

PRAYAS 4 IAS

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Prelims

NATIONAL

Dismissal of J&K govt employees

(Source: [Indian Express](#))

Context: Lt Governor Manoj Sinha has dismissed 11 Jammu and Kashmir government employees for alleged terror links under provisions of Article 311(2)(c) of the Constitution. The employees include two sons of Hizbul Mujahideen chief Syed Salahuddin.

Constitutional provision

- Article 311 of the Constitution deals with ‘Dismissal, removal or reduction in rank of persons employed in civil capacities under the Union or a State’.
- Under Article 311(2), no civil servant can be “dismissed or removed or reduced in rank except after an inquiry in which he has been informed of the charges and given a reasonable opportunity of being heard in respect of those charges”.
- Subsection (c) of the provision, however, says this clause shall not apply “where the President or the Governor, as the case may be, is satisfied that in the interest of the security of the State it is not expedient to hold such inquiry”.
- The safeguard of an inquiry also does not apply in cases of conviction on a criminal charge [311(2)(a)], or “where the authority...is satisfied that for some reason, to be recorded by that authority in writing, it is not reasonably practicable to hold such inquiry”. [311(2)(b)]
- Section 126 of the constitution of the erstwhile state of Jammu and Kashmir too, while providing safeguards to civil servants/government employees like in Article 311 of the Indian Constitution, laid down exceptions under which a person could be dismissed without holding an inquiry.

Remedy available

- The only available remedy to a terminated employees is to challenge the government’s decision in the High Court.
- The All Parties Hurriyat Conference this week criticised the government’s action as being “whimsical” and an “abuse of power”.
- The Employees Joint Action Committee (EJAC) in the Valley said that the move goes against the “spirit of law and the Constitution of the country”, and appealed that the action be stalled.

Assam cow protection Bill

(Source: [The Hindu](#))

Context: A Bill proposed by the Assam government to stop the transportation of cattle or use the State for transit of the bovine animal has raised concern among its neighbours.

Details:



- Many in the Christian-majority States of Meghalaya, Mizoram and Nagaland consume beef. While Mizoram and Nagaland have chosen not to react, the Meghalaya government said it would seek the Centre's intervention if the Assam Cattle Preservation Bill, 2021, affects its people and economy. \
- The Bill, approved by the Assam Cabinet on July 7, will be placed before the State Assembly in the upcoming session. It seeks to replace the existing Assam Cattle Preservation Act, 1950, that allows the slaughter of cattle above 14 years of age after approval from local veterinary officers.

The Bill

- In Assam, the slaughter of cattle is regulated by the Assam Cattle Preservation Act, 1950. In the definition of cattle, the law includes bulls, bullocks, cows, calves, male and female buffaloes, and buffalo calves.
- Slaughter of all cattle is allowed after a 'fit-for-slaughter' certificate, to be given if the cattle is over 14 years of age or has become permanently incapacitated for work or breeding due to injury, deformity or any incurable disease.
- The decision to bring a law against cattle transportation did not come as a surprise to the people of Assam and has been widely welcomed.
- The previous BJP government faced a lot of criticism over rise of illegal cattle smuggling along the India-Bangladesh border despite the deployment of adequate security forces.
- The move is ostensibly aimed at ending illegal cattle smuggling along the Indo-Bangladesh border in Assam.
- The government has indicated that it does not propose to ban slaughter of cows or stop consumption.
- If passed, the Bill will amend the Assam Cattle Preservation Act of 1950 that regulates cattle slaughter in the state.
- According to the law, the slaughter of cattle "over 14 years of age" or those "unfit for work" or "breeding" is allowed. Such cattle need to be given a "fit-for-slaughter certificate" by local veterinary officers.

The Kanwar Yatra

(Source: [Indian Express](#))

Context: *The Supreme Court took suo motu cognizance of a report published in on the decision by the Uttar Pradesh government to allow Kanwar Yatra this year with certain restrictions, even as the Uttarakhand government had suspended the yatra amid fears of a possible Covid-19 outbreak.*

About the Yatra

- The Kanwar Yatra is a pilgrimage organised in the Hindu calendar month of Shravana (Saavan). Saffron-clad Shiva devotees generally walk barefoot with pitchers of holy water from the Ganga or other holy rivers.
- In the Gangetic plains, the water is taken from pilgrimage sites such as Haridwar, Gaumukh and Gangotri in Uttarakhand, Sultanganj in Bihar, and Prayagraj, Ayodhya or Varanasi from Uttar Pradesh.
- Devotees carry the pitchers of holy water on their shoulders, balanced on decorated slings known as Kanwars.
- The water is used by the pilgrims to worship Shiva lingas at shrines of importance, include the 12 Jyotirlingas, or at certain specific temples such as the Pura Mahadeva and Augharnath Temple in Meerut, Kashi Vishwanath Temple in Varanasi, Baidyanath Dham in Deoghar, Jharkhand, or even in the devotee's own village or town.



