (formerly NCDEX Spot Exchange Ltd).
- ReMS integrated online APMCs across Karnataka through a single licensing system.
- This has created what the state calls a unified market platform (UMP).
- UMP helps farmers in discovering the best prices for their produce.
- In the e-mandi system, the farmer gets a unique licence number and instead of using a chit for bidding, he can view the lot online and decide whether he is okay with the price.
- This helps the farmers to get a better price because they can see rates in other APMCs too.
- National Agriculture Market (e-NAM) at national level was inspired from ReMS.

Recent Reforms at National Level

- Until 2020, the first sale of agriculture produce could occur only at the market yards (mandis) of APMCs.
- However, after 2020 the passing of the Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, allowed farmers to sell outside APMC mandis as well as across different states of India.

The Acts

- The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act
- The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act; and
- The Essential Commodities Amendment Act' under which the monopoly of middlemen in APMCs is sought to be abolished and move towards creation of a free market.

Salient features of The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020

- ✓ Farmers can now sell their agricultural produce at a place of his choice at a better price, increasing the number of potential buyers
- ✓ Essential crops like onion and potato along with food grains, oilseeds and pulses crops have been excluded from the list of Essential Commodities Act
- ✓ Farmers can make deals with licensed traders from other states as well
- ✓ This will increase competitiveness in the market and farmers will get good prices for their produce
- ✓ Under this Bill, any merchant having a PAN number is eligible for trade
- ✓ Farmers or traders can engage in trade within a state or with other states through electronic trading platforms
- ✓ This bill will promote the concept of 'One Nation One Market' and allow farmers to sell their produce across the country

Salient features of The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Ordinance, 2020

- ✓ Farmers will now be able to enter into direct agreements or commercial agreements for sale of produce with companies producing food products, wholesalers, retailers and exporters etc.
- ✓ After the sale of produce is decided with a company or businessman, the buyer will be responsible for providing necessary means or inputs for good crop yield
- ✓ Proper agricultural machinery and equipment will be arranged by the buyer
- ✓ The buyer will provide technical guidance and advice to the farmer and must take full or partial responsibility for crop risks
- ✓ During crop production, the crop will continue to be owned by the farmer and the crop will be insured and the farmer will also be able to take loans from financial institutions if needed
- ✓ Crop grown under the agreement shall be exempted from the rules and laws relating to the sale of agricultural produce and the provisions of the Essential Commodities Act

Regulations under the Essential Commodities Act, 1955:

<ul style="list-style-type: none"> (i) Regulating by licenses, permits, etc. the production, storage, transport, distribution, disposal, acquisition, use or consumption of an essential commodity; (ii) Increasing cultivation of food grains; (iii) Controlling prices; (iv) Prohibiting the withholding from sale of any essential commodity; (v) Requiring a stockholder to sell any essential commodity to the Government; (vi) Regulating or prohibiting any commercial or financial transactions in food items or cotton textiles which may be detrimental to the public interest; (vii) Collecting any information; (viii) Requiring production of books of accounts etc; and (ix) Any incidental matters. 	<p>Problems due to restrictions:</p> <ul style="list-style-type: none"> ➤ Most of the provisions in this Act have become irrelevant in the context of having achieved self-sufficiency in production. ➤ They hamper the market from performing its productive and commercial role. ➤ A large number of permits and licences are required to be obtained from the authorities under the Essential Commodities Act and periodically returns have to be submitted and inspections carried out, which add to transaction costs. ➤ Some notifications under the same Act restrict movement of goods from the surplus states to deficit states. ➤ These controls and restrictions, which include the ever present threat of arrest, act as disincentives to production and distribution of essential commodities by organised companies that can exploit economies of scale.
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Justification for Regulations:
These controls have been traditionally justified on the grounds that they are necessary to control hoarding and other types of speculative activity.

Essential Commodities Act



Key Features:

-  Cereals, pulses, oilseeds, edible oils, onion and potatoes to be removed from list of essential commodities
-  Will remove fears of private investors of excessive regulatory interference
-  Freedom to produce, hold, move, distribute and supply will lead to harnessing economies of scale
-  Help attract private sector/foreign direct investment in agriculture sector
-  Will help drive investment in cold storages and modernization of food supply chain

Essential Commodities (Amendment) Ordinance, 2020

- It amends the Essential Commodities Act, 1955.
- The Ordinance seeks to increase competition in the agriculture sector and enhance farmers' income.
- It aims to liberalize the regulatory system while protecting the interests of consumers.

Regulation of food items

- The Act **empowers the central government to designate certain commodities** (such as food items, fertilizers, and petroleum products) as essential commodities.
- The central government may regulate or prohibit the production, supply, distribution, trade, and commerce of such essential commodities.
- The central government may regulate the supply of certain food items including cereals, pulses, potato, onions, edible oilseeds, and oils, only under extraordinary circumstances.
- These include: (i) war, (ii) famine, (iii) extraordinary price rise and (iv) natural calamity of grave nature.

Imposition of stock limit

- The Act empowers the central government to regulate the stock of an essential commodity that a person can hold.
- The Ordinance requires that imposition of any stock limit on certain specified items must be based on price rise.
- **A stock limit may be imposed only if there is:**
 - (i) 100% increase in retail price of horticultural produce; and
 - (ii) 50% increase in the retail price of non-perishable agricultural food items.
- The increase will be calculated over **the price prevailing immediately preceding twelve months, or the average retail price of the last five years, whichever is lower.**
- The Ordinance provides that any stock limit will not apply if stock held by such person is less than the:
 - (i) overall ceiling of installed capacity of processing, or
 - (ii) demand for export in case of an exporter.

Note: The provisions of the Ordinance regarding the regulation of food items and the imposition of stock limits will not apply to any government order relating to the Public Distribution System or the Targeted Public Distribution System.

Exhibit 12: Agri reforms: Structurally positive

Agri Reform Bills	Pros	Cons
The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020	Permits sale of farm produce outside of APMC mandis Farmers will not be charged any cess or levy outside the mandis Permits inter-state trade of farm produce	State's will lose revenues from respective mandis. While the bill proposes to eliminate the middleman, however farmers across different state fear that the system will lead to demise of MSP regime
The Farmers (Empowerment & Protection) Agreement of Price Assurance and Farm Services Bill, 2020	This ordinance facilitates "contract farming", which is when farmers enter into direct contracts with those who wish to buy farm produce, doing away with the middlemen - State APMC-appointed or otherwise - altogether	Chances of disputes may rise given Corporates would be more interested in dealing with group of farmers as such and not with individual farmers. It's much easier from a corporate point of view to deal with an agent
The Essential Commodities (Amendment) Bill, 2020	Deregulates the production, storage and sale of several food items including cereals, pulses, edible oils and onions, except in the case of extraordinary circumstances. It can bring in fresh investment from FDI and big corporates in providing infrastructure: eg. cold storage	The Act can be invoked if prices of perishables rise by 100% or of non-perishables by 50% This effectively legalises hoarding, which can be disastrous for the prices of critical items like vegetables and pulses.

Source: Edelweiss Research

Conclusion

- The Exclusion of middlemen benefits farmers only when they have a well-formed infrastructure like markets, arduous storage facilities, electricity supply, and a link to food processing companies who could compete to buy their produce.
- The government should also provide **statutory backing to the MSP** and government procurement in **order to counter the insecurities of farmers**.
- The new Acts have the potential to improve farm incomes, attracts investment and technology.
- They may prove to be revolutionary but the government needs to address farmers' concerns and put an end to their uncertainties.



MSP

GS-III AGRICULTURE

Context

- The **Cabinet Committee on Economic Affairs (CCEA) chaired by the Hon'ble Prime Minister Shri Narendra Modi** has approved the increase in the Minimum Support Prices (MSP) for all mandated Rabi crops for Rabi Marketing Season (RMS) 2022-23.

About

- Government has increased the MSP of Rabi crops for RMS 2022-23, to ensure remunerative prices to the growers for their produce.
- It has announced the **highest increase of 8.6% in prices of mustard, while the second highest increase of 7.8% is in prices of masur**.
- The increase in MSP for Rabi Crops for RMS 2022-23 is in line with the Union Budget 2018-19 announcement of fixing the MSPs at a level of at least 1.5 times of the all-India weighted average cost of production, aiming a reasonably fair remuneration for the farmers.

What is MSP?

- The minimum support price (MSP) is an agricultural product price, set by the Government of India to purchase directly from the farmer. This is **not enforceable by law**.
- This rate is to safeguard the farmer to a minimum profit for the harvest, if the open market has lesser price than the cost incurred.

Details

- Government of India announces Minimum Support Prices (MSP) for **23 major agricultural commodities** of Fair Average Quality (FAQ) each year in both the Crop seasons.
- It does so after taking into account the **recommendations of the Commission for Agricultural Costs and Prices (CACP)**.
- Government also extends remunerative price to farmers through its various interventions schemes.

Calculating MSP

- Since 2009, the Commission for Agricultural Costs and Prices fixes the MSP of a crop based on:
 - cost of production
 - demand
 - supply
 - price fluctuations
 - market price trends
 - different costs and
 - international market prices
 - agricultural wage rate

Procurement

- The procurement at MSP is being done by Central and State Agencies under various schemes of Government.
- Procurement centres are opened by respective State Government Agencies and Central Nodal Agencies like NAFED, FCI etc.
- This is done after taking into account the production, marketable surplus, convenience of farmers and availability of other logistics / infrastructure such as storage and transportation etc.

Current Status of MSP

- The MSP comes as a much relief to many farmers.
- The trouble with MSP is that while it is touted as an all-important factor for farmers promising an instant rise in their income and stability, it also has many drawbacks in implementation.

Pros of MSP

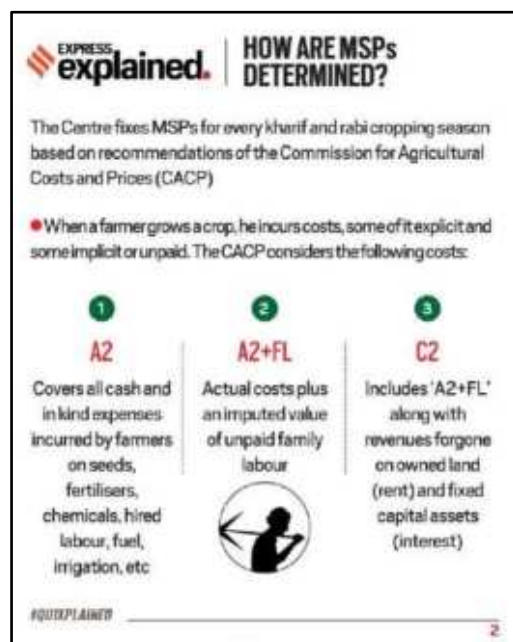
- It is a one-price policy guaranteeing assured pay, which directly influences farmer's pockets.
- It considers various factors when fixing the price and does not leave the farmer at the mercy of the market.
- Procurement for public distribution system and buffer stock for food security come from this policy.
- It has a heavy influence on market prices and also helps the farmer grow production and match up with other sectors in terms of income.

Cons of MSP

- Hiking the MSP without investing in infrastructure is just a short-term play.
- While it does deliver immediate results, long-term developments to back-it up are also important.
- MSP covers numerous costs such as the cost of sowing (A2) and labour (FL).
- These considerations are controversial with suggestions that it should be based on comprehensive costs (C2), which also include land rent costs.
- Too much of a hike on MSP either paves way for inflationary effects on the economy, with a rise in prices of foodgrains and vegetables, or loss to government treasury if it decides to sell at a lower price as compared to the higher MSP it bought at.
- MSP is a nationwide single price policy. However, the actual costing for production varies from place to place, more severely so in areas lacking irrigation facilities and infrastructure. Thus, not all farmers have equal benefits.
- Market prices should ideally never be below MSP. If they fall below the MSP, in concept, the farmer can always sell it to the government, which will then resell it or store as buffer.
- However, practically this does not always happen. The market value in many cases does fall below MSP due to lack of infrastructure and procurement apparatus on the government's end.
- MSP is notified for 23 crops, but effectively ensured only for two-three crops.
- Thus, MSP while still being significant is not the only go-to solution for solving all farmer woes.

Way Ahead

- Public procurement needs to continue for staple cereals, but farmers of non-staple food crops need to be provided with direct income transfers.
- These are fiscally prudent, obviate the need for physical procurement and storage by the government, do not distort current production, and also provide a basic income to farmers.



- These will also address the main concern over the recent farm laws related to the vulnerability of small and marginal farmers and may help these farmers to avoid distress sales.
- **Swaminathan Commission prescribed MSP 50 per cent above C2.**
- The Govt. can also go for the alternative of 'deficiency price payment' without requiring the government to purchase undesirable quantities and undesirable commodities.
- Deficiency price payment must be part of the difference between the actual price received by farmers and the MSP.
- **Example:** The Madhya Pradesh government has launched a 'Price Deficiency Payment' schemes for the farmers called 'Bhavantar Bhugtan Yojana' (BBY) in 2017.

AGRICULTURAL DEBT

GS-III AGRICULTURE

Context

- Over 50 per cent of agricultural households in the country were in debt with average outstanding loan per household at Rs 74,121 in 2019, says a survey conducted by National Statistical Office (NSO).

Details

- The survey **Situation Assessment of Agricultural Households and Land Holdings of Households in Rural India, 2019** released by the Ministry of Programme Implementation and Statistics — points out that only 69.6 per cent of the outstanding loans were taken from institutional sources like banks, cooperative societies and government agencies, while 20.5 per cent of loans were from professional moneylenders.
- Of the total loan, 57.5 per cent was taken for agricultural purposes.
- The national average outstanding loan was the **highest in Andhra Pradesh** at Rs 2.45 lakh and **lowest in Nagaland** at Rs 1,750.

Note:

- The survey defines an agricultural household as one receiving more than Rs 4,000 as value of produce from agri activities (e.g., cultivation of field crops, horticultural crops, fodder crops, plantation, animal husbandry, poultry, fishery, piggy, bee-keeping, vermiculture, sericulture, etc.) and having at least one member self-employed in agriculture either in principal status or in subsidiary status during the last 365 days.

Why farmers are in distress?

Past Indebtedness

- The root cause is past indebtedness. Rural debt is not only universal but hereditary.
- Ancestral debt is honoured in India and every villager considers it to be his sacred duty to repay the debt of his father.

Poverty

- Another cause of rural indebtedness is widespread poverty. With low income, farmers cannot save much.
- Thus, in case of an even-tuality such as crop failure due to natural calamities like floods, or failure of monsoons, the farmer has to borrow — and often at a very high rate of interest.

Insurance fails to serve

- The Pradhan Mantri Fasal Bima Yojana was launched to provide insurance and financial support to farmers in the event of failure of any crops due to natural calamities, pests and diseases.
- It was also meant to stabilise the income of farmers and ensure they remain in farming.
- But the scheme has seen lower enrolments due to a string of factors, including high premiums and lack of innovation by insurance firms.

Collapsing farm prices

- Prices have collapsed for farm commodities.
- Low international prices have meant exports have been hit while imports have hurt prices at home.
- According to a Niti Aayog paper, on average, farmers do not realise remunerative prices due to limited reach of the minimum support prices (MSP) and an agricultural marketing system that delivers only a small fraction of the final price to the actual farmer.

Land Improvement

- Since land is the most important income-earning asset the farmers have a strong desire to make necessary improvements on land. With little or no saving farmers have to borrow to finance the cost of such improvements. Consequently, they **fall into a 'debt trap'**.

Social and Other Obligations

- Farmers also fall in debt because they have to discharge certain social obligations irrespective of their means and resources. They have to observe religious and social functions.
- They also borrow to meet consumption needs.

Moneylenders

- They not only charge excessive interest but maintain false accounts.
- When the amount of debt gets accumulated over a number of years the farmer finds it difficult to repay it and is forced to surrender his land to the moneylender.
- This is the plight of the rural masses in India even today.

Bottlenecks in Institutional finance

- Institutional finance is subject to complicated formalities and rigid repayment conditions.
- The moneylender's methods are such as to confiscate all the resources of the debtor.
- The cooperative societies do a lot of favouritism and give loans mostly for short-term production purposes. Medium and long-term institutional finance is grossly inadequate compared to needs.

Irrigation takes a hit

- Irrigation is crucial for the farm sector, where large tracts of land still depend on monsoon rains.
- Experts say a number of factors, including bureaucratic delays and slow implementation by states, have hurt progress for this crucial input.

Marketing is ignored

- According to a NITI Aayog, farm sector development has ignored the potential of marketing.
- Archaic laws still hobble the sector.
- Access of farmers to well-developed markets remains an issue although several initiatives have been launched to develop an electronic market place.
- Reforms to the APMC Act have been slow and most states have dragged their feet on it.
- Experts suggest an entity such as the GST Council to bring together states and the Centre to jointly take decisions to reform the sector and provide better access to markets for farmers.
- According to the Organisation for Economic Cooperation and Development (OECD), the combination of market regulations and infrastructure deficiencies leads to a price depressing effect on the sector.

Modern tech missing

- Introduction of latest technology has been limited due to a number of reasons.
- Access to modern technology could act as a boost to productivity through improved variety of seeds, farm implements and farming technology.
- According to a Niti Aayog, there has been no real technological breakthrough in recent times.

Fragmented supply chains

- Large gaps in storage, cold chains and limited connectivity have added to the woes of farmers.
- It has also added to the significant post-harvest losses of fruit and vegetables, estimated at 4% to 16% of the total output, according to the OECD.

Lack of food processing clusters

- This has meant that there is little incentives for farmers to diversify.
- According to an OECD, share of high-value sectors in food processing is low with fruit, vegetable and meat products accounting for 5% and 8% of the total value of output compared to cereal based products at 21% and oilseeds at 18%.

Delayed FCI reforms

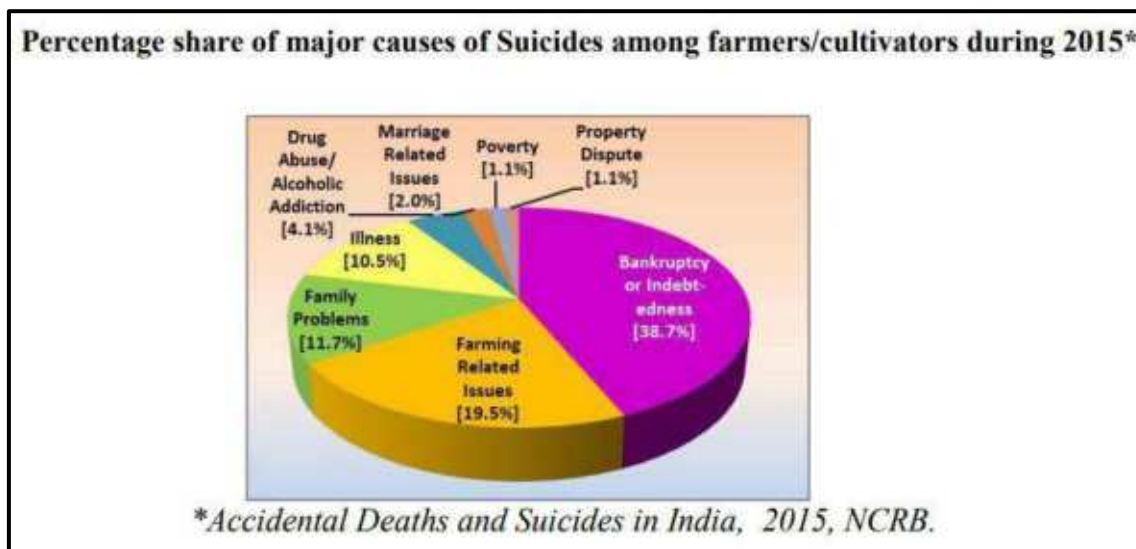
- Shanta Kumar Committee had recommended that FCI hand over all procurement operations of wheat, paddy and rice to states that have gained sufficient experience in this regard and have created reasonable infrastructure for procurement.
- These states are Andhra Pradesh, Chhattisgarh, Haryana, Madhya Pradesh.
- It had suggested a complete overhaul of FCI and recommended that farmers be given direct cash subsidy (of about Rs 7000/ha) and fertiliser sector deregulated.
- The panel had said direct cash subsidy to farmers will go a long way to help those who take loans from money lenders at exorbitant interest rates to buy fertilisers or other inputs, thus relieving some distress in the agrarian sector.
- FCI should outsource its stocking operations to various agencies such as Central Warehousing Corporation (CWC), State Warehousing Corporation (SWC), Private Sector under Private Entrepreneur Guarantee (PEG) scheme.

Low productivity

- According to OECD data, 85% of operational land holdings are less than 2 hectares and account for 45% of the total cropped area.
- Only 5% of farmers work on land holding larger than 4 hectares, according to the Agricultural Census, 2016. Productivity lags other Asian economies such as China, Vietnam and Thailand and average yields are low compared to other global producers.
- Wheat and rice yields are nearly 3 times lower than world yields while those for mango, banana, onion or potato are between 2 and 7 times lower than the highest yields achieved globally, according to the OECD.

Farmers' Suicide

- Indebtedness and farmers' suicide is closely linked. The vicious cycle of debt has aggravated the agrarian crisis leading to increase in the number of farmers suicide.
- According to the "National Crime Records Bureau's (NCRB) Report "Accidental Deaths and Suicides in India 2015", a total of 8007 cultivators/farmers had committed suicide in 2015.



Initiatives taken to reduce debt burden of farmers

- For development of agriculture and welfare of farmers of the country, the Government in DAC&FW, is implementing various Central Sector/ Centrally Sponsored Schemes, which include:
 1. RashtriyaKrishiVikasYojana (RKVY)
 2. National Food Security Mission (NFSM)
 3. National Agriculture Market (e-NAM)
 4. National Mission For Sustainable Agriculture (NMSA)
- **Pradhan MantriFasalBimaYojana (PMFBY)** provides a comprehensive insurance cover against failure of insured crops due to non-preventable natural risks, thus providing financial support to farmers suffering crop loss/ damage arising out of unforeseen events; stabilizing the income of farmers to ensure their continuance in farming; and encouraging them to adopt innovative and modern agricultural practices.
- **Pradhan MantriKisanSAMmanNidhi (PM-KISAN)** Scheme has been implemented to provide an assured income support to all farmers, irrespective of the size of their land holdings subject to the exclusion factor. Under this scheme direct income support @ of Rs. 6,000 per year will be transferred directly into the bank accounts of beneficiary farmers, in three equal instalments of Rs.2,000 each.
- To bring small, marginal, tenant farmers, oral lessees, etc. into the fold of institutional credit, **Joint Liability Groups (JLGs)** have been promoted by banks.
- With a view to ensure availability of agriculture credit at a reduced interest rate of 7% p.a. to the farmers, the Government of India in the Department of Agriculture Cooperation and Farmers' Welfare (DAC&FW) implements an **Interest Subvention Scheme** for short term crop loans up to Rs. 3.00 lakh.
- The Scheme provides interest subvention of 2% per annum to Banks on use of their own resources. Besides, additional 3% incentive is given to the farmers for prompt repayment of the loan, thereby reducing the effective rate of interest to 4%.
- To enhance coverage of small and marginal farmers in the formal credit system, RBI has decided to raise the limit for **collateral-free agriculture loans** from Rs. 1 lakh to Rs. 1.6 lakh.
- The **requirement of 'no due' certificate** has also been dispensed with for small loans upto Rs.50,000/- to small and marginal farmers, share croppers and the like and, instead, only a self-declaration from the borrower is required.
- The Union Cabinet in 2020 approved a new pan India Central Sector Scheme called **Agriculture Infrastructure Fund**.
- The scheme shall provide a medium - long term debt financing facility for investment in viable projects for post-harvest management Infrastructure and community farming assets through interest subvention and financial support.
- The benefit of interest subvention scheme has been extended to small and marginal farmers having **Kisan Credit Card** for a further period upto six months post harvest on the same rate as available to crop loan against negotiable warehouse receipt.
- **Farm Loan Waiver:** The waivers are primarily meant to discourage suicides by farmers due to widespread indebtedness.

The new Farm Bills: Read here, <https://www.iasgyan.in/blogs/farm-laws-2020-and-farmers-protest-explained>

Conclusion

- Indebtedness in one form or another has been in existence for centuries.
- Measures like loan waiver can provide only a temporary relief, but long term solutions are needed to solve farmers woes.
- There is a pressing need for implementing **Shanta Kumar Committee recommendations.**
- A transparent liquidation policy is the need of hour, which should automatically kick in when FCI is faced with surplus stocks than buffer norms.
- Greater flexibility to FCI with business orientation to operate in OMSS and export markets is needed.

TMA SCHEME

GS-III AGRICULTURE

Context

- The government enhanced the scope of Transport and Marketing Assistance (TMA) scheme for specified agriculture products by including dairy products under its purview and increasing the rates of assistance.
- The scheme has been extended till March 31, 2022.

TMA

- The “Transport and Marketing Assistance” (TMA) for specified agriculture products scheme aims to provide assistance for the international component of freight and marketing of agricultural produce which is likely to mitigate disadvantage of higher cost of transportation of export of specified agriculture products due to trans-shipment and to promote brand recognition for Indian agricultural products in the specified overseas markets.

Coverage

- **All exporters, duly registered with relevant Export Promotion Council as per Foreign Trade Policy,** of eligible agriculture products shall be covered under this scheme.
- The assistance, at notified rates, will be available for export of eligible agriculture products to the permissible countries, as specified from time to time.

Eligibility of Products

- The assistance will be provided on export of all agriculture products covered in HSN chapter 1 to 24 including marine and plantation products with a few exceptions.

Exceptions

- Products exported from SEZs
- Exports through trans-shipment, i.e. exports that are originating in third country but trans- shipped through India;
- Export products which are subject to Minimum Export Price or export duty, unless specifically notified.
- Export of goods through courier or foreign post offices using e-Commerce

Pattern of Assistance

- Assistance under TMA would be provided in cash through direct bank transfer as part reimbursement of freight paid.
- The level of assistance would be different for different regions as notified from time to time for export of eligible products.
- The assistance shall be admissible **only if payments for the exports are received in Free Foreign Exchange through normal banking channels.**
- The scheme shall be admissible for the exports made through EDI ports only.
- The scheme covers freight and marketing assistance for export by air as well as by sea (both normal and reefer cargo).

INDIAN SAFFRON

GS-III AGRICULTURE

Context

- The price of Indian saffron has skyrocketed in the international market after the Taliban crisis hit Afghanistan’s export of the world’s most expensive spice.

Saffron production

- Iran, India, Spain and Greece are the major saffron producing countries with Iran occupying the maximum area and contributing about 88% of world’s saffron production.
- Though, India occupies the 2nd largest area but produces approximately 7 per cent of the total world production.

Kashmir saffron

- Saffron cultivation was introduced in Kashmir by Central Asian immigrants around 1st Century BCE.
- In ancient Sanskrit literature, saffron is referred to as 'bahukam'.
- It rejuvenates health and is used in cosmetics and for medicinal purposes.
- The unique characteristics of Kashmir saffron are its longer and thicker stigmas, natural deep-red colour, high aroma, bitter flavour, chemical-free processing, and high quantity of crocin (colouring strength), safranal (flavour) and picrocrocin (bitterness).
- It is the only saffron in the world grown at an altitude of 1,600 m to 1,800 m AMSL (above mean sea level), which adds to its uniqueness and differentiates it from other saffron varieties available the world over.
- Kashmir saffron, which is cultivated and harvested in the Karewa (highlands) of Jammu and Kashmir, got the Geographical Indication (GI) tag in 2020.

Types

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

Boosting Saffron Exports

- Kashmiri saffron had received the GI tag in July 2020 and this has boosted the domestic as well as the overseas business opportunities for Kashmir's Saffron Market.
- With production declining and concerns of adulteration increasing, the prestigious GI tag is expected to restore saffron its earlier market size.
- **To further enhance the production of saffron a few things must be considered:**
 - Provision of good quality and high yield seeds.
 - Extension in the area of cultivation and production.
 - Extensive use of solar drier and air drier. Financial help for the purchase of these apparatus.
 - Appropriate training for packing the produce.
 - The expert's total and equal cooperation and coordination with the saffron growers.
 - Marketing is also one of the main problems. An average saffron grower finds it troublesome to sell the small quantity of his produce.
 - The grading and packing individually is not highly profitable. The cultivator has scarce resources.
 - So, this is necessary that cooperative societies are formed to sell the saffron at remunerative prices.
 - A proper strategy must be devised and the whole activity must be so organized that the average saffron growers gets full benefits of his toils.

MILLETS

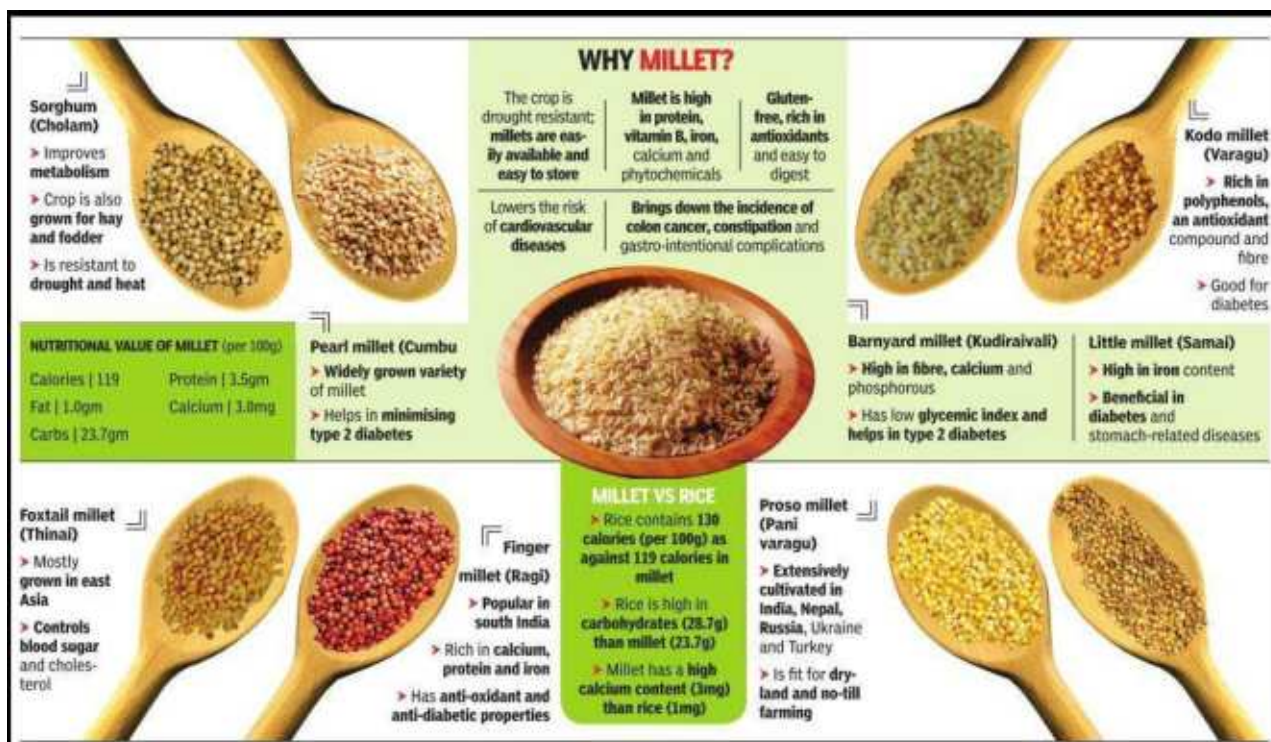
GS-III AGRICULTURE

Context

- India is becoming the destination country for healthy food items like millets and the government is promoting biofortified varieties to address malnutrition, Agriculture Minister Narendra Singh Tomar.

About Millets

- Millets are cereal crops with high nutritive value and categorized as small-seeded grasses.
- The key varieties of millets include Sorghum, Pearl Millet, Ragi, Small Millet, Foxtail Millet, Barnyard Millet, Kodo Millet and others.
- Major producers include Rajasthan, Andhra Pradesh, Telangana, Karnataka, Tamil Nadu, Maharashtra, Gujarat and Haryana.
- High in dietary fibre, nutri-cereals are a powerhouse of nutrients including iron, folate, calcium, zinc, magnesium, phosphorous, copper, vitamins and antioxidants.
- There is need to focus on the production of millets, also now known as "nutri-cereals" examples of nutri-cereals like jowar, bajra and ragi.
- Government is incentivising the production of nutri-cereals to increase the intake of diverse and nutritious diets, improve their availability in markets and bring benefits to small and medium farmers, who are the main cultivators of coarse grains.
- United Nations has declared the year 2023 as the International Year of Millets and preparations are being made to celebrate the International Year of Millets at the global level.



A multi-pronged strategy of the Government

- First strategy from a consumption and trade point of view was to **re-brand coarse cereals/millets as nutri-cereals**. Till 2018-19, millet production was extended to over 14 states.
- Second, **the government hiked the MSP of nutri-cereals**, which came as a big price incentive for farmers. As we compare the data on MSPs for food crops from 2014-15 against 2020, we see that the **MSP for ragi has jumped a whopping 113 per cent, followed by bajra and jowar at 72 per cent and 71 per cent respectively**. MSPs have been calculated so that the farmer is ensured at least a 50 per cent return on their cost of production.
- Third, to provide a steady market for the produce, **the government included millets in the public distribution system**.
- Fourth, the **Ministry of Agriculture & Farmers' Welfare is running a Rs 600-crore scheme to increase the area, production and yield of nutri-cereals**.
- With a goal to match the cultivation of nutri-cereals with local topography and natural resources, the government is encouraging farmers to align their local cropping patterns to **India's diverse 127 agro-climatic zones**.
- Provision of seed kits and inputs to farmers, building value chains through Farmer Producer Organisations and supporting the marketability of nutri-cereals** are some of the key interventions that have been put in place.
- And finally, the Ministry of Women and Child Development has been working at the intersection of agriculture and nutrition by **setting up nutri-gardens, promoting research on the inter-linkages between crop diversity** and dietary diversity and **running a behaviour change campaign** to generate consumer demand for nutri-cereals.

Final Thoughts

- India is rightly focusing on capacity building in research, teaching, policy-making, trade and farming of nutritious cereals, which will benefit the farmers while conserving the amazing diversity available in this group of crops.
- As the government sets to achieve its agenda of a malnutrition-free India and doubling of farmers' incomes, the promotion of the production and consumption of nutri-cereals is a policy shift in the right direction.

AGRICULTURAL EXPORTS AMID COVID-19

GS-III AGRICULTURE

Context

- According to the Quick Estimates released by the Directorate General of Commercial Intelligence and Statistics (DGCI&S), the overall export of Agricultural and Processed Food Products Export Development Authority (APEDA) products has witnessed 21.8 percent growth in terms of USD during April-August 2021 over the same period of the previous year.

Highlights of the Report

India's Export Comparative Statement: APEDA Products					
Product Head	April-August, 2020-21		April-August, 2021-22		% Change (April-August, 2021)
	Rs. Crore	USD Million	Rs. Crore	USD Million	
Fruits & Vegetables	7646	1013	7939	1075	6.1
Cereal preparations & Miscellaneous processed items	4719	627	6579	889	41.9
Meat, dairy & poultry products	8921	1183	11493	1554	31.1
Rice	25355	3359	28269	3820	13.7
Other cereals	1177	157	2805	379	142.1
Cashew	1086	144	1372	185	28.5
Total	49885	6485	58478	7902	21.8

- India reported a significant **142.1% jump in export of other cereals** while the export of meat, dairy & poultry products witnessed an increase 31.1% in the first five months of the current fiscal.
- The huge jump in exports of agricultural and processed food products during the first five months of current fiscal is in continuation of growth in exports witnessed in the financial year 2020-21.
- This rise in exports has been achieved notwithstanding Covid-19 restrictions.
- The initiatives taken by APEDA has helped the country achieve this milestone at a time when most of the business activities suffered a huge setback due to the restrictions imposed after the outbreak of second wave of the COVID19 pandemic.
- According to WTO's trade map, with the total agri-exports of USD 37 billion in the year 2019, **India is ranked at 9th position in the world ranking.**

Initiatives taken by APEDA

- Among the major initiatives undertaken by Apeda are **paperless office, enabling digital signatures and electronic payment facilities, phase-wise delivery of online services, monitoring and evaluation, uniform access to shippers and conducting virtual trade fairs.**
- In addition, Apeda had also achieved **cent per cent digitization of issuing registration-cum-allocation certificate (RCAC)**, by enabling online payment gateway and digital signatures.
- Apeda has integrated peanut processing units and laboratories into a single window system for certification of peanut (groundnut) exports. This includes issuing online certificates of exports. The authority has also launched similar initiatives with regard to meat exports.
- It has **launched Hortinet** covering 40-plus vegetables, besides mango, pomegranate, citrus and other fruits.
- APEDA has also **developed a traceability System for Basmati rice** (a registered GI product).
- APEDA, has implemented a Blockchain solution as a part of its popular **GrapeNet**, to begin with.
- For boosting exports, APEDA compiles and disseminates various international trade analytical information, market access information amongst exporters and address trade enquiries.
- APEDA also assists in up-gradation and strengthening of recognized laboratories for export testing and residue monitoring plans.
- APEDA also provides assistance under the financial assistance schemes of infrastructure development, quality improvement and market development for boosting export of agricultural products.
- APEDA has also launched a **FarmerConnect portal** to help farmer producers' organisations, cooperatives and exporters. This helps them to create profiles and post their sale offers on the web platform. Exporters can also post their enquiries or needs, and view matching sale offers.
- One of the unique online initiatives of Apeda is the virtual trade fair that is a meeting place for exhibitors, visitors, exporters and industry to exchange information on new products and establish new partnerships.
- APEDA is implementing a hybrid solution combining its traditional **web-based SaaS model for its stakeholders**, augmented by an authentic, private Blockchain layer for further data security and authentication
- These initiatives have, in fact, helped Indian agricultural exports fare well during Covid pandemic when shipments were affected due to various factors, including lockdowns.

Final Thought

- The significant spike in agri-exports is seen as a testimony of the government's commitment to increase farmers' income through giving thrust on boosting exports of agricultural and processed food products of the country.

INTEGRATED AROMA DAIRY ENTREPRENEURSHIP

GS-III AGRICULTURE

Context

- Union Minister Dr Jitendra Singh proposes Integrated Aroma Dairy Entrepreneurship for Jammu & Kashmir to augment the income of farmers.

Livestock in Jammu and Kashmir

- According to the 19th Livestock Census, J & K state is in the 5th position with regard to Sheep population in the country.
- J & K State is in the 1st place in respect of the Yak population in the country** with the percentage share of 71.03.
- The state is in the 2nd place with regard to Horses/Ponies and Mules in the country. It is in the 17th place with regard to Poultry in the country
- Jammu and Kashmir produced about 2.3 million metric tons of milk within the livestock products sector in fiscal year 2017. The state produced only 20 thousand metric tons of fish.
- In addition, about 230 million eggs were produced in the state in the same time period.