- This form of Shiva worship has special significance in the areas around the Ganga. An important festival with similarities to the Kanwar yatra in North India, called the Kavadi festival, is celebrated in Tamil Nadu, in which Lord Muruga is worshipped.
- The legend of the ritual goes back to the ‘samudra manthan’, one of the best-known episodes in Hindu mythology, which is narrated in the Bhagavata Purana, in the Vishnu Purana, and explains the origin of ‘amrita’.
- As per the legend, many divine beings emerged from the manthan along with amrit, as well as ‘halahala’ or a highly potent and lethal poison. All entities approached Lord Shiva the Destroyer, to consume it so that the living worlds could be protected.
- As Shiva drank the poison, his wife Parvati grabbed his throat in an effort to contain the poison and prevent it from affecting the worlds inside him.
- Shiva’s neck turned blue from the effect of the poison, which earned him the name Neelkantha, or the one with a blue throat.
- But the poison still had an impact, and his body was inflamed. To reduce the effects of that poison, the practice of offering water to Shiva began.
- Another origin story of the Kanwar yatra is intimately connected with Lord Parashuram, the renowned, loyal devotee of Shiva. The first Kanwar yatra was believed to have been undertaken by Parashuram.
- While passing through a place called Pura in present day Uttar Pradesh, he was struck by a desire to lay the foundation of a Shiva temple there. Parashuram is said to have fetched Gangajal every Monday in the month of Shravana for Shiva’s worship.



Sikkim blossoms

(Source: [The Hindu](http://TheHindu.com))

Context: Sikkim, the smallest State with less than 1% of India’s landmass, is home to 27% of all flowering plants found in the country, reveals a recent publication by the Botanical Survey of India (BSI). Flora of

Sikkim – A Pictorial Guide, released earlier this week, lists 4,912 naturally occurring flowering plants in the tiny Himalayan State.

Details:

- The total number of naturally occurring flowering plants in the country is about 18,004 species, and with 4,912 species, the diversity of flowering plants in Sikkim, spread over an area of 7,096 sq. km. is very unique.
- The publication provides details of 5,068 taxa (including 152 cultivated taxa) belonging to 1,491 genera and 209 angiosperm families which are naturally occurring flowering plants, along with geography, ecology, vegetation pattern and forest types of Sikkim.

Kanchenjuga biosphere

- The State, which is a part of the Kanchenjuga biosphere landscape, has different altitudinal ecosystems, which provide opportunity for herbs and trees to grow and thrive.
- From subalpine vegetation to the temperate to the tropical, the State has different kinds of vegetation, and that is the reason for such a diversity of flora. The elevation also varies between 300 to 8,598 metres above mean sea level, the apex being the top of Mt. Kanchenjuga (8,586 metres).
- Along with unique geographical features, the people of Sikkim have a unique bond with nature and trees.
- A notification titled Sikkim Forest Tree (Amity & Reverence) Rules, 2017 state that the, “State government shall allow any person to associate with trees standing on his or her private land or on any public land by entering into a Mith/Mit or Mitini relationship.”
- The notification encouraged people to adopt a tree “as if it was his or her own child in which case the tree shall be called an adopted tree”.

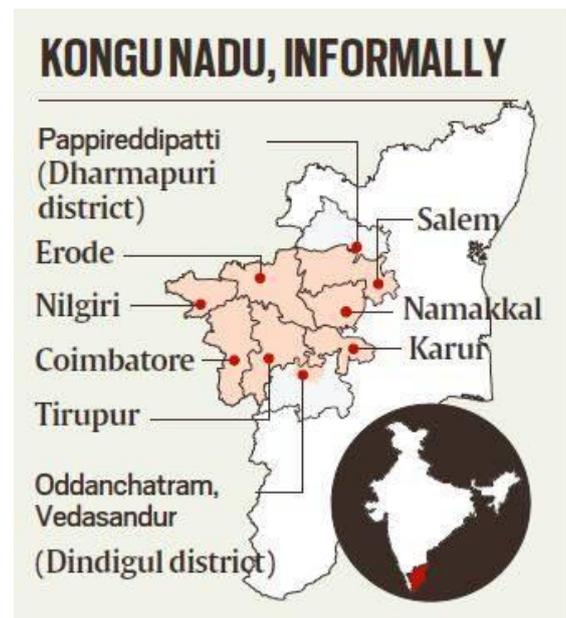
‘Kongu Nadu’

(Source: [Indian Express](#))

Context: A list of new Union Cabinet ministers issued by the [BJP](#) has triggered a debate in political circles in Tamil Nadu, as well as on social media, by referring to ‘Kongu Nadu’, the informal name for a region in the western part of the state. The list mentions new minister **L Murugan** as hailing from ‘Kongu Nadu’.

Where is Kongu Nadu?

- ‘Kongu Nadu’ is neither a place with a PIN code nor a name given formally to any region. It is a commonly used name for part of western Tamil Nadu.
- In Tamil literature, it was referred to as one of the five regions of ancient Tamil Nadu. There were mentions of ‘Kongu Nadu’ in Sangam literature as a separate territory.
- In the present state of Tamil Nadu, the term is informally used to refer to a region that includes the districts of Nilgiris, Coimbatore, Tirupur, Erode, Karur, Namakkal and Salem, as well as Oddanchatram and Vedsandur in Dindigul district, and Pappireddipatti in Dharmapuri district. The name derives from Kongu Vellala Gounder, an OBC community with a significant presence in these districts.
- The region includes prominent businesses and industrial hubs at Namakkal, Salem, Tirupur and Coimbatore.



- It has also been considered an AIADMK stronghold in the recent past, and is also where the BJP's limited influence in the state is concentrated.

Ashadhi Bij

(Source: [PIB](#))

Context: *PM greets people on the occasion of Ashadhi Bij, the Kutchi New Year.*

Details:

- Ashadhi Bij is an auspicious day for the farming communities in northern India especially Gujarat, Uttar Pradesh and some other places.
- The festival falls on the second day of the Shukla Paksha of the Ashadha month of the Hindu calendar.
- The festival is associated with the beginning of rains in the Kutch region of Gujarat and is celebrated as the Kutchi New Year.
- On this festival, farmers, astrologers and others predict the monsoon to assess which crop would be best in the coming season.

Lemru Elephant Reserve

(Source: [Indian Express](#))

Context: *The proposed Lemru Elephant Reserve in Chhattisgarh, in the pipeline for 20 years, has become the subject of yet another controversy. In a letter on June 26, the state Forest and Environment Department asked the Principal Chief Conservator of Forests (Wildlife) to make a presentation for decreasing the area of the proposed reserve from 1,995 sq km to 450 sq km.*

What is Lemru Elephant Reserve?

- The proposal for the reserve, in Korba district, was passed unanimously by the Assembly in 2005 and got central approval in 2007.
- Lemru is one of two elephant reserves planned to prevent human-animal conflict in the region, with elephants moving into Chhattisgarh from Odisha and Jharkhand. Its area was then proposed to be 450 sq km.
- A letter from the then PCCF described the reserve as part of an elephant corridor that connects Lemru (Korba), Badalkhol (Jashpur), Tamorpingla (Surguja).

What happened to the other proposed elephant reserve?

- Badalkhol Tamorpingla, the other elephant reserve measuring 1048.30 sq km, was notified in September 2011.
- Tamorpingla wildlife sanctuary exists in the state but no work on the elephant reserve has begun. Chhattisgarh has two national parks, three tiger reserves, eight sanctuaries, and one biosphere reserve covering 11,310.977 sq km, which is 8.36% of its geographical area and 18.92% of its total forest area.

Bihar's Kesaria Buddha stupa

Context: *The world-famous Kesaria Buddha stupa in east Champaran district of Bihar is waterlogged following floods in some parts of the district after heavy rainfall in the catchment areas of river Gandak in neighbouring Nepal.*

Details:

- The stupa, located about 110 km from the State capital Patna, has a circumference of almost 400 feet and stands at a height of about 104 feet.
- The first construction of the nationally protected stupa is dated to the 3rd century BCE.
- It is regarded as the largest Buddhist stupa in the world and has been drawing tourists from across several Buddhist countries.
- The stupa's exploration had started in the early 19th century after its discovery led by Colonel Mackenzie in 1814.
- Later, it was excavated by General Cunningham in 1861-62 and in 1998 an ASI team led by archaeologist K.K. Muhammad had excavated the site properly.
- The original Kesaria stupa is said to date back to the time of emperor Ashoka (circa 250 BCE) as the remains of an Ashokan pillar was discovered there.
- The local people call the stupa "devalaya," meaning "house of gods".
- The ASI has declared it a protected monument.
- However, a larger part of the stupa is yet to be developed as it remains under thick vegetation.

History:

- The **first construction of the Stupa is dated to the 3rd century BCE**. The original Kesaria stupa probably dates to the time of Ashoka (circa 250 BCE), as the remains of a capital of a Pillar of Ashoka were discovered there.
- The current stupa dates to the **Gupta Dynasty between 200 AD and 750 AD** and may have been associated with the 4th century ruler **Raja Chakravarti**.
- The **stupa mound may even have been inaugurated during the Buddha's time**, as it corresponds in many respects to the description of the stupa erected by the Licchavis of Vaishali to house the alms bowl the Buddha has given them.
 - In ancient times, **Kesaria was under the rule of the Mauryas and the Licchavis**.
- **Two great foreign travelers, Faxian (Fahien) and Xuan Zang (Hsuan Tsang)**, had visited this place in ancient times and have left interesting and informative accounts of their travels.
- The **discovery of gold coins bearing the seal of the famous emperor Kanishka of the Kushan dynasty (AD 30 to AD 375)** goes on to further establish the ancient heritage of Kesaria.

Puri Rath Yatra

(Source: [The Hindu](#))

Context: *The world famous Rath Yatra of Lord Jagannath got under way without devotees for the second year in a row in the coastal town of Puri due to COVID-19 restrictions.*

About the Yatra

- The festival is celebrated on the second day of Shukla Paksha of Ashadh, the third month, according to the traditional Oriya calendar.



- The Rath Yatra (Chariot Festival) is 9 day-long event during which the three holy chariots carrying idols of Lord Jagannath, his brother Balaram (Balabhadra) and sister Subhadra are pulled by thousands of devotees from India and abroad.
- The festival honours the Lord Jagannath's visit along with his siblings to the temple of Queen Gundicha, the place of their aunt's house where they revel in a nine day stay.
- **Jagannath Puri temple** is called '**Yamanika Tirtha**' where, according to the Hindu beliefs, the power of 'Yama', the god of death has been nullified in Puri due to the presence of Lord Jagannath.
- There are four gates to the temple- Eastern 'Singhdwara' which is the main gate with two crouching lions, Southern 'Ashwadwara', Western 'Vyaghradwara and Northern 'Hastidwara'. There is a carving of each form at each gate.
- In front of the entrance stands the Aruna stambha or sun pillar, which was originally at the **Sun Temple in Konark**.

Liquefied Natural Gas

(Source: [PIB](#))

Context: *The country's first Liquefied Natural Gas (LNG) facility plant has been set up by Baidyanath Ayurvedic Group (private sector) on Kamptee Road near Nagpur Jabalpur Highway, Maharashtra.*

Liquified Natural Gas (LNG):

- LNG is a clear, colourless and non-toxic liquid that forms when natural gas is cooled to -162°C (-260°F).
- The cooling process shrinks the volume of the gas 600 times, making it easier and safer to store and ship. In its liquid state, LNG will not ignite.
- When LNG reaches its destination, it is turned back into a gas at regasification plants.
- It is then piped to homes, businesses and industries where it is burnt for heat or to generate electricity.
- LNG is now also emerging as a cost-competitive and cleaner transport fuel, especially for shipping and heavy-duty road transport.
- It has the potential to decrease logistics cost and create many job opportunities also.
- LNG is the fuel of the future and will revolutionize the transport sector.