Integrated Aroma Dairy Entrepreneurship

- Jammu & Kashmir has abundant stock of Animal Husbandry and Dairy resources so the same can be effectively integrated with Aroma Mission.
- This will pave the way for integrated Aroma Dairy Entrepreneurship, ensuring sustainable growth, increased income and fresh avenues of livelihood for farmers

Aroma Mission

- The Aroma Mission was launched **by CSIR under the aegis of Union Ministry of Science & Technology** is in line with PM Narendra Modi's vision of improving farmers' livelihood.
- The Aroma Mission, also popularly referred as "**Lavender or Purple Revolution**", has started from J&K and transformed the lives of farmers who are able to grow lavender, make lucrative profit and improve their lives.
- Apart from providing planting material, distillation units are provided and farmers are trained in extraction and many of them have become entrepreneurs as lavender oil is quite sought after.
- Along with Lavender, many high value Aromatic and Medicinal cash crops have been introduced by CSIR in J&K.
- It is now being expanded as Aroma Mission Phase II and also floriculture mission has been recently launched.
- This will fetch in the much needed transformation in lives of farmers and women.

ARTIFICIAL INTELLIGENCE IN AGRICULTURE

GS-III AGRICULTURE

In News

- The Telangana government has entered into an agreement with Wingsure, an insurtech venture spin-out of SRI International. As a part of the agreement, Wingsure will provide deep-tech-based personalized crop insurance products and advisory services to small, underserved farmers in the state.
- The Information Technology, Electronics & Communications (ITE&C) Department of the Government of Telangana will guide and facilitate the implementation of the solution.

Details

- Wingsure will collaborate with government agencies to develop a ground distribution strategy by leveraging its deep-tech platform, including **AR (Augmented Reality), AI (Artificial Intelligence), ML (Machine Learning)-based personalized solutions**, along with voice bots and natural language processing, to allow farmers to communicate in their native language.
- It will curate and distribute crop and other general insurance products via its network of insurers and broker partners.
- It will also provide customized advisory, training, and facilitate rapid insurance claims through its mobile-based platform.

Technology in Agriculture: The need

- Humanity has come a long way over the millennia in how we farm and grow crops with the introduction of various technologies.
- As the world population continues to grow and land becomes scarcer, people have needed to get creative and become more efficient about how we farm...

- o using less land to produce more crops and
- o Increasing the productivity and yield of those farmed acres.

In Indian context

- When it specifically comes to India, our agriculture is faced with multiple challenges like high dependence on monsoon, resource intensiveness – heavy use of resources (water, inorganic fertilisers and pesticides), degradation of land and loss of soil fertility, and low per hectare yield, among others.
- Agriculture continues to employ 49 per cent of the workforce and contributes to only 16 per cent of the country's GDP.
- Improvement in agriculture would, therefore, positively impact the well-being of a very large section of the Indian population, apart from delivering food security to our country.
- Feeding over a billion Indians on limited land resources is a big challenge ---- a task that requires technological intervention on a large scale, to enable a giant leap in agricultural productivity.
- It is in this context that, AI can play a catalytic role in improving farm productivity, removing supply chain constraints and increasing market access. It can positively impact the entire agrarian value chain.

First thing first...

What is Artificial Intelligence?

- Artificial intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions. The goals of artificial intelligence include learning, reasoning, and perception. Examples include: self-driving cars, virtual assistant etc.

Applications of AI



Scope of Artificial Intelligence in Agriculture

Use in weather forecasting

- With help of Artificial Intelligence farmers can analyze weather conditions by using weather forecasting which helps them plan the type of crop can be grown and when should seeds be sown.

Soil health monitoring system

- The type of soil and nutrition of soil plays an important factor in the type of crop is grown and the quality of the crop.
- Due to increasing, soil degradation and it's hard to determine the quality of the soil.

- AI can help farmers in identifying the nutritional deficiencies and requirements in soil.

Case Studies

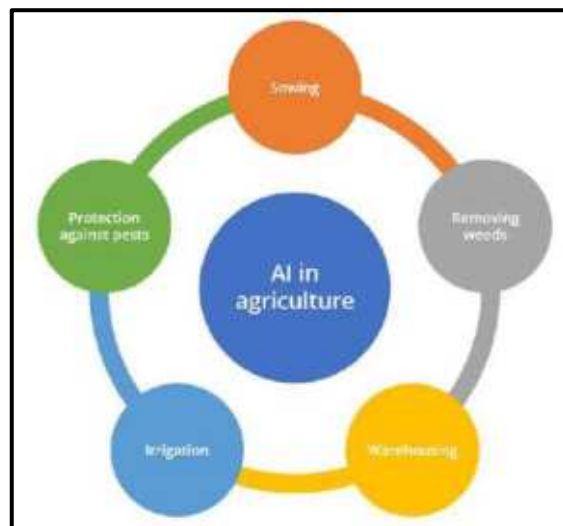
- A German-based tech start-up PEAT has developed an AI-based application called Plantix. Plantix can identify the nutrient deficiencies in soil including plant pests and diseases by which farmers can also get an idea to use fertilizer which helps to improve harvest quality. This app uses image recognition-based technology. The farmer can capture images of plants using smartphones. We can also see soil restoration techniques with tips and other solutions through short videos on this application.
- Trace Genomics is another machine learning-based company that helps farmers to do a soil analysis to farmers. Such type of app helps farmers to monitor soil and crop's health conditions and produce healthy crops with a higher level of productivity.

Analyzing crop health

- AI equipped drone can capture data from fields and then data is transferred via a USB drive from the drone to a computer and analyzed by experts from the Government's agricultural department.
- Captured images can be analyzed to produce a detailed report containing the current health of the farm.
- It helps the farmer to identify pests and bacteria helping farmers to timely use of pest control and other methods to take required action.

Precision Farming and Predictive Analytics

- AI applications can help in accurate and controlled farming by providing farmers proper guidance about water management, crop rotation, timely harvesting, type of crop to be grown, optimum planting, pest attacks, nutrition management.
- Even the last mile Farmer can get AI benefits, with tools as simple as an SMS-enabled phone and the Sowing App.



AI-enabled system to detect pests

- AI systems use satellite images and compare them with historical data using AI algorithms and detect that if any insect has landed and which type of insect has landed like the locust, grasshopper, etc.
- It can then send alerts to farmers to their smartphones so that farmers can take required precautions.

Agricultural Product Grading

- Automated quality analysis of images of food products is an accurate and reliable method for grading fresh products (fruits, grains, vegetables, cotton etc.) characterized by color, size and shape.
- The farmer can take an image on his phone and determine the product quality in real time, without any manual intervention.

Alerts on Crop Infestation

- Farmers can click an image of their crop and use their solution to understand the pests, diseases, and foreign plants (weeds) growing in their farms.
- The solution uses deep learning and image processing models to identify any crop diseases or pest infestation in the crops.
- Along with the parameters, it gives recommendations on how that disease can be cured and prevented from increasing further.

Detecting weeds

- AI can effectively be used for differentiating between weeds and crop seedlings. It is one of the most efficient non-chemical ways of reducing weeds.
- For instance, digital imaging can be used to separate carrot from rye grass and fat hen.

Irrigation

- AI helps in irrigating agricultural fields. It can monitor and analyze the soil moisture and other conditions, such as aridity or humidity in the surrounding atmosphere, and then open water valves to provide water to the fields automatically, without any human involvement.
- AI can alert personnel in times of drought and can also help mitigate wastage of water by releasing it only when it is required. Moreover, illegal consumption of water can also be prevented.
- Thus, as capital costs of technology decrease and the software capabilities of AI in agriculture increase, we will see a jump in efficiency and sustainability, which will eventually meet the world's food needs.

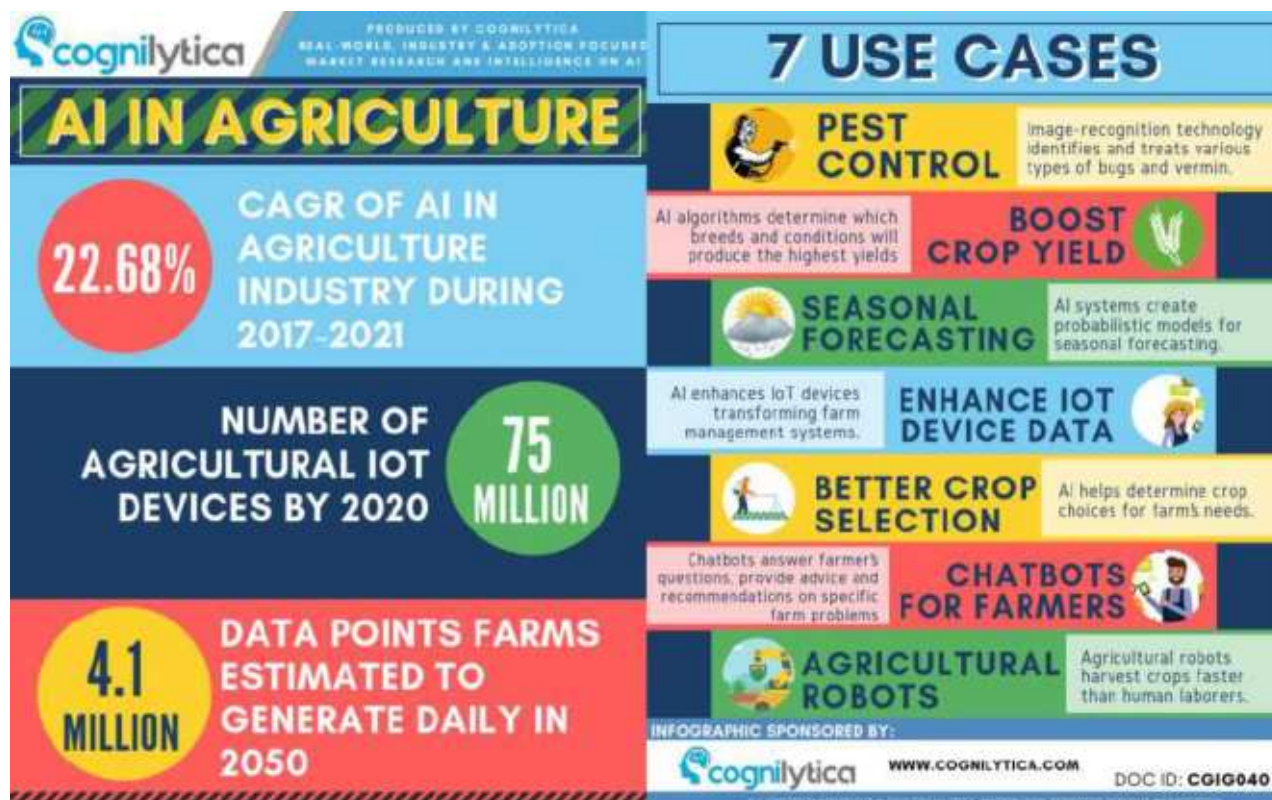
Do you know?

- Microsoft India in collaboration with ICRISAT (International Crops Research Institute for the Semi-Arid Tropics), has developed an AI Sowing App.
- The app sends sowing advisories to participating farmers on the optimal date to sow crops. The farmers don't even need to install any sensors in their fields or incur any capital expenditure. All they need is a feature phone capable of receiving text messages.
- To calculate the crop-sowing period, historic climate data (spanning over 30 years from 1986 to 2015) for the specific area in Andhra Pradesh was analyzed using AI. To determine the optimal sowing period, the Moisture Adequacy Index (MAI) was calculated. MAI is the standardized measure used for assessing the degree of adequacy of rainfall and soil moisture to meet the potential water requirement of crops.
- Microsoft has also partnered with United Phosphorous (UPL), India's largest producer of agrochemicals, to create the Pest Risk Prediction App.
- Today, these farmers across the Indian states of Andhra Pradesh and Karnataka wait to get a text message before sowing the seeds. In a few dozen villages in Telangana, Maharashtra, and Madhya Pradesh, farmers receive automated voice calls alerting them whether their crops are at risk of a pest attack based on weather conditions and stage of the crop.

Warehousing

- Even after a good harvest, if the crops are not stored and taken care of, they may rot. Thus, good warehousing facilities are a must.
- AI can help in deploying correct grain storage techniques by maintaining the appropriate temperature, pressure, and humidity conditions, by adjusting its analysis according to different types of crops.
- It can also give real time information to the warehouse manager if there is any change in set parameters in the grain storage. Moreover, it constantly updates itself with the amount of grains remaining inside the warehouse so that they can be replenished.

Recent developments pertaining to AI in India



Initiatives by AI Industry

- Recently, AI industry has joined hands with the government to develop an AI-powered crop yield prediction model to provide real-time advisory services to farmers.
- The system aims to help increase crop productivity, enhancing soil yield, controlling the wastage of agricultural inputs and warning of pest or disease outbreaks.

- This system uses remote sensing data provided by the Indian Space Research Organisation (ISRO), data from soil health cards, the India Meteorological Department's (IMD) weather prediction and analysis of soil moisture and temperature etc. to give accurate information to farmers.

Initiatives by Start-Up companies

1. A startup has used data science, AI and machine learning algorithms, along with data sets from ISRO to assess --- damage to crops + compensation payable based on value of the damage that has taken place.
2. Questions around what is being grown, what is the damage, what would the value of the damaged crops, are answered with reasonably high accuracy.
- An AI startup in India maps farmers' zones in remote areas, answering questions like
 - o who has been farming which land,
 - o what is being grown,
 - o what is the quality of soil on the land, with great accuracy.
- Crop insurers, seed suppliers, state governments all want this data and it's possible to build a business model around this as the data and information has value for everyone.
3. Imaging and AI, traceability solutions are being developed for large scale quality testing and post-harvest produce handling and monitoring.
4. Data is helping to create platforms for price transparency to check malpractices in the supply chain.
5. **Agricultural-Bots (ag-bots)** and drones are being developed to ensure seamless execution of cultivation and harvesting.

Conclusion and Way Ahead

- Use of AI in agriculture will improve farmers' access to markets, inputs, data, advisory, credit and insurance.
- Timely and accurate data coupled with analytics can help build a robust demand-driven efficient supply chain.
- With the use of sensors, photographs through phones, IoT devices, drones and satellite images, agricultural data can be collected and matched with weather data, soil health card data, mandi prices and help build predictive models that can greatly enhance decisions about seeds, fertilisers, pesticides that are of critical importance in both pre-harvest and post-harvest stages.
- Most of these AI models are low-cost and affordable and can add a lot of value to the agriculture ecosystem.
- In a nutshell, greater use of AI would increase productivity by introducing precision agriculture.
- However, in order to help these AI solutions scale, what is needed is to increase investments - both public and private - especially from venture capitalists.
- In this context, the recently concluded **Responsible AI for Social Empowerment Summit - RAISE - 2020 Summit** has helped provide a platform for global stakeholders to come together to finalize the roadmap for using AI for public good.
- Technological advancement and implementation are ways to transform agriculture.
- Recognizing the importance of AI and other emerging technologies will help in elevating agricultural productivity and improving the livelihood of the farmers in the state.

TUSSAR SILK YARN PRODUCTION CENTRE

GS-III AGRICULTURE

Context

- Khadi and Village Industries Commission (KVIC) has taken a historic initiative to set up Odisha's first ever Tussar Silk Yarn Production Centre at Choudwar in Cuttack district.

About

- This silk yarn production centre will ensure local availability of Tussar Silk yarn, create local employment and reduce the silk production cost.
- Tussar silk is one of the finest varieties of Silk that is distinguished by its coarseness and porous weave that give it a rugged and rustic appearance.



- The development assumes great significance as Silk comprises nearly 75% of the total Khadi fabric production in Odisha.
- For hundreds of years, Odisha has been known for its exquisite Silk, particularly the Tussar variety, which provides livelihood to thousands of tribal people, particularly women.

Silk

- Silk is a natural fiber that consists of fibroin, which is the protein some insects secrete to make cocoons.
- Essentially, the fiber is the material these insects produce to make their cocoons and nests.

Sericulture

- Sericulture, the production of raw silk by means of raising caterpillars (larvae), particularly those of the domesticated silkworm (*Bombyx mori*).
- China is said to be the origin of sericulture. In India the cultivation dates back to 140 AD.

Types of Silk

- India produces all the four types of silk i.e.
 1. Mulberry silk (91.7%);
 2. Tasar silk (1.4%);
 3. Eri silk (6.4%); and
 4. Muga silk (.5%)
- **Mulberry Silk** -Mulberry silk is the softest and the most durable fabric.
- **Eri Silk** - Another name for eri silk is peace silk because its production does not include the killing of silkworms. It is heavier and more durable in comparison to mulberry silk.
- **Tasar Silk** - India and Japan produce this variety of silk. Green silkworms are the producer of Tasar silk.
- **Spider Silk** - It is the most expensive variety of silk. Manufacturers use spider silk to produce microscopes, bulletproof vests, etc.
- **Muga Silk** - The natives of Assam produce this variety of fabric using semi-domesticated muga silkworms.
- **Sea Silk** - Another name for sea silk is mussel silk since species of mussel of the Mediterranean Sea produce it.
- **Coan Silk** - Silkworms, which feed on oak, pine, and juniper trees produce coan silk. This variety is found in Greece, Turkey, and Italy.

State	Silk Centre
Andhra	Dharmavaram, Pochampalli, Venkatagiri, Narainpet
Assam	Sualkuchi
Bihar	Bhagalpur
Gujarat	Surat, Cambay
Jammu & Kashmir	Srinagar
Karnataka	Bangalore, Anekal, Ilkal, Molakalmuru, Melkote, Kollegal
Chattisgarh	Champa, Chanderi, Ragarhi
Maharashtra	Paihan
Tamil Nadu	Kanchipuram, Arni, Salem, Kumbhakonam, Tanjavur
Uttar Pradesh	Varanasi
West Bengal	Bahnupur, Murshidabad, Birbhum

Central Silk Board is a statutory body established under the Central Silk Board Act, 1948. It functions under the aegis of Union Ministry of Textile. It is a national organization for overall development of silk sector in India.

CROP VARIETIES WITH SPECIAL TRAITS

GS-III AGRICULTURE

Context

- To create mass awareness for adoption of climate resilient technologies, Prime Minister Shri Narendra Modi will dedicate 35 crop varieties with special traits to the Nation.

About crop varieties with special traits

- The crop varieties with special traits have been developed by the **Indian Council of Agricultural Research (ICAR)** to address the twin challenges of climate change and malnutrition.
- Thirty-five such crop varieties with special traits like climate resilience and higher nutrient content have been developed in the year 2021.
- The 35 varieties include as drought tolerant variety of chickpea, wilt and sterility mosaic resistant pigeonpea, early maturing variety of soybean, disease resistant varieties of rice and biofortified varieties of wheat, pearl millet, maize and chickpea, quinoa, buckwheat, winged bean and fava bean.

Significance

- These special traits crops include varieties that address the anti-nutritional factors found in some crops that adversely affect human and animal health.

- Examples of such varieties include Pusa Double Zero Mustard 33, first Canola quality hybrid RCH 1 with less than 2 per cent erucic acid and less than 30 ppm glucosinolates and a soybean variety free from two anti-nutritional factors namely Kunitz trypsin inhibitor and lipoxygenase

About National Institute of Biotic Stress Management

- The Prime Minister will also dedicate to the nation the newly constructed campus of National Institute of Biotic Stress Management Raipur.
- The National Institute of Biotic Stress Management at Raipur has been established to take up the basic and strategic research in biotic stresses, develop human resources and provide policy support.
- The institute has started PG courses from the academic session 2020-21.

About Green Campus Awards

- On the occasion, the Prime Minister will distribute Green Campus Award to Agricultural Universities.
- The Green Campus Awards has been initiated to motivate the State and Central Agricultural Universities to develop or adopt such practices that will render their campuses more green and clean, and motivate students to get involved in 'Swachh Bharat Mission', 'Waste to Wealth Mission' and community connect as per the National Education Policy-2020.

PMFME SCHEME

GS-III AGRICULTURE

Context

- The Ministry of Food Processing Industries in association with the Ministry of Housing and Urban Affairs, under the **Pradhan Mantri Formalisation of Micro food processing Enterprises (PMFME) Scheme**, virtually launched the Seed Capital Module.

About the PMFME Scheme

- It was launched on Deendayal Antyodaya Yojana-National Urban Livelihoods Mission (DAY-NULM) MIS Portal for seed capital assistance to members of urban Self Help Groups working in the food processing sector in India.
- Launched **under the Aatmanirbhar Bharat Abhiyan, the** Pradhan Mantri Formalisation of Micro food processing Enterprises (PMFME) Scheme is **a centrally sponsored scheme** that aims to enhance the competitiveness and promote formalization of the unorganized micro – food processing enterprises in India.
- **The scheme aims to empower the self-help groups by:**
 - Seed capital support of Rs.40,000 per SHG member;
 - Credit linked subsidy for capital investment up to 35% with a ceiling of Rs. 10 lakh;
 - Credit linked grant support up to 35% for establishing common infrastructure;
 - Handholding support for DPR preparation and;
 - Capacity building and training support.

Significance

- The Scheme will enhance the competitiveness of existing individual micro-enterprises in the unorganized segment of the food processing industry and promote formalization of the sector and provide support to Farmer Producer Organizations, Self Help Groups, and Producers Cooperatives along their entire value chain.

COIR INDUSTRY OF INDIA

GS-III AGRICULTURE

Context

- Union Minister for MSME Narayan Rane has called for developing Coir Industry in Konkan, North and North-Eastern region of the country and expand the market network.
- Konkan region has great opportunities for development of Coir Industry, as its coastal areas have good coconut crop.

India's Coir Industry

- India contributes **70% of the global production of Coir and 80% of the world trade in Coir products.**
- Kerala produces 60% of the total world supply of white coir fibre.
- Sri Lanka produces 36% of the total world brown fibre output.
- Over **50% of the coir fibre produced annually throughout the world is consumed mainly in India.**
- Together India and Sri Lanka produce 90% of the 250,000 metric tons of coir produced every year.
- Coir industry provides employment to more than 7.3 lakh people in rural areas, 80% of which are women.
- Acceptability of Coir products has increased rapidly due to its **'environment friendly' image.**

- During the year 2020-21, the export of coir and coir products reached an all time high of Rs 3778.97 crore, with a growth rate of 17% in quantity and 37% in value, despite COVID adversities.
- The top five coir importing countries from India are the US followed by China, the Netherlands, South Korea, and the UK, according to the ministry's 2020-21 annual report.

Steps being taken to boost the Coir Industry

- **Coir Board**, under the MSME Ministry, is looking to take multiple steps to promote coir usage, create awareness among entrepreneurs, and train youth for employment in the sector.
- **Under the Ministry's CVY-Skill Upgradation & Mahila Coir Yojana scheme**, the board will be providing training to 600 beneficiaries in different coir processing technologies to enable employment and thereby revenue generation in the sector by availing Prime Minister Employment Generation Programme and SFURTI schemes.
- The Board is creating awareness among coir artisans through Entrepreneurship Development Programmes and awareness programmes about MSME Ministry's schemes such as **SFURTI, Market Development Programmes for strengthening the export sector, etc.**
- An Action Plan Target has been fixed for the FY 2021-22 for providing skill training to potential beneficiaries and thereby developing coir industry in the zone.

Significance

- Coir Industry is a traditional, labor intensive, agro-based and export oriented industry.
- The industry converts waste into wealth as the raw material used is throw away waste.
- The coir industry is one of India's traditional industries that is economically as well as environmentally very important.

Coir Board

- The Coir Board is **a statutory body established by the Government of India under the Coir Industry Act 1953** for the promotion and development of the coir (coconut fibre) industry in India.
- It is based in Kochi and Alappuzha. The board works for the promotion, research, education, and training of the industry.
- The board functions **under the Ministry of Micro, Small and Medium Enterprises**.

HONEY INITIATIVES

GS-III AGRICULTURE

Context

- Union Minister for Agriculture and Farmers' Welfare launched 'Amul Honey- a product of Gujarat Cooperative Milk Marketing Federation Ltd.

Highlights

- In order to increase the income of these small farmers, it is necessary to connect them with other dimensions of agriculture like beekeeping.
- Promoting beekeeping and selling honey through cooperatives will give a boost to the rural economy.
- They can also produce additional by products of beekeeping, viz.; bees wax, pollen, royal jelly, as these products have high demand and better prices in Indian and international market.
- But quality of honey is a major concern in the country for which 5 large scale Regional Honey Testing Labs and 100 Mini Honey Testing Labs are being set up all over the country.

Read: <https://www.iasgyan.in/blogs/food-adulteration-the-death-of-business-ethics>

Other Initiatives

- The **Honey Mission Programme was launched by Khadi & Village Industries Commission (KVIC), under the Ministry of MSME, during 2017-18.**
- It is being implemented to promote Bee Keeping activities and provide self-sustaining employment opportunities among farmers, Adivasies and unemployed youth in rural India, especially in economically backward and remote areas.
- Under the programme, beneficiaries are provided with Bee Boxes, live bee colonies, tool kits and training.
- Under **National Beekeeping & Honey Mission (NBHM)** scheme under Ministry of Agriculture, scientific beekeeping is promoted for holistic growth of the sector, leading to income and employment generation, livelihood support to farm and non-farm households.
- Besides, **under 'A Scheme of Fund for Regeneration of Traditional Industries' (SFURTI) implemented by the Ministry of MSME**, traditional beekeepers are provided with sustainable employment by organizing them into clusters, and supporting them with new machineries and training.

- Last year, the **Honey FPO Programme of National Agricultural Cooperative Marketing Federation of India Limited (NAFED)** was inaugurated by Minister of Agriculture and Farmers' Welfare.
- NAFED will address these issues by acting as an intermediary and filling up the gaps between the elements of the beekeeping supply chain and also ensure price remuneration to the beekeeping farmers.
- Through these Honey FPOs, NAFED will also work for promotion of beekeeping as an occupation for unemployed women and tribal populations and uplift their livelihood".

Significance

- **Sweet revolution**
 - Sweet Revolution' is a strategic step to emphasize the increase in honey production in the state, which can be a major contributor to doubling the income of the farmers.
- With the increase in income, the production of crops will also increase by 15%.
- **Purpose of sweet revolution**
 1. Providing employment by connecting the farmers of the state with bee keeping.
 2. To increase agriculture and horticulture yield and income of farmers.
 3. To make the state the leading state in the field of honey production.
 4. Children free from malnutrition.
 5. Production of quality honey.
- Honey beekeeping will change the lifestyle of small and marginal farmers and help in achieving the goal of increasing farmer's income.

CASHEW FENI

GS-III AGRICULTURE

Context

- The Goa government's Feni Policy has paved the way to take the state's 'heritage drink' forward - Goa Cashew Feni Distillers and Bottlers Association (GCFDBA).
- The Policy lays down the standards for the production, techniques, quality and hygiene for making of feni and lists local terminology like Bhaticar (distiller), Pantlo (cane basket to collect cashew fruit) and Pinjrem (a metal cage like unit to extract juices).

About

- Feni is a traditional liquor distilled from the fermented juice of cashew apples.
- The two popular types of Feni Goa is known for are- Coconut Feni and Cashew Feni.
- In terms of production, Coconut Feni is older than Cashew Feni.
- Feni is a part of Goa food tradition from the last 400 years.
- It **also got the Geographical Indication (GI) certificate in 2009.**
- In 2016, the **Goan government declared it as a heritage drink.**
- It is also used as a cure for tooth problems, gum issues, swelling and some types of mouth ulcers.
- Feni is used for combating cough and cold.

About GI Tag

- A geographical indication or GI is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin.
- Geographical Indications are part of the intellectual property rights that comes under the Paris Convention for the Protection of Industrial Property.
- In India, Geographical Indications registration is administered by the Geographical Indications of Goods (Registration and Protection) Act of 1999.
- This tag is valid for a period of 10 years following which it can be renewed.
- GI tags are covered under World Trade Organization.
- Geographical indications are typically used for agricultural products, foodstuffs, wine and spirit drinks, handicrafts, and industrial products.
- It is basically an assurance that the product is coming from that specific area. It's kind of trademark in the international market.
- Karnataka has the highest number of GI tags i.e. 47 products followed by Tamil Nadu (39).

Benefits of registration of Geographical Indications

- It confers legal protection to Geographical Indications in India
- Prevents unauthorized use of a Registered Geographical Indication by others

- It provides legal protection to Indian Geographical Indications which in turn boost exports.
- It promotes economic prosperity of producers of goods produced in a geographical territory.

How a geographical indication is different from a trade mark?

- A trade mark is a sign which is used in the course of trade and it distinguishes goods or services of one enterprise from those of other enterprises.
- Whereas a geographical indication is an indication used to identify goods having special characteristics originating from a definite geographical territory.

To read about to complete list of GI Tags, Visit: <https://www.iasgyan.in/blogs/complete-list-of-geographical-indications-gi-tags-in-india-as-of-2021>

RURAL PROSPERITY REPORT

GS-III AGRICULTURE

Context

- The report **Transforming Food Systems for Rural Prosperity** by United Nations International Fund for Agricultural Development (IFAD) called for investment in rural farms and local small- and medium-size enterprises.

Challenges observed

- The world's food systems are riddled with huge and unfair contradiction.
- There are 800 million hungry people and yet high obesity rates.
- Nutritious diets are expensive yet many small-scale farmers are poor.
- Current food growing practices are not good for our environment. It is clear that we need a revolution.
- Over the past 70 years, a focus on industrial farming and producing more calories at low cost has been accompanied by growing malnutrition, increased food waste and a high environmental cost.
- Food systems are responsible for 37 per cent of greenhouse gas emissions and are also highly vulnerable to a changing climate.

Recommendations

- The report recommended concrete actions to be taken by governments:
 - Rewarding farmers for ecosystem services such as maintaining healthy soil and regulating pests and incentives for nature-based practices and local, healthy diet
 - Making available innovations such as nature-based solutions, agro-ecology and affordable digital technologies to boost rural small-scale famers' production. The measures will also enable the cultivators to be climate-resilient employing low-carbon and sustainable techniques
 - Developing and focussing on pricing systems that reflect the full and true cost of production
 - Shifting food systems towards circular resource use for sustainability and resilience
- The report stressed on the importance of government **investment in rural farms and local small- and medium-size enterprises** that support activities after the farm gate, such as storing, processing, marketing and food distribution.
- Small-scale family farmers are still the foundation of food supply across all low- and middle-income countries.
- They play **a critical role in reducing rural poverty and ensuring national food and nutrition security.**
- It called for **investing in and creating conditions for productive, economically viable and environmentally sustainable small-scale family farming.**
- A majority of people in rural areas earn their livelihoods from working in small-scale agriculture, which is a vital source of national and global food. In fact, farms of up to two hectares produce 31 per cent of the world's food on less than 11 per cent of the farmland.
- The report called for making food markets accessible to villagers and on fair terms by rethinking the present concentration of power within food systems.

IFAD

- The International Fund for Agricultural Development is an **international financial institution and a specialised agency of the United Nations that works to address poverty and hunger in rural areas of developing countries.**
- It is the only multilateral development organization that focuses solely on rural economies and food security.
- **Headquartered in Rome, Italy, IFAD** funds and sponsors initiatives that -
 - improve land and water management,
 - develop rural infrastructure,
 - train and educate farmers in more efficient technologies,
 - build up resilience against climate change,
 - enhancing market accessibility, and more.

- IFAD has 177 member states and works **in partnership with the Organization of the Petroleum Exporting Countries (OPEC) and members of the Organisation for Economic Co-operation and Development (OECD).**
- Foundation in **1977** it is one of the major outcomes of the 1974 World Food Conference.
- It is a member of the United Nations Development Group.
- The President of the IFAD is elected for a **four-year term.**

SORGHUM

GS-III AGRICULTURE

Context

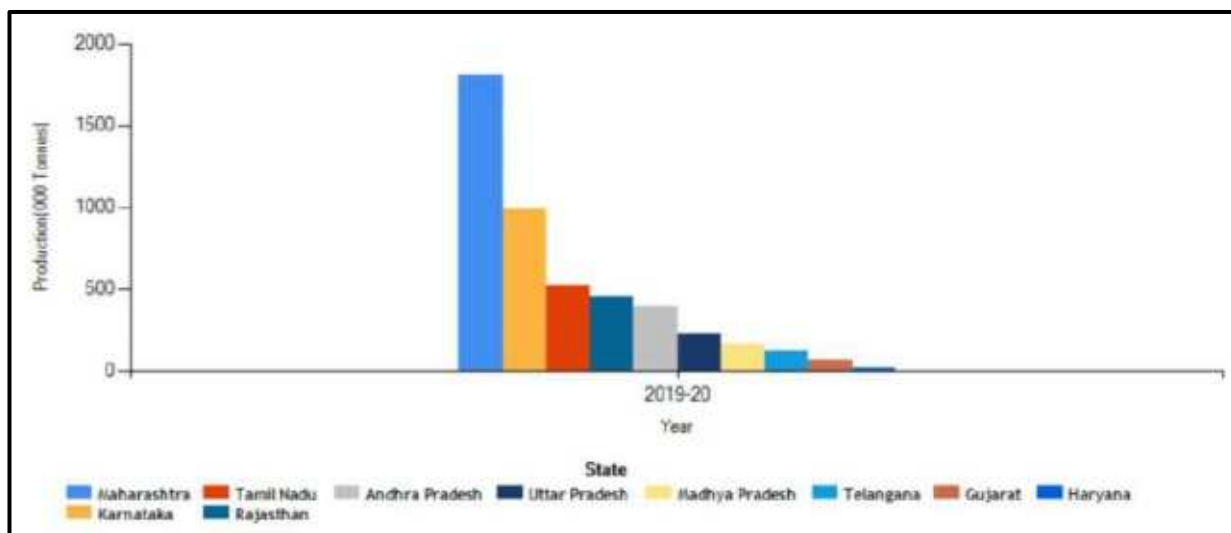
- Genes that can increase the grain size of sorghum, a versatile grain crop used for human consumption, fodder and bioenergy generation, have been discovered, according to a new report by Queensland Department of Agriculture and Fisheries.

Findings of the Report

- About 80 per cent of the crop's grain size characteristics depend on genes, and can thus be inherited.
- As many as 125 regions in the sorghum genome have now been identified where variation in the DNA sequence was associated with grain size and response to environmental conditions.

About

- Sorghum, also called great millet, Indian millet, is cereal grain plant of the grass family (Poaceae) and its edible starchy seeds. Sorghum plants are very hardy and can withstand high temperature and drought conditions.
- The plant **originated in Africa**, where it is a major food crop. The **variety of the crop found in India is called jowar** that originated here.
- The grain is popular across the world because it has a low glycaemic index, is gluten-free and nutritious.
- **Note:** The lower the glycemic index of a cereal, the lower is the relative rise in blood glucose level after two hours of consuming it.
- The key varieties of millets include Sorghum, Pearl Millet, Ragi, Small Millet, Foxtail Millet, Barnyard Millet, Kodo Millet and others.
- Jowar has a dedicated All-India Coordinated Research Project since 1969.



Top 10 Jowar producers in India

INTERNATIONAL COFFEE DAY

GS-III AGRICULTURE

Context

- International Coffee Day is an occasion that is used to promote and celebrate coffee as a beverage, with events now occurring in places across the world.
- The first official date was 1 October 2015, as agreed by **then International Coffee Organization** and was launched in Milan.

About

- India is the third-largest producer and exporter of coffee in Asia, and the sixth-largest producer and fifth-largest exporter of coffee in the world.
- The country accounts for 3.14% (2019-20) of the global coffee production.
- Coffee production in India is dominated in the hill tracts of South Indian states, with Karnataka accounting for 71%, followed by Kerala with 21% and Tamil Nadu (5%).
- Indian coffee is said to be the finest coffee grown in the shade rather than direct sunlight anywhere in the world.
- Almost **80% of Indian coffee is exported.**
- The two well known species of coffee grown are the Arabica and Robusta. The first variety that was introduced in the Baba Budan Giri hill ranges of Karnataka in the 17th century.
- Brazil is, the largest coffee producer in the world.

In what climates does coffee grow?

- Between temperatures of 13-26°C
- It requires both sun (dry season) and rain
- Wind and humidity have a negative impact on coffee: they damage branches, burn its buds (cold wind) and cause the development of fungi and parasites (excess moisture).
- Coffee needs shade in its growth phase and sun when it starts to produce its fruits (not direct sun).

All of these climatic conditions are found in tropical zones.

Another feature that distinguishes the areas suitable for the cultivation of coffee is altitude:

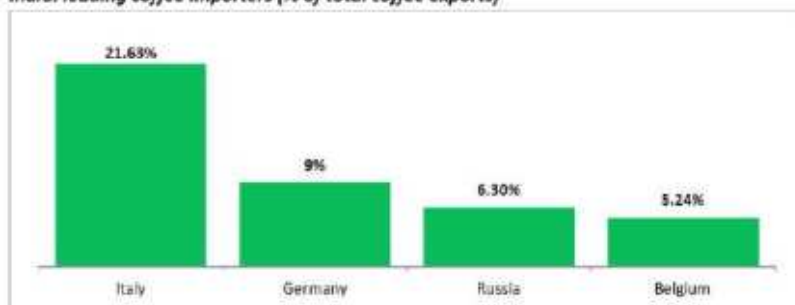
- Between 1000-2000 metres for Arabica
- Around 200-300 metres for Robusta



International Coffee Organization

- The International Coffee Organization (ICO) was set up in **1963 in London, under the auspices of the United Nations (UN)** due to the economic importance of coffee.
- It administers the International Coffee Agreement (ICA), an important instrument for development cooperation.
- After the withdrawal of the U.S. from the International Coffee Agreement in June 2018, ICO Member Governments represent 98% of world coffee production and 67% of world consumption.
- India is a part of ICO.**

India: leading coffee importers (% of total coffee exports)



In News

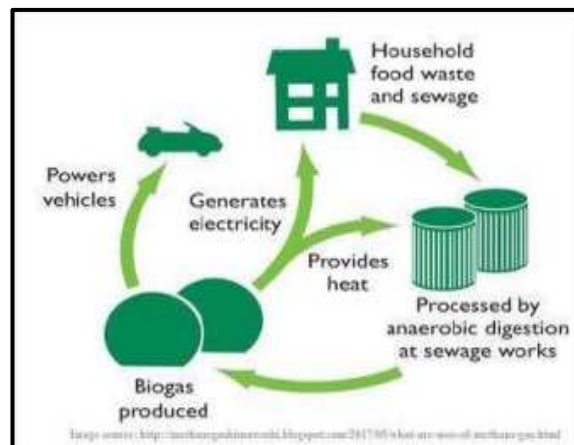
- A new high rate biomethanation technology for the integrated treatment of sewage and organic solid waste and concomitant generation of biogas and bio manure can treat groundwater and wastewater and convert it to potable water. It can be used for sewage and organic solid waste treatment with decentralized applications in various parts of India.
- Solid and liquid wastes are major challenges faced by big cities as also for the rapidly urbanizing areas, and sustainable technologies are needed for tackling them.
- An integrated treatment of sewage along with organic solid waste in India could help evolve a sustainable technology to overcome the solid and liquid waste disposal issues.

About

- Biomethanation is a process by which organic material is microbiologically converted under anaerobic conditions to biogas.
- Three main physiological groups of microorganisms are involved: fermenting bacteria, organic acid oxidizing bacteria, and methanogenic archaea.

Biogas

- Biogas mainly consists of methane (about 60-75%), carbon dioxide (about 25-40%) besides small quantities of NH_3 and H_2S and has a Calorific Value of about 5000 kcal /m³.
- Biogas can be utilised either for cooking / heating applications, or for generating motive power or electricity through dual-fuel, gas engines, low pressure gas turbines or steam turbines.



Advantages of Anaerobic Digestion / Biomethanation

- Generation of gaseous fuel;
- Can be done on a small-scale;
- No external power requirement unlike aerobic treatment;
- Enclosed system enables all the gas produced to be collected for use. Green house gases
- Emission to the atmosphere is avoided;
- Free from bad odour, rodent and fly menace, visible pollution and social resistance;
- Modular construction of plant and closed treatment needs less land area; and
- Production of biogas and high grade soil conditioner.

Disadvantages

- In case of digesters operated under mesophilic temperatures, destruction of pathogenic organisms may be less than that in Aerobic Composting. However, several digester systems operated at high thermophilic temperatures are also available;
- It is more capital intensive compared to composting and landfill; and
- Not suitable for wastes containing less biodegradable matter.

Limitations/ Constraints

- The growth of this sector has been affected on account of the following limitations/ constraints:
- Waste-to-Energy is still a new concept in the country;
- Most of the proven and commercial technologies in respect of urban wastes are required to be imported;
- The costs of the projects especially based on biomethanation technology are high as critical equipment for a project is required to be imported.
- In view of low level of compliance of MSW Rules 2000 by the Municipal Corporations/ Urban Local Bodies, segregated municipal solid waste is generally not available at the plant site, which may lead to non-availability of waste-to-energy plants.
- Lack of financial resources with Municipal Corporations/Urban Local Bodies.
- Lack of conducive Policy Guidelines from State Govts. in respect of allotment of land, supply of garbage and power purchase / evacuation facilities.

Final Thoughts

- The underdeveloped state of waste management in India is a motivation for the study of eco-friendly processes like

biomethanation and bioremediation.

- The installation of biogas plants across various research institutes in India, like Sardar Patel Renewable Energy Research Institute (SPRERI) in Gujrat, Biogas Plant at Trombay, Appropriate Rural Technology Institute (ARTI) in Pune and Bhabha Atomic Research Centre (BARC) in Mumbai, practice biomethanation in a full-fledged process and yield high rate of biogas fuel from waste materials.
- The biogas produced is clean, economical and used for commercial purposes.
- But the government needs to invest more on this technology so that it percolates down to local bodies.

INTERNATIONAL CONFERENCE ON NANOTECHNOLOGY

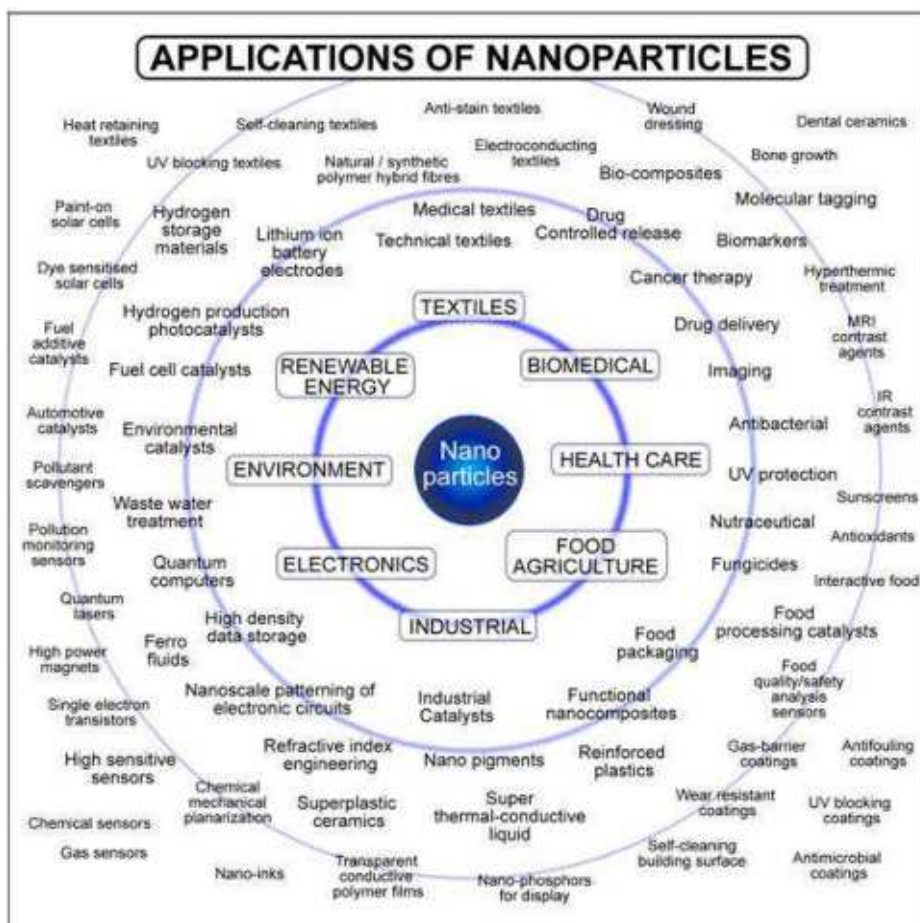
GS-III SCIENCE & TECHNOLOGY

Context

- Union Minister of State (Independent Charge) Science & Technology; DrJitendra Singh inaugurated a five-day International Conference on Nanotechnology for Better Living at National Institute of Technology (NIT), Srinagar.
- This is the 7th Edition of the Conference and is being held **under the aegis of Materials Research Society of India** in association with Anna University, SKUAST-K, NIT Mizoram, SSM College of Engineering, IIT Madras, SKIMS, M G University Kerela, and in collaboration with Nanoscale Research Facility (NRF), IIT Delhi.

Nanotechnology

- Nanoscience and nanotechnology are the study and application of extremely small things and can be used across all the other science fields, such as chemistry, biology, physics, materials science, and engineering.
- Nanotechnology is the understanding and control of matter at the nanoscale, at dimensions between approximately 1 and 100 nanometers, where unique phenomena enable novel applications.
- In the International System of Units, the prefix "nano" means one-billionth, or 10^{-9} ; therefore one nanometer is one-billionth of a meter.



Few examples and applications of Nanotechnology

- Nanotechnology and nanomaterials can be applied in all kinds of industrial sectors. They are usually found in these areas:

Electronics

- Carbon nanotubes are close to replacing silicon as a material for making smaller, faster and more efficient microchips and devices, as well as lighter, more conductive and stronger quantum nanowires. Graphene's properties make it an ideal candidate for the development of flexible touchscreens.

Energy

- A new semiconductor developed by Kyoto University makes it possible to manufacture solar panels that double the amount of sunlight converted into electricity. Nanotechnology also lowers costs, produces stronger and lighter wind turbines, improves fuel efficiency and, thanks to the thermal insulation of some nanocomponents, can save energy.

Biomedicine

- The properties of some nanomaterials make them ideal for improving early diagnosis and treatment of neurodegenerative diseases or cancer.
- They are able to attack cancer cells selectively without harming other healthy cells.
- Some nanoparticles have also been used to enhance pharmaceutical products such as sunscreen.

Environment

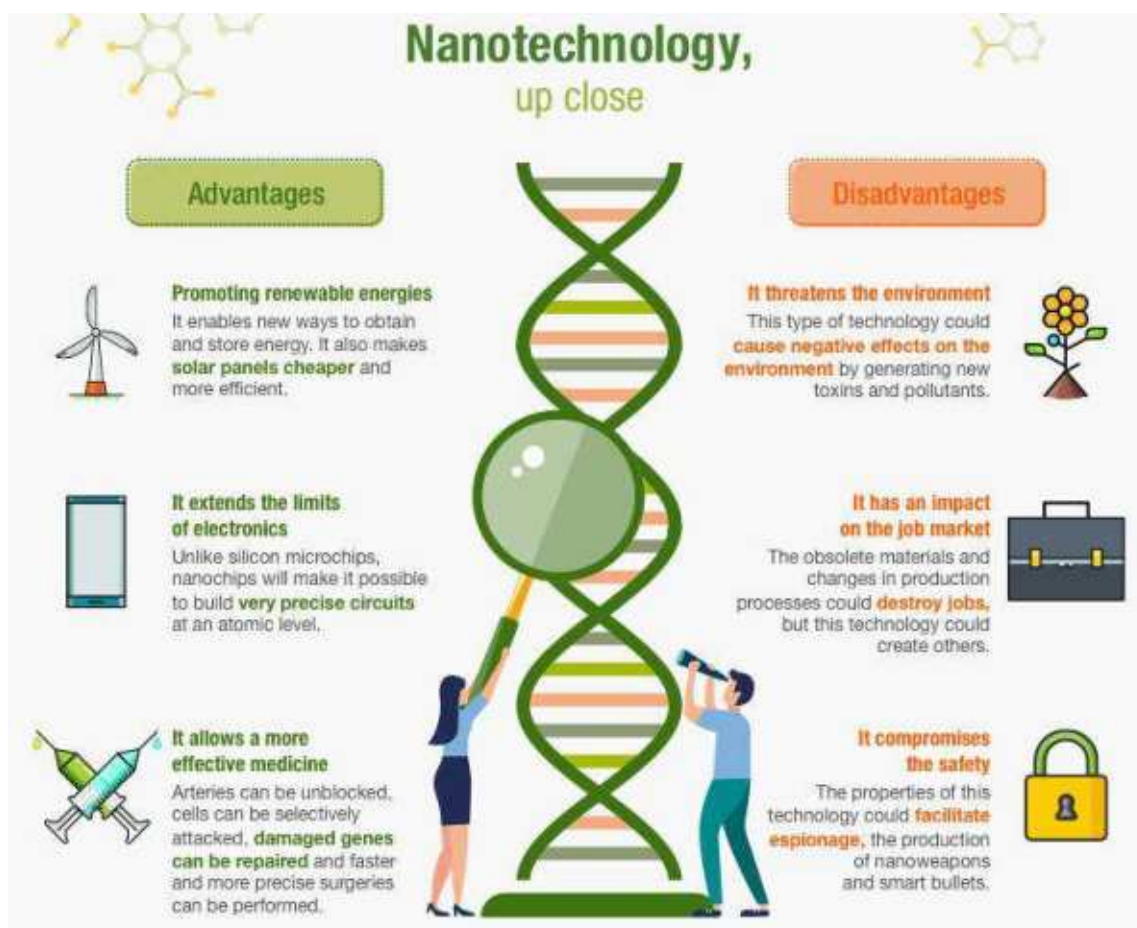
- Air purification with ions, wastewater purification with nanobubbles or nanofiltration systems for heavy metals are some of its environmentally-friendly applications.
- Nanocatalysts are also available to make chemical reactions more efficient and less polluting.

Food

- In this field, nanobiosensors could be used to detect the presence of pathogens in food or nanocomposites to improve food production by increasing mechanical and thermal resistance and decreasing oxygen transfer in packaged products.

Textile

- Nanotechnology makes it possible to develop smart fabrics that don't stain nor wrinkle, as well as stronger, lighter and more durable materials to make motorcycle helmets or sports equipment.



Nanotechnology and India

- Nanotechnology originated in India around 16 years back.
- It is in its early development phase. This new sphere of scientific innovation has a broader scope.
- The three chief divisions of Nanotech are Nanoelectronics, Nanomaterials, and Nano-Biotechnology.
- The implications of Nanotechnology in India can be found in the field of telecommunications, computing, aerospace, solar energy, and environment.
- However, Nanotech's major contribution can be seen in the computing, communication and, medical field.
- Nanomedicine is the most important field of Nanotechnology.
- The nano level gadgets and materials are used for diagnosing and treatment of diseases.
- Nano-Pharmacology has generated a specific category of smart drugs that affect negligible side effects.

- The use of Nanotech has also helped in the detection of narcotics and fingerprints of the suspected criminals.
- The Council of Scientific and Industrial Research, also known as CSIR has set up 38 laboratories in India dedicated to research in Nanotechnology.
- This technology will be used in diagnostic kits, improved water filters and sensors and drug delivery.
- The research is being conducted on using it to reduce pollution emitted by the vehicles.
- Looking at the progressive prospects Nanotechnology has certainly acquired an essential position in the Indian Economy and Scientific Research Department and it is expected to reach the pinnacle of Development thereby making India a role model for the countries of the world.

FOSS4GOV INNOVATION CHALLENGE

GS-III SCIENCE & TECHNOLOGY

Context

- The government has extended the last date of participation and submission in FOSS4Gov Innovation Challenge till 15th of September.

About

- The **Ministry of Electronics & Information Technology (MeitY)** had announced #FOSS4Gov Innovation Challenge to accelerate adoption of Free and Open Source Software (FOSS) in Government and build Indian FOSS Ecosystem.
- Through this challenge, the government invites innovators, start-ups, working professionals, academics and students in India to showcase their existing FOSS based innovations and/or build new, implementable, open source product innovations in Customer Relationship Management (CRM) and Enterprise Resource Planning (ERP) with possible applications for Govtech in Health, Education, Agriculture, Urban Governance etc.

Significance

- This challenge is an **opportunity for participants to pitch ideas to experts and receive mentorship** to develop and fine-tune solutions.
- The winners of the challenge will also receive cash rewards and incubation support to scale their products.
- Additionally, they will have the opportunity to get their solutions listed on the Government e Marketplace (GeM) , thus allowing a host of central and state government departments to procure them.
- India has great prospects to become a vibrant hub for FOSS innovations.
- The challenge provides opportunity to integrate proposed solutions with existing GovTech projects.

LITHIUM TRIANGLE

GS-III SCIENCE & TECHNOLOGY

Context

- With countries around the world scrambling to reduce emissions, rising global lithium demand and surging prices have drawn increased interest in the so-called **'lithium triangle' that spans parts of Argentina, Bolivia and Chile.**

Details

- Lithium has become the new 'white gold' as the demand for high performing rechargeable batteries is rising.
- In Argentina, mining provinces such as **Salta, Jujuy and Catamarca** have moved to strengthen infrastructure, legal security and fiscal stability.



Uses of Lithium

- **Lithium metal and its compounds have many uses:**
 - lithium stearate is mixed with oils to make all-purpose and high-temperature lubricants
 - lithium hydroxide is used to absorb carbon dioxide in space vehicles
 - lithium is alloyed with aluminium, copper, manganese, and cadmium to make high performance alloys for aircraft
 - Bahnmetail consists of lead containing 0.04% lithium, 0.7% calcium and 0.6% sodium is harder than pure lead and was used for railroad car bearings in Germany.
 - compounds such as LiAlH_4 and organolithium reagents (LiMe , LiPh , etc.) are very important as reagents in organic chemistry
 - lithium metal has the highest specific heat of any solid element and so heat transfer applications
 - various nuclear applications
 - lithium is sometimes used as battery anode material (high electrochemical potential) and lithium compounds are used in dry cells and storage batteries
 - lithium is used in the manufacture of special high strength glasses and ceramics sometimes, lithium-based compounds such as lithium carbonate (Li_2CO_3) are used as drugs to treat manic-depressive disorders.

Lithium Reserves

- Chile has the largest lithium reserves worldwide by a large margin.
- Chile is followed by Australia and Argentina.

Lithium and India

- **India does not have enough lithium reserves for manufacturing lithium-ion batteries**, with lithium also having other uses such as in mobile phone batteries, solar panels, aerospace and thermonuclear fusion.
- Almost all-electric vehicles in the country run on imported batteries, mostly from China.
- Recently though, 1,600 tonnes of lithium resources were found in the igneous rocks of the Marlagalla-Allapatna region of Karnataka's Mandya district.

India's efforts in making India self-reliant in Lithium products

- India plans to buy Lithium to ensure supplies that could potentially last decades and make India self-reliant.
- The country has started a massive effort to make India a world leader in Lithium batteries.
- The strategy to acquire Lithium has three steps.
- First, secure supplies from the largest reserves in the world.
- Two, build infrastructure to process Lithium, Like refineries.
- And third, leverage alliances to enter the global markets.
- India is working on all three fronts.
- First, the supplies. New Delhi is going straight to the source. Argentina, Chile and Bolivia have largest stockpiles of Lithium.
- Since 2016, there has been a fourfold jump in imports.
- India has built its first Lithium refinery in Gujarat.
- The growing demand for Lithium in India is driven by the goal of Indian government to become one of the largest electric vehicle markets world over.
- NITI Aayog has set an ambitious target to increase the number of electric vehicles by 30 percent by 2030.
- India will have to eat into China's global market share. Chinese firms control almost half of the global Lithium production. And China has a 73 per cent share in global cell manufacturing capacity.
- It's time to change that. Australia wants to collaborate with India.
- India and Australia both stood to gain from the promise of expanding trade in Lithium.
- Lithium makes up only 0.002 per cent of the earth's crust. The supply is scarce.
- And securing that is India's top priority.

FLUIDIZED BED GASIFICATION TECHNOLOGY

GS-III SCIENCE & TECHNOLOGY

Context

- Bharat Heavy Electricals Limited (BHEL) has developed the fluidized bed gasification technology suitable for high ash Indian coals to produce syngas and then convert syngas to methanol with 99% purity.
- This technology will help the country move towards the adoption of clean technology and promote the use of methanol as a transportation fuel (blending with petrol), thus reducing crude oil imports.

Gasification

- Gasification is a technological process that can convert any carbonaceous (carbon-based) raw material such as coal into fuel gas, also known as synthesis gas (syngas for short).
- The broad process of converting coal into methanol consists of conversion of coal to synthesis (syngas) gas, syngas cleaning and conditioning, syngas to methanol conversion, and methanol purification.

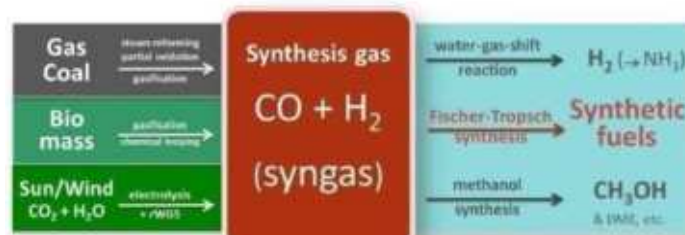
Note: Coal to methanol plants in most countries are operated with low ash coals.

Handling of high ash and heat required to melt this high amount of ash is a challenge in the case of Indian coal, which generally has high ash content.

In order to overcome this challenge, Bharat Heavy Electricals Limited (BHEL) has developed the fluidized bed gasification technology suitable for high ash Indian coals to produce syngas and then convert syngas to methanol with 99% purity.

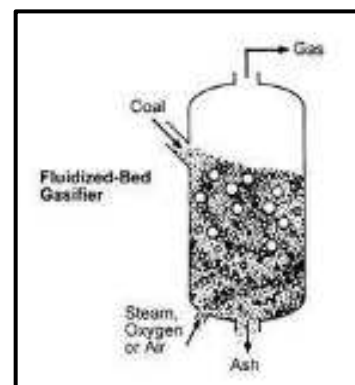
What is fluidized bed gasification?

- Fluidized-bed gasifiers suspend feedstock particles/coal in an oxygen-rich gas so the resulting bed within the gasifier acts as a fluid.
- These gasifiers employ back-mixing, and efficiently mix feed coal particles with coal particles already undergoing gasification.
- To sustain fluidization, or suspension of coal particles within the gasifier, coal of small particles sizes (<6 mm) is normally used.

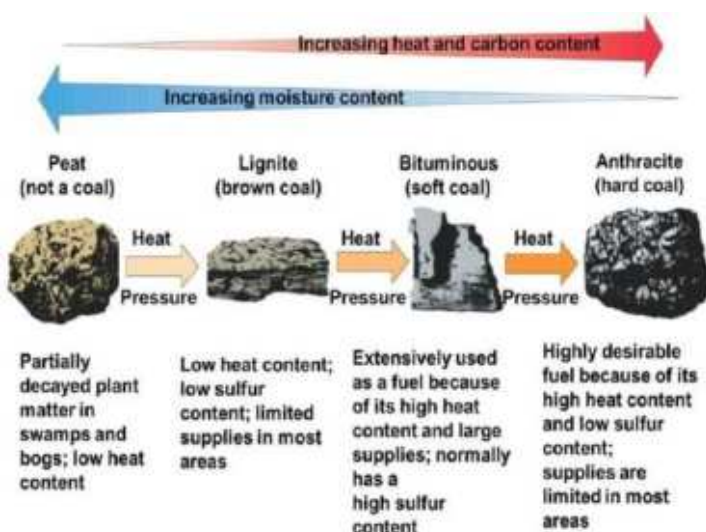


Note: Fluidization is a process similar to liquefaction whereby a granular material is converted from a static solid-like state to a dynamic fluid-like state. This process occurs when a fluid (liquid or gas) is passed up through the granular material.

- The gasifiers normally operate at moderately high temperature to achieve an acceptable carbon conversion rate (e.g., 90-95%).
- However, the operating temperatures are usually less than the ash fusion temperature so as to avoid clinker formation and the possibility of de-fluidization of the bed.
- This, in turn means that fluidized-bed gasifiers are best suited to relatively reactive coals, low rank coals, and other fuels such as biomass.



Types of Coal



The types of coal

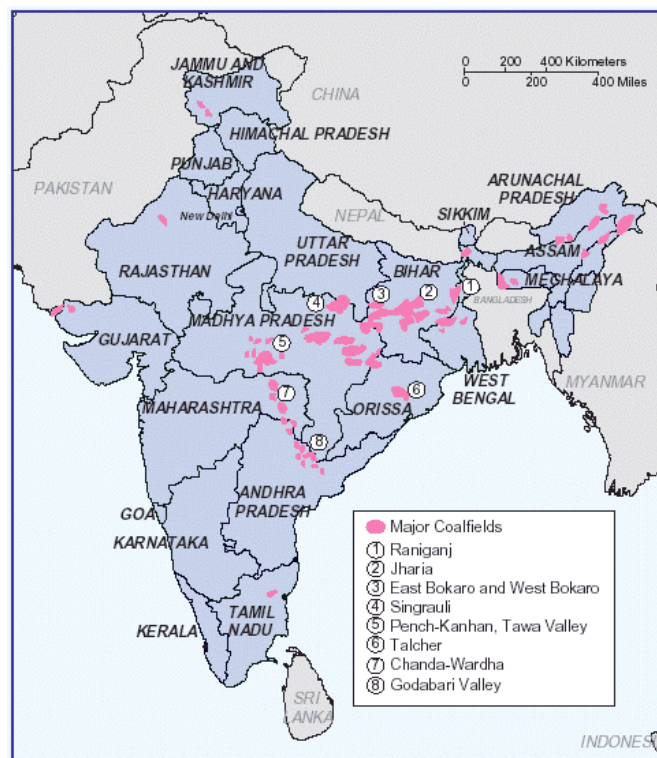
Property	Anthracite	Bituminous	Subbituminous	Lignite
carbon content	high	high	medium	low
sulphur content	low	high	low	low
hydrogen / carbon mole ratio	0.5	0.6	0.9	1.0
estimated time of formation	500 million years ago	350 million years ago	70 million years ago	1 million years ago

Coal in India: Key Pointers

- Jharkhand top the list of India's coal reserves — at more than 26% — and production.
- The state's main coal-mining centres are Jharia, Bokaro, Auranga, Giridh, Dhanbad, Ramgarh, Karanpur and Hutar.
- Anthracite (more than 80% carbon content) is the best quality of coal. In India, it is found only in Jammu and Kashmir.
- Bituminous (60 to 80 % Carbon Content) is the second best quality of coal.
- It is the most commonly used type of coal for electricity generation in India.
- Most of bituminous coal is found in Jharkhand, Odisha, West Bengal, Chhattisgarh, and Madhya Pradesh.

Table 2: Typical Characteristics of Indian Coal

Property	Value
Ash content	25 - 55 %
Moisture content	4 - 7 %
Sulphur content	0.2 - 1 %
Gross Calorific Value	3100 - 5100 kcal/kg
Volatic matter content	20 - 30 %



CMS AND ADITYA-L1 MISSION

GS-III SCIENCE & TECHNOLOGY

Context

- A recent study has shown how conditions and events in the solar atmosphere like coronal mass ejections influence the accuracy of space weather prediction, which is crucial for the health of our satellites.
- This understanding will aid the interpretation of data from the upcoming Aditya-L1, India's first solar mission.

Read about Layers of the Sun in Geography topic: **ANATOMY OF THE SUN**

Type of radiation	Temperature	Thickness of the layer	Density
Photosphere	8000 - 4500 K	500 km	$\sim 10^{-4} \text{ kg/m}^3$
Chromosphere	4500 - 20000 K	1600 km	$\sim 10^{-6} \text{ kg/m}^3$
Transition Zone	20000 - 10^6 K	100 km	$\sim 10^{-10} \text{ kg/m}^3$
Corona	$10^6 - 3 \times 10^6$ K	$> 10^7$ km	$\sim 10^{-12} \text{ kg/m}^3$

The coronal mass ejections (CMEs)

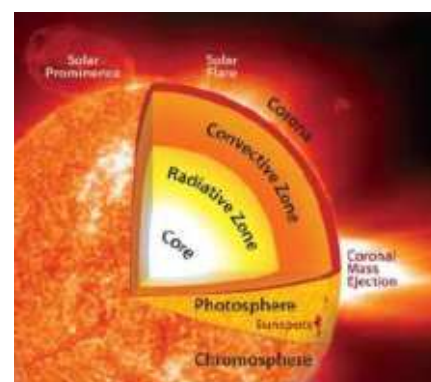
- The outer solar atmosphere, the corona, is structured by strong magnetic fields.
- Where these fields are closed, often above sunspot groups, the confined solar atmosphere can suddenly and violently release bubbles of gas and magnetic fields called coronal mass ejections.

Impact

- Coronal mass ejections, along with solar flares of other origin, can disrupt radio transmissions and cause damage to satellites and electrical transmission line facilities, resulting in potentially massive and long-lasting power outages.

About ADITYA L1 Mission

- The Aditya-1 mission was conceived as a **400kg class satellite** carrying one payload, the Visible Emission Line Coronagraph (VELC) and was planned to launch in a 800 km low earth orbit.
- A Satellite placed in the halo orbit around the **Lagrangian point 1 (L1)** of the Sun-Earth system has the major advantage of **continuously viewing the Sun** without any occultation/ eclipses.
- Therefore, the Aditya-1 mission has now been revised to "Aditya-L1 mission" and will be inserted in a halo orbit around the L1, which is 1.5 million km from the Earth.



- The satellite carries additional six payloads with enhanced science scope and objectives.
- **Aditya-L1** with additional experiments can now provide observations of **Sun's Corona (soft and hard X-ray, Emission lines in the visible and NIR), Chromosphere (UV) and photosphere (broadband filters)**.
- In addition, it will study the particle flux emanating from the Sun and reaching the L1 orbit, and will measure the variation in magnetic field strength at the halo orbit around L1.
- These payloads have to be placed outside the interference from the Earth's magnetic field and **could not have been useful in the low earth orbit.**

CHANG' E-5 LUNAR MISSION

GS-III SCIENCE & TECHNOLOGY

Context

- On December 16, 2020, China's Chang'e-5 lunar mission delivered to Earth nearly 2 kg of rocky fragments and dust from the Moon.
- The team has modelled the potential contributions from specific craters: **Aristarchus, Kepler, Copernicus, Harding, and Harpalus.**
- Now, scientists presented the early-stage findings that use geological mapping to link 'exotic' fragments in the collected samples to features near the landing site.

About Chang'e 5

- It is the fifth lunar exploration mission of the Chinese Lunar Exploration Program, and **China's first lunar sample-return mission.**
- The mission comprised of a lunar orbiter, a lander and an ascent probe that lifted the lunar samples back into orbit and returned them back to Earth.
- The Chang'e 5 landing site is in the **Northern Oceanus Procellarum near a huge volcanic complex, Mons Rümker,** located in the northwest lunar near side.
- The Chang'e 5 landing site, **named StatioTianchuan,** is within the Procellarum KREEP Terrain, with elevated heat-producing elements, thin crust, and prolonged volcanism.
- This area is characterized by some of the youngest mare basalts on the Moon (~1.21 billion years old), with elevated titanium, thorium, and olivine abundances, **which have never been sampled by Apollo or Luna mission.**
- Chang'e-5 will help scientists understand what was happening late in the moon's history, as well as how Earth and the solar system evolved.

The Findings

- 90% of the materials collected by Chang'e-5 likely derive from the landing site and its immediate surroundings, which are of a type **termed 'mare basalts'.**
- These volcanic rocks are visible to us as the darker grey areas that spilled over much of the nearside of the Moon as ancient eruptions of lava.
- Yet 10% percent of the fragments have distinctly different, 'exotic' chemical compositions.
- Scientists have traced these glassy droplets to extinct volcanic vents known as **'Rima Mairan' and 'Rima Sharp'.**

Significance

- The distinct 10% fragments may preserve records of other parts of the lunar surface as well as hints of the types of space rocks that have impacted the Moon's surface.
- These fragments could give insights into past episodes of energetic, fountain-like volcanic activity on the Moon.

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LAND SINKS

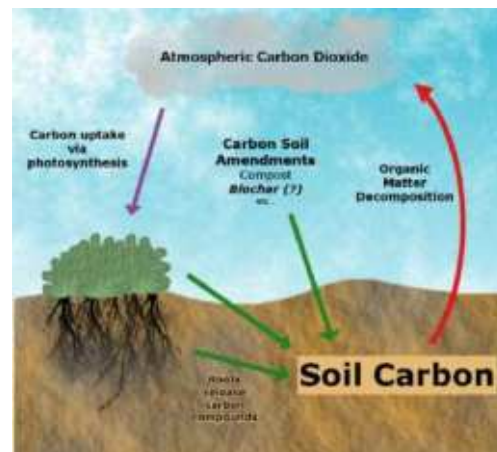
GS-III ENVIRONMENT & ECOLOGY

Context

- Despite caution from scientists, policymakers and corporates still assume that natural carbon sinks like forests will mop up their fossil fuel emissions.

What are carbon sink?

- A carbon sink is anything that absorbs more carbon from the atmosphere than it releases – for example, plants, the ocean and soil.
- In contrast, a **carbon source** is anything that releases more carbon into the atmosphere than it absorbs – for example, the burning of fossil fuels or volcanic eruptions.
- Greenhouse gases (GHG) follow a natural cycle** – they are constantly released into the atmosphere and are removed from it via natural 'sinks' such as the land and oceans.
- About 56 per cent of the carbon dioxide (CO₂) emitted by humans is absorbed by the oceans and land – about 30 per cent by land and the rest by oceans.



Land Sinks

- Land – **forests, grasslands and wetlands** plays a critical role in the world's desperate fight against climate change.
- These **ecosystems act as sinks** and remove a part of the CO₂ emitted through human activities like burning fossil fuels.
- Land is **also a source of emissions** – burning of forests and other disturbances add CO₂ to the atmosphere.
- Land use accounted for **13 per cent of anthropogenic CO₂ emissions during 2007-2016**, according to the Special Report on Climate Change and Land 2019 (SRCCL) by The Intergovernmental Panel on Climate Change (IPCC).
- It also provides a **net sink of around 11.2 gigatonnes of carbon dioxide per year**, equivalent to 29 per cent of the total CO₂ emissions in the same period.

Land Sink as part of the mitigation strategy

- The role of land (forests and agricultural land) as a mitigation pathway to reduce CO₂ emissions was recognised by the United Nations Framework Convention on Climate Change (UNFCCC) in 1992.
- The **Kyoto Protocol in 1997** endorsed the notion that not only should governments employ policies to enhance the land carbon sink capacities of their territories but also that such mitigation could be set against requirements for reductions in emissions from fossil fuel consumption.
- In 2011, the **IUCN launched the Bonn Challenge** “to restore 150 million hectares of the world's degraded and deforested lands by 2020 and 350 million hectares by 2030”, where countries and organisations made pledges in ‘million hectares’ of forested land to be restored.
- In March 2019, the **UN General Assembly** declared 2021-2030 as the UN Decade on Ecosystem Restoration to “prevent, halt and reverse the degradation of ecosystems worldwide”.
- In January 2020, business representatives from the world's major corporations signed on to the ‘**one trillion tree**’ initiative at the **World Economic Forum** in Davos, Switzerland, to plant a trillion trees by 2030.
- In May 2021, the **G7 countries** (Canada, France, Germany, Italy, Japan, the United Kingdom, the United States and the European Union) pledged to **conserve or protect “at least 30 per cent of the global land and at least 30 per cent of the global oceans by 2030** to halt and reverse biodiversity loss and address climate change.”
- In April 2021, the **LEAF (Lowering Emissions by Accelerating Forest Finance) Coalition** was announced as a **public-private effort led by the US, the UK and Norway** to mobilise at least \$1 billion for financing countries committed to protecting their tropical forests was supported by corporations like Unilever plc, Amazon.com, Nestle and Airbnb.

Why Land sink matters?

- Soils store three times more carbon** than exists in the atmosphere.
- Plants absorb atmospheric carbon during photosynthesis, so the return of plant residues into the soil contributing to soil carbon.

TARBALLS

GS-III ENVIRONMENT & ECOLOGY

Context

- The Brihanmumbai Municipal Corporation (BMC) has removed over 20,000 kg of tarballs from Juhu and Versova beaches.
- Earlier this month, several popular beaches in Goa, were covered with the black sticky carpet.

What are tarballs?

- Tarballs are **dark-coloured, sticky balls of oil that form when crude oil floats on the ocean surface.**
- Tarballs are formed by weathering of crude oil in marine environments.
- They are transported from the open sea to the shores by sea currents and waves.
- Tarballs are usually coin-sized and are found strewn on the beaches. However, over the years, they have become as big as basketballs and can weigh as much as 6-7 kgs.



How are tarballs formed?

- The **wind and waves tear the oil slick into smaller patches** that are scattered over a much wider area.
- Various physical, chemical and biological processes (weathering) change the appearance of the oil.

Why are tarballs found on the beaches during the monsoon?

- It is suspected that the **oil comes from the large cargo ships in the deep sea and gets pushed to the shore as tarballs during monsoon due to wind speed and direction.**
- All the oil spilt in the Arabian sea eventually gets deposited on the western coast in the form of tarballs in the monsoon season when wind speed and circulation pattern favour transportation of these tarballs



Effects of tarballs on marine environment:

- Effects entire marine life.
- Blocks entrance of oxygen in water.
- Oil disturbs habitat of sea animals.
- Sea turtles, birds, whales, fish, otters and other animals can become oil-soaked and die.

What can be done?

<p>1 SHORELINE FLUSHING/WASHING Water hoses can rinse oil from the shoreline into the water, where it can be more easily collected.</p> <p>2 BOOMS Long, floating, interconnected barriers are used to minimize the spread of spilled oil.</p> <p>3 VACUUMS Industrial-sized vacuum trucks can suction oil from the shoreline or on the water surface.</p> <p>4 SORBENTS Specialized absorbent materials act like a sponge to pick up oil but not water.</p>	<p>5 SHORELINE CLEANERS & BIODEGRADATION AGENTS Chemical cleaners that act like soaps may be used to remove oil, but require special permission. Nutrients may be added to help microbes break down oil.</p> <p>6 BURNING Also referred to as "in situ burning," freshly spilled oil can be set on fire, usually while it's floating on the water surface and sometimes on oiled marsh vegetation, in order to effectively remove it.</p> <p>7 MANUAL REMOVAL Cleanup crews using shovels or other hand tools can pick up oil from the shoreline. This method is used especially when heavy machinery cannot reach an oiled shore.</p> <p>8 MECHANICAL REMOVAL When there is access, heavy machinery, such as backhoes or front-end loaders, may be used.</p>
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Context

- Largest open air fernery inaugurated in Uttarakhand.

More about news

- India's largest open-air fernery inaugurated in Uttarakhand's Ranikhet.
- The fernery is home to a large number of fern species, some of which are endemic to the state, some hold medicinal value while some are threatened species that demand care and conservation.
- This center has been developed for conservation of fern species and also to create awareness about their ecological role and promote further research.

The Ranikhet fernery

- It is one of the biggest ferneries in India.
- The fernery has the largest collection of fern species, second to only Jawaharlal Nehru Tropical Botanical Garden and Research Institute (TBGRI), Thiruvananthapuram.
- However, it is the country's first open-air fernery in natural surroundings, which is not under any poly-house/ shade house.
- The Ranikhet fernery spreads over four acres of land at an altitude of 1,800 metres.
- A seasonal pahadi nala also passes through it, which provides adequate moisture as ferns require shade and moisture to grow and propagate. It provides an apt location for developing an open-air fernery.
- It has been developed by the Research Wing of Uttarakhand Forest Department over a period of three years, under Central Government's CAMPA scheme.
- The CAMPA or Compensatory Afforestation Management Funds Management and Planning Authority (CAMPA) by the Ministry of Environment and Forests (MoEF) was introduced in 2004 to accelerate activities for the preservation of natural forests, management of wildlife, infrastructure development in forests, and other allied works.
- The Ranikhet fernery has 120 different types of fern.
- The fernery has a mix of species from the western Himalayan region, the eastern Himalayan region, and the Western Ghats.
- It houses several rare species, including Tree Fern, a threatened species by the State Biodiversity Board of Uttarakhand.
- It also houses around 30 species of medicinal ferns such as Hansraj, which has huge importance in Ayurveda as a remedy for ailments.
- Further, there are edible fern species like Lingura, a popular nutritious food item in Uttarakhand.
- There are epiphyte, aquatic ferns, and other ornamental ferns.
- For instance, Vishkanya, Mayurshikha, Boston fern, Lady fern, Rock Fern, Basket Fern, Ladder fern, Golden fern, and Horsetail fern.
- Some of the species on the red list present at the fernery include Ophioglossum reticulatum, Pteris vittata among others.

What are ferns?