Bihar's Senari massacre of 1999

(Source: [Indian Express](#))

Context: *The Supreme Court on Monday (July 12) agreed to hear the Bihar government's appeal against the acquittal by Patna High Court in May of 14 accused in the Senari massacre of 1999.*

The incident

- On March 18, 1999, 34 upper caste men were forced out of their homes in Senari village of Jehanabad district allegedly by cadres of the now defunct Maoist Communist Centre (MCC), and slaughtered near the village temple.
- The massacre was a sequel in the prolonged caste war between the MCC and private armies of upper caste villagers, especially the Ranbir Sena led by Barmeshwar Mukhiya, who was jailed in 2012.



- On November 15, 2016, a Jehanabad court sentenced 11 accused to death, and awarded the life sentence to three others. Three of those convicted challenged the verdict in the High Court.

Doppler radars

(Source: [Indian Express](#))

Context: *The India Meteorological Department's (IMD) only Doppler radar in Mumbai, which surveys weather patterns and forecast, **stopped working.***

How does a Doppler radar work?

- In radars, a beam of energy— called radio waves— is emitted from an antenna. When this beam strikes an object in the atmosphere, the energy scatters in all directions, with some reflecting directly back to the radar.
- The larger the object deflecting the beam, the greater is the amount of energy that the radar receives in return.
- Observing the time required for the beam to be transmitted and returned to the radar allows weather forecasting departments to “see” raindrops in the atmosphere, and measure their distance from the radar.
- What makes a Doppler radar special is that it can provide information on both the position of targets as well as their movement.
- It does this by tracking the ‘phase’ of transmitted radio wave pulses; phase meaning the shape, position, and form of those pulses.
- As computers measure the shift in phase between the original pulse and the received echo, the movement of raindrops can be calculated, and it is possible to tell whether the precipitation is moving toward or away from the radar.
- In India, Doppler radars of varying frequencies — S-band, C-band and X-band — are commonly used by the IMD to track the movement of weather systems and cloud bands, and gauge rainfall over its coverage area of about 500 km.
- The radars guide meteorologists, particularly in times of extreme weather events like cyclones and associated heavy rainfall.
- An X-band radar is used to detect thunderstorms and lightning whereas C-band guides in cyclone tracking.
- With the radar observations, updated every 10 minutes, forecasters can follow the development of weather systems as well as their varying intensities, and accordingly predict weather events and their impact.

Why are they called ‘Doppler’ radars?

- The phase shift in these radars works on the same lines as the “Doppler effect” observed in sound waves— in which the sound pitch of an object approaching the observer is higher due to compression of sound waves (a change in their phase).
- As this object moves away from the observer, the sound waves stretch, resulting in lower frequency.
- This effect explains why an approaching train’s whistle sounds louder than the whistle when the train moves away. The discovery of the phenomenon is attributed to Christian Doppler, a 19th-century Austrian physicist.
- As per the US National Weather Service, in an hour, a Doppler radar transmits a signal for only over seven seconds, and spends the remaining 59 minutes and 53 seconds listening to returned signals.

Doppler radars on India’s coastline



- India's east coast, which is frequently affected by cyclones formed in the Bay of Bengal, has radars operational at eight locations — Kolkata, Paradip, Gopalpur, Visakhapatnam, Machilipatanam, Sriharikota, Karaikal and Chennai.
- Along the west coast, there are radars at Thiruvananthapuram, Kochi, Goa and Mumbai. Other radars are operating from Srinagar, Patiala, Kufri, Delhi, Mukteshwar, Jaipur, Bhubaneswar, Lucknow, Patna, Mohanbar, Agartala, Sohra, Bhopal, Hyderabad and Nagpur.

RoSCTL Scheme

(Source: [PIB](#))

Context: *Government approved continuation of Rebate of State and Central Taxes and Levies (RoSCTL) on Export of Apparel/Garments and Made-ups.*

RoSCTL Scheme:

- Under the RoSCTL scheme, exporters are issued a duty credit scrip for the value of embedded taxes and levies contained in exported products. Exporters can use this scrip to pay tax while importing equipment, machinery.
- It is a globally accepted principle that taxes and duties should not be exported, to enable a level playing field in the international market for the exporters.
- Realizing the importance of refund of embedded taxes, cesses and duties, the Ministry of Textiles first launched a scheme by the name of Rebate of State Levies (ROSL) in 2016.
 - In this scheme the exporters of apparel, garment and made-ups were refunded embedded taxes and levies through the budget of the Ministry of Textiles.
- The RoSCTL scheme was notified in 2019 under which exporters are issued a duty credit scrip for the value of the embedded taxes in the exported products.



INTERNATIONAL

Hubble telescope

(Source: [Indian Express](#))

Context: *NASA plans to fix a glitch that has stopped the Hubble space telescope from being used for science work for more than a month. The malfunction has been described as the most serious problem in a decade to face the legendary observatory, which is currently running in “safe mode”.*

Why is the Hubble telescope famous?

- Named after the astronomer Edwin Hubble, the observatory is the first major optical telescope to be placed in space and has made groundbreaking discoveries in the field of astronomy since its launch.
- According to NASA’s official website, the launch and deployment of Hubble in April 1990 is said to be the “most significant advance in astronomy since Galileo’s telescope.”
- It is larger than a school bus in size, has a 7.9 feet mirror, and captures stunning images of deep space playing a major role in helping astronomers understand the universe by observing the most distant stars, galaxies and planets.
- NASA also allows anyone from the public to search the Hubble database for which new galaxy it captured, what unusual did it notice about our stars, solar system and planets and what patterns of ionised gases it observed, on any specific day.