- Ferns are non-flowering pteridophytes.
- They generally reproduce by producing spores. However, similar to flowering plants, ferns have roots, stems, and leaves.
- Ferns are the first plant with a fully developed vascular system.
- About 9% of the world's Pteridophytes occur in India or only in 2.5% landmass of the world.
- Ferns and Fern-allies are the second largest group of plants in Indian flora and are represented by 33 families 130 genera and 1,267 species. 70 species among these are endemic to India.
- Ferns are important for the environment for their ornamental values.
- They have medicinal and edible purposes.
- Furthermore, the indicators of moisture, ferns, also clean the ecosystem and are good nitrogen fixing agents.
- They are also used to filter heavy metals from polluted waters and are a bioindicator for the health of an ecosystem.
- Further, ferns provide microhabitats, as well as shelter and shade to small animals, are a source of food or medicine for animals, including people.
- Recently, India's first cryptogamic garden was inaugurated in July 2021 in Uttarakhand's Dehradun district.
- The garden is a first of its kind and houses a plethora of cryptogams species.

SHORT NEWS ARTICLES

GS-I CULTURE & HISTORY

Srila Bhaktivedanta Swami Prabhupada Ji

Context

- Prime Minister Narendra Modi released a special commemorative coin on the occasion of the 125th Birth Anniversary of Srila Bhaktivedanta Swami Prabhupada Ji.

About

- Abhay Charanaravinda Bhaktivedanta Swami (1896 - 1977) or Srila Prabhupada, was an Indian spiritual teacher and the founder-acharya of the International Society for Krishna Consciousness (ISKCON), commonly known as the "Hare Krishna movement".
- Members of the ISKCON movement view Bhaktivedanta Swami as a representative and messenger of Krishna Chaitanya.
- His mission was to propagate throughout the world Gaudiya Vaishnavism, a school of Vaishnavite Hinduism that had been taught to him by his guru, Bhaktisiddhanta Sarasvati.
- His translation of and commentary on the Bhagavad Gita, titled *Bhagavad-gītā As It Is*, is considered as the translation of Vaishnava literary works.

Bujurgon Ki Baat-Desh Ke Saath

Context

- Union Minister of Culture launches program 'Bujurgon ki Baat-Desh Ke Saath'.

About

- The programme 'Bujurgon ki Baat-Desh Ke Saath' aims at enhancing the interaction between the youth and the elder persons who are 95 years and above and thus have spent around 18 years in India before independence.
- The video of the interaction should preferably be kept below 60 seconds and can be uploaded at www.rashtragaan.in.

Nuakhai Juhar

Context

- The Prime Minister has greeted the nation on the auspicious occasion of Nuakhai.

About

- Nuakhai Juhar is harvesting festival of Odisha.
- Nuakhai is a combination of two words, 'nua' meaning new and 'khai' means eat, it thus signifies "eating of new rice".
- People worship food grain on this auspicious day.
- The farmers offer the first produce from their lands to Goddess Samaleswari, the famous mother goddess of Sambalpur district of the state.

Nata-Sankirtana

Context

- "Nata-Sankirtana" festival was started at the Mandap of Jawaharlal Nehru Manipur Dance Academy (JNMDA), Imphal, from September 30, 2021.

About

- It is a three-day festival of dance and music in Manipur.
- Ragas, Nata sankirtana is a hymn of lord Krishna that synthesizes several indigenous rhythms. Sankirtana follows a strict code in its performance with rhythms pattern and costumes that are determined by specific rules & regulation.
- Sankirtana is performed to mark important occasions in person's life such as from birth to death.
- UNESCO had recognized Manipur Nata Sankirtana in 2013.

GEOGRAPHY

World's Northernmost Island

Context

- A team of Arctic researchers from Denmark say they accidentally discovered what they believe is the world's northernmost island located off Greenland's coast.

Details

- The yet-to-be-named island is 780 meters (about 850 yards) north of Oodaaq, an island off Cape Morris Jesup, the northernmost point of Greenland and one of the most northerly points of land on Earth.
- They have proposed naming the island Qeqertaq Avannarleq, which means "the northernmost island" in Greenlandic.

Planet Nine

Context

- In the continued search for the hypothetical ninth planet in our Solar System, Michael Brown, the CalTech astronomer who led the demotion of Pluto to a dwarf planet in 2006, has co-written a new study that claims to have narrowed the region the potential new planet could be located.

About

- The study proposes "Planet Nine" exists beyond Neptune and is six times the mass of Earth.
- The new study also includes a "treasure map" of the planet's likely orbit that the scientists said lasts around 7,400 Earth years and is closer to the Sun than the 2016 study found.
- A closer orbit to the Sun would make the planet brighter and easier to see.
- Planet Nine would probably be cold gas giant like Neptune, the farthest known planet in a Solar System from the Sun.
- Neptune has a nonsolid surface made up mostly of hydrogen, helium, and methane, according to NASA.

Nun-Kun Mountain

Context

- Raksha Mantri Shri Rajnath Singh flagged-in, a team of National Institute of Mountaineering & Allied Sports (NIMAS) Dirang, Arunachal Pradesh, which completed a mountaineering expedition to Mount Kun (7,077 metres).

About

- Nun-Kun Mountain Massif which is the highest feature of Zaskar ranges located in Kargil.
- The Nun Kun mountain massif consists of a pair of Himalayan peaks: Nun, 7,135 m (23,409 ft) and its neighbor peak Kun Peak, 7,077 m (23,218 ft).
- Nun is one of the highest peaks in the part of the Himalayan range lying on the Indian side of the Line of Control in Ladakh.
- The massif is located near Sankoo in the Suru valley, Kargil district
- The Nun Kun massif is bounded to the north by the Suru valley and the Zaskar range.
- To the South lies the Kishtwar National Park and the Krash Nai river.
- Kun Peak is located north of Nun Peak and is separated from it by a snowy plateau.

Ganymede

Context

- For the first time, astronomers have uncovered evidence of water vapor in the atmosphere of Jupiter's moon Ganymede.
- This water vapor forms when ice from the moon's surface sublimates - that is, turns from solid to gas.

Details

- Previous research has offered circumstantial evidence that Ganymede, the largest moon in the solar system, contains more water than all of Earth's oceans.
- However, temperatures there are so cold that water on the surface is frozen solid.
- Ganymede's ocean would reside roughly 100 miles below the crust; therefore, the water vapor would not represent the evaporation of this ocean.

La Palma volcano

Context

- La Palma volcano spewing over 60 lakh kg sulfur dioxide in air per day.

About

- La Palma is the most north-westerly island of the Canary Islands, Spain.



Asuncion Bay

Context

- The banks of Asuncion Bay are exposed as the Paraguay River hits a historic low during a drought in Asuncion, Paraguay.

About

- Asunción is the capital and the largest city of Paraguay in South America.
- The city stands on the left bank of the Paraguay River, almost at the confluence of this river with the Pilcomayo River.
- The Paraguay River and the Bay of Asunción in the northwest separate the city from the Occidental Region of Paraguay and from Argentina in the south part of the city.



River Suvarnamukhi

Context

- Based on an SOS request received from the State Administration Officials on Monday evening at about 5:30 pm to provide a naval helicopter for Search and Rescue (SAR) of a stranded villager who was marooned in the middle of River Suvarnamukhi view flash floods.

About

- Swarnamukhi is a river in Andhra Pradesh. It is a perennial river with a unique feature of flowing from south to north.
- It was mentioned as Mogaleru in the works of Dhurjati.
- The Hindu temples of **Tirumala and Srikalahasti** are located in the river basin.
- The Srikalahastesvara Temple is pious sanctum sanctorum of Lord Shiva and known as 'Dakshina Kailasam'
- Kalyani Dam with 25 million cubic meters live storage was constructed in 1977 across its tributary Kalyani river.

Zojila Tunnel

Context

- Government is pushing to complete the massive Zojila tunnel, its showpiece infra project in Kashmir and Ladakh, before Republic Day, 2024.

About

- Zojila tunnel will be India's longest road tunnel, and Asia's longest bi-directional tunnel.
- A connecting tunnel from Z-Morh on NH1 to the Zojila tunnel will be built in the Zojila Ghats between Sonmarg and Kargil.
- When complete, the Zojila tunnel will allow travel between Srinagar and Ladakh throughout the year.
- The distance from Baltal to Minamarg will come down to 13 km from the present 40 km, travel time is expected to be cut by an hour and a half, and the journey is expected to be less strenuous.
- The project is expected to lead to integrated development of both Jammu and Kashmir and Ladakh.

White Sands National Park

Context

- Fossilized footprints discovered in New Mexico indicate that early humans were walking across North America around 23,000 years ago.
- The first footprints were found in a dry lake bed in White Sands National Park in 2009.

About

- White Sands National Park is an American national park located in the state of New Mexico. The park covers parts of Tularosa Basin, including the southern 41% of the white sand dunes composed of gypsum crystals.
- This gypsum dunefield is the largest of its kind on Earth.



FIG: NORTH AMERICA PHYSICAL MAP

Red Sea

Context

- Israel's navy has stepped up its activities in the Red Sea "exponentially" in the face of growing Iranian threats to Israeli shipping.

About Red Sea

- It is a seawater inlet of the Indian Ocean, lying between Africa and Asia.
- Its connection to the ocean is in the south, through the Bab el Mandeb strait and the Gulf of Aden.
- To its north lie the Sinai Peninsula, the Gulf of Aqaba, and the Gulf of Suez (leading to the Suez Canal).
- It is underlain by the Red Sea Rift, which is part of the Great Rift Valley.
- It is the world's northernmost tropical sea and has been designated a Global 200 Ecoregion.



GS-II POLITY

Deputy Speaker

Context

- The Delhi High Court has asked the Union government to explain its stand on a petition that challenges the **government's reluctance to conduct the elections to the post of Deputy Speaker of the Lok Sabha**.

About Deputy Speaker

- Article 93 of the Constitution provides for the election of both the Speaker and the Deputy Speaker of the Lok Sabha.
- Like the Speaker, the Deputy Speaker is also elected by the Lok Sabha itself from amongst its members.
- He is elected after the election of the Speaker has taken place. The date of election of the Deputy Speaker is fixed by the Speaker.
- Whenever the office of the Deputy Speaker falls vacant, the Lok Sabha elects another member to fill the vacancy.

Role of Deputy Speaker

- The **Deputy Speaker performs the duties of the Speaker's office** when it is vacant.
- He also acts as the Speaker when the latter is absent from the sitting of the House.
- In both the cases, he assumes all the powers of the Speaker. He also presides over the joint sitting of both the Houses of Parliament, in case the Speaker is absent from such a sitting.
- The Deputy Speaker has one special privilege, that is, whenever he is appointed as a member of a parliamentary committee, he automatically becomes its chairman.

Governor

Context

- Naga interlocutor R N Ravi has been made governor of TamilNadu.

Constitutional Provisions related to governor

Office of Governor	<ul style="list-style-type: none"> Nominal executive head of the state. Not a part of union executive and is an independent constitutional office. Doesn't serve the Union government and neither is subordinate to it.
Appointment	<ul style="list-style-type: none"> Indian President appoints Governor for each state by warrant under his hand and seal. no direct or indirect election Based on Canadian Model
Term of Office	<ul style="list-style-type: none"> No Fixed term: holds the office under the pleasure of the President. President can remove the Governor The grounds upon which he may be removed are not laid down in the constitution. An interregnum is not allowed: There shall always be a governor.
Constitutional Positions	<ul style="list-style-type: none"> Article 154: There shall always be a governor. Article 163: He will be aided and advised by the Chief Minister and Council of Ministers, unless he is performing a function at his own discretion.

Foreigners Tribunal

Context

- The Assam government has directed the Foreigners' Tribunals (FTs) — which adjudicate citizenship in the state — to stick to giving "opinion" on a person's nationality, and refrain from passing any "consequential orders."

Details of the Order

- In 'consequential orders', the courts can direct government departments to take action, while in an 'opinion', the government decides what action needs to be taken.
- The sole purpose of the FTs — which are quasi-judicial forums — is to give an opinion whether someone is a foreigner or an Indian. After that the state's executive agencies take consequential action accordingly.
- The Judicial Department has noted that consequential orders for "deletion of names from voter list, arrest, detention and deportation of the declared foreigners" had been passed.

About Foreigner's Tribunal (FT)

- They are **quasi-judicial bodies** meant to “furnish opinion on the question as to whether a person is or is not a foreigner within the meaning of Foreigners Act, 1946”.
- In 1964, the Centre passed the Foreigners' (Tribunals) Order under provisions of Section 3 of the Act.
- The FTs get two kinds of cases: those against whom a “reference” has been made by border police, and those whose names in the electoral rolls have a D (Doubtful) against them.
- Section 9 of the Foreigners Act says that “the onus of proving that such person is not a foreigner or is not a foreigner lies on the person.”

Foreigners Tribunal Member

- Each FT member is appointed under the Foreigners Tribunal Act, 1941, and Foreigners Tribunal Order, 1984, as per the guidelines issued by the government from time to time.
- A member can be a retired judicial officer of the Assam Judicial Service, a retired civil servant not below the rank of secretary and additional secretary with judicial experience, or a practising advocate not below the age of 35 years and with at least seven years of practice.
- A member is also required to have a fair knowledge of the official languages of Assam (Assamese, Bengali, Bodo and English) as well as be conversant with the historical background to the foreigners' issue.



Indianization of Legal System

Context

- Chief Justice of India N V Ramana called for “Indianisation” of the country's legal system.

About Indianization of System

- It means the need to adapt to the practical realities of our society and localise our justice delivery systems.

Need for the Indianization of system

- The working and the style of courts do not sit well with the complexities of India.
- Our systems practise rules being colonial in origin may not be best suited to the needs of Indian population.
- The need of the hour is the Indianisation of our legal system.

Means to Indianize the system

- **Shorter Judgements:** These days, judgments have become lengthy, which further complicates the position of litigants. For the parties to understand the implications of a judgment, they are forced to spend more money”.
- **Litigant Centric Judiciary:** The CJI underlined that courts should be litigant centric, as they are the ultimate beneficiaries.
- **Simplification of judiciary:** The simplification of justice delivery should be our pressing concern.
- **Transparency:** It is crucial to make justice delivery more transparent, accessible and effective.
- **Ease of Access:** Procedural barriers often undermine access to justice. The common man should not be apprehensive about approaching the courts and authorities.

Right to Government Aid

Context

- Supreme Court ruling stating that the right to government aid is not a fundamental right.

Ruling of the Court

- In a ruling, the SC held that the right of an institution, whether run by a majority or minority community, to receive government aid is not a fundamental right.
- It said that all conditions that have relevance to the proper utilisation of the grant-in-aid by an educational institution can be imposed by the government. It also asserted an institution receiving aid is bound by the conditions imposed and therefore expected to comply with the rules.
- Government aid to an institution is a matter of policy and it is not a fundamental right.
- The court added that an institution can never be allowed to say that the grant of aid should be on its own terms.
- grant of aid brings with it conditions which the institution receiving it is bound to comply with. If an institution does not want to accept the conditions, it can decline the grant but cannot say that the grant must be on its own terms.
- A decision to grant aid is by way of policy. While doing so, the government is not only concerned with the interest of the institutions but the ability to undertake such an exercise.

GOVERNANCE

Ayushman Bharat Digital Mission

Context

- The Prime Minister launched the Ayushman Bharat Digital Mission.

Details

- Under the mission, every citizen would get a digital health ID and their health records would be digitally protected.
- It will also lead to creation of digital healthcare professionals and facilities registry.
- The Ayushman Bharat Digital Mission would connect the digital health solutions of hospitals across the country with each other.
- It will create a seamless online platform by providing a wide range of data, information, and infrastructure services while leveraging open, interoperable, standards-based digital systems.
- Through the digital health ID, the patient himself and the doctor can also check old records if needed.

Envisaged benefits

- It is expected to bring about a revolutionary change in India's health facilities.
- The mission would not only make the processes of hospitals simplified but also increase ease of living.
- This mission will play a big role in overcoming problems faced by the poor and middle class in the country in accessing treatment.
- It will enable individuals to discover hospitals, laboratories and pharmacies across the country.
- Doctors and hospitals will be able to use this platform to provide remote health service.
- It will tell you about doctors who are knowledgeable about a specialty; it will tell you who to reach out to; who is the nearest, where you can reach at the earliest.

National Commission for Women

Context

- National Commission for Women (NCW) has sought the resignation of newly-appointed Punjab Chief Minister Charanjit Singh Channi over the "#MeToo allegations" levelled against him.

About NCW

- The National Commission for Women was set up as statutory body in January 1992 under the National Commission for Women Act, 1990 (Act No. 20 of 1990 of Govt.of India) to :

Functions

- review the Constitutional and Legal safeguards for women ;
- recommend remedial legislative measures ;
- facilitate redressal of grievances and
- advise the Government on all policy matters affecting women.

Membership

The Commission shall consist of

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

Section 144

Context

- Government has issued **prohibitory orders under Section 144 of the CrPC in Karnal, which prohibits the assembly of five or more people.**

About Section 144

- The Section 144 of the Criminal Procedure Code (CrPC) basically prohibits assembly of five or more people in an area where it has been imposed.
- According to the law, those who are found to be a part of such "unlawful assembly" can be booked for "engaging in rioting". The maximum punishment for such act is three years.
- Also, note that any action preventing police from breaking up an unlawful assembly is subjected to punishable offence as well.

Difference between Curfew and Section 144

- The Section 144 is prohibitory in nature restricting people from public gathering. However, it doesn't bar gathering all together.
- A curfew, on the other hand, forces people to stay indoors for a specific period of time. In such a case when authorities impose curfew for a certain period of time, the element of time remains crucial.

Restriction under Section 144

- It does not allow gathering of over five people, so avoid meeting in groups.
- In the time of pandemic, offices, godowns and factories and other commercial establishments had remained closed.
- Also, private vehicles were prohibited since borders across the state were sealed besides that public transport including state transport buses, metro also remained shut. However, ATMs, Telecom, internet, cable services remained open while electricity, water and municipal services were also kept open.

SOCIAL JUSTICE

Secularism

Context

- According to Chief Justice of India, Swami Vivekananda advocated secularism, "analysed the dangers posed by meaningless and sectarian conflicts" and "believed that the true essence of religion was the common good."

Vivekananda on Secularism

- He propagated the idea of tolerance and universal acceptance.
- He analysed the dangers posed by the meaningless and sectarian conflicts in society to the nations and civilisations.
- He firmly believed that the true essence of religion was the common good, and tolerance. Religion should be above superstitions and rigidities.
- He popularised Practical Vedanta as it preached love, compassion, and equal respect for all.

About Secularism

- Secularism is part of the basic structure of the Constitution.
- It is also part of the Preamble (added by the 42nd Constitutional Amendment Act).
- However, the concept is a different in India as compared to the Western 13 nations.

Western Secularism

- In the latter part of the world, the concept denotes separation of religion from state.
- It reflects the separation of the Church from state. It mandates that the government will have nothing to do with religion and religion is a private matter of the citizens. Ex: The French follow an extreme version of this concept, where they wish to eliminate all outwardly display of religion in public sphere like burqa, turban etc. They term this as Laicite.
- Religion in this case is confined to the four walls of one's house.

Indian notion of secularism

- Indian secularism is based on the principle of equal respect to all religions and principled distance from all religions.
- However, in a multi-diverse country like India, the State is mandated to support all religions equally and provide for certain benefits to the minority communities.
- Secularism will continue to guide us in our public policy but has to be done in a rational manner.

Why Indian secularism is called as Positive Secularism

- Indian philosophy of secularism is related to "Sarva Dharma Sambhava" (literally it means that destination of the paths followed by all religions is the same, though the paths themselves may be different) which means equal respect to all religions.
- This concept, embraced and promoted by personalities like Vivekananda and Mahatma Gandhi is called 'Positive secularism' that reflects the dominant ethos of Indian culture.
- India does not have an official State religion. However, different personal laws - on matters such as marriage, divorce, inheritance, alimony varies with an individual's religion.
- Indian State is neither irreligious nor anti-religious. It treats all religion equally irrespective of their strength.
- Indian secularism is not an end in itself but a means to address religious plurality and sought to achieve peaceful coexistence of different religions.

Hindi Diwas

Context

- According to Home Ministry, Hindi is the country's official language but will prosper only through coexistence with other Indian languages.

Comment of Home Minister

- Hindi is not competing with any other Indian language.
- It is actually a friend of all Indian languages and it will prosper only with co-existence.
- He advised parents to speak to their children in their mother tongue at home even if they are studying in English-medium schools.
- No foreign language can connect you with this country's core thoughts. If you abandon your language you will be cut off from your roots. Such people will never prosper.
- The best means of expression is one's own language. Mahatma Gandhi said that primary education must be in the local language.
- A child is most comfortable when he is taught in the language he speaks at home.

Constitutional Provision about Official Language

Constitutional Provision for Union	<ul style="list-style-type: none"> Article 348 states that Parliament official language: Hindi or English Speaker or Chairman can permit other members to speak in his mother tongue if he is not confident to speak in English or Hindi. Under Article 343: Official language of Union is in Devnagari script. Numerals would be International numerals.
Constitutional Provision for States	<ul style="list-style-type: none"> Under article 210, Official language of State legislature : Hindi, English , Any other official language. President can allow any language spoken by majority of people to be used as official language of state.
Language for communication between two states	<ul style="list-style-type: none"> Official language of Union will be the official language of communication between two state and states and union. If two states agree, then they can choose Hindi to be official language.
Provision for Judiciary (Supreme Court)	<ul style="list-style-type: none"> Parliament can provide for Hindi language in Supreme court. Since, Parliament has not made any law for it, English is the sole language of Supreme Court.
High Court	<ul style="list-style-type: none"> Governor with assent of the president can provide for Hindi or any other language to be the official language of High court. Otherwise, language of transaction will be English.
Language for Bills,Acts	<ul style="list-style-type: none"> Parliament can provide for Hindi language in Supreme court. Since, Parliament has not made any law for it, English is the sole language of bills and acts in parliament.

NCRB Report on Crime

Context

- Overall crime numbers in the country increased by 28 per cent in 2020 over the non-pandemic year 2019, according to the latest report of the National Crime Records Bureau (NCRB).

Finding of the Report

- It has recorded 66,01,285 cognizable crimes comprising 42,54,356 Indian Penal Code (IPC) crimes and 23,46,929 Special and Local Laws crimes.
- It shows an increase of 14,45,127 (28%) in registration of cases over 2019 (51,56,158 cases).
- Crime rate (number of cases registered per one lakh population) increased from 385.5 in 2019 to 487.8 in 2020.
- There is a decrease in registration of traditional crime by about two lakh cases.
- According to the data, two states, Gujarat and Tamil Nadu, recorded abnormal spike in IPC crimes. From 1.39 lakh cases in 2019 in Gujarat, the figures jumped to 3.81 lakh in 2020, recording an increase of 174 per cent. In Tamil Nadu, it was even starker - IPC cases increased from 1.68 lakh in 2019 to 8.91 lakh, a jump of 430 per cent.
- A total of 8,272 cases were registered for committing crime against Scheduled Tribes - an increase of 9.3 per cent over 2019 (7,570 cases).
- The year also saw a 78.1 per cent increase in Environment Related Offences - from 34,676 cases in 2019 to 61,767 cases in 2020.
- A total of 50,291 cases were registered for committing crime against Scheduled Castes - an increase of 9.4 per cent over 2019 (45,961 cases).

About NCRB

- The National Crime Records Bureau, abbreviated to NCRB, is an Indian government agency responsible for collecting and analysing crime data as defined by the Indian Penal Code (IPC) and Special and Local Laws (SLL)
- NCRB is headquartered in New Delhi and is part of the Ministry of Home Affairs (MHA), Government of India.
- NCRB was set-up in 1986 to function as a repository of information on crime and criminals to assist the investigators in linking crime to the perpetrators.

Objectives of NCRB

- Create and maintain secure sharable National Databases on crimes and criminals for law enforcement agencies and promote their use for public service delivery.
- Collect and process crime statistics at the national level and clearing house of information on crime and criminals both at National and International levels.
- Lead and coordinate the development of IT applications and create an enabling IT environment for Police organizations.
- National repository of fingerprints of all criminals.
- To evaluate, modernize and promote automation in State Crime Records Bureaux and State Finger Print Bureaux.
- Training and capacity building in Police Forces in Information Technology and Finger Print Science.



Fortified Rice

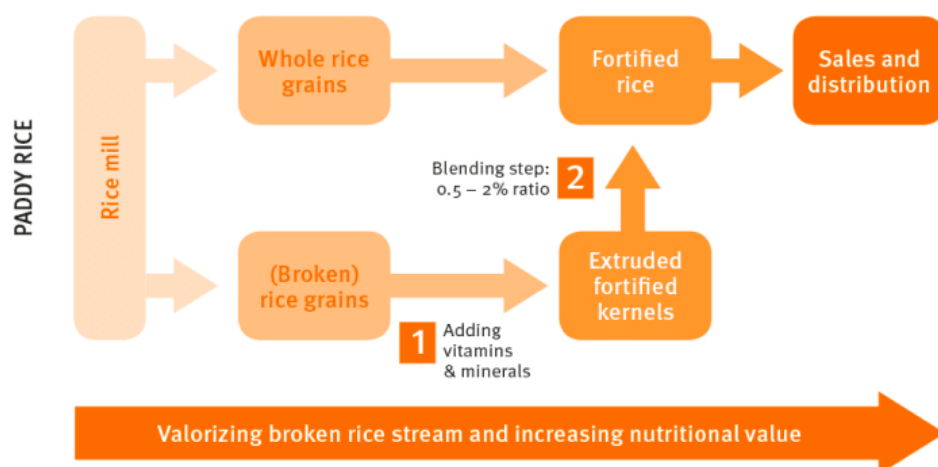
Context

- Recently, government has announced the fortification of rice distributed under various government schemes, including the public distribution system (PDS) and midday meals in schools, by 2024.

Details

- Government has issued uniform parameters for fortified rice kernels (FRK) for grade 'A' and common rice.
- The specifications for fortified rice have been issued by the Ministry of Consumer Affairs, Food and Public Distribution.
- The department issued the uniform specifications of food grains for Central Pool procurement for the ensuing Kharif Marketing Season (KMS) 2020-21.
- The State Governments are requested to ensure that wide publicity of the Uniform Specifications is made among the farmers to ensure that they get due price for their produce and any rejection of the stocks is completely avoided.

Process of Fortification of Rice



Need for Fortified Rice

- Fortified rice helps in tackling Malnutrition and lack of essential nutrients in poor women and poor children.
- It will also help in mitigating global hunger index.

About Fortification

- FSSAI defines fortification as “deliberately increasing the content of essential micronutrients in a food so as to improve the nutritional quality of food and to provide public health benefit with minimal risk to health”.

About Fortified Rice

- 1 kg fortified rice will contain iron (28 mg-42.5 mg), folic acid (75-125 microgram) and Vitamin B-12 (0.75-1.25 microgram).
- In addition, rice may also be fortified with micronutrients, singly or in combination, with zinc (10 mg-15 mg), Vitamin A (500-750 microgram RE), Vitamin B1 (1 mg-1.5 mg), Vitamin B2 (1.25 mg-1.75 mg), Vitamin B3 (12.5 mg-20 mg) and Vitamin B6 (1.5 mg-2.5 mg) per kg.

About FSSAI

- Food Safety and Standards Authority of India (FSSAI) is an autonomous body established under the Ministry of Health & Family Welfare, Government of India.
- The FSSAI has been established under the Food Safety and Standards Act, 2006, which is a consolidating statute related to food safety and regulation in India.
- FSSAI is responsible for protecting and promoting public health through the regulation and supervision of food safety.

WHAT IS FORTIFIED RICE?

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



<p>➤ The fortification factor does not last for more than 45 days, so it isn't advisable to store fortified rice for long</p>	<p>➤ According to National Family Health Survey, 78.7% children and 75% in the district are anaemic and suffer from malnutrition</p>	<p>➤ In the first phase, fortified rice will be distributed in Badangi, Bobbili, Ramabhadrapuram and Terlam mandals</p>
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INTERNATIONAL RELATIONS

Build BRICS Better

Context

- The 13th BRICS summit held under India's chairmanship.

About BRICS

- This plurilateral grouping comprising **Brazil, Russia, India, China and South Africa** is chaired by turn.
- India held the chair in 2012 and 2016 too.
- The importance of BRICS is self-evident: it represents 42% of the world's population, 30% of the land area, 24% of global GDP and 16% of international trade.

Four priorities of BRICS

- Launched by a meeting of the Foreign Ministers of **Brazil, Russia, India and China in 2006** and riding on the political synergy created by regular summits since 2009.
- BRIC turned itself into **BRICS in 2010**, with the **entry of South Africa**.
- The grouping has gone through a reasonably productive journey. It serve as a **bridge between the Global North and Global South**.
- It developed a common perspective on a wide range of global and regional issues; established the New Development Bank; created a financial stability net in the form of Contingency Reserve Arrangement; and is on the verge of setting up a Vaccine Research and Development Virtual Center.

What are its immediate goals now?

- As the current chair, India has outlined four priorities.

Reform of multilateral institutions

- The first is to pursue reform of multilateral institutions ranging from the United Nations, World Bank and the International Monetary Fund to the World Trade Organization and now even the World Health Organization.
- BRICS emerged from the desire to challenge dominance (by the U.S.) in the early years of the century, and it remains committed to the goal of counter-dominance (by China) now.

Resolve to combat terrorism

- The second is the **resolve to combat terrorism**. Terrorism is an international phenomenon affecting Europe, Africa, Asia and other parts of the world.
- Tragic developments concerning Afghanistan have helped to focus attention sharply on this overarching theme, stressing the need to bridge the gap between rhetoric and action.
- BRICS is attempting to pragmatically shape its **counter-terrorism strategy by crafting the BRICS Counter Terrorism Action Plan** containing specific measures to fight radicalisation, terrorist financing and misuse of the Internet by terrorist groups.

Promoting technological and digital solutions for the Sustainable Development Goals

- Digital tools have helped a world adversely hit by the pandemic, and India has been in the forefront of using new technological tools to improve governance.

Expanding people-to-people cooperation.

- But enhancing people-to-people cooperation will have to wait for international travel to revive. Interactions through digital means are a poor substitute.

BRICS opposes exceptionalism: China

- BRICS has been busy deepening trade and investment ties among its member states.
- The difficulty stems from China's centrality and dominance of intra-BRICS trade flows.
- There is an urgent need for diversification and strengthening of regional value chains.
- Policymakers have been encouraging an increase in intra-BRICS cooperation in diverse areas like agriculture, disaster resilience, digital health, traditional medicine and customs cooperation.
- China's economic rise** has created a serious imbalance within BRICS; Beijing's aggressive policy, especially against India, puts BRICS solidarity under exceptional strain; and BRICS countries have not done enough to assist the Global South to win their optimal support for their agenda.

Takeaways

- The idea of BRICS – a **common pursuit of shared interests by the five emerging economies** from four continents – is fundamentally sound and relevant.
- The governments have **invested huge political capital in pushing the BRICS experiment forward**, and its institutionalisation has created its own momentum.
- BRICS signs deal on cooperation in remote sensing satellite data sharing

China's new maritime law

Context

- From September 1, China's new maritime rules **designed to control the entry of foreign vessels** in what Beijing calls "Chinese territorial waters" take effect.
- The move is expected to have far-reaching consequences for passage of vessels, **both commercial and military**, in the disputed **South China Sea, East China Sea and Taiwan Strait**, and is likely to escalate the existing tension with the US and its neighbours in the region.

What is the new law?

- Foreign vessels, both military and commercial, will be required **to submit to Chinese supervision in "Chinese territorial waters,"** as per the new law.
- Operators of submersibles, nuclear vessels, ships carrying radioactive materials and ships carrying bulk oil, chemicals, liquefied gas and other toxic and harmful substances are required to report their detailed information upon their visits to Chinese territorial waters.
- Vessels that **"endanger the maritime traffic safety of China"** will be required to report their name, call sign, current position and next port of call and estimated time of arrival.
- The name of shipborne dangerous goods and cargo deadweight will also be required.
- All these pronouncements threaten the overall stability and security in the South China Sea, East China Sea, and across the Taiwan Strait.

Why is this important?

- The South China Sea, which lies between China, Taiwan, the Philippines, Brunei, Malaysia, Indonesia and Vietnam, is of great economic importance globally.
- Nearly one-third of the world's shipping passes through its lanes, and the waters house numerous important fisheries.
- It is also a critical route for India, both militarily and commercially.
- The South China Sea plays a vital role in facilitating India's trade with Japan, South Korea and ASEAN countries, and assists in the efficient procurement of energy supplies.
- More than 55% of India's trade passes through the South China Sea and Malacca Straits.
- India is also involved in oil and gas exploration in offshore blocks in the margins of the Sea, which has led to standoffs with Chinese authorities.
- Under a "nine-dash line" map, China claims most of the South China Sea as its sovereign territory.
- This claim is contested by its neighbours in the region and by the United States.



International position

- Currently, international maritime activities are governed by an international agreement called the United Nations Convention on the Law of the Sea (UNCLOS) of which China, India and over a hundred other countries are signatories (the US, significantly, is not).
- Accordingly, states have the right to implement territorial rights up to 12 nautical miles into the sea.
- The UNCLOS also states that all vessels have the right of “innocent passage” through this region – China’s new law violates this.

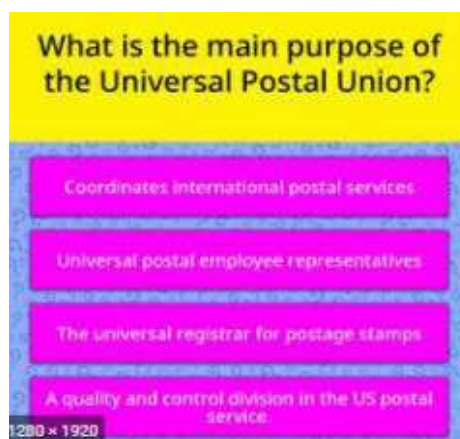
Universal Postal Union (UPU) Congress

Context

- India has been elected to the Council of Administration(CA) at 27th Universal Postal Union (UPU) Congress in Abidjan.
- India with 134 votes got highest votes in CA elections from South Asia and Oceania region.
- India was also elected with 106 votes out of 156 countries to the Postal Operations Council (POC) at the 27th UPU Congress in Abidjan.

About Universal Postal Union (UPU) Congress

- Created in Bern in 1874
 - The International Bureau, the permanent secretariat of the UPU, is based in Bern
- An intergovernmental organization and a United Nations specialized agency
- The principal forum for cooperation between governments, Posts and other postal sector stakeholders



China opens first road-rail transport link to Indian Ocean

Context

- A newly-launched **railway line from the Myanmar border to the Chengdu in western China**, provides China a new road-rail transportation channel to the Indian Ocean.

The China-Myanmar New Passage

- The transport corridor involves a sea-road-rail link.
 - This passage connects the logistics lines of Singapore, Myanmar and China.
 - It is currently the most convenient land and sea channel linking the Indian Ocean with southwest China,” the one-way journey saves 20 to 22 days”.
 - China also has plans to develop another port in Kyaukphyu in the Rakhine state, including a proposed railway line from Yunnan directly to the port, but the progress there has been stalled by unrest in Myanmar.
 - Chinese planners have also looked at the Gwadar port in Pakistan as another key outlet to the Indian Ocean that will bypass the Malacca Straits.
 - Gwadar is being developed as part of the China Pakistan Economic Corridor (CPEC) to the far western Xinjiang region, but has been slow to take off amid concerns over security.
- Plans are underway to develop Chin Shwe Haw as a “**border economic cooperation zone**” under the **Belt and Road Initiative**.



PA for ALUAV

Context:

- **India & US sign Project Agreement for Air-Launched Unmanned Aerial Vehicle**

About Project Agreement for Air-Launched Unmanned Aerial Vehicle

- It is a significant step towards deepening defence technology cooperation between India & US.
- It outlines collaboration between Indian Air Force & DRDO towards design, development, demonstration, testing and evaluation of systems to co-develop ALUAV Prototype.
- The PA for ALUAV falls under the Research, Development, Testing and Evaluation (RDT&E) Memorandum of Agreement between Ministry of Defence and US Department of Defence, which was first signed in January 2006 and renewed in January 2015.

Defence Technology and Trade Initiative (DTTI)

- The main aim of **Defence Technology and Trade Initiative (DTTI)** is to bring sustained leadership focus to promote collaborative technology exchange and create opportunities for co-production and co-development of future technologies for Indian and US military forces.
- Under DTTI, Joint Working Groups on land, naval, air, and aircraft carrier technologies have been established for focus on mutually agreed projects in respective domains.
- The PA for co-development of ALUAV has been overseen by the Joint Working Group on Air Systems and is a major accomplishment for DTTI.

Eastern Economic Forum

Context

- Indian Prime Minister delivered a video-address during the plenary session of the 6th Eastern Economic Forum (EEF).
- PM stressed on the importance of greater economic and commercial engagement between the two sides in line with the 'Special and Privileged Strategic Partnership'.

About Eastern Economic Forum

- It is an international forum held each year in Vladivostok, Russia, for the **purpose of encouraging foreign investment in the Russian Far East.**



Reciprocal Exchange of Logistics Agreement

Context

- India is all set to conclude the **bilateral logistics agreement with Russia** soon while the agreement with the U.K. is in the final stages of conclusion.
- Negotiations with a few more countries including Vietnam are in the preliminary stages.
- It will help Navy to improve operational turnaround and increase inter-operability on the high seas.

India's logistic agreement with other countries

- India has signed several logistics agreements with all Quad countries, France, Singapore and South Korea beginning with the Logistics Exchange Memorandum of Agreement (LEMOA) with the U.S. in 2016.
- The agreements are administrative arrangements facilitating access to military facilities for exchange of fuel and provisions on mutual agreement simplifying logistical support and increasing operational turnaround of the military when operating away from India.

Logistics Sharing Pact Completes Quad Bedrock

THE PACT

India and Japan have signed an agreement for reciprocal provision of supplies and services between the armed forces of India and the self-defense forces of Japan. Both forces will get access to reciprocal provision of supplies and services at each other's bases and military facilities



HOW IT WILL HELP

It will enhance interoperability and facilitate more bilateral defence engagements under the special strategic & global partnership. It will make it easier for Indian ships and aircraft to operate in areas like the South China Sea and the Pacific



WHAT IT MEANS

Indian and Japanese forces can share fuel, food or even spares during bilateral training activities, United Nations' peacekeeping operations and humanitarian international relief. If the need arises, the pact can be used for other mutually agreed activities as well



THE BIG PICTURE

India has similar agreements with all other Quad members – the US, Australia and Japan. There is a similar agreement with France that has strategically located territories in the southern Indian Ocean. **This helps India in operating virtually across the world with a friendly port or warship within range**

With China fast opening up bases across the region – the Djibouti base being a stark example – these pacts give India the ability to keep some pace in terms of access, **without setting up its own expensive overseas military stations**



RELOS

- It will facilitate access to Russian facilities in the Arctic region, which is seeing increased global activity as new shipping routes open up and India's own investments in the Russian Far East.
- It comes at a time when both nations are looking at significantly scaling up the already broad military-to-military cooperation.

Foundational agreements with U.S.


- India has now signed all **four foundational agreements** with the US
- LEMOA in 2016
- Communications Compatibility and Security Agreement (COMCASA) in 2018 and
- Basic Exchange and Cooperation Agreement for Geo-Spatial cooperation (BECA) in 2020
- General Security of Military Information Agreement (GSOMIA) as an extension to the Industrial Security Annex (ISA), was signed in 2019.
- All logistics agreements are reciprocal.

FOUNDATIONAL AGREEMENTS		
Logistics Exchange Memorandum of Agreement (LEMOA) <ul style="list-style-type: none"> ➤ Provide logistic support, refuelling & berthing facilities for each other's warships & aircraft on barter/equal-value exchange basis ➤ Will not involve stationing of US troops on Indian soil. Nor will India extend support if US goes to war with "a friendly country" ➤ Good for US forces re-balancing to Asia Pacific. Indian forces rarely operate far away from their shores but access to Djibouti & Diego Garcia could be useful 	Communication Interoperability & Security Memorandum Agreement (CISMOA) <ul style="list-style-type: none"> ➤ Technology enabler to help transfer high-tech avionics, encrypted communication & electronic systems to India ➤ US says CISMOA will boost 'interoperability' as well as ensure secrecy of its C4ISR (command, control, communications, computer, intelligence, surveillance and reconnaissance) systems ➤ But fears that US will be able to track & snoop on Indian warships/aircraft equipped with such systems 	
	Basic Exchange & Cooperation Agreement for Geo-Spatial Cooperation (BECA) <ul style="list-style-type: none"> ➤ US says BECA will help India with advanced satellite & topographical data for long-range navigation & missile-targeting 	<ul style="list-style-type: none"> ➤ But India, which has its own satellite imaging capabilities, unwilling for American digital sensors to be positioned on its soil


COMCASA

What


Legal framework to allow US to transfer high-end communication security equipment to India.




Why



Enable Indian and US forces to operate more closely, share information on secure networks




Improve performance of US-sourced platforms with compatible, secure communication systems




Establishes platform to share real-time operational information with US & its allies


• The Controversy •




UPA refused because it feared getting dragged into a US military alliance



The agreement may specify US personnel to be given access to US-sourced communication equipment for periodic inspection



The coding and keying systems will be same, allowing US access to Indian tactical information



Integration with existing Russian weapon system may be a challenge

AUKUS

Context

- Formation of a new trilateral security partnership called AUKUS (Australia-U.K.-U.S.).

AUKUS aim

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

What are the terms of the grouping?

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

Will AUKUS be a game changer?

- The short answer is that it is unlikely.

Reasons are

- First, the U.S., as a leading global military power, already has a strong presence in the Indo-Pacific, especially in a grouping that includes Australia, India, and Japan — the Quadrilateral Security Dialogue, or Quad.
- Similarly, the U.S., the U.K., Australia, Canada, and New Zealand are members of Five Eyes, an intelligence-sharing alliance, which also has regional security implications.
- Secondly, AUKUS will not likely deter Beijing’s strategic calculus across the region, particularly relating to its maritime ambitions and territorial expansionism.
- The one element of AUKUS that has potential to cause a recalibration of China’s plans in this realm is the nuclear-powered submarines.
- The countries that have such submarines operational are the U.S. (68), Russia (29), China (12) the U.K. (11), France (8) and India (1).
- It will raise the stakes over strategic flashpoints such as the South China Sea and Taiwan.

Does India stand to gain from this development?

- New Delhi may **derive secondary benefits** from having three advanced nations with arguably the most sophisticated military know-how in the world coming together to support **a free and open Indo-Pacific**.
- Given the inroads that Beijing has made in recent decades with its Belt and Road Initiative, including through projects or proposals for infrastructure development in Southeast Asia, Sri Lanka, the Maldives, and beyond into Central Asia, fears in South Block over **‘encirclement’ by China may be partially mitigated by AUKUS**.
- India will work with the **transnational institutional arrangements** in place, roping in like-minded nations into symbiotic partnerships, and calibrate future alliance plans to evolving security situations across one of the most complex strategic ecosystems in the world.

India, Australia to hold 2+2 meet

Context

- India and Australia will hold the inaugural ‘2+2’ Ministerial meeting.

Growing cooperation between India-Australia

- These inaugural 2+2 discussions are a **cornerstone of the Australia-India Comprehensive Strategic Partnership**, which is founded on a shared commitment to a secure, stable and prosperous Indo-Pacific region.
- India and Australia have increased interoperability in the maritime domain as both sides have signed a **'Joint Guidance for Navy to Navy Relationship Document'**.
- Close cooperation in regional and multilateral fora like Indian Ocean Naval Symposium (IONS), Western Pacific Naval Symposium (WPNS), Indian Ocean Rim Association (IORA) and ASEAN.
- Expanding bilateral defence relations, **India and Australia signed Mutual Logistics Support Agreement**.
- Australia has also deployed a Liaison Officer at the Indian Navy's Information Fusion Centre for Indian Ocean Region (IFC-IOR) as part of joint maritime efforts.

2+2 Dialogue mechanism

- The ‘two plus two dialogue’ is an expression used to indicate that two appointed ministers from each country, (**ministers of defence and external affairs in India’s case**) will meet up to discuss the two countries’ strategic and security interests.
- Goal:** To establish a diplomatic conversation between the two countries’.
- India conduct 2+2 dialogue with **U.S., Japan and Australia**.

Sherpa for G20 summit

Context

- The government has appointed Union Minister for Commerce & Industry, Consumer Affairs, Food & Public Distribution and Textile Piyush Goyal as Sherpa for the G20, replacing former Union Minister Suresh Prabhu.

More about news

- Italy holds the presidency of the G20 formation**, India will be holding the presidency from December 1, 2022 and will convene the G20 Leaders' Summit in 2023.

What is G-20?

- India has been a member of the G20 since its inception in 1999.
- G20 is a major international grouping that brings together 19 of the world's major economies and the European Union, with its members accounting for more than 80% of global GDP, 75% of trade and 60% of population.
- Apart from India, the G20 includes Argentina, Australia, Brazil, Canada, China, France, Germany, Japan, Indonesia, Italy, Mexico, Russia, South Africa, Saudi Arabia, South Korea, Turkey, the U.K., the U.S. and the European Union. Spain is invited as a permanent guest.

Who is a Sherpa?

- Sherpa is a **personal representative of the leader of a member country** at an international Summit meeting such as the G8, G20 or the Nuclear Security Summit.
- The term is derived from the **Nepalese Sherpa people**, who serve as guides for mountaineers in the Himalayas.
- The Sherpa engages in planning, negotiation and implementation tasks through the Summit.
- They coordinate the agenda, seek consensus at the highest political levels, and participate in a series of pre-Summit consultations to help negotiate their leaders' positions.
- Sherpas are **career diplomats or senior government officials** appointed by the leaders of their countries.
- There is **only one Sherpa per Summit** for each member country; he/she is assisted by several sous Sherpas.
- Sherpas meet much before the start of the Summit to iron out differences on various issues.
- At the G20 Summit, work progresses through broadly **two channels: the Finance Track and Sherpas' Track**.
- Towards the end of the process, the Sherpas, along with the Finance Track representatives, prepare the Leaders' "Declaration" or "Communique", which is the final outcome of the G20 Summit.
- The **Sherpas' Track** involves technical and policy analyses by working groups comprising officials from each member country and international organisations. It focuses on development-oriented issues such as agriculture, fighting corruption, employment, etc.
- The **Finance Track** is composed of all Finance Ministers and Central Bank Governors of G20 members, who also meet regularly during the year to analyse global economic problems and to take coordinated actions towards their resolution.

U.S.-India Strategic Clean Energy Partnership (SCEP)

Context

- Minister of Petroleum and Natural Gas and Minister of Housing and Urban Affairs launched the revamped U.S.-India Strategic Clean Energy Partnership (SCEP).

About SCEP

- It is launched in accordance with U.S.-India Climate and Clean Energy Agenda 2030 Partnership announced at the Leaders Summit on Climate.
- The SCEP organizes inter-governmental engagement across five pillars of cooperation:
 1. Power and Energy Efficiency
 2. Responsible Oil and Gas
 3. Renewable Energy
 4. Sustainable Growth and
 5. Emerging Fuels.

More about news

- A new **India-US Task Force on Biofuels** was announced to build on the scope of work on cooperation in biofuels sector.
- Both sides will **strengthen the electric grid in India**, to support large-scale integration of renewables, including through **smart grids, energy storage, flexible resources**, and distributed energy resources, and ensure reliable and resilient grid operations, as well as promoting energy efficiency and conservation measures.
- Both sides have **initiated institutionalization of India Energy Modeling Forum** with the constitution of Six Task Forces for carrying out research and modeling in different areas.
- Joint Committees have been set up to deliberate on Energy Data Management, Low Carbon Technologies and Just Transition in Coal Sector.

- The two sides agreed to expand the scope of the work to include smart grid and grid storage as part of the second phase of the Partnership to Advance Clean Energy (PACE)-R initiative anchored on the Indian side by the Department of Science & Technology.

13th BRICS Summit

Context

- Prime Minister Narendra Modi chaired the 13th BRICS Summit through video conferencing from New Delhi.

More about news

- 5-member group adopts CounterTerrorism Action Plan.
- The 13th BRICS summit called for an “inclusive intra-Afghan dialogue” for stability in Afghanistan.
- With the agreement on Remote Sensing Satellite Constellation between space agencies, a new chapter of cooperation has begun.
- The document, titled the ‘New Delhi Declaration’, also called for addressing the humanitarian situation in Afghanistan and urged the need to uphold rights of women, children and minorities.
- The summit emphasised the importance of the principle of “non-interference” in international affairs and disputes and conflicts should be resolved by peaceful means.
- Apart from Afghanistan, the BRICS leaders also took up the conflicts in Myanmar, Syria, the tension in the Korean peninsula, Israel-Palestine violence and other territorial disputes.
- The summit also discussed the COVID-19 pandemic and the strategy to strengthen counter-pandemic cooperation and multilateral reform.
- The New Delhi Declaration called against playing politics with the pandemic and the COVID-19 virus and urged for a global effort to eradicate the virus.
- The summit called for reform of the UN Security Council and urged to “revitalise” of the UN General Assembly.

Key Takeaways				
Reforming Multilateral System Leaders endorsed the joint statement on strengthening and reforming the multilateral system adopted by five foreign ministers, and agreed on the principles of strengthening and reforming the multilateral system	UNSC Reforms Summit called for reforms of the principal organs of the United Nations, including instilling new life in the discussions on reforming the UN Security Council	Space & Climate Cooperation Agreement on space agencies and remote sensing will help enhance research capabilities in global climate change, disaster management, environment protection, prevention of food and water scarcity. Leaders expressed commitment to fully implement UNFCCC, its Kyoto Protocol and Paris Agreement	Agriculture Cooperation Agricultural Research Platform launched; Action Plan 2021-2024 for Agricultural Cooperation adopted	Green Tourism Green tourism to promote measures which can shape a more resilient, sustainable and inclusive tourism sector
Focus Areas				
Intra-Brics trade to boost cooperation among customs departments			New Development Bank's progress in Expanding membership: Bangladesh, UAE and Uruguay	

Age Appropriate Design Code

Context

- U.K. government brought into effect the Age Appropriate Design Code or the Children’s Code, as an amendment to the Data Protection Act, 2018, operationalising a set of regulations that will make using the digital space safer for children.
- While the Code is officially in place only in the U.K., tech majors such as TikTok, Instagram and YouTube have tightened safety rules for children, and campaigners hope this will become the norm globally.

What is the Children’s Code?

- The Children’s Code is a **data protection code of practice for online services** likely to be accessed by children.
- It has the potential to completely transform the way that companies collect, share and use children’s data, requiring them to offer children a high level of privacy protection by default.
- It sets out **15 standards for online services**, including in apps, games, toy and devices and even news services.
- Unless the service provider is able to prove that children do not access the service at all, it is required to consider making changes as per the Code.

What are the threats to children online?

- Children are being targeted with graphic content.

- Services such as Facebook, Instagram and TikTok are allowing children, some as young as 13 years old, to be directly targeted within 24 hours of creating an account with a stream of harmful content.
- Despite knowing the children's age, the companies are recommending damaging content, including material related to eating disorders, extreme diets, self-harm and suicide as well as sexualised imagery and distorted body images.

Who does the Code apply to?

- The Code, applies to "information society services likely to be accessed by children".
- The definition of an ISS is "any service normally provided for remuneration, at a distance, by electronic means and at the individual request of a recipient of services".
- This includes apps; programs; search engines; social media platforms; online messaging or internet-based voice telephony services; online marketplaces; content streaming services (like video, music or gaming services); online games; news or educational websites; and any websites offering other goods or services to users on the internet.
- Electronic services for controlling connected toys and other connected devices are also ISS.
- The code applies to the U.K. based companies and non-U.K. companies that use data of children in the country. However, as has been seen with the example set out by some tech giants, it makes sense to make the entire architecture child-friendly, and not region-specific alone.

Will children in India benefit from the Code?

- It is rooted in the United Nations Convention on the Rights of the Child that recognises the special safeguards children need in all aspects of their life.
- If tech giants universalise their safety architecture, children across the world will benefit from the Code.



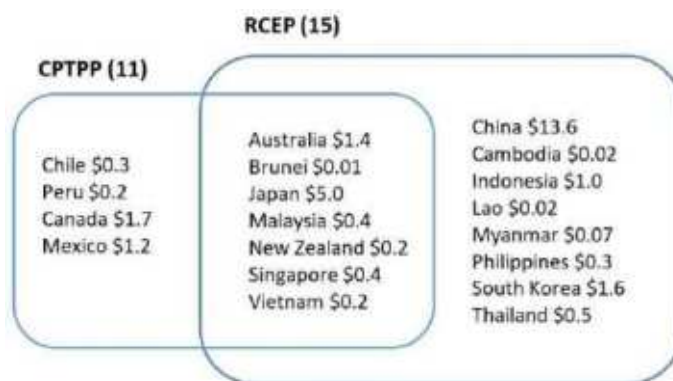
Comprehensive and Progress Agreement for Trans-Pacific Partnership (CPTPP)

Context

- China applies to join **Asia-Pacific free pact**, an **11-nation Asia-Pacific free trade group** in an effort to increase its influence over international policies.

About CPTPP

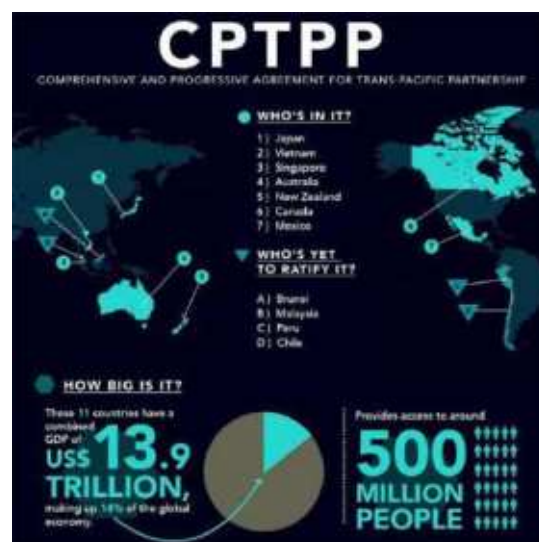
- The CPTPP originally was the **Trans-Pacific Partnership**, a group promoted by then-President Barack Obama as part of Washington's increased emphasis on relations with Asia.
- China was not included in the initial group and Obama's successor, Donald Trump, pulled out in 2017.
- The CPTPP, which took effect in 2018, includes agreements on market access, movement of labour and government procurement.
- Other members include Canada, Australia, Brunei, Chile, Japan, Malaysia, Mexico, Peru, Singapore and Vietnam.
- Britain is negotiating to join.





China's position

- China's government has promised to increase imports of goods but faces complaints it is failing to carry out promises made when it joined the World Trade Organisation in 2001 to open finance and other service industries.
- China is also a member of various other trading arrangements, including the Regional Comprehensive Economic Partnership, which includes many nations in Asia that are not part of the CPTPP.



India - United Arab Emirates Comprehensive Economic Partnership Agreement (CEPA)

Context

- India and United Arab Emirates have formally launched negotiations on the India-United Arab Emirates Comprehensive Economic Partnership Agreement (CEPA).

Aim

- Improving bilateral economic relations, including expanding the existing trade and investment relationship.

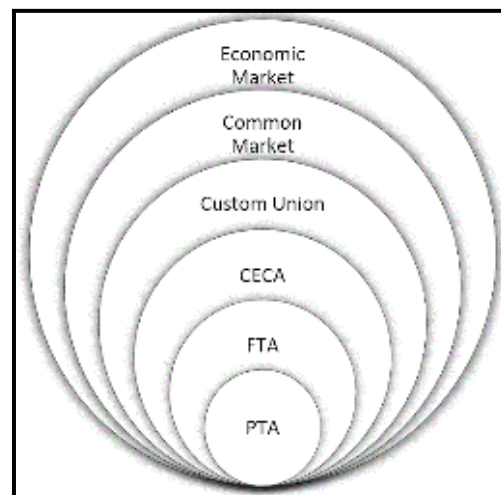
Significance

- CEPA will create new jobs, raise living standards, and provide wider social and economic opportunities in both nations.
- It is expected to increase bilateral trade in goods to USD 100 billion within five years of the signed agreement and increase trade in services to USD 15 billion.

Current Situation

- The UAE is currently **India's third-largest trading partner** with bilateral trade in 2019/2020 valued at USD 59 billion.

- The UAE is also **India's second-largest export destination** after the US, with exports valued at approximately USD 29 billion in 2019-2020.
- India was the UAE's second-largest trading partner in 2019, with bilateral non-oil trade valued at USD 41 billion.
- The UAE is the **eighth-largest investor in India**, having invested USD 11 billion between April 2000 and March 2021, while investment by Indian companies in the UAE is estimated to be over USD 85 billion.
- India's major exports to the UAE include petroleum products, precious metals, stones, gems and jewellery, minerals, food items such as cereals, sugar, fruits and vegetables, tea, meat, and seafood, textiles, engineering and machinery products, and chemicals.
- India's top imports from the UAE include petroleum and petroleum products, precious metals, stones, gems and jewellery, minerals, chemicals and wood and wood products.



SAARC

Context

- A meeting of foreign ministers from the South Asian Association for Regional Cooperation (SAARC) countries, has been cancelled as the member states were unable to agree upon the participation of Afghanistan, with Pakistan and India in particular at loggerheads over the issue.

More about news

- After Pakistan objected to the participation of any official from the previous Ghani administration, SAARC members reportedly agreed to keep an "empty chair" as a symbolic representation of Afghanistan.
- However, Islamabad later insisted that the Taliban be allowed to send its representative to the summit, a notion that all of the other member states rejected.
- After no consensus could be formed, Nepal, the 'host' of the summit, officially cancelled the meeting.

What is SAARC?

- SAARC is a regional inter-governmental organisation of South Asian countries namely, India, Bangladesh, Bhutan, the Maldives, Nepal, Pakistan and Sri Lanka. Afghanistan joined the bloc in 2007.
- SAARC also includes nine formally recognised observers including the European Union, the US, Iran and China.
- According to the SAARC charter, the goal of the organisation was to contribute to "mutual trust, understanding and appreciation of one another's problems".

What has SAARC done so far?

- Despite its lofty ambitions, SAARC has not become a regional association in the mould of the European Union or the African Union.
- Its member states are plagued by internal divisions, most notably the conflict between India and Pakistan.
- This has hampered its ability to form comprehensive trade agreements or to meaningfully collaborate on areas such as security, energy and infrastructure.
- The 18th and last SAARC summit was held in 2014 with Pakistan scheduled to host the 19th summit in 2016.

Despite this SAARC has achieved a modicum of success

- It has provided a platform for representatives from member countries to meet and discuss important issues, something that may have been challenging through bilateral discussions.
- The bloc has made some headway in signing agreements related to climate change, food security and combatting the Covid-19 crisis.
- It has the potential to do far more but that is contingent upon cooperation on key issues between member states.

HEALTH

'Eat Right Station' Certification

Context

- Chandigarh Railway Station has been awarded a 5- star 'Eat Right Station' certification for providing high-quality, nutritious food to passengers.
- Chandigarh Railway Station becomes the **fifth station in India** to get this recognition.

Details

- The 'Eat Right Station' certification is awarded by FSSAI to railway stations adhering to standard food storage and hygiene practices that set benchmarks in providing safe and wholesome food to passengers.
- The 5-star rating indicates exemplary efforts by stations to ensure safe and hygienic food is available to passengers.
- The certification is part of the 'Eat Right India' movement- a large-scale effort by FSSAI to transform the country's food system to ensure safe, healthy and sustainable food for all Indians.

"Ayush Aapke Dwar"

Context

- Ayush Ministry launched the campaign "AYUSH AAPKE DWAR" from more than 45 locations across the country.

About

- The campaign aims to distribute medicinal plant saplings to 75 lakh households across the country in one year.
- The medicinal plants include Tejpatta, Stevia, Ashoka, Jatamansi, Giloy/Guduchi, Ashwagandha, Kumari, Shatavari, Lemongrass, Guggulu, Tulsi, Sarpagandha, Kalmegh, Brahmi and Amla.

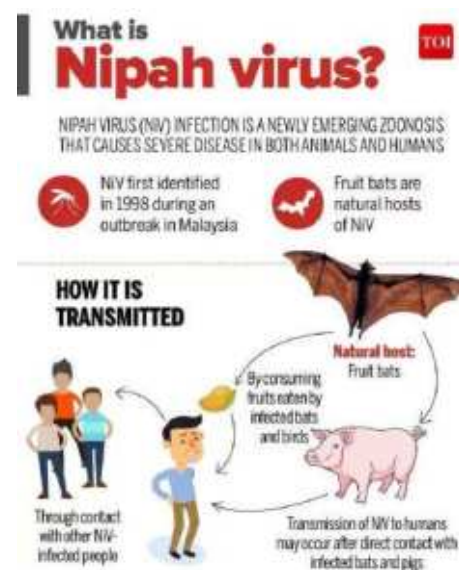
Nipah Virus

Context

- After a gap of over three years, a case of the zoonotic Nipah virus infection was reported in Kozhikode district of Kerala, with the death of a 12-year-old boy from Pazhoor, near Chathamangalam, at a private hospital.

Details

- The virus is transmitted to people from animals and can also be passed on through contaminated food or directly from person-to-person.
- Fruit bats are considered to be a natural reservoir of the virus.
- In infected people, it causes a range of illnesses from asymptomatic (subclinical) infection to acute respiratory illness and fatal encephalitis.
- The virus can also cause severe disease in animals such as pigs, resulting in significant economic losses for farmers.
- There are currently no drugs or vaccines specific for Nipah virus infection although WHO has identified Nipah as a priority disease for the WHO Research and Development Blueprint.



Ayush Aahar

Context

- Union Minister of Ayush said that the Ministry should promote AyushAahar throughout the country.
- This will also help saving the youth from the ills of junk food.

About

- The Ministry of Ayush is promoting Ayush based diet & lifestyle and is working in convergence with the Ministry of Women & Child Development in the PoshanAbhiyan to realize the ultimate goal of 'Suposhit Bharat'.
- The Food Safety and Standards Authority of India (FSSAI) in convergence with Ministry of Ayush has also released draft guidelines on AyushAahar, which will facilitate standardized Ayush based Aahar.

State Food Safety Index

Context

- Union Minister for Health and Family Welfare MansukhMandaviya released Food Safety and Standards Authority of India (FSSAI)'s 3rd State Food Safety Index (SFSI) to measure the performance of States across five parameters of food safety.

Details

- The Union Minister for Health and Family Welfare felicitated nine leading States/UTs based on the ranking for the year 2020-21 for their impressive performance.
- This year, among the larger states, Gujarat was the top ranking state, followed by Kerala and Tamil Nadu.
- Among the smaller states, Goa stood first followed by Meghalaya and Manipur.
- Among UTs, Jammu & Kashmir, Andaman & Nicobar Islands and New Delhi secured top ranks.
- 19 Mobile Food Testing Vans (Food Safety on Wheels) were flagged off to supplement the food safety ecosystem across the country taking the total number of such mobile testing vans to 109.

Fortified Rice Kernels (FRK) For Grade A & Common Rice

Context

- Department of Food and Public Distribution (DFPD) under Ministry of Consumer Affairs, Food and Public Distribution for the first time issued uniform specifications for Fortified Rice Kernels (FRK) for grade A & Common Rice have in case of procurement of Fortified Rice Stocks, of which 1% of FRK (w/w) should be blended with normal rice stock.

Details

- The department issued the uniform specifications of food grains for Central Pool procurement for the ensuing Kharif Marketing Season (KMS) 2020-21.
- These specifications as per standard practice have been issued in respect of Paddy, Rice and other coarse grains namely Jowar, Bajra, Maize, Ragi.
- All States/Union Territories and Food Corporation of India have been advised that the procurement during KMS 2020-21 may be strictly in accordance with the uniform specifications.

Read: <https://www.iasgyan.in/daily-current-affairs/rice-fortification>

Project Fulwari

Context

- Nothern Coalfields Ltd (NCL), a Singrauli based Coal India arm under the Ministry of Coal is all set to start 75 "FulwariCenters" in the Singrauli district of Madhya Pradesh.

Details

- Under the direction of the Ministry of Coal, NCL management conceived and operationalized the Project Fulwari as a part of the Company's sustainable business practices.
- The Company is striving for poverty alleviation, good health, well-being and quality education for the people of its command area.
- The mission aims to address the problem of malnutrition and associated physical and mental development issues of infants.
- At Fulwari Centers, the identified malnourished children are getting special attention to ensure that their weight, physical and mental progress meets the normal standards.
- The arrangement of regular monitoring of their growth is also ensured. This initiative will give impetus to the Centre's fight against malnutrition and its commitment towards Sustainable Social Development.
- The mission aims to address the problem of malnutrition and associated physical and mental development issues of infants.

GS III ECONOMY

Refund of Duties and Taxes on Exported Products (RoDTEP)

Context

- Government will release Rs. 56,027 crore in the current fiscal to disburse all pending export incentives.

Details

- The Centre will release Rs. 56,027 crore in the current fiscal to disburse all pending export incentives relating to **Merchandise Exports from India Scheme (MEIS), Service Exports from India Scheme (SEIS), Rebate of State and Central Taxes and Levies (RoSCTL)**, other scrip-based schemes relating to earlier policies and the remission support for **Refund of Duties and Taxes on Exported Products (RoDTEP)** and RoSCTL for exports.
- The benefits will be disbursed to more than 45,000 exporters, of which 98% are MSMEs.
- The government expects the move will spur higher growth after a 67% increase in goods export.

Need for introduction of RoDTEP Scheme

- The RoDTEP Scheme came into existence because USA filed a complaint against India at the WTO stating that export subsidies like the MEIS scheme given by the Government of India (GOI) gave undue benefits to Indian exporters and was **against the WTO rules.**
- India lost the case at WTO and had to come up with a new WTO-compliant scheme to help Indian exporters.
- Hence, the RoDTEP Scheme was approved by the Union Cabinet on 13th March 2020 and it will be effective from January 2021.

Scope of the RoDTEP Scheme

- RoDTEP is a new scheme to replace the existing MEIS scheme for exports of goods from India, which **aims to reimburse the taxes and duties incurred by exporters** such as local taxes, coal cess, mandi tax, electricity duties and fuel used for transportation, which are not exempted or refunded under any other existing scheme.

- It is a scheme for exporters to make Indian products cost-competitive and create a level playing field for them in the global market.

Who is eligible?

- The Scheme will enclose all sectors (including textiles), with priority given to labour-intensive sectors which are enjoying benefits under MEIS Scheme at 2%, 3% or 5% of the export value from 1 January 2021
- Both merchant exporters (traders) and manufacturer exporters are eligible
- SEZ Units and EOU Units are also eligible to claim benefits
- There is no minimum turnover criteria to claim RoDTEP
- Goods exported through e-commerce platforms via courier are also eligible.
- Country of origin of the exported products should be India, re-exported products are not eligible

Key features of the new RoDTEP scheme

- GOI has mentioned that the Scheme has been allocated additional INR 50,000 crores from GOI corpus to benefit exporters with time-bound duty refunds.
- Under the RoDTEP Scheme, exporters will get refunds in the form of transferable duty credit/electronic scrip, which will be maintained in an electronic ledger.
- MoF has announced that the ITC will create a fully automated refund module to the manufacturing and service sector through Form GST RST-01. The automation shall reduce double taxation, claims for deemed exports, claiming GST tax refunds and acts as an authentic source to UN, WTO and other foreign embassies.



Impact on exporters

- At present, GST and import/customs duties for inputs required to manufacture exported products are either exempted or refunded.
- However, certain taxes/duties/levies are outside GST, and are not refunded for exports.
- The sequence of introduction of the scheme across sectors, prioritisation of the sectors to be covered, degree of benefit to be given on various items within the rates set by the committee will be decided and notified by the department of commerce.
- MEIS benefits would be discontinued on such tariff line/item for which benefit under RoDTEP Scheme is announced.

Pros of RoDTEP

- The RoDTEP Scheme aims to refund all those taxes and levies which are presently disallowed, for example:
- Central & state taxes on the fuel (Petrol, Diesel, CNG, PNG, and coal cess, etc.) used for transportation of export products
- The duty levied by the state on electricity used for manufacturing
- Mandi tax levied by APMCs
- Toll tax & stamp duty on the import-export documentation
- Tax assessment is set to become fully automatic for exporters.
- Exporters will enjoy lower rates of interest on capital loans, higher insurance cover, financial incentives on exports
- Increased loan availability for exporters and provision of credit at reduced interest rates to MSMEs
- The MoF will be working towards reducing the clearance time at airports and ports decrease delays in exports. Exporters will be able to monitor the clearance status real-time via a digital platform.

Cons of RoDTEP

- Since the RoDTEP scheme will be strictly based on the input taxes paid by various sectors, including on fuel and electricity, the rates of refund for sectors where the incidence of such taxes is low, will be much less than what these sectors enjoy under the MEIS scheme.
- For example, sectors like textiles, which do not have incidence of taxes on fuel, will have lower rates under RoDTEP than the engineering goods sector, especially steel and alloys, where the incidence of such taxes is higher.

Conclusion

- Since the incentive rates are not fixed, it is somewhat early to comment on the RoDTEP Scheme. Implementation of the scheme would make India a WTO-compliant exporter in the international market and the process that is promised by GOI seems to be a simpler and more transparent one for exporters, improving efficiencies in collection of refunds as well. However, the question of applicable rates remains open as of now, which may well form the crux of exporters' concerns about the change.

Account Aggregators: New framework to access, share financial data

Context

- On September 2 eight of India's major banks — State Bank of India, ICICI Bank, Axis Bank, IDFC First Bank, Kotak Mahindra Bank, HDFC Bank, IndusInd Bank and Federal Bank — joined the Account Aggregator (AA) network that will enable customers to easily access and share their financial data.

About Account Aggregators

- According to the Reserve Bank of India, an Account Aggregator is a non-banking financial company engaged in the business of providing, under a contract, the service of retrieving or collecting financial information pertaining to its customer.
- It is also engaged in consolidating, organising and presenting such information to the customer or any other financial information user as may be specified by the bank.

About Account Aggregator Framework

- The licence for AAs is issued by the RBI, and the financial sector will have many AAs.
- The AA framework allows customers to avail various financial services from a host of providers on a single portal based on a consent method, under which the consumers can choose what financial data to share and with which entity.

Function of Account Aggregator

- It reduces the need for individuals to wait in long bank queues, use Internet banking portals, share their passwords, or seek out physical notarisation to access and share their financial documents.
- An Account Aggregator is a financial utility for secure flow of data controlled by the individual.
- This will help banks reduce transaction costs, which will enable us to offer lower ticket size loans and more tailored products and services to our customers.
- It will also help us reduce frauds and comply with upcoming privacy laws.

Working of Account Aggregator

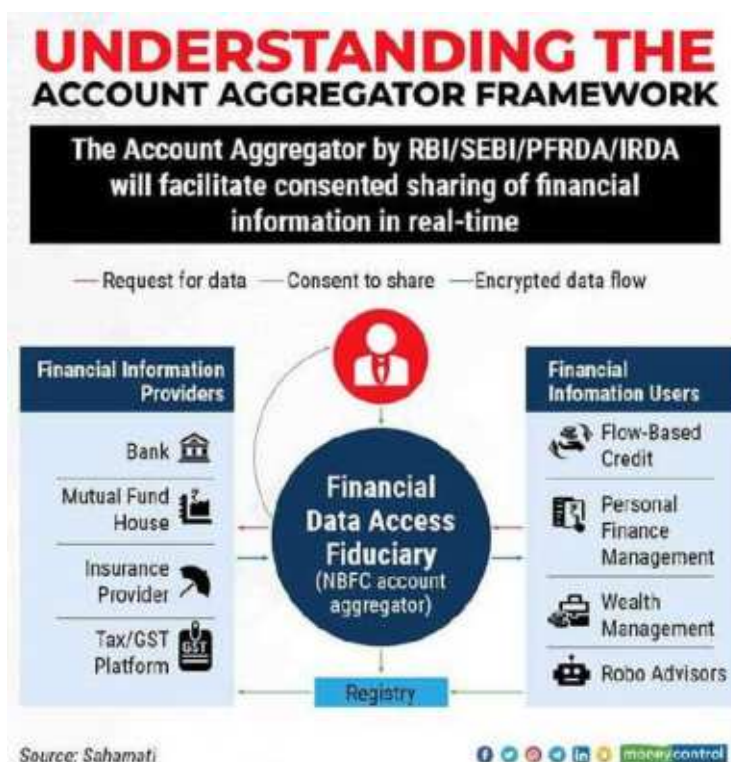
- It has a three-tier structure: Account Aggregator, FIP (Financial Information Provider) and FIU (Financial Information User).
- An FIP is the data fiduciary, which holds customers' data. It can be a bank, NBFC, mutual fund, insurance repository or pension fund repository.
- An FIU consumes the data from an FIP to provide various services to the consumer.
- An FIU is a lending bank that wants access to the borrower's data to determine if the borrower qualifies for a loan. Banks play a dual role – as an FIP and as an FIU.

Sharing of Data

- An Account Aggregator allows a customer to transfer his financial information pertaining to various accounts such as banks deposits, equity, mutual fund and pension funds to any entity requiring access to such information.
- There are 19 categories of information that fall under 'financial information', besides various other categories relating to banking and investments.

About Data Storage Provisions

- Data transmitted through the AA is encrypted.
- AAs are not allowed to store, process and sell the customer's data. No financial information accessed by the AA from an FIP should reside with the AA.
- It should not use the services of a third-party service provider for undertaking the business of account aggregation.



T+1 Settlement System

Context

- SEBI allowed stock exchanges to start the T+1 system as an option in place of T+2.

Why T+1 Settlement System

- A shortened cycle not only reduces settlement time but also reduces and frees up the capital required to collateralise that risk.
- T+1 also reduces the number of outstanding unsettled trades at any instant, and thus decreases the unsettled exposure to Clearing Corporation by 50%.

- The narrower the settlement cycle, the narrower the time window for a counterparty insolvency/bankruptcy to impact the settlement of a trade.

Working of T+2

- If an investor sells shares on Tuesday, settlement of the trade takes place in two working days (T+2). The broker who handles the trade will get the money on Thursday, but will credit the amount in the investor's account only by Friday. In effect, the investor will get the money only after three days.
- In T+1, settlement of the trade takes place in one working day and the investor will get the money on the following day.



- The narrower the settlement cycle, the narrower the time window for a counterparty insolvency/bankruptcy to impact the settlement of a trade.

SEBI (Security Exchange Board of India)

- Initially SEBI was constituted in 1988 as a non-statutory body to deal with all the matters relating to regulation and development of the capital market.
- It was granted statutory status under the SEBI Act 1992.

Functions of SEBI are

- Regulation of Capital Market (both in the primary and secondary markets).**
- To register and regulate intermediaries in the capital market like brokers, sub-brokers, trustees, underwriters, mutual funds.
- To check malpractices in the securities' market, particularly in the Stock Exchange.
- To promote investor education and awareness.
- To protect the interest of the investor.

Stock Exchange

- A physical institutional set-up where capital market instruments (shares, debenture, etc.) are traded.
- It performs the following major functions:
- Efficient price discovery:** A stock exchange determines the process of price discovery via constant valuation of all the securities.
- Liquidity:** Stock Market ensures high liquidity. The securities can be sold at a short notice and be converted to cash.
- Investor Protection:** The government regulates stock exchanges. This provides the investor with assurances to transact in securities

G-33 Virtual Informal Ministerial Meeting

Context

- The G-33 Virtual Informal Ministerial Meeting organized by Indonesia was held.

Comment of the Government

- G-33 must strive for **positive outcomes on permanent solution to Public Stockholding (PSH) for food security purposes which is of utmost importance**, finalization of a Special Safeguard Mechanism (SSM) quickly and a balanced outcome on Domestic Support.
- Agreement on Agriculture at the WTO was riddled with deep imbalances**, which favour the developed countries and have tilted the rules against many developing countries.
- G-33 country must strengthen itself further by reaching out to other like-minded developing groups to secure their support for a fair, balanced and



development-centric outcome on agriculture at MC-12.

WTO SCM (Subsidy and Counter-vailing) Agreement

- It covers subsidization by WTO members and counter-vailing measures.
 - It follows traffic light approach for subsidies.
1. **Red Subsidy (Prohibited)**
 2. **Yellow or Amber (Actionable):** These subsidies are allowed if they do not have adverse impact on other members. Otherwise, other members can apply counter-vailing measures.
 3. **Green (Non-Actionable):** These subsidies are allowed which cover mostly research subsidy, environmental subsidy and assistance to other nations.
- Prohibited subsidies are those, which are contingent on export performance (Export Subsidies) except agreement on agriculture. It also prohibits Import substitution subsidies which allow use of domestic products over imported goods.

Agreement on Agriculture (AoA)

- The WTO Agreement on Agriculture conceived in 1995, represents a significant step towards reforming agricultural trade and making it fairer and more competitive.
- As per the provisions of the Agreement,
- Developed countries would complete their reduction commitments within 6 years, i.e., by the year 2000.
- Commitments of the developing countries would be completed within 10 years, i.e., by the year 2004.
- The least developed countries are not required to make any reductions.
- The WTO Agreement on Agriculture contains provisions in 3 broad areas of agriculture and trade policy viz. market access, domestic support, and export subsidies.