The ‘right to repair’ movement

(Source: [Indian Express](#))

Context: *Recently the US President Joe Biden signed an executive order calling on the Federal Trade Commission to curb restrictions imposed by manufacturers that limit consumers’ ability to repair their gadgets on their own terms. The UK, too, introduced right-to-repair rules that should make it much easier to buy and repair daily-use gadgets such as TVs and washing machines.*

What is the right to repair movement?

- Activists and organisations around the world have been advocating for the right of consumers to be able to repair their own electronics and other products as part of the ‘right to repair’ movement.
- The movement traces its roots back to the very dawn of the computer era in the 1950s.
- The goal of the movement is to get companies to make spare parts, tools and information on how to repair devices available to customers and repair shops to increase the lifespan of products and to keep them from ending up in landfills.
- They argue that these electronic manufacturers are encouraging a culture of ‘planned obsolescence’ — which means that devices are designed specifically to last a limited amount of time and to be replaced. This, they claim, leads to immense pressure on the environment and wasted natural resources.
- Manufacturing an electronic device is a highly polluting process. It makes use of polluting sources of energy, such as fossil fuel, which has an adverse impact on the environment.
- For instance, a New York Times report states that the mining and manufacturing materials used to make an iPhone “represent roughly 83 per cent of its contribution to the heat-trapping emissions in the

atmosphere throughout its life cycle”, according to manufacturing data released by Apple. It’s about 57 per cent for the average washing machine.

- Right to repair advocates also argue that this will help boost business for small repair shops, which are an important part of local economies. If a manufacturer has monopoly on repairs, then prices rise exponentially and quality tends to drop, they say. Price is a major factor propounded by these activists.
- As there is a lack of competition in the repair market in the west, consumers are not able to hunt for the best deal.

Space and edge of space

(Source: [Indian Express](#))

Context: *On July 11, British businessman Richard Branson beat rival Jeff Bezos to reach the edge of space, giving space tourism an official kickstart. But experts and space enthusiasts are in doubt whether the height to which he travelled can be termed ‘space’.*

Details:

- The most widely accepted boundary of space is known as the Kármán line, 100km above mean sea level. But the United States uses 80km as the cutoff point.
- Branson’s Virgin Galactic flight reached a height of 86km while Jeff Bezos’ Blue Origin flight is expected to go about 106km high.
- The Kármán line has been compared to international waters, as there are no national boundaries and human laws in force beyond the line.
- It was named after aerospace pioneer Theodore von Kármán, who wrote in his autobiography: “This is certainly a physical boundary, where aerodynamics stops and astronautics begins... Below this line, space belongs to each country. Above this level, there would be free space.”

Why do we need a Kármán line?

- The 1967 Outer Space Treaty says that space should be accessible to all countries and can be freely and scientifically investigated. Defining a legal boundary of what and where space is can help avoid disputes and keep track of space activities and human space travel.
- Some countries, including the United States, believe that defining or delimiting outer space is not necessary.
- At a United Nations meeting in Vienna in 2001, the US delegation said: “No legal or practical problems have arisen in the absence of such a definition... The lack of a definition or delimitation of outer space has not impeded the development of activities in either sphere.”

So, where is space?

- It has been tricky understanding where our atmosphere ends and what should be called space.
- In 2009, researchers from the University of Calgary measured the winds of Earth’s atmosphere and the flow of charged particles in space and wrote that the edge of space begins at 118km above sea level.

What’s suborbital

- When an object travels at a horizontal speed of about 28,000 km/hr or more, it goes into orbit once it is above the atmosphere.
- Satellites need to reach that threshold speed in order to orbit Earth.
- Such a satellite would be accelerating towards the Earth due to gravity, but its horizontal movement is fast enough to offset the downward motion so that it moves along a circular path.



- Any object travelling slower than 28,000 km/hr must eventually return to Earth. However, Branson's spacecraft travelled far enough, as Bezos's will, to reach the "edge of space".
- These are suborbital flights, because they will not be travelling fast enough to orbit Earth once they reach there.
- Such a trip allows space travellers to experience a few minutes of "weightlessness".
- Branson's flight was first carried off the ground by a larger aeroplane to an altitude of around 15 km.
- From here, the vehicle blasted off the plane, achieving a height of around 85 km, where it momentarily reached zero vertical velocity. At this altitude, travellers were estimated to experience about four minutes of weightlessness.
- For an analogy, consider a cricket ball thrown into the air. Given that no human hand can give it a speed of 28,000 km/hr (about 8 m/sec), the ball will fly in an arc until its entire kinetic energy is swapped with potential energy. At that instant, it will lose its vertical motion momentarily, before returning to Earth under the influence of gravity.
- A suborbital flight is like this cricket ball, but travelling fast enough to reach the "edge of space", and yet without enough horizontal velocity to go into orbit.
- If an object travels as fast as 40,000 km/hr, it will achieve escape velocity, and never return to Earth.



Layers of the atmosphere

- The Earth's atmosphere has been divided into various layers, with the troposphere starting at the Earth's surface and extending about 14.5 km high, stratosphere extending to 50 km, mesosphere to 85 km, thermosphere to 600 kilometers and exosphere to 10,000 km.
- The chemical composition of the atmosphere was largely constant up to the mesopause, or the boundary between the mesosphere and the thermosphere.
- From a physical point of view, it is therefore reasonable to think of the atmosphere proper as including the troposphere and stratosphere and (with some qualification) the mesosphere, and identifying the thermosphere and exosphere with the common idea of 'outer space'.