Market Access

- This constitutes tariffication, tariff reduction and access opportunities.
- Ordinary tariffs constituting those resulting from their tariffication are to be reduced by an average of 36% with a minimum rate of reduction of 15% for each tariff item over a 6-year period.
- Developing countries were maintaining Quantitative Restrictions due to balance of payment problems were allowed to offer ceiling bindings instead of tariffication.
- Members countries to provide preferential market access to agriculture product to tariff-rate quota. It should be at least 5% of domestic consumption.

Special Safeguard Mechanism

- It is a protection measure allowed for developing countries to take contingency restrictions against agricultural imports that are causing injuries to domestic farmers.
- The contingency measure is imposition of tariff if the import surge causes welfare loss to the domestic poor farmers.
- The design and use of the SSM is an area of conflict under the WTO.

About G33 Group

- The G33 is a coalition of developing countries that have special concerns on agriculture.
- The group, despite its name, has 47 members currently.

First Ever Euro Green Bond

Context

- Power Finance Corporation Ltd (PFC), the leading NBFC in power sector, has successfully issued its maiden Euro 300 million 7-year Euro Bond.

Details

- It is the first ever Euro denominated Green bond issuance from India.
- Moreover, it is the first ever Euro issuance by an Indian NBFC and the first Euro bond issuance from India since 2017.

KEY ANNOUNCEMENTS

Moratorium on payments: On AGR and deferred spectrum payment. Both payments, if telcos opt for it, will have to be done four years later.

Rationalisation of AGR: The legacy pain point of telcos, which was the inclusion of non-telecom revenues for calculation of adjusted gross revenue, has been done away with.

100% FDI through automatic route: This liberalisation makes it easier for telcos to find global investors.

Rationalisation of spectrum ecosystem: A fixed calendar for auctions, doing away with the need for bank guarantees.

Charges on spectrum removed: Government does away with additional 0.5% SUC that was charged on spectrum sharing, while also allowing telcos to hold the spectrum for 30 years, instead of 20.

Telecom Reform Package

Context

- The Union Cabinet approved a set of nine structural and procedural reforms to address the short-term liquidity needs as well as long-term issues of telecom companies.

Impact on Telcos

- A **four-year moratorium** on payment of dues arising due to the Supreme Court's September 1, 2020 judgment on adjusted gross revenue (AGR) will provide short-term relief to debt-laden Vodafone Idea and Bharti Airtel.
- Measures such as streamlining of the auction calendar and removal of the spectrum usage charges (SUC) from auctions, too, are likely to bring down the dues outgo, while helping telcos plan their auction purchase.

Impact of Reforms on Govt Finances

- it will face some revenue loss in the next four financial years even if two of the three private players opt for it.
- For the current financial year, the government had estimated receipts of Rs 53,987 crore from spectrum usage charges, licence fee levies and other levies. The bulk of this, however, will have to be forgone for four financial years once the telcos opt for the moratorium.



National Single Window System

Context

- Government has launched the national single window system.

Benefits

- It will have solutions for all at one click of the mouse through 'End to End' facilitation.
- It will bring Transparency, Accountability & Responsiveness in the ecosystem
- all information will be available on a single dashboard.
- Foreign & Indian Investors, Businesses and Start-ups will benefit from the initiative.
- It will usher in Azadi from legacy of running to Govt. offices for approvals and registrations

Included Services

- Know Your Approval (KYA) Service:** an intelligent information wizard that generates a list of approvals required by any business to commence operations.
- Common Registration Form:** To ensure a single point of submission of information and documents across Ministries and States, a unified information capturing system along with a common registration form has been introduced.
- State registration form:** Enables investor to have seamless single click access to respective State Single Window System.
- Applicant dashboard:** Provides a single online interface to apply, track and respond to the queries pertaining to approvals and registrations across ministries and States.
- Document repository:** An online centralized storage service for investors to enable one-time document submission and use the same across multiple approvals. This eliminates the need to submit documents at multiple portals.
- E-Communication module:** Enables online response to queries and clarification requests related to applications by Ministries and States.

Gold ETF

Context

- Market regulator SEBI approved a range of new measures including frameworks for gold, social stock exchanges and introduction of silver Exchange Traded Funds or ETFs.

Framework for Gold Exchanges

- The instrument representing gold will be called 'Electronic Gold Receipt (EGR)' and it will be notified as "securities" under Securities Contracts (Regulation) Act, 1956.
- EGRs will have the trading, clearing and settlement features akin to any other security instruments.
- Any recognized stock exchange, existing as well as new, can launch trading in EGRs in a separate segment.
- The denomination for trading of EGR and conversion of EGR into gold, can be decided by the recognized stock exchanges, with the approval of the market regulator.
- The Clearing Corporation will settle the trades, executed on the stock exchange/s, by way of transferring EGRs and funds to the buyer and seller respectively.

- The EGR holder can continue to hold the EGR as long as intended. The EGR holder, at his discretion, can also withdraw the underlying gold from the vaults, upon surrender of the EGRs.

About Clearing House

- A clearinghouse is a designated intermediary between a buyer and seller in a financial market.
- The clearinghouse validates and finalizes the transaction, ensuring that both the buyer and the seller honor their contractual obligations.

Exports

Context

- India's merchandise exports in August touched \$33.14 billion. This marks a significant rise as compared to even the pre-pandemic phase as well.
- In the first five months of 2021-22, India's merchandise exports have now touched \$163.67 billion, nearly 67% higher than that of the corresponding period last year and 22.9% higher than 2019. The steady recovery in global trade seems to be aiding the uptick in exports from India.

Government Targets

- The **government has set a target of merchandise exports worth \$400 billion for the current fiscal year**. Subsequently, the government also aims to reach a merchandise exports target of \$500 billion for FY23 and \$1 trillion in 2027-28.
- The government is aiming to target \$2 trillion exports by 2030, with \$1 trillion from merchandise exports and \$1 trillion from services exports.

Export Promotion Schemes

Duty Drawback Schemes:

- Under this scheme, custom/excise duty paid by exporters of selected products is partially or wholly reimbursed.

Export Promotion Capital Goods (EPCG)

- Under this scheme, exporters can import capital goods at zero or concessional custom duty subject to an export obligation.

Focus Market Scheme

- Exporters are provided duty credit scripts equivalent to 3% of Free on Board (FOB) value of exports if they are exporting to selected destinations/countries.

Focus Product Scheme

- Under this exporter of selected labour intensive product (e.g. handicraft) are provided duty credit script equivalent to 2% of FOB value of exports.

Insolvency and Bankruptcy Code

Context

- The insolvency regulator has called for public comments on a proposal to introduce a code of conduct for Committees of **Creditors (CoC), of companies undergoing insolvency proceedings under the Insolvency and Bankruptcy Code (IBC).**

About Committee of Creditors under IBC

- Under the IBC, a CoC composed of financial creditors to the Corporate Debtor (CD) — or operational creditors in the absence of unrelated financial creditors — is empowered to take key decisions, including decisions on haircuts for creditors, that are binding on all stakeholders, including those dissenting.
- The CoC is also empowered to seek and choose the best resolution plan for a corporate debtor from the market.
- its role is vital for a timely and successful resolution for a CD.
- The Insolvency and Bankruptcy Board of India (IBBI) noted that a code of conduct for CoCs would promote transparent and fair working on the part of CoCs.

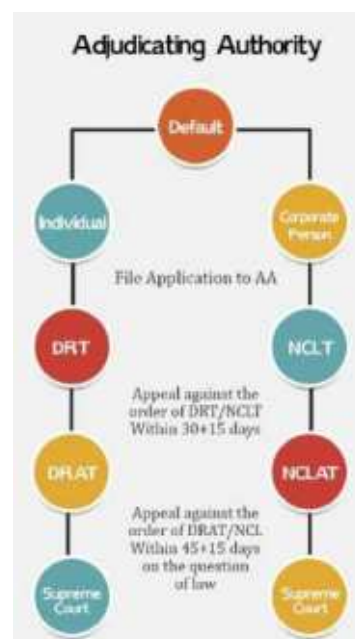
Need for Code of Conduct

- Delays in resolution are seen as contributing to loss of value in corporate debtors and have become a key criticism of the IBC, with over 75 per cent of ongoing insolvency proceedings having crossed the 270-day timeline.

Surging higher

In August 2021, India's exports rose by 45% from the August 2020 figure and 27.5% from the August 2019 level. Imports too recorded similar increases

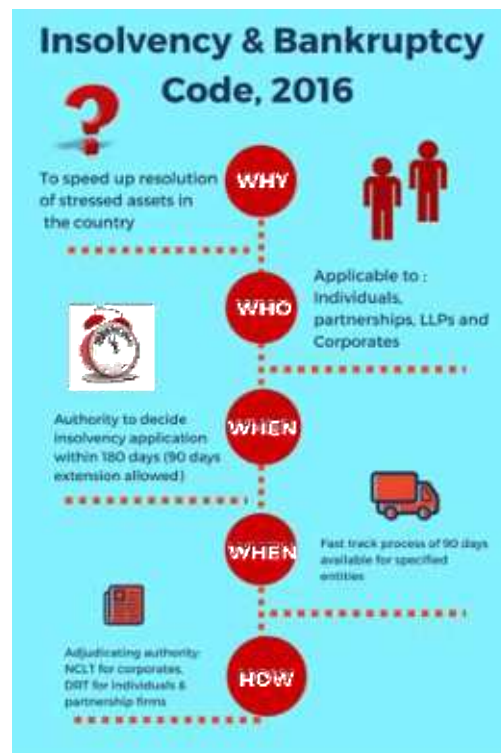
	Merchandise trade in August (in \$ billion)			% growth	
	August 2021	August 2020	August 2019	Aug. '21 over Aug. '20	Aug. '21 over Aug. '19
Exports	33.14	22.83	25.99	45.17	27.5
Imports	47.01	31.03	39.85	51.47	17.95



- A code of conduct require that members of the CoC nominate representatives with sufficient authorisation to participate in meetings and make decisions during the process.
- It requires members of the CoC not influence the decision or the work of committee, so as to make undue gain or advantage for itself or its related parties, and that members take decisions in an unbiased manner.

Insolvency and Bankruptcy Code (IBC)

- IBC provides a **time-bound procedure** to resolve insolvency in companies and amongst individuals. Insolvency is a condition **where companies or individuals are unable to repay their outstanding debt**.
- When a default in repayment happens, **creditors gain control over the debtor's (who owes money) assets** and must take decisions to resolve insolvency within a 180-day period.
- Under IBC, a financial creditor may file an application before the National Company Law Tribunal for starting the insolvency resolution process. **The National Company Law Tribunal must find the existence of default within fourteen days.**
- A Committee of Creditors (CoC) comprising financial creditors will be constituted for taking decisions with respect to insolvency resolution. The CoC may either choose to restructure the debtor's debt by preparing a resolution plan or liquidate the debtor's assets.
- The Committee of **Creditors will appoint a resolution professional who will make and present a resolution plan to the CoC**. The CoC must approve this plan, and the process of resolution must be finalized within 180 days. This process may be extended by a period of up to ninety days if the extension is approved by NCLT.
- If the CoC does not approve the resolution plan, the debtor will go into liquidation.
- The IBC also adds that the resolution process must be finalized within 330 days. This includes time for any extension granted and the time taken in legal proceedings in relation to the process.



Enforcement Directorate

Context

- The Supreme Court dismissed a plea challenging retrospective change in the 2018 appointment order of Sanjay Kumar Mishra as director of the Enforcement Directorate (ED).

Condition for appointment of director

- The appointment of the director at the ED is governed by Section 25 of CVC Act, 2003.
- As per the law, no person below the rank of Additional Secretary to the government is eligible for appointment as the director.
- the person appointed has a fixed term of not less than two years.

About the Enforcement Directorate

- The Directorate of Enforcement (ED) is a law enforcement agency and economic intelligence agency responsible for enforcing economic laws and fighting economic crime in India.
- It is part of the Department of Revenue, Ministry of Finance, Government Of India.
- It is composed of officers from the Indian Revenue Service, Indian Corporate Law Service, Indian Police Service and the Indian Administrative Service as well as promoted officers from its own cadre.

Functions

- **Directorate of Enforcement is a specialized financial investigation agency** under the Department of Revenue, Ministry of Finance, Government of India, which enforces the following laws: -
- **Foreign Exchange Management Act, 1999 (FEMA)** - A Civil Law, with officers empowered to conduct investigations into suspected contraventions of the Foreign Exchange Laws and Regulations, adjudicate contraventions, and impose penalties on those adjudged to have contravened the law.
- **Prevention of Money Laundering Act, 2002 (PMLA)** - A Criminal Law, with the officers empowered to conduct investigations to trace assets derived out of the proceeds of crime, to provisionally attach/ confiscate the same, and to arrest and prosecute the offenders found to be involved in Money Laundering.

Thermal Power Scenario report prepared by EMBER

Context

- INDIA DOES not require additional new coal capacity to meet expected demand growth by financial year 2030, according to a report prepared by EMBER, an independent British energy think-tank.

Details of the Report

- Even if India's power demand grows 5 per cent annually, in line with the most optimistic International Energy Agency projection, coal-fired generation in the financial year 2030 will be lower than in the financial year 2020, as long as India achieves its non-coal generation targets – its renewable energy targets.
- More coal capacity beyond what's already under construction isn't needed to meet the aggregate demand growth by FY 2030.
- India's peak demand would reach 301 GW by 2030, if it grows at an annual growth rate of 5 per cent, which is also in lines with projections made by the Central Electricity Authority.

About Zombie Coal Plants:

- Development of new coal plants will lead to "zombie" units – ones which will exist, but not be operational.
- India can free up Rs 247,421 crore by "killing" the zombie coal projects, as these surplus plants, if built, will require an estimated Rs 247,421 crore investment.
- They will lock consumers into expensive contracts and jeopardise India's RE [renewable energy] goals by adding to the system's overcapacity.
- The smart option is to divert these resources to renewables and storage to build a cheaper, more resilient grid for the future.

Coal Based Hydrogen Production

Context

- Ministry of Coal Constituted Task Force and Expert Committee to Prepare Road Map for Coal based Hydrogen Production.

Details

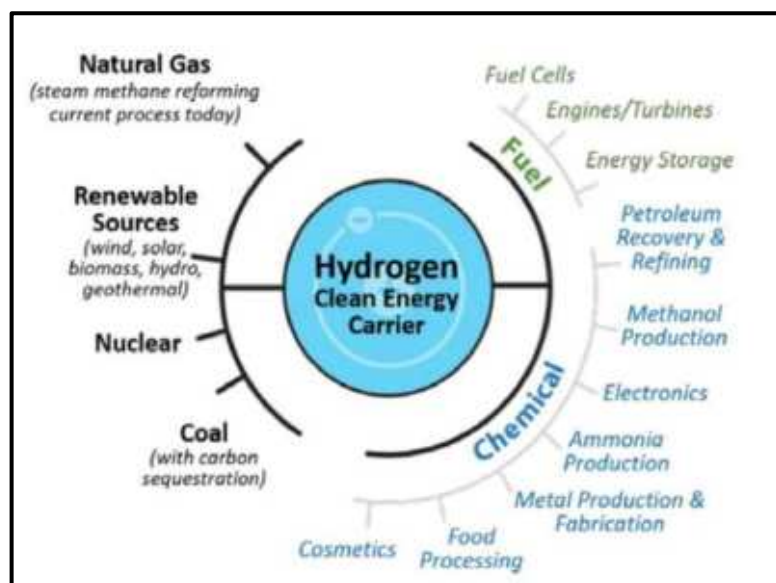
- The Ministry of Coal has constituted 2 Committees, one to oversee the program and another of experts to give guidance to the Ministry.
- This is aimed at contributing to the agenda of a hydrogen-based economy in a clean manner.
- The Task Force constituted is chaired by the Additional Secretary, Coal and has the following terms of reference:
 - Identification of role to be played by each stakeholder Ministry.
 - Coordination with Stakeholder Ministries.
 - Monitoring of activities towards achieving coal based Hydrogen production and usage.
 - Setting up sub committees to achieve the objective.
 - To coordinate with Coal Gasification Mission and NITI Aayog.

The Expert Committee has the following terms of reference

- Identifying experts in India and co-opting as members.
- Desk based review of progress in hydrogen technology and also reviews ongoing research projects in Hydrogen technology.
- Coordinate with various national/international technology institutions in hydrogen.
- Prepare a road map for coal based Hydrogen production and usage including economic viability, environmental sustainability and policy enablers required.
- Identifying activities for implementation of coal based hydrogen production and usage.
- Assisting Task force in implementation of Coal based Hydrogen production and usage.

Background

- Coal is one of the important sources of hydrogen making apart from natural gas and renewable energy through electrolysis.
- Hydrogen obtained from coal is called Brown Hydrogen.
- Coal has not been encouraged in hydrogen production because of the fear that while extracting hydrogen via coal (from the moisture embedded in coal) there may be carbon emission.
- Almost 100% of hydrogen produced in India is through natural gas.



- Cost of hydrogen produced from coal can be cheaper and less sensitive to imports when compared with hydrogen production through electrolysis and natural gas respectively.
- Production of hydrogen from coal will have challenges in terms of high emissions and CCUS will play an important role. However, when the carbon monoxide and carbon dioxide formed during coal to hydrogen process are trapped and stored in an environmentally sustainable manner (CCS and CCUS), then, Indian coal reserves could become a great source of hydrogen.

AGRICULTURE

Confederation of Indian Industry (CII)

Context

- Union Agriculture Minister addressed the 16th sustainability summit 2021 of the Confederation of Indian Industry (CII).

About

- The Confederation of Indian Industry (CII) is a non-governmental trade association and advocacy group headquartered in New Delhi, India, founded in 1895.
- CII engages business, political, academic, and other leaders of society to shape global, regional, and industry agendas. It is a membership-based organization.

Agri Stats

In News

- Due to a gap between demand and supply, around 60% of the edible oils consumed in the country are met through imports.
- In this accord, palm oil constitutes around 54% of the total edible oil imported mainly from Indonesia and Malaysia, while Soyabean oil constitutes around 25% and is imported from Argentina and Brazil and Sunflower oil constitutes 19% and is imported mainly from Ukraine.
- Taking year on year comparison for the month of August it can be seen that the total palm oil imports (crude and refined) for 2019, 2020 and 2021 was 8.81 LMT, 7.48 LMT and 7.43 LMT respectively which is still below the usual demand in the economy.

Import of Palm Oil (LMT)			
Oil	Aug-19	Aug-20	Aug-21
Crude Palm Oil	5.78	7.48	5.27
RBD Palmolein	3.03	-*	2.16
Total Palm Oil Imports	8.81	7.48	7.43

Indigenous Rice Varieties

Context

- As many as 12 folk varieties of Indian rice examined by researchers can supplement the nutritional demand of important fatty acids in undernourished mothers, a recent study has claimed.

Fold Rice varieties

- In India, many folk varieties like Athikaraya, Dudh-sar, Kayame, Neelam samba, Srihati, Maharaji and Bhejri are known in folk medicine to enhance milk production in lactating women.
- Other traditional varieties like Kelas, DudheBolta and Bhutmoori are rich in iron and can be included in diet of mothers to treat anaemia.
- High-yield hybrids pushed out indigenous rice varieties and many of these varieties, called landraces are nearing extinction in India.
- Tilak Chandan is a thick, small-grained rice famous for its fragrance and cultivated in Uttar Pradesh's Bijnore and Rampur.
- Bindli, a once famous rice variety of Uttar Pradesh.
- Kalanamak, a scented rice variety grown in Uttar Pradesh, is fast going out of cultivation.
- Bao-dhaan (red rice) from Assam was sent to the US in March 2021.
- The iron-rich red rice is grown in the Brahmaputra valley of Assam, without the use of any chemical fertilizer.

- Seven rice varieties of North East India – Meghalaya lakang, Chingphourel, Manuikhamei, Kemenyakepeyu, Wainem, Thekrulha, and Koyajang – has the potential to resist leaf and neck blast disease in rice plants.

Digital Saathi

Context

- Cargill has launched 'Digital Saathi' – a mobile-first, artificial-intelligence (AI)- based local online service platform.

About

- Digital Saathi will provide digitally enabled agriculture advisory services and enhanced market access to smallholder farmers based in 5 districts of Karnataka.
- Small and marginal farmers will gain easy access to multiple stakeholder such as peer farmers, Farmer Producing Companies, agri-suppliers, buyers, traders and processors.
- Digital Saathi provides farmers with digital solutions like discussion forums and information on market price, weather forecasts, pre- to post-harvest and other related details.
- The app will also feature Crop Input e-commerce and Crop Sell Offer to improve access to good quality crop inputs and enable market linkages between farmers and aggregators through the digitally enabled marketplace.

Significance

- This is a step towards building a farmers' ecosystem, supporting them and increasing productivity and profitability
- Digital Saathi will continue working with farmer needs in the region and collaborating with various stakeholders to bring in the best of innovations and solutions for the agriculture industry.

Soyabean

Context

- Soyabean prices have crashed by close to 50% within a month in Madhya Pradesh and Maharashtra, the top soyabean producing states of the country leading to farmers' protests across the soyabean growing states.

Soybean

- Soybean grows well in warm and moist climate.
- A temperature of 26 to 30°C appears to be the optimum for most of the varieties.
- Soil temperatures of 15.5°C or above favor rapid germination and vigorous seedling growth.
- A lower temperature tends to delay the flowering.
- In 2020, Brazil overtook the United States as the leading soybean producing country.
- Production of soybean in India is dominated by Maharashtra and Madhya Pradesh which contribute 89 per cent of the total production.

MACS 1407

- Indian scientists recently developed a new Soy Bean variety called the "MACS 1407".
- It is a high yielding variety that gives 39 quintals per hectare.

Judima

Context

- Judima, has become the first traditional brew in all of northeast to bag a geographical indication (GI) tag.

About

- Judima, is a home made rice wine is a speciality of the Dimasa tribe of Assam's Dima Hasao district.
- Made from sticky rice, which is steamed and mixed with traditional herbs, the wine has a distinct sweet taste and takes around one week to prepare.
- However, it can be stored for years.

Significance

- Besides ensuring quality control mechanisms, the GI tag for Judima will enable those, who have the right to its use, prevent its misuse by a third party whose product does not conform to the applicable standards.

SCIENCE & TECHNOLOGY

INSPIRESat-1 CubeSat

Context

- INSPIRESat-1 CubeSat, developed under the International Satellite Program in Research and Education (INSPIRE), is ready for launch, the Indian Institute of Space Science and Technology (IIST) has said.

About

- INSPIRESat-1 is a collaborative effort by the Laboratory for Atmospheric and Space Physics (LASP) at the University of Colorado Boulder in the U.S., the National Central University, Taiwan, and the Nanyang Technological University in Singapore, apart from the IIST.
- The satellite, which will be placed in a low earth orbit, is equipped with a Compact Ionosphere Probe for studying the earth's ionosphere.
- A constellation of earth and space-weather observation satellites is envisaged under the INSPIRE programme.
- The small satellite that weighs less than 10 kg will be launched aboard an upcoming Polar Satellite Launch Vehicle (PSLV) mission of the Indian Space Research Organisation (ISRO).
- A CubeSat (U-class spacecraft) is a type of miniaturized satellite for space research that is made up of multiple cubic modules of 10 cm × 10 cm × 10 cm size.

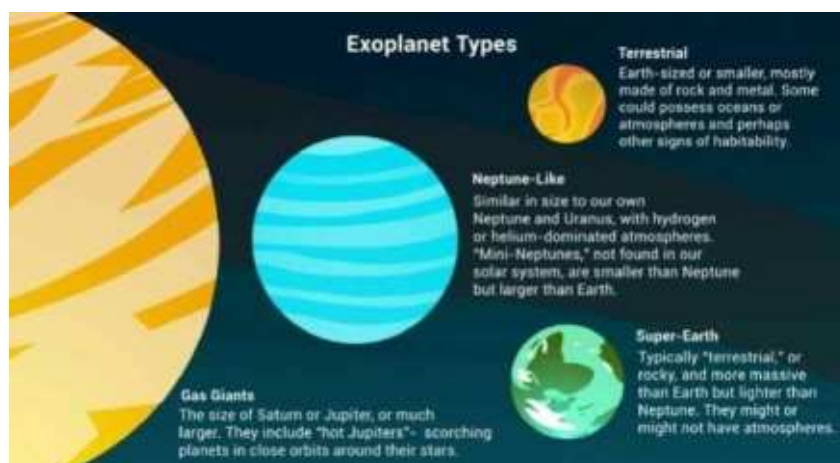
Hycean Worlds

Context

- A study published in The Astrophysical Journal identifies a new class of exoplanets – Hycean worlds – that could support life different from that on Earth.

Details

- These planets are about 2.6 times the size of Earth, have temperatures about 200 degrees Celsius and planet-wide oceans. These could support microbial underwater life.
- Exoplanets are planets that orbit a star other than our sun. The prefix exo comes from the Greek and means outside; these worlds are far, far outside our own solar system.



Inspiration4

Context

- Entrepreneur Elon Musk's SpaceX announced that 'Inspiration4', **its first all-civilian, non-governmental spaceflight, is on track for launch on September 15.**

Details

- The mission involves circling the Earth for three days, and then splashing down into the Atlantic Ocean.
- Inspiration4 will orbit the Earth at 575km, higher than the International Space Station (408km) and the Hubble space telescope (547km).

Significance

- In this journey data will be collected on ECG (electrocardiograph) activity, movement, sleep, heart rate and rhythm, blood oxygen saturation, cabin noise and light intensity, which will help in assessing behavioural and cognitive changes over the journey.
- The travelers will undergo balance and prescription tests just before and after their journey to assess their response to the change in gravity.
- Immune system function will also be monitored by collecting blood.
- Their organ systems will also be monitored by an AI-powered ultrasound device.
- Thus, the journey will present an opportunity for collecting large amounts of health data that will aid in planning future crewed space missions.

ATL Space Challenge 2021

Context

- Atal Innovation Mission (AIM), NITI Aayog in collaboration with the Indian Space Research Organisation (ISRO) and Central Board of Secondary Education (CBSE) successfully launched the ATL Space Challenge 2021 for all school students across the country.
- current affairs image

About

- The challenge has been designed for all the school students, mentors and teachers across the country who not only are associated with schools having ATL labs but for all the non ATL schools as well.
- This is to ensure that students of classes 6 to 12 are given an open platform where they can innovate and enable themselves to solve digital age space technology problems.
- The ATL Space Challenge 2021 aligns with the World Space Week 2021 which is being observed from 4 to 10 October each year at the global level in order to celebrate the contributions of space science and technology.
- Students can create a solution that can be implemented and adopted leveraging technologies such as:
 - o Explore Space
 - o Reach Space
 - o Inhabit Space
 - o Leverage Space

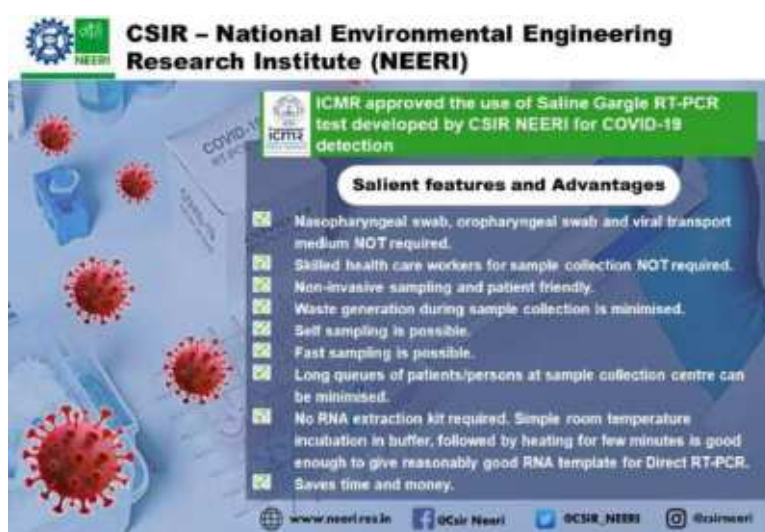
Precision-Guided Sterile Insect Technique (pgSIT)

Context

- Leveraging advancements in CRISPR-based genetic engineering, researchers have created a system that restrains populations of mosquitoes that infect millions each year with debilitating diseases.

About

- The “precision-guided sterile insect technique” (pgSIT), alters genes linked to male fertility—creating sterile offspring—and female flight in *Aedes aegypti*, the mosquito species responsible for spreading diseases including dengue fever, chikungunya and Zika.
- The pgSIT uses CRISPR to sterilise male mosquitoes and render female mosquitoes (which spread disease) flightless.
- The system is self-limiting and is not predicted to persist or spread in the environment, two safety features that should enable acceptance for this technology.
- The scientists say pgSIT eggs can be shipped to a location threatened by mosquito-borne disease or developed at an on-site facility that could produce the eggs for nearby deployment.
- Once the pgSIT eggs are released in the wild, sterile pgSIT males will emerge and eventually mate with females, driving down the wild population as needed.



Saline Gargle RT-PCR Method'

Context

- Nagpur-based National Environmental Engineering Research Institute (NEERI) under the Council of Scientific and Industrial Research (CSIR) has transferred the know-how of indigenously developed Saline Gargle RT-PCR technique, used for testing COVID-19 samples.

About

- It is simple, fast, cost-effective, patient-friendly and comfortable; it also offers instant results and is well-suited for rural and tribal areas, given minimal infrastructure requirements.
- The method is non-invasive and so simple that the patient herself can collect the sample.

Method

- Collection methods like nasopharyngeal and oropharyngeal swab collection require technical expertise; they are also time-consuming.
- In contrast, the Saline Gargle RT-PCR method uses a simple collection tube filled with saline solution.
- The patient gargles the solution and rinses it inside the tube.
- This sample in the collection tube is taken to the laboratory where it is kept at room temperature, in a special buffer solution prepared by NEERI.
- An RNA template is produced when this solution is heated, which is further processed for Reverse Transcription Polymerase Chain Reaction (RT-PCR).

Colour-Coded Weather Warning

Context

- Amid heavy rainfall in Delhi-NCR on Saturday, the India Meteorological Department (IMD) issued an orange alert for three hours in the region.

About

- Colour codes are used in weather warnings for bringing out the severity of the weather phenomena expected as per the Indian Meteorological Department (IMD).
- The main purpose is to forewarn disaster management authority and people to keep themselves ready for necessary action related to disaster risk reduction.
- These alerts are universal in nature and are also issued during floods, depending on the amount of water rising above land/in a river as a result of torrential rainfall.

The Colour Codes

- The IMD uses 4 colour codes:
- Green (All is well):** No advisory is issued.
- Yellow (Be Aware):** Yellow indicates severely bad weather spanning across several days. It also suggests that the weather could change for the worse, causing disruption in day-to-day activities.
- Orange/Amber (Be prepared):** The orange alert is issued as a warning of extremely bad weather with the potential of disruption in commute with road and rail closures, and interruption of power supply.
- Red (Take Action):** When the extremely bad weather conditions are certainly going to disrupt travel and power and have significant risk to life, the red alert is issued.

	NO SEVERE WEATHER EXPECTED Keep up to date with latest forecast
	BE AWARE Remain alert and keep up to date with latest forecast
	BE PREPARED Remain vigilant, keep up to date with latest forecast and take precautions where possible
	TAKE ACTION Remain extra vigilant, keep up to date with latest forecast. Follow orders and any advice given by authorities and be prepared for extraordinary measures

REX MKII

Context

- Recently, an Israeli defense contractor unveiled a remote-controlled armed robot called 'REX MKII' that can patrol battle zones, track infiltrators and open fire.

About

- It is operated by an electronic tablet and can be equipped with two machine guns, cameras and sensors.
- The robot can gather intelligence for ground troops, carry injured soldiers and supplies in and out of battle, and strike nearby targets.
- Proponents say such semi-autonomous machines allow armies to protect their soldiers, while critics fear this marks another dangerous step toward robots making life-or-death decisions.

Strophodus Jaisalmerensis

Context

- In a rare discovery, teeth of new species of Hybodont shark of Jurassic age have been reported for the first time from Jaisalmer by a team of officers from the Geological Survey of India (GSI), Western Region, Jaipur.

Details

- Hybodont sharks have been reported for the first time from the Jurassic rocks (approximately, between 160 and 168 million-years-old) of the Jaisalmer region of Rajasthan.
- Hybodonts, an extinct group of sharks, was a dominant group of fishes in both marine and fluvial environments during the Triassic and early Jurassic time.
- However, hybodont sharks started to decline in marine environments from the Middle Jurassic onwards until they formed a relatively minor component of open-marine shark assemblages.
- Hybodonts finally became extinct at the end of the Cretaceous time 65 million years ago.

Adaptive Refresh Rate

Context

- The recent iPhone 13 Pro range is offering a 120Hz high-refresh-rate display which Apple is calling ProMotion.

Refresh Rate

- Whether it is a TV, a PC monitor, or a smartphone, all devices constantly change the pixels they display to project the appearance of motion.
- Simply put, **refresh rate means how many times the image on a screen can be updated** or "refreshed" every second – much faster than your eye can detect.

- A 60Hz TV can refresh the screen 60 times per second, while a 120Hz on the iPhone 13 Pro can refresh the screen 120 times per second. The higher the refresh rate, the more times per second the screen is refreshing its pixels.

Adaptive Refresh Rate

- When a display has an adaptive refresh rate the refresh rate changes from **10Hz to 120Hz** depending on the content being played.
- So, a static website will be played at a 10Hz refresh rate and a game at a 120Hz refresh rate.
- This means there is little chance of under delivering or over delivering refresh rate.

Planetarium Innovation Challenge

Context

- MyGov India, under the Ministry of Electronics and Information Technology (MeitY), has launched the Planetarium Innovation Challenge for Indian start-ups and tech entrepreneurs.

About

- The challenge invites applications from start-ups and tech entrepreneurs to develop state-of-the-art technology for our Planetariums.
- The challenge aims to bring together the tech firms and Start-ups (based out of India) with the potential to build an indigenous planetariums system software using latest technologies including Augmented Reality (A.R.), Virtual Reality (V.R.) and Merged Reality (M.R.).
- The Innovation Challenge is open to experts from all domains of Planetarium Technology.
- The applicants may include Start-ups, Indian Legal Entities; even Individuals (or Teams) are welcome to submit ideas.
- The first winner, second winner and third winner under the contest will get the cash prizes of Rs.5 lakh, Rs.3 lakh and Rs.2 lakh respectively.

Global Innovation Index 2021

Context

- India has climbed 2 spots and has been ranked 46th by the **World Intellectual Property Organization (WIPO)** in the Global Innovation Index 2021 rankings.

Published by

- The GII report is published by WIPO in partnership with the Portulans Institute, with support of corporate network partners, such as the Confederation of Indian Industry, Brazilian National Confederation of Industry, Ecopetrol Group (Colombia), and the Turkish Exporters Assembly.

TOP THREE INNOVATION ECONOMIES BY INCOME GROUP	
Incomes	Countries (top three)
High income	Switzerland, Sweden, USA
Upper middle income	China, Bulgaria, Malaysia
Lower middle income	Vietnam, India, Ukraine
Low income	Rwanda, Tajikistan, Malawi

Source: Global Innovation Index 2021 by World Intellectual Property Organization

India's performance

- India has been on a rising trajectory, over the past several years in the **Global Innovation Index (GII)**, from a rank of 81 in 2015 to 46 in 2021.
- Lauding India's efforts, the GII report said that selected middle-income economies are changing the innovation landscape, starting with **China; Turkey, Vietnam, India, and the Philippines** now pulling their weight.

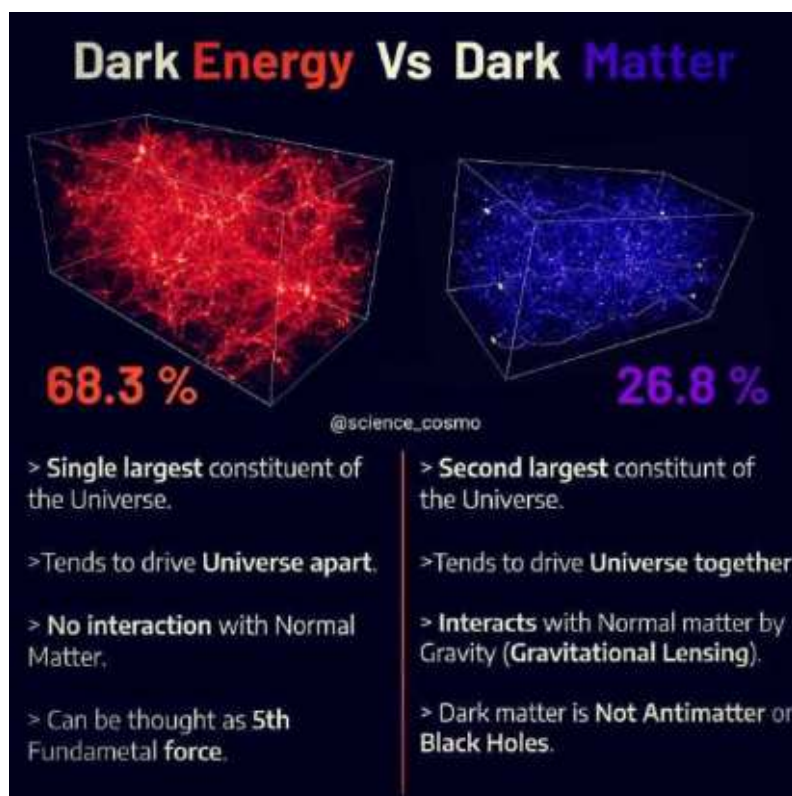
Dark Energy and Dark Matter

Context

- A new study, led by researchers at the University of Cambridge and reported in the journal Physical Review D, suggests that some unexplained results from the **XENON1T experiment** in Italy may have been caused by dark energy, and not the dark matter the experiment was designed to detect.

About

- Dark energy is the name given to the mysterious force that's causing the rate of expansion of our universe to accelerate over time, rather than to slow down.
- Dark matter is a component of the universe whose presence is discerned from its gravitational attraction rather than its luminosity.
- Unlike normal matter, dark matter does not interact with the electromagnetic force.
- This means it does not absorb, reflect or emit light, making it extremely hard to spot.
- In fact, researchers have been able to infer the existence of dark matter only from the gravitational effect it seems to have on visible matter.



Tianzhou-3

Context

- Tianzhou-3 cargo spacecraft docks with China space station module

About

- Tianzhou 3 is a mission of the Tianzhou-class uncrewed cargo spacecraft.
- Like previous Tianzhou missions, the spacecraft was launched from Wenchang Satellite Launch Center in Hainan, China on a Long March 7 launch vehicle.
- Tianzhou 3 is the second cargo resupply mission to the Tianhe core module (TCM) of the under-construction **Tiangong space station**, carrying over six tons of supplies.
- Tiangong is a space station being constructed by China in low Earth orbit between 340 and 450 km above the surface.
- Being China's first long-term space station, it is the goal of the "Third Step" of the China Manned Space Program.

VIPER

Context

- VIPER to look for answers on lunar South Pole on how did frozen water arrive on Moon.

About

- **VIPER (Volatiles Investigating Polar Exploration Rover)** is a lunar rover developed by NASA (Ames Research Center), and currently planned to be delivered to the surface of the Moon in November 2023.
- The rover will be tasked with prospecting for lunar resources in permanently shadowed areas in the lunar south pole region, especially by mapping the distribution and concentration of water ice.
- VIPER will be carried aboard Astrobotic's Griffin lander as part of NASA's Commercial Lunar Payload Services (CLPS) initiative.
- Nasa has selected **Nobile Crater** as the potential site for landing the rover and exploring the possibility of resources.
- Nobile is an impact crater that was formed through a collision with another smaller celestial body and is almost permanently covered in shadows, allowing ice to exist there.

Why the South Pole?

- The Moon's South Pole is one of the coldest areas in our solar system and scientists have thus far only studied the region using remote sensing instruments, including those on Nasa's Lunar Reconnaissance Orbiter and the Lunar Crater Observation and Sensing Satellite.
- Data from these observations have led to the conclusion that the **South Pole on the Moon** could be home to ice and other potential resources that exist in permanently shadowed areas of the Moon.

- Scientists aim to study the origin and distribution of water on the Moon and prepare to harvest the resources 2,40,000 miles from the Earth that could be used to safely send astronauts farther into outer space.
- VIPER team aims to address **how frozen water and other resources arrived on the Moon in the first place** and plans to identify where they came from, how they remained preserved for billions of years, how they escape, and where they go.

Roman Space Telescope

In News

- The Roman Space Telescope will survey the sky up to thousands of times faster than can be done with Hubble.

About

- The Nancy Grace Roman Space Telescope is a NASA infrared space telescope currently under development.
- It is based on an existing 2.4 m wide field of view primary mirror and will carry two scientific instruments.
- It will be able to supersede Hubble, providing a panoramic field of view at least 100 times greater than Hubble's at similar image sharpness, or resolution.

Objective

- The telescope will look at answers pondering scientists on Earth for decades including how galaxies form and evolve over cosmic time? How did the largest structures in the universe assemble? How did the Milky Way galaxy come to be in its current form?
- Roman will give us the ability to see faint objects and view galaxies over long intervals of cosmic time.
- That will allow us to study how galaxies assembled and transformed.
- It will try to understand the evolution of galaxies not only of the Milky Way but in its neighboring regions as well.
- Roman's infrared detectors are ideal for capturing light emerging from those galaxies and can pick up signals from distant and fainter galaxies.
- Right now, with telescopes like Hubble, we can sample tens of high-redshift galaxies. With Roman, we'll be able to sample thousands.

Isothermal Forging Technology

Context

- The Defence Research and Development Organisation (DRDO) has established an **isothermal forging technology** to produce various stages of high pressure compressor discs from titanium alloy for aeroengines.
- This is a crucial technology for establishing self-reliance in aero engine technology.

What is isothermal forging technology?

- In metallurgy, the process of Forging is termed as shaping metal and increasing its strength by hammering or pressing.
- Forging has different types, among them is isothermal forging technology.
- In Isothermal forging, the die and the workpiece are maintained at the same temperature throughout the forging cycle.
- This technology is widely used to forge titanium-based alloys.
- That is why this technology is best suited for the high-pressure compressors (HPC) discs that are used in aero-engines.
- The fighter jet engine needs components with the highest precision, as a small deformity can lead to huge damage. The isothermal forging technology provides the components with the highest precision.

Significance

- DRDO's technological breakthrough has put India on the world platform to create high-end technology in the defense sector.
- This will further open doors for the nation to build a completely indigenous aircraft.

Microflier

Context

- North-Western University engineers have created an electronic microchip with the capability of flight.

About

- About the size of a grain of sand, the new flying microchip (or "microflier") does not have a motor or engine.
- Instead, it catches flight on the wind — much like a maple tree's propeller seed — and spins like a helicopter through the air toward the ground.
- These microflier as the "smallest-ever human-made flying structures".

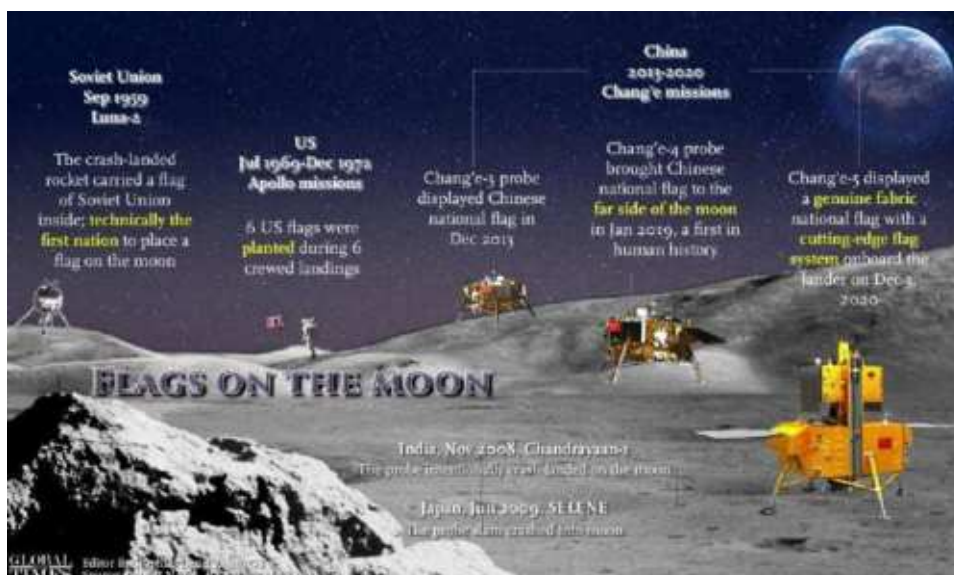
Indian Astronomical Observatory

Context

- The Indian Astronomical Observatory (IAO) is becoming one of the promising observatory sites globally, said a recent study.

About

- The Indian Astronomical Observatory (IAO), located in Hanle near Leh in Ladakh, has one of the world's highest located sites for optical, infrared and gamma-ray telescopes.
- It is operated by the Indian Institute of Astrophysics, Bangalore.
- It is currently the **ninth highest optical telescope in the world**, situated at an elevation of 4,500 meters (14,764 ft).
- The Indian Astronomical Observatory stands on Mt. Saraswati, Digpa-ratsaRi, Hanle in south-eastern Ladakh union territory.
- The Observatory has two active telescopes. These are the 2.01 meter optical-infrared **Himalayan Chandra Telescope (HCT)** and a **High Altitude Gamma Ray Telescope (HAGAR)**.



Landsat 9

Context

- US space agency NASA has cleared the launch of Landsat 9 by Atlas V rocket.

About

- Landsat 9 is a powerful **Earth-observing satellite**.
- The Landsat 9 satellite is a **joint NASA and US Geological Survey (USGS) mission** that will continue the legacy of monitoring Earth's land and coastal regions that began with the first Landsat satellite in 1972.
- The rocket will take Landsat 9 to its orbit 438 miles above Earth.
- Landsat 9 will join its sister satellite, Landsat 8 that was launched in 2013, in orbit in collecting images from across the planet every eight days.
- This calibrated data will continue the Landsat programme's critical role in monitoring the health of Earth and helping people manage essential resources, including crops, irrigation water, and forests.
- It will also study the boundaries of Earth's magnetic field, to see how energy from the Sun can break through our planet's magnetic shield, and study how quickly their atmospheres are escaping.

ENVIRONMENT & ECOLOGY

Leaded Petrol

Context

- The use of leaded petrol has been eradicated from the globe.
- It will prevent more than 1.2 million premature deaths and save world economies over \$2.4 trillion annually, the UN Environment Programme (UNEP).
- The successful enforcement of the ban on leaded petrol is a huge milestone for global health and our environment.

What is leaded petrol?

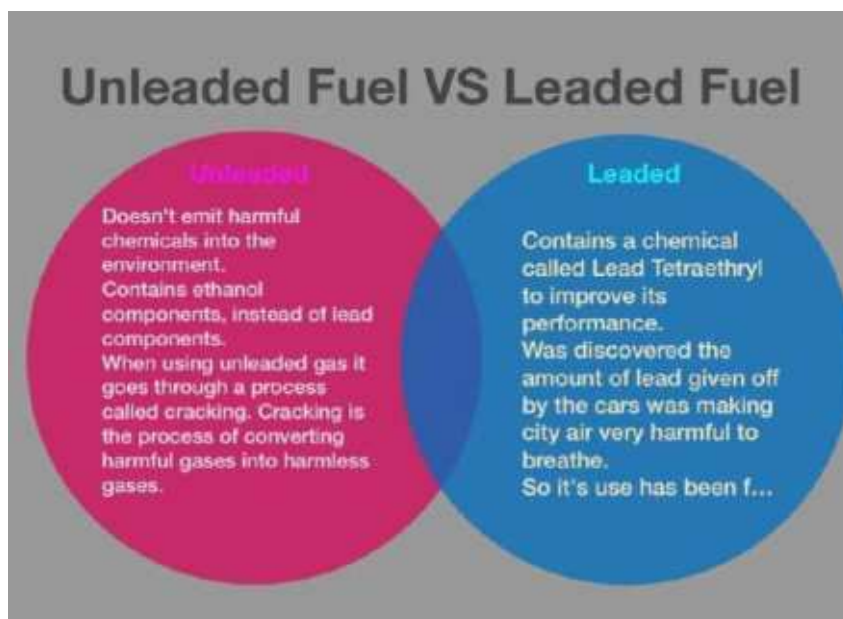
- Leaded petrol - gasoline treated with a lead compound to reduce motor knocks.
- Combustion of leaded gasoline release lead into the air, where it could cause lead poisoning.
- Lead serves two functions in engines:
 - It suppresses engine knock and, more importantly
 - It extends the life of intake and exhaust valves inside the engine.

Concerns with leaded petrol

- Leaded petrol has caused **more exposure to lead** than any other source worldwide.
- It **contaminates air, dust, soil, drinking-water and food crops**, it has caused harmfully high human blood lead levels around the world, especially in children.
- It can cause heart disease, cancer and stroke, and has been linked to problems with brain development in children.

Difference between leaded and unleaded petrol India and leaded petrol

- India banned leaded petrol in March 2000.
- By 2011, the United Nations announced that it had been successful in phasing out leaded gasoline worldwide.



Corporate Average Fuel Efficiency (CAFE) standards

Context

- Under the shadow of COVID-19 and uncertainty over sales, India's automotive sector has been protesting that scheduled implementation of higher standards of emissions and fuel efficiency next year, and enhanced vehicle safety goals, are deeply affecting the prospects of the industry.
- **These fuel efficiency norms have a bearing on carbon dioxide(CO₂) emissions**, which are now under scrutiny to meet the goals of the Paris Agreement on climate change

What is the point of contention?

- The car industry must comply with the **Corporate Average Fuel Efficiency (CAFE) standards**, which represents the emissions profile of the models sold by a company, and was first introduced in 2017.

What are Corporate Average Fuel Efficiency (CAFE) standards?

- CAFE or Corporate Average Fuel Efficiency/Economy regulations are in force in many advanced as well as developing nations, including India.
- They aim at lowering fuel consumption (or improving fuel efficiency) of vehicles by lowering carbon dioxide (CO₂) emissions, thus serving the twin purposes of reducing dependence on oil for fuel and controlling pollution.
- Corporate Average refers to sales-volume weighted average for every auto manufacturer.
- The norms are applicable for petrol, diesel, LPG and CNG passenger vehicles.
- CAFE regulations in India came into force from April 1, 2017. Under this, average corporate CO₂ emission must be less than 130 gm per km till 2022 and below 113 gm per km thereafter.

Why is it important?

- Global automakers are betting big on India as **vehicle penetration is still low** here when compared to developed countries.
- At the same time, pollution caused by the ever-increasing number of vehicles on road is worsening the air quality in many cities.
- Upgrading to stricter fuel standards is one **way to tackle air pollution**.
- CAFE regulations assume importance in the light of their ability to reduce the carbon footprint of the auto industry.
- The National Auto Policy (draft) put out in early 2018 calls for developing a roadmap for reduction in CO₂ emissions through CAFE regulations.
- It calls for **defining corporate average CO₂ gm per km targets for all passenger vehicle manufacturers** from 2020 and aspires to match Indian CO₂ reduction targets to those set by developed countries by 2025.
- The Auto Policy also contemplates **economic penalties for manufacturers** who do not meet corporate average targets and envisages a system where credits under the scheme (for achieving better than mandated fuel efficiency) can be banked and traded.
- Stricter CAFE targets can also lead to manufacturers moving to electric or strong hybrid vehicles over the medium to long-term to comply with the norms.

CAFÉ vs BS-VI

- While CAFE regulations focus on reducing CO₂ emissions, BS VI focusses on other harmful exhaust from vehicles.

- The BS IV-compliant fuel currently in use has 50 parts per million (ppm) sulphur, but BS VI stipulates a low 10 ppm.
- Besides, under BS VI, particulate matter emission for diesel cars and **nitrogen oxide levels** are expected to be substantially lower than in BS IV.

Conclusion

- A mass shift to electric vehicle use will also bring down air pollution substantially.
- To encourage manufacture and sale of electric vehicles, the government is already providing incentives under FAME (Faster Adoption and Manufacturing of Hybrid & Electric Vehicles) scheme.

Bio-bricks

Context

- India's first bio-brick based building inaugurated at IIT Hyderabad.
- It can help farmers as their agricultural waste will become an income generator.
- It is part of the **Bold Unique Idea Lead Development (BUILD) project** to demonstrate the strength and versatility of the material.
- BUILD project is **one of the initiatives of IIT-H**, that has taken during the pandemic.
- BUILD objective is to bring out the best innovative and unique idea our students have and provide them the necessary support to convert their idea into reality.
- It is an illustration of 'Wealth from Waste'.

Why Bio-bricks?

- Bio-bricks or agro-waste-based bricks have **good thermal and sound insulation**.
- They are breathable and help maintain a comfortable living condition during harsh summer or cold winters.
- Bio-brick was developed as an alternative and sustainable building material that acts as an alternative to stubble burning.
- Bio-bricks or agro-waste-based bricks can help to **create new jobs at the grassroots level**.



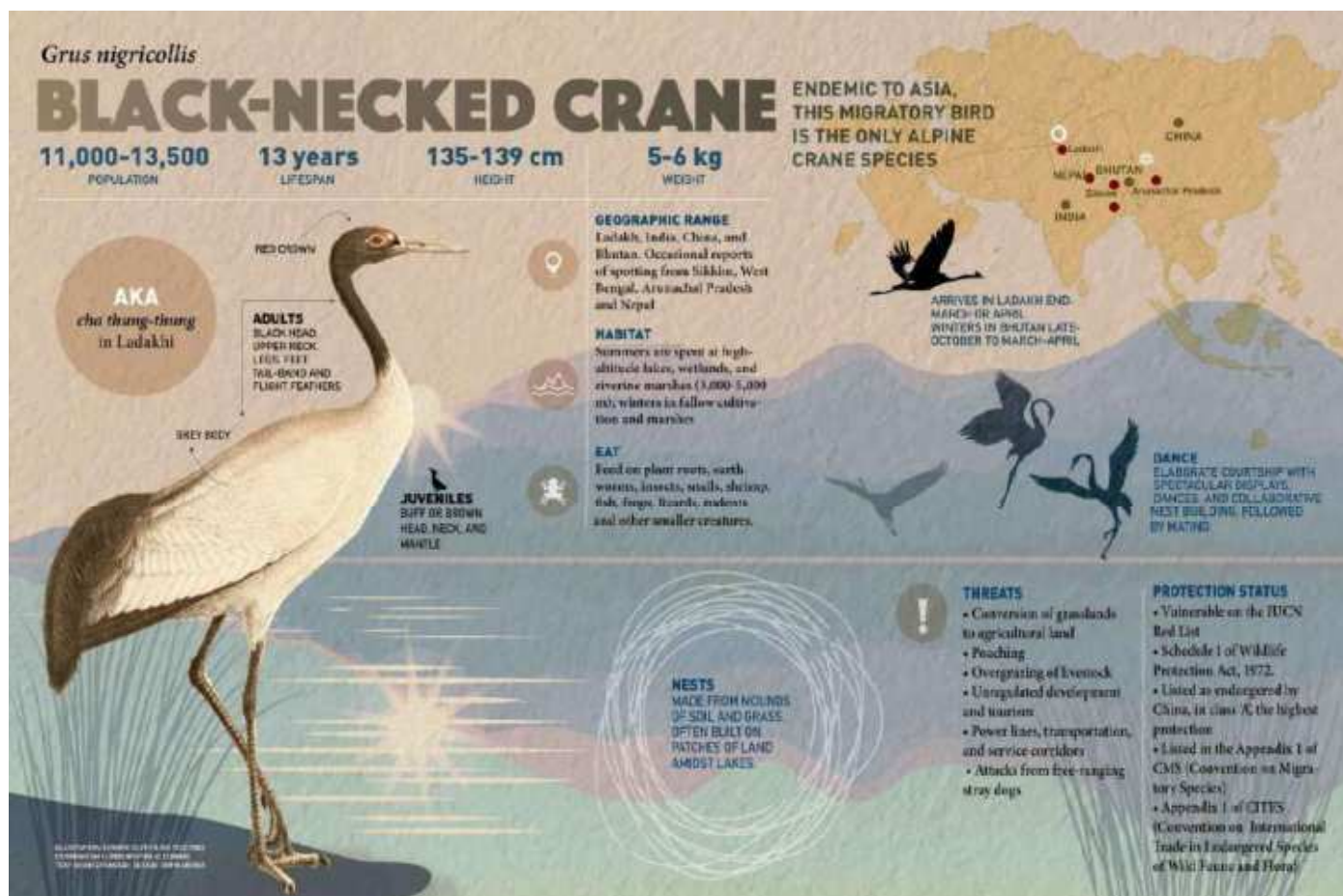
Ladakh adopts State animal and bird

Context

- Ladakh adopted two endangered species, **snow leopard** and **black-necked crane**, as State animal and State bird respectively of the UT of Ladakh.

Black-necked crane

- Black-necked cranes, considered loyal couples, are **only found in Ladakh's Changthang region**.



Snow leopard

- They has been categorised as “**vulnerable**” in the International Union for Conservation of Nature Red List.



Bhitarkanika National Park

Context

- Environmentalists expressed concern over the massive **diversion of fresh water from the Brahmani river basin**, which could pose a grave threat to the famous mangrove vegetation in Odisha.
- The Talcher-Angul coal mines, steel and power plants as well as the Kalinganagar steel and power hub are drawing enormous quantities of fresh water from the Brahmani river.

About Bhitarkanika

- It is a notified Ramsar wetland.
- The national park is home to Saltwater crocodile
- Spread over 195 sq. km, it is home to 62 mangrove species.

Why reducing flow of freshwater is a cause of concern?

- Mangroves grow in brackish water.
- Proportionate fresh water flow from the Brahmani river basin and the Kharasrota river keep the salinity level of the water along the shore down.
- The reduction in water flow would lead to drastic changes in the water regime of the Bhitarkanika mangroves.
- This can lead to **increase in the man-crocodile conflict** since the estuarine crocodiles would leave the core sanctuary area and migrate upstream once salinity increases.



WMO Report

Context

- The rising concentration of carbon dioxide (CO₂) will impact all of the 17 United Nations-mandated Sustainable Development Goals (SDGs), according to a report released by the World Meteorological Organization.

Key highlights of the report

- WMO studied seven climate indicators — CO₂ concentration, temperature, ocean acidification and heat, sea ice extent, glacier melt and sea-level rise
- Rising CO₂ concentration due to human activities was found as a key driver of global climate change.
- It pointed that rising CO₂ concentration and increasing global temperatures, would negatively impact efforts to combat climate change under the SDG 13.


How Co2 will impact SDG?

- Uncontrolled rising CO₂ emissions would be indirectly responsible for risks related to the remaining six climate indicators, namely temperature, ocean acidification and heat, sea ice extent, glacier melt and sea-level rise.
- For instance, rising concentrations of CO₂ in atmosphere will lead to reductions in nutrient content, affecting food security or the SDG indicator 2.1.2.
- Rising CO₂ in water would cause ocean acidification, directly affecting SDG indicator 14.3.1 which addresses marine acidity.
- This would affect the global goal on tackling poverty, SDG 1. For example, significant changes or losses in marine biodiversity due to rising acidity will reduce fishing yields, potentially leading to reduced or diminished livelihoods (SDG target 1.4)
- This would also result in food insecurity (SDG indicator 2.1.2), particularly in low-income and rural areas dependent on local catch.
- Both food insecurity and loss of livelihood may drive conflicts related to resource management, thus threatening regional peace and stability (SDG 16.1).
- Thus, ocean acidification caused by rising CO₂ may threaten progress of several SDGs besides the SDG 14 about life below water.
- Extreme events attributed to rising temperature affect rainfall patterns and groundwater availability.
- This leads to a higher risk of water scarcity, directly affecting SDG 6 on access to water and specially the targets 6.1 and 6.4.31.

What can be done?

- The WMO recommended improved education (SDG 4), global partnerships (SDG 17) and sustainable consumption (SDG 12) to mitigate climate risks.

About WMO




I: Brief Introduction of The World Meteorological Organization (WMO)

The WMO is the UN system's authoritative voice on the state and behaviour of the Earth's atmosphere, its interaction with the oceans, the climate it produces and the resulting distribution of water resources.

The Vision of the WMO : To provide world leadership in expertise and international co-operation in

- Weather,
- Climate,
- Water, and
- related environmental issues,

and thereby to contribute to the safety and well being of people throughout the world and to the economic benefit of all nations.



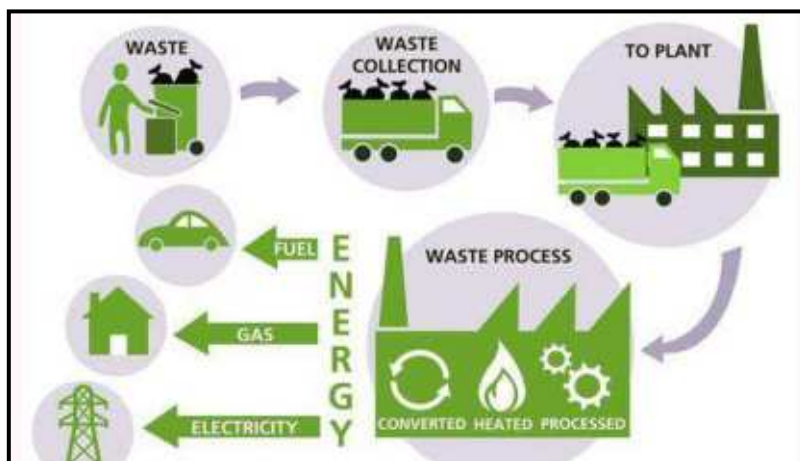
Waste to Energy Plant

Context

- Indraprastha Gas Limited (IGL) signed a Memorandum of Understanding with South Delhi Municipal Corporation (SDMC) to establish waste to energy plant in Delhi to convert Municipal Solid Waste into Compressed Bio-Gas (CBG) for use as fuel for running vehicles.
- The agreement was signed as a part of extension of SATAT initiative of the government under synchronization scheme.

About SATAT scheme

- Sustainable Alternative Towards Affordable Transportation (SATAT) is an initiative aimed at setting up of Compressed Bio-Gas production plants and make it available in the market for use in automotive fuels by inviting Expression of Interest from potential entrepreneurs.
- The initiative was launched in October 2018 by the Ministry of Petroleum & Natural Gas in association with Public Sector Undertaking (PSU) Oil Marketing Companies (OMC) viz. Indian Oil Corporation Ltd., Bharat Petroleum Corporation Ltd. and Hindustan Petroleum Corporation Ltd.
- It envisages setting up of 5000 CBG plants by 2023-24 with production target of 15 MMTPA, facilitating the creation of new employment opportunities and enhancing farmers' income.
- By using Municipal Solid Waste as input, this initiative involves a multi-pronged approach to reduce municipal waste on one hand and produce clean energy on the other in a sustainable manner.
- It is another step towards developing an ecosystem in the country for the production of CBG from various waste and biomass sources leading to multiple benefits like reduction of natural gas imports, reduction of GHG emission, reduction in burning of agriculture residues, remunerative income to farmers, employment generation, effective waste management etc.
- The initiative is also in line with the goals of Atma Nirbhar Bharat, Swachh Bharat Mission and boosting MSME sector.



Need

- Solid waste is a big problem** in the country and needs to be solved quickly.

- Only 14% of the solid waste was processed in 2014 but in seven years, the figure has gone upto 70% due to success of Swacch Bharat Mission.

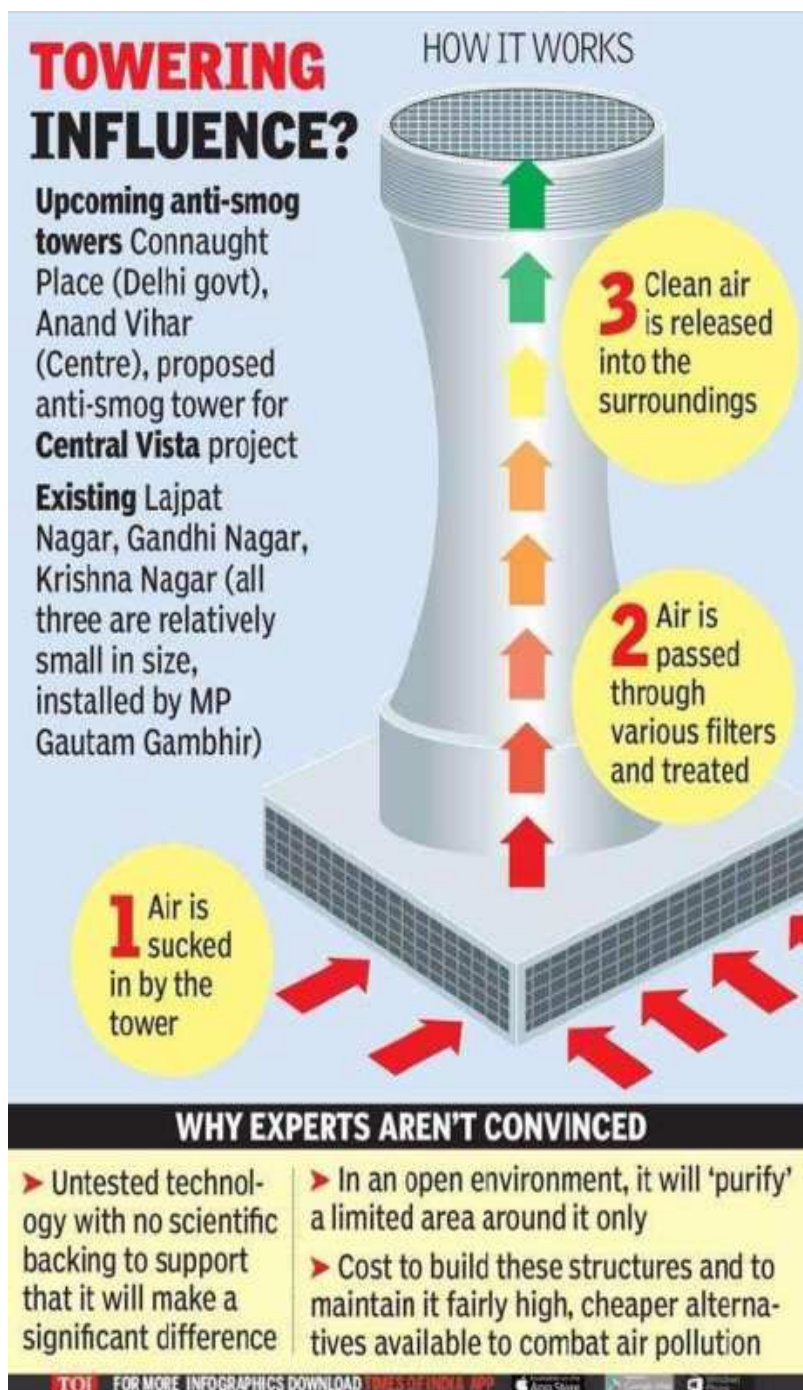
Air purification tower

Context

- Country's tallest air purification tower to be inaugurated near Transport Area, Sector 26, Chandigarh.

More about the news

- A 24-meter-long **outdoor air purification tower** inaugurated, on the International Day of Clean Air for Blue Skies.
- The air purification tower, is capable of purifying the air of the radius of around 1 km.
- The equipment will also show the quality index of the air it inhales and the quality index of the air it will exhale.
- The air purifier functions through electricity.



Manda buffalo

Context

- The National Bureau of Animal Genetic Resources (NBAGR) has recognised the **Manda buffalo**, found in the Eastern Ghats and plateau of Koraput region of **Odisha**, as the **19th unique breed of buffaloes found in India**.

About Manda buffalo

- Native to the Eastern Ghats, the small, sturdy breed is disease and pest resistant.
- The Manda can live, produce and reproduce at low or nil input system.
- This buffalo germ-plasm was first identified through a detail survey conducted by the Animal Resource Development (ARD) department of Odisha in collaboration with Orissa University of Agriculture and Technology (OUAT).
- The small, sturdy buffaloes are used for ploughing in their native habitat of Koraput, Malkangiri and Nabarangpur districts.
- These buffaloes have ash grey and grey coat with copper-coloured hair.
- The lower part of the legs up to elbow is light in colour with copper colour hair at the knee. Some animals are silver white in colour.
- There are around 1,00,000 buffaloes of this breed in the native tract mostly contributing to the family nutrition of households and assisting in all the agricultural operations in the undulated hilly terrain for generations.
- The average milk yield of these buffaloes is 2 to 2.5 litre in single milking with more than 8% fat.
- Manda buffaloes get matured at around 3 years and drop the first calf at around 4 years. Every 1.5 to 2 years they give birth to a calf for the whole life of around 20 years.



Other listed breeds

- Four breeds of cattle — **Binjharपुरi, Motu, Ghumusari and Khariar** — and two breeds of buffalo — **Chilika and Kalahandi** — and one breed of sheep, **Kendrapada**, have already received NBAGR recognition.

Dugong Conservation Reserve

Context

- India's **first Dugong conservation reserve** will be built in **Tamil Nadu's Palk Bay** for the conservation of Dugong.
- Dugong** is a **marine animal** that has been enlisted **vulnerable to extinction** on a global scale by the World Conservation Union (IUCN).

Dugong Conservation Reserve

- The reserve will **spread over an area of 500 km in Palk Bay** on the southeast coast of Tamil Nadu.
- Palk Bay is a semi-enclosed shallow waterbody with a water depth maximum of 13 meters.
- Located between India and Sri Lanka along the Tamil Nadu coast, the dugong is a flagship species in the region.

Dugong: The sea cow

- Dugong or the sea cow is the State animal of Andaman & Nicobar Islands.
- This endangered marine species survive on seagrass and other aquatic vegetation found in the area.
- It is the only herbivorous mammal that is strictly marine and is the only extant species in the family Dugongidae.
- Dugongs are usually about three-meter long and weigh about 400 kg.
- Dugongs have an expanded head and trunk-like upper lip.
- Elephants are considered to be their closest relatives. However, unlike dolphins and other cetaceans, sea cows have two nostrils and no dorsal fin.
- Distributed in shallow tropical waters in the Indo-Pacific region, in India, they are found in the Gulf of Kutch, Gulf of Mannar, Palk Bay, and Andaman & Nicobar Islands.

Causes of extinction

- It has been declared vulnerable in the IUCN list.
- Reasons for the extinction are: slow breeding rate, fishing, and the loss of habitat.
- Dugongs are long-living animals, that have a low reproductive rate, long generation time, and high investment in each offspring.
- The female dugongs do not bear their first calf until they are at least 10 and up to 17 years old.
- Natural and human induced activities: Due to natural and human-induced activities, the natural habitat of the animal is on a risk. The herbivorous mammal feeds on seagrass, which is at a loss. Human activities such as riding of speed-boats causes death of the animal due to boat and propellor strikes. Further, habitat loss is also attributed to



the increase in conversion of coastal forests to banana, areca nut, and coconut plantations and high boat traffic.

- Natural factors are extreme weather events such as cyclones and high energy tidal storms may also contribute to the loss of seagrasses in the region.
- Gill-net fishing: Dugongs are also known to suffer due to accidental entanglement and drowning in gill-nets. Fishing activities around the Indian, Andaman, Nicobar, and Sri Lankan coasts include gill netting and dynamite fishing.

How the population can thrive?

- The **conservation reserve can promote growth** and save the vulnerable species from the verge of extinction.
- Dugongs are protected in India under Schedule 1 of the Indian Wildlife Act 1972, which bans the killing and purchasing of dugong meat.
- According to the **United Nations Environment Programme (UNEP) report on dugong**, there are **no quantitative data on the status of dugongs** or the extent or nature of seagrass communities along the coast of the Indian subcontinent or the associated offshore islands.
- However, conservation measures like the proposed conservation area can help revive the sea cow population.
- Simultaneous effort towards seagrass meadow restoration, reduction of dugong mortalities, and community participation in dugong conservation can help in helping the dugong population recover.
- It also calls for creating awareness among the people, involving the local communities.

Oriental white-backed vultures

Context

- Eight critically endangered Oriental white-backed vultures were released into the wild for the first time in India from the Jatayu Conservation and Breeding Centre (JCBC) situated at the Bir Shikargah Wildlife Sanctuary in Shivalik ranges of the Himalayan foothills in Haryana's Pinjore.
- As many as 378 vultures of three species are housed at the centre, of which 131 are Oriental white-backed vultures, 195 are Long-billed vultures, and 52 are Slender-billed vultures.
- The VCBC was established in 2001 to investigate the devastating declines in India's Gyps species of vultures. It's a collaborative initiative between the BNHS and the Haryana Forest and Wildlife Department, to save the three resident Gyps species of vultures in the State from looming extinction.

The Oriental white-backed vultures

- They are **resident birds and not migratory**, so they largely stay within a radius of 50-100 km of the breeding centre.
- Once very common, vultures are on the verge of extinction in India.
- Uncontrolled veterinary usage of **non-steroidal anti-inflammatory drugs (NSAID)**, including **Acetofenac, Ketoprofen and Nimesulide**, and the illegal use of the banned drug **Diclofenac**, are toxic to vultures if they feed on carcasses within 72 hours of the drugs' administration to such livestock.
- Populations of three species of vultures – the **Oriental white-backed vulture**, the **Long-billed vulture** and the **Slender-billed vulture** – have declined by over 97% since the 1990s, and that of the Oriental white-backed vultures by a drastic 99.9%.
- In 2006, the veterinary use of Diclofenac was banned.



Improved water management system

Context

- Indian researchers have developed an improved water management system that can **completely reuse dye wastewater from textile industries**, eliminating its toxicity and making it suitable for domestic and industrial usage.

Need

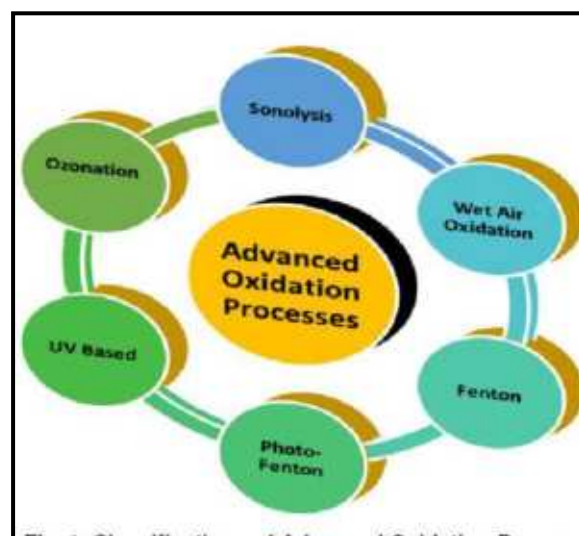
- The current three-stage treatment process for wastewater consisting of primary, secondary, and tertiary treatment is unable to treat toxic industrial wastewater.
- The stand-alone advanced oxidation process (AOP) treatment technique for colour and odour properties in industrial effluents (dye-based) may be insufficient to meet the set government standards and is also limited due to the high cost of AOPs involving continuous supply of chemical reagents.
- It cannot remove the synthetic industrial dyes and the effervescent colour and odour, which have a long-lasting carcinogenic and toxic effect on the ecological balance, especially aquatic life.
- In order to remove this toxicity, researchers from Indian Institute of Technology (IIT) Kanpur along with Malaviya National Institute of Technology, Jaipur, and MBM College, Jodhpur, have developed a modified AOP solution.

Significance

- Low-cost solution: It can reduce water treatment costs and facilitate reuse of water in dry regions.
- It eliminates the need for the conventional primary, secondary, and tertiary processes, resulting in maximum colour removal, and meets the inland water discharge standards.

Modified process

- This modified treatment process consisting of the primary dosing step, followed by the sand filtration step, another AOP and subsequent carbon filtration step.
- The DST - Water Technology Initiative (WTI), along with the Indian National Academy of Engineering (INAE) - supported the development of this technology at pilot-level in collaboration with Laxmi Textile Prints, Jaipur.
- The much-improved AOP technology targeting zero discharge water management system is being utilised for complete reuse of industrial dye wastewater for domestic and industrial usage at a rate of 10 kilo litres/day.
- The treatment of toxic and highly carcinogenic industrial dyes of textile effluents is performed using this AOP technology for degrading and mineralising recalcitrant organic matter from effluent wastewater.