Soberana 2 vaccine

(Source: [The Hindu](#))

Context: Cuba's State-run corporation, BioFarma, said that its indigenously produced Soberana 2 vaccine was 91.2% efficacious in phase-3 trials. This follows closely on an announcement that another of its vaccines, Abdala, had reported an efficacy of 92.8% in late stage trials.

Details:

- Both are subunit vaccines, meaning that a part of the virus forms the antigen and s hitched on to another construct.

- In Abdala the spike protein of the coronavirus is combined with a chemically manufactured adjuvant, whereas in Soberana 2, the spike protein is chemically linked to the tetanus toxoid, making it a conjugate vaccine.
- The design and manufacturing allows the vaccine to be stored in regular refrigeration settings of 2–8 degree Celsius.

What type of a vaccine is Soberana 2?

- Apart from Soberana 2 (one among three in the Soberana series), developed by the Finlay Institute in partnership with the Centre for Molecular Immunology and the National Biopreparations Centre, there are four other vaccines that are being developed in the Latin American island nation that has a population of just 11 million people.
- All five vaccines are protein vaccines, which is to say that these vaccines are made up of a protein derived from the virus, which then binds to human cells to trigger an immune response.
- Soberana 2 is unique among the Cuban vaccines because it is the only kind of “conjugate vaccine” that combines the virus’s receptor-binding domain with a deactivated form of tetanus in order to boost the immune response.

Conjugate vaccines

- Conjugate vaccines are made using a combination of two different components.
- The most common conjugate vaccines are those used for Haemophilus influenza type b and the pneumococcal bacteria.
- However, a unique aspect of the Soberana vaccine is that it is by far the only one among coronavirus vaccine candidates that relies on the conjugate vaccine technology.\
- Experts say that while there are no inherent disadvantages to taking a conjugate-vaccine approach for coronavirus vaccines, they have generally been used against bacteria and not viruses.
- The two parts of a conjugate vaccine are typically connected by chains of polysaccharides and they generally induce a weaker immune response in young children.

Mains

GS II

The upcoming crisis in Indian federalism

(Source: [The Hindu](#))

Context: *The Indian Constitution may face an unprecedented crisis in 2026 when there will be a dramatic change in the composition of the Lok Sabha. Since 1976, seats in the Lok Sabha have reflected the 1971 census and have not taken into account changes in the population. The primary reason for this has been unequal population growth among States.*

Details:

- India's most highly developed and prosperous States have been successful at family planning, while the poorer States continue to expand.
- The freeze was thus a chance to ensure that India's most successful States are not punished politically for their success.
- Post 2026, when this compact ends, there will be a seismic shift in national power towards India's poorest and most populated States, which is sure to generate much resentment among the States that will lose political and economic power and influence.
- This calls for a realignment in the balance between the democratic principle and the federal principle in the Indian Constitution.

The essence of the Union

- As Article 1 of the Indian Constitution says, India is a Union of States. The choice of words is deliberate: it is the several States that, together, make up the Indian Union.
- Admittedly, unlike in other federations, there is no separate State citizenship or State Constitutions.
- However, one need only study the history that led up to the linguistic reorganisation of States in 1956, and to subsequent movements for Statehood afterwards, to understand that States are distinct associative communities, within the federal structure of the Indian Union.
- Indeed, in a polity as plural as ours – linguistically, culturally, and ethnically – it could not be any other way.

Big versus small States

- Having established, thus, that States are important, self-contained units within the Indian constitutional scheme, we must turn to an inherent contradiction between the principles of democracy and federalism, when federal units are unequal in size, population and economics.
- This is easy to comprehend. In a democratic set up, all citizens are equal and are thus entitled to equal representation in governance.
- But this would imply that bigger States are likely to dominate the national conversation over smaller States.
- Small States fear that they would get a smaller share of the pie economically, a much reduced say in national issues, and be irrelevant in the political governance of the country.
- In order to assuage this legitimate fear, federal democracies have incorporated into their governing structures various kinds of compromises to ensure a balance between democratic principles and federal ones.
- For example, when the Americans adopted their Constitution, they protected smaller States in four ways.
 - First, national powers over the States were limited.



- Second, each State regardless of size had two seats in the Senate, giving smaller States an outsized role in national governance.
- Third, Presidents are elected by electoral votes, which means they must win States rather than the total national population.
- Fourth, and deplorably, the slave-owning States which did not confer citizenship on slaves were allowed to count the slaves for purposes of representation, with each slave being counted as three-fifths of a person.
- This essential structure remains the bedrock of the American Constitution today, though the Americans have rid themselves of slavery (fortunately) and have dramatically increased the scope of federal intervention.
- This federal structure has led to the severing of causal links between the national vote and presidential elections. Presidents George W. Bush and Donald Trump won without winning the popular vote.
- The current movement to remove the power of a minority to filibuster legislation is based on democratic principles seeking to mitigate the pathology of excessive federalism: indeed, the American structures of government go so far in the other direction, that they have been accused of essentially facilitating and entrenching minority rule through the Senate, which favours rural, sparsely populated States that are also predominantly white.

The Indian structure

- Other federations (Switzerland and Belgium come to mind) have adopted other — less extreme — forms of reconciliation. However, India's quasi-federal structure has always been sui generis.
- Our founders knew that India's diversity made federalism inevitable, but, fearing fissiparous tendencies among States that had never been a single political unit, they also created a strong centre. While history has been chequered, the fears for Indian national unity simply on the basis of giving States greater powers have proven to be unfounded — and if at all, it has been the other way.
- The 1956 reorganisation of States on linguistic lines was a popular recognition of federal principles and yet did not result in separatist tendencies. Since then, new States within the Union have been created in response to the demands of people for greater autonomy.
- In India, any clash between federal principles and democracy will inevitably also have linguistic, religious and cultural implications and may result in new forms of sub-regional chauvinism.
- Thus, there is an urgent need to reimagine our national compact — another freeze will only kick this thorny issue down the road and will continue to perpetuate an increasingly undemocratic set up.

Fine-tune these elements

- We have the components of such a new balance that need to be fine-tuned to Indian realities.
- First, the powers of States vis-à-vis the Centre contained in the Lists and in the provisions dealing with altering boundaries of States must be increased to assuage the fear of smaller States that they will be dominated by bigger ones.
 - There is no reason to believe that empowering our States would cause national disintegration. On the contrary, more localised decision-making is bound to increase national prosperity.
 - Indeed, this was the entire goal of the creation of Panchayat governance through the 73rd and 74th Amendments to the Constitution, whose promise remains — unfortunately — unrealised.
- Second, the role and composition of the Rajya Sabha, our House of States, must be expanded. This would allow smaller States a kind of brake over national majoritarian politics that adversely impact them.
- Third, constitutional change and the change in financial redistribution between the States must require the consent of all or nearly all States (the fate of the Goods and Services Tax, or GST, serves as a salutary warning in this regard). Constitutional provisions dealing with language and religion must also be inviolate.



- If India is a joint venture between majority and minority shareholders, the minority must be protected by a comprehensive list of “consensus items” that require unanimity — or at least, a super-majority — and not simple majority.
- Fourth, serious thought must be given to breaking up the biggest States into smaller units that will not by themselves dominate the national conversation.

Competing claims

- The unity of India is, of course, the fundamental premise underlying this discussion; but this unity does not depend on an overbearing Centre for its survival.
- National bonds of affection and patriotism will not be severed by devolution of powers though they will be at least severely strained when one part of the country is empowered over another.
- Lampedusa’s Il Gattopardo contains the memorable quote, Everything must change for everything to remain the same.
- This includes the question of how we are to balance the competing claims of democracy and federalism, in the years to come.

Tapping on the potential of the youth

(Source: [The Hindu](#))

Context: *World Population Day is marked on July 11 every year to focus attention on the importance of population-related issues. It was first observed by the United Nations Development Programme (UNDP) in 1989 and aims to raise the discourse on sustainable ways to safeguard each life that adds up to a population. As flagged by a UNDP report last year, and subsequently in a global study by The Lancet, India will stabilise its population 12 years earlier than expected. Therefore, the window India has to leverage its ‘demographic dividend’ is narrower than we had thought. Fears of a ‘population explosion’ are misplaced; instead, it is critical that we focus our attention on safeguarding young people’s well-being because India’s welfare hinges on them.*

Impact of the pandemic

- At 253 million, India’s adolescent population is among the largest. Over 62% of India is aged between 15 and 59 years, and the median age of the population is less than 30 years. India’s ‘demographic dividend’ represents the potential for economic growth based on the age structure of the population.
- However, transforming this potential into reality requires adolescents and the youth to be healthy and well-educated.
- Even before COVID-19 caused country-wide school closures, India’s underfunded education system was inadequately equipped to provide the skills young people need to take advantage of emerging employment opportunities.
- According to the World Bank, public expenditure on education constituted 4.4% of GDP in 2019 and only 3.4% of GDP in 2020. Another report revealed that India stands 62nd in terms of public expenditure per student, and fares badly in quality of education measures such as student-teacher ratios. Coupled with the impact of COVID-19, this paints a bleak picture of the state of education today.
- In India, more than 32 crore students have been affected by the nationwide lockdown due to COVID-19. Of these, about 15.8 crore are female.
- The number of schoolgirls who are impacted is 158 million and many of those who have dropped out are unlikely to go back to school. Schools have remained closed even in remote areas where the effect of the pandemic has been minimal. Studies show that school closures have a serious impact on the lives and mental well-being of children.



- The impact of the pandemic on adolescents has been severe. A survey by the International Labour Organization reveals that 65% of adolescents worldwide reported having learnt less during the pandemic, and 51% felt that their learning would be further delayed.
- It also highlighted that adolescent mental well-being has taken a big blow, with 17% of young people likely to be suffering from anxiety and depression.
- It is important, therefore, for policymakers to balance the risks of transmission through children with the harm of prolonged school closures.
- By prioritising the vaccination of teachers and school support staff and also allowing a decentralised approach where district-level officials may reopen schools based on local COVID-19 transmission rates, schools could be opened in a safe and phased manner.
- In Odisha, for example, community schools have re-opened in some areas. Students wear face masks and sit physically distanced from each other outdoors under sheds or tents. With some innovation and creativity, opening schools with a mix of online and offline options could be an important step to addressing the learning needs and mental well-being of adolescents.
- Increased poverty levels during the pandemic may well have led to a worrying spurt in early marriages of girls in India. As demographers like Shireen Jejeebhoy note, while child marriage as a strategy to address household poverty has been noted in India in general, it has registered an alarming rise during the pandemic.
- This is linked with increases in gender-based violence. Adolescent girls are at high risk during times like these, given their vulnerability to abuse and trafficking, especially if primary caregivers fall ill or die. Restricted mobility due to lockdowns puts girls at risk of violence at home at the hands of caregivers or partners.
- The impact of the crisis on adolescents, especially girls, is of gigantic proportions, but the problem is not irredeemable, provided we display firm commitment to implementing quick and effective strategies to overcome the challenges.