Carbon capturing plant

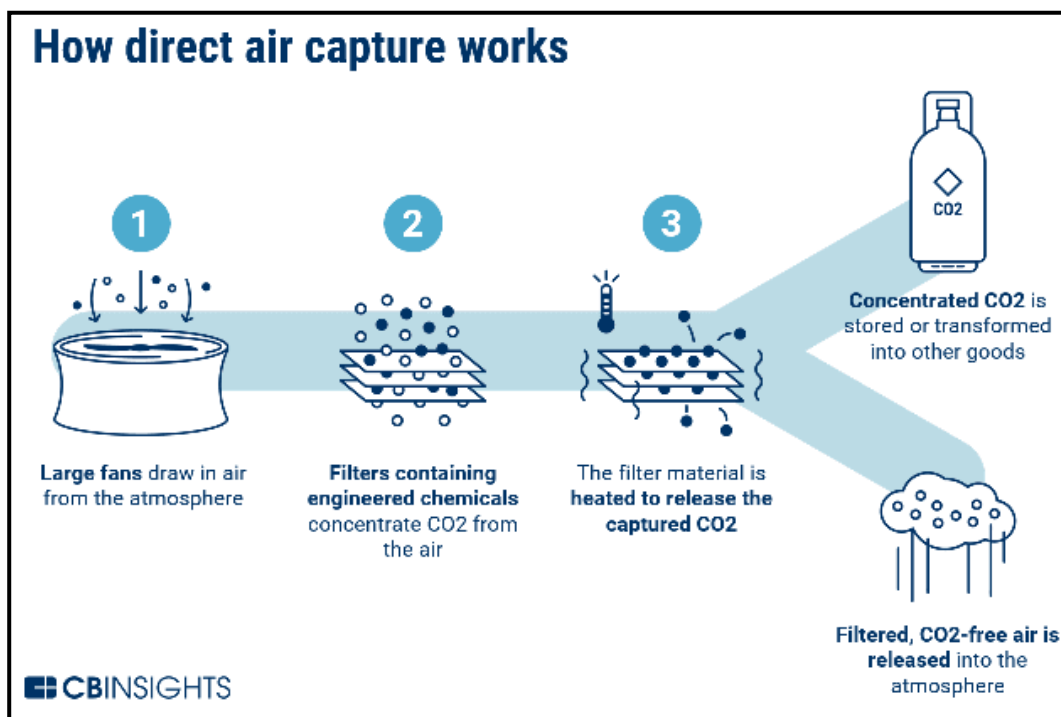
Context

- World's largest plant capturing carbon from air starts in Iceland
- It sucks carbon dioxide directly from the air and deposits it underground.
- It sucks out up to 4,000 tons of CO₂ per year.
- Direct air capture** is one of the few technologies extracting carbon dioxide from the atmosphere and is viewed by scientists as vital to limit global warming, blamed for causing more heatwaves, wildfires, floods and rising sea levels.

The Orca plant

- The Orca plant, a reference to the Icelandic word for energy, consists of eight large containers similar in looks to those used in the shipping industry, which employ high-tech filters and fans to extract carbon dioxide.
- The isolated carbon is then mixed with water and pumped deep underground, where it slowly turns into rock.
- Both technologies are powered by renewable energy sourced from a nearby geothermal power plant.
- Direct air capture is still a fledgling and costly technology.





Forest Rights Act, 2006

Context

- Jammu and Kashmir government has decided to **implement the Forest Rights Act, 2006**, which will elevate the socio-economic status of a sizeable section of the 14-lakh-strong population of tribals and nomadic communities, including **Gujjar-Bakerwals and Gaddi-Sippis**, in the Union Territory.
- It will help in ensuring a dignified life to the tribal population.
- The move will address the prolonged suffering of tribal people and also ensure forest conservation.
- Implementation of the Act will empower the tribal community by restoring to them the rights for a better life, while fulfilling the primary needs of water, food, home and livelihood.



Forest Rights Act

Enacted in 2006, the Forest Rights Act came into effect in 2008. Considered a landmark piece of legislation as it attempts to correct historical injustices against forest dwellers in the colonial era and in independent India, it recognises forest dwellers' individual rights over their land and a village's rights to manage and conserve the forest:

Individual Forest Rights: Any person belonging to a scheduled tribe can claim rights to live in and cultivate up to 4 ha if he occupied it and depended on it as of December 13, 2005. A non-tribal, in addition, will have to prove his family's residence in the vicinity of the forest for 75 years prior to December 2005

Community Forest Rights: The Act recognises the rights of a gram sabha over forest land within the village boundaries or seasonal use of landscape for pastoral communities. This allows the villagers to own and collect, use and dispose of minor forest produce besides timber, including the right to use grazing land and water bodies and the right to protect and regenerate any community resource, among others

Pseudomelanistic tigers in Odisha

Context

- An estimated 37% of *Panthera tigris* in the Similipal Tiger Reserve (in eastern India) are pseudomelanistic, characterised by wide, merged stripes.

What lead to the pseudomelanistic tigers?

- This is the **result of a rare mutation in one gene**, *Transmembrane Aminopeptidase Q* or *Taqpep*, recessively inherited variants of which are responsible for the marks in domestic cats and king cheetahs.
- The mutation is rarely seen in tigers outside Similipal.
- With shrinking habitats, the tiger population becomes increasingly isolated.
- This causes inbreeding, resulting in a lack of genetic variation, making them prone to extinction.
- For the endangered animal to survive and thrive in the wild, there needs to be more genetic variation.
- The population at Similipal Tiger Reserve is small and potentially disconnected from other populations.
- Genetic rescue should **benefit the population by increasing heterozygosity** and decreasing the probability of inbreeding depression. Careful consideration would be required when selecting the immigrant.



Permafrost

Context

- The latest IPCC report has warned that increasing global warming will result in reductions in Arctic permafrost and the thawing of the ground is expected to release greenhouse gases like methane and carbon dioxide.

What is Permafrost?

- Defined as ground (soil, rock and any included ice or organic material) that remains at or below zero degree Celsius for at least two consecutive years.
- Permafrost is spread across an area of over 23 million square kilometers, covering about **15% of the land area of the globe**.

What will be the immediate effects as permafrost melts due to increasing global temperatures?

- The first impacts that are very rapid will **affect countries where roads or buildings were constructed on permafrost**. The Russian railways are an example.
- Releasing of carbon dioxide, and methane, which is about 25 to 30 times more potent as a greenhouse gas than carbon dioxide.
- The total quantity of carbon that is now buried in the permafrost is estimated at about 1500 billion tonnes and the top three meters of the ground has about 1000 billion tonnes.



Climate Action and Finance Mobilization Dialogue (CAFMD)

Context

- India and the United States of America (USA) launched the "Climate Action and Finance Mobilization Dialogue (CAFMD)".

More about news

- The CAFMD is one of the two tracks of the **India-U.S. Climate and Clean Energy Agenda 2030 partnership** launched at the Leaders' Summit on Climate in April 2021.
- The dialogue will strengthen India-US bilateral co-operation on climate and environment.
- It will also help to demonstrate how the world can align swift climate action with inclusive and resilient economic development, taking into account national circumstances and sustainable development priorities.
- CAFMD will help to demonstrate how the world can align swift climate action with inclusive and resilient economic development.

Air gun surrender campaign

Context

- Appealing people **to not hunt animals and birds**, Union Minister of State for Forest, Environment and Climate Change launched the air gun surrender campaign across the country.

About Air Gun Surrender Campaign of the Arunachal Government:

- It is an important initiative **to save animals and birds from poaching** and for their conservation.
- Air guns do not require any license.
- In such a situation, many people in our country hunt birds through air guns in every district and village. Due to this, the number of many birds is rapidly decreasing.

Blue flag Beach

Context

- International eco-label "Blue Flag", has accorded the Blue Flag Certification for 2 new beaches this year –Kovalam in Tamil Nadu and Eden in Puducherry beaches.
- It's recognition of India's commitment to protect and conserve the pristine coastal and marine ecosystems through holistic management of the resources.
- **Foundation for Environment Education in Denmark (FEE)** which accords the globally recognized eco-label - Blue Flag certification, has also given re-certification for 8 nominated beaches **Shivrajpur-Gujarat, Ghoghla-Diu, Kasarkod and Padubidri-Karnataka, Kappad-Kerala, Rushikonda- Andhra Pradesh, Golden-Odisha and Radhanagar- Andaman and Nicobar**, which were awarded the Blue Flag certificate last year.
- This was aimed for achieving the globally recognized and the coveted International eco-label "Blue Flag" , accorded by International Jury comprising of members from IUCN, UNWTO ,UNEP, UNESCO etc.
- FEE Denmark conduct regular monitoring & audits for strict compliance of the **33 criteria** at all times.
- A waving "Blue Flag" is an indication of 100% compliance to these 33 stringent criteria and sound health of the beach.

About BEAMS program

- The Ministry of Environment, Forest and Climate Change flagship program **Beach Environment & Aesthetics Management Services (BEAMS)** is one of the initiatives under ICZM approach undertaken for the sustainable development of coastal regions of India, with a prime objective **to protect and conserve the pristine coastal and marine ecosystems through holistic management of the resources.**
- The objective of BEAMS program is to abate pollution in coastal waters, promote sustainable development of beach facilities, protect & conserve coastal ecosystems & natural resources, and seriously challenge local authorities & stakeholders to strive and maintain high standards of cleanliness, hygiene & safety for beachgoers in accordance with coastal environment & regulations.



Indian fruit bats

Context

- The Nilgiris' only colony of Indian fruit bats, one of the largest bat species in the world, is under threat from local residents who want the trees they roost on to be cut down.

Nipah virus scare

- Cases of Nipah virus were reported in Kerala, and fears that the bats carry zoonotic diseases that are transmissible to humans.

About Indian fruit bats

- The bats, also known as **flying foxes**, have been seen in the same area in Coonoor for the last few years.
- The bats play a crucial role in the health of local ecology as they are seed dispersers of many varieties of fruit-bearing trees.
- This species is often regarded as **vermin** due to its destructive tendencies towards fruit farms, but the benefits of its pollination and seed propagation often outweigh the impacts of its fruit consumption.
- The Indian flying fox is found across the Indian Subcontinent, including in Bangladesh, Bhutan, India, Tibet, Maldives, Myanmar, Nepal, Pakistan and Sri Lanka.

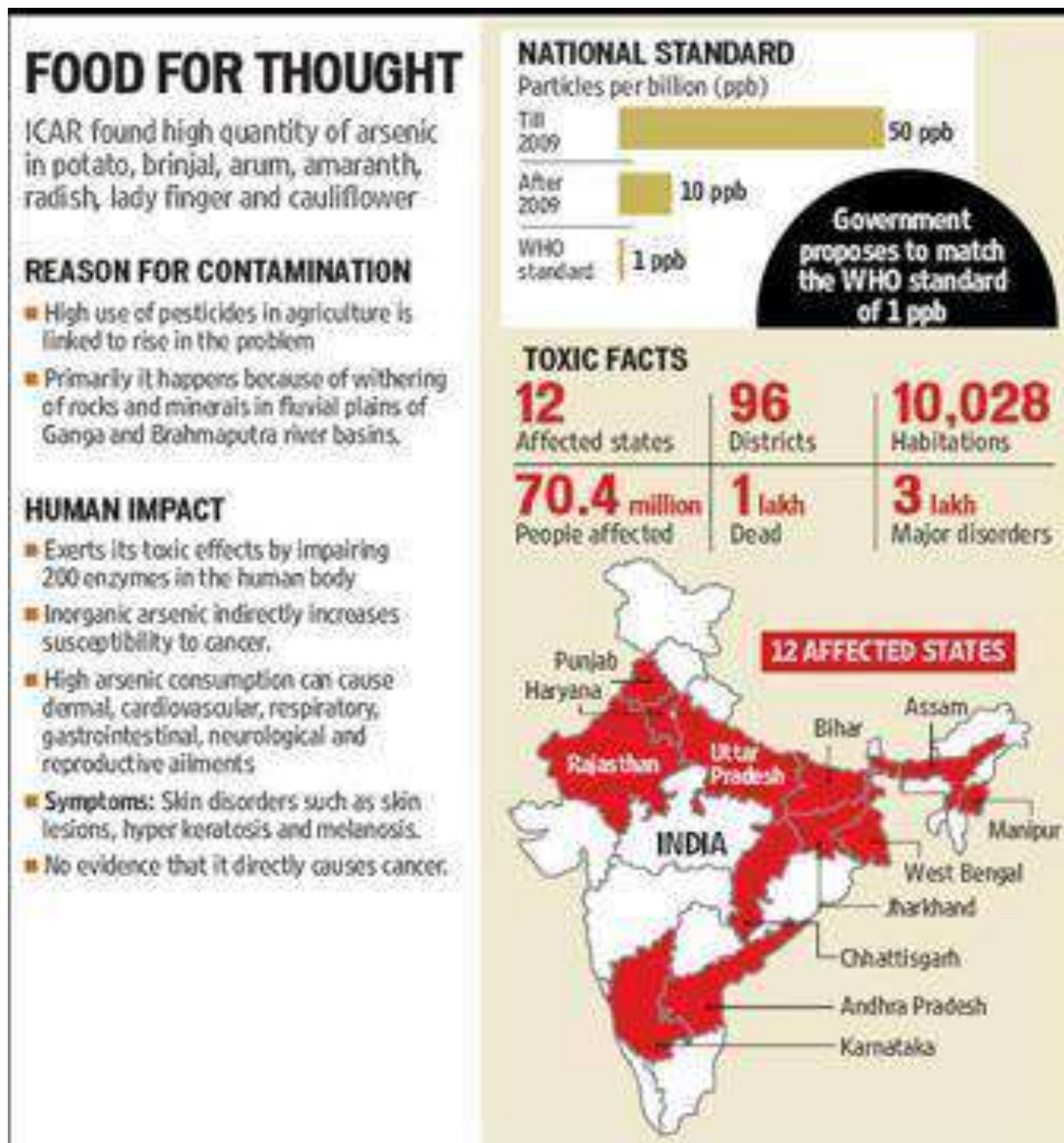


- IUCN Status: **Least Concern**

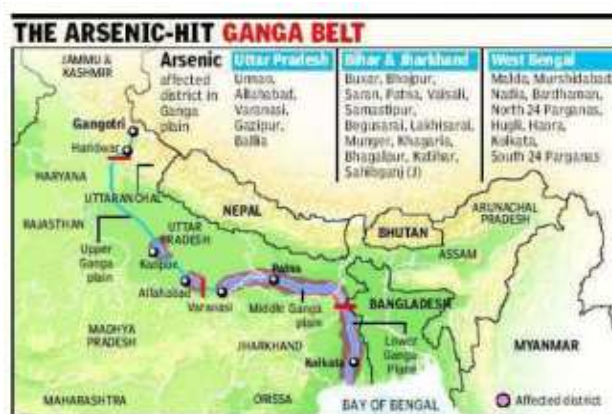
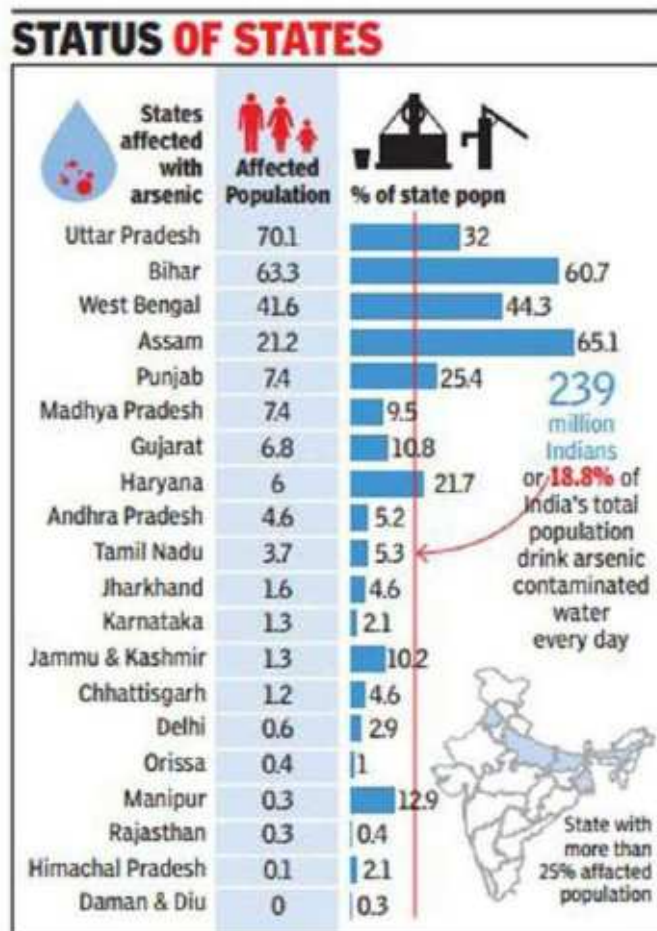
Arsenic contamination

Context

- Groundwater contaminated with arsenic is extensively used for irrigation and finds its way into the food chain — mainly rice, wheat and potato — a recent study has found.
- **Elevated levels of arsenic** can increase the disease burden in exposed persons.
- Impact of Arsenic contamination



Areas impacted by Arsenic contamination



What can be done?

- There is an **urgent need to monitor irrigation water quality** along with drinking water.

Sea Cucumber

Context

- The Indian Coast Guard (ICG) team at Tamilnadu seized two tonnes of sea cucumber.

About sea cucumber

- It is a banned marine species.
- Sea cucumbers are in high demand in China and Southeast Asia.
- Sea cucumber in India is treated as an endangered species listed under schedule I of Wildlife Protection Act of 1972.
- It is primarily smuggled from Tamil Nadu to Sri Lanka.



Global Methane initiative

Context

- U.S. President Joe Biden announced the Global Methane Pledge, a U.S.-EU-led effort to cut methane emissions by a third by the end of this decade.

More about news

- It will **rapidly reduce the rate of global warming**, and will also produce a very valuable side benefit, like improving public health and agricultural output.
- It will be mobilising support to help developing countries that join and pledge to do something significant.

Methane

- Methane is a greenhouse gas, which is 80 times more potent than carbon dioxide in terms of its global warming capacity.
- Approximately 40% of methane emitted is from natural sources and about 60% comes from human-influenced sources, including livestock farming, rice agriculture, biomass burning and so forth.

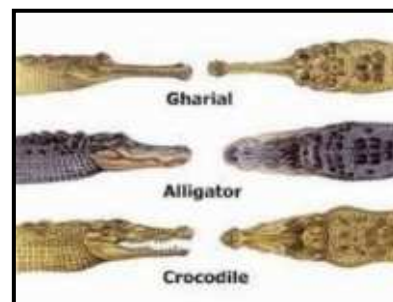
About Global methane initiative

- The Global Methane Initiative (GMI) is a **voluntary, international partnership** that brings together national governments, private sector entities, development banks, NGOs and other interested stakeholders in a **collaborative effort to reduce methane gas emissions and advance methane recovery and use as a clean energy source**.
- As a **public-private initiative**, GMI creates an international platform to build capacity, development methane abatement strategies, **engage in technology transfer**, and remove political and economic barriers to project development for emissions reduction.
- India is a party of this initiative.

3 species of crocodilians

Context

- Odisha's Kendrapara became the **only district in India** to have all 3 species of crocodilians found in the country.
- Bhitarkanika National Park in the district is also the home of saltwater crocodiles (*Crocodylus porosus*).
- The crocodilian family consists of **27 different species** that are subdivided into three families: **True crocodiles, alligators and caimans and gharials**.
- All three species of crocodilians in the river systems of Odisha were on the verge of extinction by the 1970s.
- Piecemeal efforts were being made from the 1960s onwards to save them.
- The gharial and saltwater crocodile conservation programme was first implemented in Odisha in early 1975 and subsequently, the mugger conservation programme was initiated.
- Since 1984, more than 600 muggers have been captive-bred and released in Similipal.
- In 1975, the Union ministry of forest and environment, in collaboration with the United Nations Development Programme, had started a crocodile breeding and rearing project in Dangamala within the Bhitarkanika.



About 3 species of crocodiles

- The mugger (or marsh) crocodile is found in lakes and rivers throughout the country. It is India's most common species. They are not as long as saltwater crocodiles. It is listed as vulnerable by IUCN.
- The saltwater crocodile is found along the eastern coast of the country (of Odisha, West Bengal, Andhra Pradesh and Tamil Nadu) and the Nicobar and Andaman Islands. It listed as least concern by IUCN.
- Gharial is listed as a Critically Endangered by IUCN.
- The Gharial is found in only some rivers of India which include:
 - Chambal, Girwa, Ganges, Yamuna, Kali, Kosi, Gandak



MCQs

1. Consider the following statements:

1. A New All-India Service can only be formed by a law that has to be passed by both houses of the Parliament.
2. Article 312 provides that the all-India judicial service should not include any post inferior to that of a district judge.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

2. Which of the following are reasons for disqualifications of members of Legislative Assembly or Council under the Constitution of India?

1. He/She must not have been found guilty of certain election offences or corrupt practices in the elections.
2. He/She must not have been convicted for any offence resulting in imprisonment for two or more years.

Select the correct answer using the codes given below:

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

3. Consider the following about Measles:

1. Measles is a highly contagious bacterial disease.
2. Recently Sri Lanka became the fifth country in the WHO Southeast Asia region to eliminate measles after India, Bhutan, Maldives, and Timor-Leste.

Which of the above statements is/are correct:

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

4. Consider the following statements about Association of Southeast Asian Nations (ASEAN):

1. Most of the ASEAN countries have tourism and export-reliant economies.
2. Chairmanship of ASEAN rotates annually, based on the order in which the countries joined the grouping.

Which of the above statements is/are incorrect?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

5. Consider the following statements in the context of the Jallianwala Bagh Massacre:

1. It marked a turning point in India's modern history and was the precursor to Mahatma Gandhi's full commitment to the cause of Indian nationalism and independence from Britain.
2. After the Incident, Nobel laureate Rabindranath Tagore renounced the knighthood that he had received in 1915.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

6. Consider the following statements:

1. Composite volcanoes also called stratovolcanoes, are cone-shaped volcanoes built from many layers of lava, pumice and ash.
2. Composite volcanoes are responsible for the most catastrophic eruptions in history.
3. Mars is the only place in the solar system besides Earth known to have stratovolcanoes.

Which of the statements given above is/are correct?

- a) 1 and 2 only b) 2 and 3 only
c) 1 and 3 only d) 1, 2 and 3

7. Consider the following statements in the context of State Legislature:

1. The final power of passing an ordinary bill lies with the Assembly.
2. The Council can discuss the budget as well as vote on the demands for grants.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

8. With reference to planning in India, consider the following statements:

1. India followed the system of indicative planning till the 6th five year plan and directed planning from then onwards.
2. For the first time universal elementary education and eradication of illiteracy was included as the major objective in the 8th five year plan.
3. The term inclusive growth was coined in the 12th Five year plan.

Which of the above statements is/are correct?

- a) 1 and 3 only b) 1, 2 and 3
c) 2 only d) 1 and 2

9. Consider the following statements:

1. El Nino Southern Oscillation(ENSO) refers to the oscillation between El Nino and La Nina.
2. Southern Oscillation Index(SOI) gives an indication of the development and intensity of El Nino or La Nina.
3. Sustained positive SOI values are indicative of El Nino conditions while negative values suggest La Nina conditions.

Which of the above statements is/are correct?

- a) 1 and 2 only b) 2 only
c) 1 and 3 only d) 1, 2 and 3

10. Consider the following statements about Karaikal Ammaiyar:

1. She was one of the three women amongst the 63 Nayanmars.
2. She was a Vaishnavite.

Which of the above statements is / are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

11. Consider the following statements about Bhakti traditions:

1. Nirguna tradition of Bhakti focused on the worship of specific deities such as Shiva, Vishnu and goddess or Devi, all often conceptualized in anthropomorphic forms.
2. Saguna bhakti tradition focused on worship of an abstract form of god.

Which of the above statements is / are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

12. Consider the following statements about Ahmadiya movement:

1. It was founded by Haji Shariat-Allah.
2. It spread western liberal education among the Indian Muslims
3. It opposed Jihad which was propagated by other organizations at that time.

Which of the above statement(s) is/ are correct?

- a) 1 and 2 only b) 2 and 3 only
c) 1 and 3 only d) 1, 2 and 3

13. Consider the following statements about Arya Samaj:

1. It believed that aim of human life is to attain Moksha (nirvana).
2. It focussed on revival of Vedic learning.
3. Being a revivalist in nature, it opposed 'minimum age of women for marriage'.

Which of the above statement(s) is/ are correct?

- a) 1 and 3 only b) 2 only
c) 1 and 2 only d) 1, 2 and 3

14. Consider the following statements about civil and tribal uprisings during the period of 1757 to 1900:

1. These uprisings were isolated and localised.
2. The leadership was backwardlooking, traditional in outlook.
3. None of the movement encouraged women's role in public space

Which of the above statement(s) is/ are correct?

- a) 1 and 2 only b) 1 and 3 only
c) 2 only d) 1, 2 and 3

15. Consider the following statements about Indian National Congress (INC):

1. Kadambini Ganguli was first woman graduate of Calcutta University who addressed the Congress session.
2. Lord Dufferin was the viceroy of India during first session of Congress

Which of the above statement(s) is/ are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

16. Consider the following statements about education of women in India:

1. The first woman school in India was opened by J.E.D Bethune
2. Charles. Wood's Despatch on Education laid stress on the need for female education
3. Indian Women's University was started by DK Karve in 1916

Which of the above statement(s) is/ are correct?

- a) 1 and 2 only b) 2 and 3 only
c) 1 and 3 only d) 1, 2 and 3

17. Which among the followings were/was tenet/belief of Brahmo Samaj?

1. It did not believe in Karma and transmigration of soul
 2. It discarded faith in divine avatars
 3. It discouraged child marriages and polygamy,
- a) 1, 2 and 3 only b) 2 and 3 only
c) 3 only d) 1 and 3 only

18. Which of the following pair(s) is correct?

Movement : Founder/key person

1. Justice Movement- T.M.Nair
 2. Radhaswami Movement- Tulsi Ram
 3. Aravippuram Movement - T.K. Madhavan
- a) 1 and 2 only b) 1 only
c) 1, 2 and 3 d) 2 and 3 only

19. Consider the following statements about Alipore Bomb Conspiracy:

1. In this case, Prafulla Chaki was arrested and faced trial
 2. In this case, members of Anushilan Samiti were arrested.
 3. Aurobindo Ghosh retired from active nationalist politics after serving a prison sentence awarded in the trial.
- a) 1, 2 and 3 only b) 2 and 3 only
c) 1 and 3 only d) 1 and 2 only

20. Consider the following statements:

1. Albuquerque came to Indian in 1505 as the first Portuguese Viceroy.
2. Albuquerque annexed Goa in 1510 from bijapur ruler Adilshah
3. The real founder of portuguese power in India was Albuquerque.

Which of the above statement is/are correct

- a) 1 and 3 only b) 1, 2 and 3 only
c) 2 and 3 only d) 1 and 2 only

21. Consider the following statements about 'Bio-decomposer' capsules:

1. These capsules are developed by micro bio lab of DRDO
 2. It is essentially a fungi-based liquid solution.
- Which of the statements given above is/are incorrect?
- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

22. Consider the following statements about the permafrost:

1. It is ice cube with entrapped methane found in ocean basin.
2. Thawing of permafrost aggravates global warming.
3. It covers about 15% of the land area of the globe.

Choose the correct answer using the code given below:

- a) 1 and 2 only b) 2 and 3 only
c) 1 and 3 only d) 1, 2 and 3

23. Consider the following statements about 1906 Session of Indian National Congress:

1. The session was headed by Dadabhai Naoroji.
2. Resolution on National education was passed in this session
3. The goal of the Indian National Congress was defined as swarajya or self-government

Which of the above statement is/are correct?

- a) 1 only b) 1 and 3 only
c) 2 and 3 only d) 1, 2 and 3

24. Consider the following statements about important event in modern history of India

1. Plague Commissioner of Poona, Rand was murdered by Balkrishna
2. Sachin Sanyal organized Abhinav Bharat Society.
3. Tilak propagated a spirit of militant nationalism through Ganapati and Shivaji festivals

Which of the above statement is/are correct?

- a) 1 only b) 1 and 3 only
c) 1, 2 and 3 d) 3 only

25. Consider the following statements with regard to Leopard:

1. There is no dedicated regular census for leopards like tigers in India
2. The last formal census on leopards was conducted in 2016.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

26. Which of the following statements about the Higher Education Funding Agency (HEFA) is/are correct?

1. It is a joint venture company of State Bank of India and Ministry of Human Resource Development.
2. It provides financial assistance for creation of educational infrastructure and R&D in India's premier educational Institutions.
3. It is registered as Non-deposit taking NBFC with RBI.

Select the correct answer using the given below code:

- a) 1 and 2 only b) 2 only
c) 2 and 3 only d) 1, 2 and 3

27. Consider the following statements about Dekho Apna Desh Initiative:

1. This scheme is launched by Ministry of Culture.

2. It aims to encourage Indians to visit their own country.

3. It is a component of Paryatan Parv.

Select the correct answer using code given below:

- a) 1 and 2 only b) 1 and 3 only
c) 2 and 3 d) 1, 2 and 3

28. Which of the following statements is/are correct about the Directorate General of Foreign Trade:

1. It recommend the provisional anti-dumping duty to finance ministry which levies it finally.
2. It is responsible for formulating and implementing the Foreign Trade Policy to promote India's exports.

Select the correct answer using code given below

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

29. Consider the following statements about Priority Sector Lending (PSL):

1. Regional Rural Bank and Urban cooperative banks are exempted from PSL.
2. Export credit comes under priority sector lending.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

30. Consider the following statements about TIFAC:

1. It is an autonomous organization, a think tank under NITI Aayog.
2. It embarked upon the major task of formulating a Technology Vision for the country in various emerging technology areas.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

31. Consider the following statements about Time Capsules:

1. It is a project of NASA
2. It aims to discover the feasibility of time travel.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

32. Consider the following statements about National Food Security Act, 2013:

1. It covers upto 75% of the rural population and upto 50% of the urban population.
2. It has a provision that pregnant women and lactating mothers will also be entitled to receive maternity benefit of not less than Rs. 6,000.
3. Eldest woman of the household of age 21 years or above to be the head of the household for the purpose of issuing ration cards.

Which of the above statements is/are correct?

- a) 1 and 2 only b) 1 and 3 only
c) 2 and 3 d) 1, 2 and 3

33. Consider the following statements about National Digital Health Mission:

1. This mission aims to eliminate the need of physical clinic and promote 100% online clinic for primary care.
2. It aims to provide a unique health Id which will be a repository of all health-related information of a person such as medical tests, previous prescriptions, diagnosis, treatments and all historical health records.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

34. Consider the following statements about National Pharmaceutical Pricing Authority (NPPA):

1. It is a government regulatory agency that controls the prices of pharmaceutical drugs in India.
2. It is an attached office of Ministry of Health and Family Welfare.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

35. Which of the following constitutes the criminal contempt of court?

1. Words, signs and actions that "scandalize" or "lower" the authority of any court
2. Prejudices or interferes with any judicial proceeding.
3. Willful disobey to a court order, or willful breaches of undertaking given to court.

Select the correct answer using code given below

- a) 1 and 2 only b) 1 and 3 only
c) 2 and 3 d) 1, 2 and 3

36. Consider the following statements about Brahmaputra River

1. It originates from the Chemayungdung Glacier.
2. It passes through Arunachal Pradesh, Assam and Meghalaya in India.
3. Kameng River, Manas River, Beki River are its tributaries.

Which of the above statements is/are correct?

- a) 1 and 2 only b) 1 and 3 only
c) 2 only d) 1, 2 and 3

37. Consider the following statements about Seagrass:

1. They refers to several species of macroscopic, multicellular, marine algae.
2. They are mostly found in shallow sandy bottom habitats and can form dense extensive meadows.
3. They are known as the "lungs of the sea".

Which of the above statements is/are correct?

- a) 1 and 2 only b) 1 and 3 only
c) 2 and 3 only d) 1, 2 and 3

38. Consider the following statements with regard to the Indian Rat Snake:

1. It has diurnal active during both night and day nature.

2. They are non-venomous in nature.

3. They are popularly known as Dhaman.

Which of the above statements is/are correct?

- a) 1 and 2 only b) 2 and 3 only
c) 1 and 3 only d) 1, 2 and 3

39. Consider the following statements about Sunspots:

1. It is an area of bright spot on sun's surface.
2. It is relatively warmer than the surrounding regions.
3. They are formed at the areas of strong magnetic field.

Which of the above statements is/are correct?

- a) 1 and 2 only b) 2 and 3 only
c) 3 only d) 1, 2 and 3

40. Bio - Medical Waste Management Rules, 2016 applies to

1. Radioactive wastes
2. Hazardous microorganisms
3. Waste generated from operation theaters

Select the correct answer using code given below:

- a) 3 only b) 2 and 3 only
c) 1 and 3 only d) 1, 2 and 3

41. Consider the following statements about Rashtriya Krishi Vikas Yojana:

1. The scheme aims to incentivize States in enhancing more allocation to Agriculture to achieve 4% growth rate.
2. Ministry of Agriculture is funding start-ups under this scheme.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

42. Consider the following statements about P-Notes:

1. They are financial instruments required by investors or hedge funds to invest in Indian securities without having to register with the SEBI.
2. They stands for promissory notes.
3. They provide anonymity to the investors.

Which of the above statements is/are correct?

- a) 1 and 2 only b) 2 and 3 only
c) 1 and 3 only d) 1, 2 and 3

43. Consider the following statements with regard to the Coal Production in India:

1. India is the largest producer of coal in the world.
2. Coal import in India has steadily declined in the last 5 years.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

44. Which of the following statements is/are correct about the Island Development Agency (IDA)?

1. Meetings of the IDA are chaired by Defence Minister.

2. It launched the "Holistic development of islands" programme to strengthen infrastructure support, projects for improving air, sea and digital connectivity.

Select the correct answer using the given below code:

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

45. Which of the following is/are the tools used by RBI in monetary policy to control inflation?

1. Liquid Adjustment Facility
2. Operation twist
3. Marginal Standing Facility

Which of the above-mentioned statements are correct?

- a) 1 and 2 only b) 2 and 3 only
c) 1 and 3 only d) 1, 2 and 3

46. Consider the following statements with regard to the Tribunals in India:

1. All tribunals function under their parent ministry.
2. Appeals from the tribunals lie with the High Court.
3. Tribunal members are eligible for reappointment.

Which of the above statements is/are correct?

- a) 1 and 2 only b) 2 and 3 only
c) 1 and 3 only d) 1, 2 and 3

47. Consider the following statements with regard to the Conservation Assured Tiger Standards [CA | TS]:

1. Recently, India has also adopted these standards for preservation of tigers.
2. It is used only for conservation of tigers.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

48. Consider the following statements about POSHAN Abhiyaan:

1. It is a government of India's flagship programme to improve nutritional outcomes for school-age children nationwide.
2. NITI Aayog has been entrusted with the task of closely monitoring the POSHAN Abhiyaan and undertaking periodic evaluations.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

49. Consider the following statements with regard to the Biodiversity act 2002:

1. It mandates preparation of People biodiversity registers at the local body.
2. Headquarter of National biodiversity authority is located in Delhi.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

50. Consider the following statements with regard to the Clean Growth Equity Fund:

1. It is managed by the National Investment and Infrastructure Fund of India (NIIF).
2. India and the USA are partners in this fund.
3. It channelises private investment into renewable energy.

Which of the above statements is/are correct?

- a) 1 and 2 only b) 2 and 3 only
c) 1 and 3 only d) 1, 2 and 3

51. Consider the following statements about the Pradhan Mantri Jan-Dhan Yojana (PMJDY):

1. This financial inclusion program is applicable to 10 to 65 years age group.
2. Only people belonging to below poverty line were cover under this scheme.
3. It covers both urban and rural areas.

Select the correct answer using the given below code:

- a) 1 and 2 only b) 1 and 3 only
c) 2 and 3 only d) 1, 2 and 3

52. Consider the following statements about Comptroller and Auditor General of India:

1. He enjoys all the immunity and privileges available to members of parliament.
2. The CAG can be removed only on an address from both houses of parliament on the ground of proved misbehaviour or incapacity.
3. CAG is responsible for auditing of local bodies apart from auditing central and state government.

Which of the above statements is/are correct?

- a) 1 and 2 only b) 1 and 3 only
c) 2 and 3 only d) 1, 2 and 3

53. Consider the following statements about Arrow 2 missile:

1. It is an advanced missile defence system developed jointly by the India and Israel.
2. It provide defence against both short and mid-range rockets.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

54. Consider the following statements about Asian Infrastructure Investment Bank:

1. The bank has more than 100 members
2. Countries only from Asia are eligible to become member.
3. India has been the highest recipient of the loans from AIIB.

Which of the following statements is/are correct?

- a) 1 and 3 only b) 2 and 3 only
c) 3 only d) 1, 2 and 3

55. Consider the following statements about Bio-Char:

1. It is a liquid material obtained from squeezing the seaweed.
2. It provides protection against some foliar and soil-borne diseases if used in agriculture.
3. It increases acidity of soil.

Which of the above statements is/are correct?

- a) 1 and 2 only b) 1 and 3 only
c) 2 and 3 only d) 1, 2 and 3

56. Consider the following statements with regard to the AIM-iCREST:

1. It has been launched by Atal Innovation Mission.
2. It will upscale the incubators set up under Atal Innovation Mission.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

57. Consider the following statements with regard to the Emergency Credit Line Guarantee Scheme:

1. It covers MSME, self-employed person people and professionals who have taken loans for business purposes and large firms.
2. It provides fully guaranteed additional funding of up to Rs. 5 lakh crore.

Which of the above statements is/are correct?

- a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

58. Consider the following statements with regard to the Bal Gangadhar Tilak:

1. He established a Deccan education society.
2. He wrote Arctic Home in the Vedas in the prison.
3. He was conferred with the title of "Lokmanya" during Home Rule League Movement.

Which of the above statements is/are correct?

- a) 1 and 2 only b) 1 only
c) 1 and 3 only d) 1, 2 and 3

59. Which of the following statements about the Archaeological Survey of India is/are correct?

1. It is attached to the Ministry of culture.
2. It was founded in 1861 by Robert Marshal who also became its first Director-General.
3. It administer the Antiquities and Art Treasure Act, 1972.

Select the correct answer using the given below code:

- a) 1 and 2 only b) 1 and 3 only
c) 2 and 3 only d) 1, 2 and 3

60. Consider the following statements about brown dwarf:

1. Brown dwarf are an astronomical object that is intermediate between a planet and a star.
2. They are outside the solar system, they give off little light and energy and they are challenging to locate.

3. Due to their small masses, they are unable to sustain fusion of their hydrogen to produce energy

Which of the above statements is/are correct?

- a) 1 and 2 only b) 1 and 3 only
c) 2 and 3 only d) 1, 2 and 3

ANSWERS

1. c	16. d	31. d	46. b
2. d	17. b	32. a	47. a
3. d	18. a	33. b	48. c
4. b	19. b	34. a	49. a
5. c	20. c	35. a	50. c
6. d	21. b	36. b	51. b
7. a	22. b	37. c	52. c
8. c	23. d	38. d	53. b
9. a	24. b	39. c	54. a
10. a	25. a	40. a	55. c
11. d	26. c	41. c	56. c
12. b	27. c	42. c	57. a
13. b	28. b	43. d	58. a
14. a	29. b	44. b	59. b
15. c	30. b	45. c	60. d