The way forward

- We are living through a global crisis and the road ahead is uncertain. This will have long-standing effects on adolescents and youth. Recognising that COVID-19 has affected all dimensions of the lives of youth, collaborative actions by key ministries, government agencies, and civil society will be central to developing a holistic and meaningful solution.
- It is imperative that we have in place mechanisms for better inter-sectoral collaboration as we move to safeguard the futures of our adolescents. School mid-day meals, for example, exemplify how improved nutrition benefits learning.
- Not only do they provide an incentive for parents to send their children to school on the assurance of one nutritious meal; they also provide the calorie intake required to stay alert in the classroom. Studies have established strong links between nutrition and cognitive scores among teenagers.
- Coordination across departments can enable better solutions and greater efficiencies in tackling the crisis that our adolescents face.
- Much could be gained if the Ministry of Education took steps to ensure that adolescents, especially girls, continue their education during the pandemic. Simultaneously, the Ministry of Health and Family Welfare must collaborate with the Education Ministry to disseminate key information to help adolescents safeguard their health and ability to learn.
- Given that school closures have impacted access to schemes such as the delivery of menstrual hygiene products to adolescents, teachers can work as volunteers for collaborating with frontline health workers to distribute sanitary napkins to girls.
- To address the mental health of adolescents, the Health and Education Ministries should strengthen outreach via existing helplines and by enabling conversations on critical issues regarding their reproductive and sexual health.
- There is enough academic research to demonstrate how the demographic dividend contributed to growth in other countries, especially during East Asia's economic miracle of 1965-1990.



- During that period, East Asia's working age population grew at a faster rate than its dependent population, thereby expanding the per capita productivity of these economies. This occurred because East Asian countries developed social, economic, and political institutions and policies that allowed them to realise the growth potential created by the transition.
- Improving the lives of our adolescents in mission mode would lift their lives, but also generate a virtuous cycle with healthier and educated young adults contributing substantially to securing India's future.

India's Afghan investment

(Source: [Indian Express](#))

Context: *As the Taliban push ahead with military offensives across Afghanistan, preparing to take over after the exit of US and NATO forces, India faces a situation in which it may have no role to play in that country, and in the worst case scenario, not even a diplomatic presence.*

Details:

- That would be a reversal of nearly 20 years of rebuilding a relationship that goes back centuries. Afghanistan is vital to India's strategic interests in the region. It is also perhaps the only SAARC nation whose people have much affection for India.
- After a break between 1996 and 2001, when India joined the world in shunning the previous Taliban regime (only Pakistan, the UAE, and Saudi Arabia kept ties), one way New Delhi re-established ties with the country in the two decades after the 9/11 attacks was to pour in development assistance, under the protective umbrella of the US presence.
- This was timely help. After five years of near-mediaeval rule by the Taliban from 1996, preceded by a half a dozen years of fighting among mujahideen warlords following the Red Army's withdrawal in 1989 — the decade before that too was of fighting as the US-backed, Pakistan-trained mujahideen took on the Soviet military — Afghanistan was in ruins.
- India built vital roads, dams, electricity transmission lines and substations, schools and hospitals, etc. India's development assistance is now estimated to be worth well over \$3 billion. And unlike in other countries where India's infrastructure projects have barely got off the ground or are mired in the host nation's politics, it has delivered in Afghanistan.
- The 2011 India-Afghanistan Strategic Partnership Agreement recommitted Indian assistance to help rebuild Afghanistan's infrastructure and institutions; education and technical assistance for capacity-building in many areas; encourage investment in Afghanistan; and provide duty-free access to the Indian market.
- Bilateral trade is now worth \$1 billion.



Projects across the country

- **SALMA DAM:** Already, there has been fighting in the area where one of India's high-visibility projects is located — the 42MW Salma Dam in Herat province. The hydropower and irrigation project, completed against many odds and inaugurated in 2016, is known as the Afghan-India Friendship Dam.



In the past few weeks, the Taliban have mounted attacks in nearby places, killing several security personnel. The Taliban claim the area around the dam is now under their control.

- **ZARANJ-DELARAM HIGHWAY:** The other high-profile project was the 218-km Zaranj-Delaram highway built by the Border Roads Organisation. Zaranj is located close to Afghanistan's border with Iran. The \$150-million highway goes along the Khash Rud river to Delaram to the northeast of Zaranj, where it connects to a ring road that links Kandahar in the south, Ghazni and Kabul in the east, Mazar-i-Sharif in the north, and Herat in the west.
 - With Pakistan denying India overland access for trade with Afghanistan, the highway is of strategic importance to New Delhi, as it provides an alternative route into landlocked Afghanistan through Iran's Chabahar port. Jaishankar told the November 2020 Geneva Conference that India had transported 75,000 tonnes of wheat through Chabahar to Afghanistan during the pandemic.
 - Over 300 Indian engineers and workers toiled alongside Afghans to build the road. According to a Ministry of External Affairs publication, 11 Indians and 129 Afghans lost their lives during the construction. Six of the Indians were killed in terrorist attacks; five in accidents. India has also built several smaller roads.
- **PARLIAMENT:** The Afghan Parliament in Kabul was built by India at \$90 million. It was opened in 2015; Prime Minister Narendra Modi inaugurated the building. In an expansive speech about India-Afghanistan friendship — he quoted Rumi, who was born in Balkh, Afghanistan, and the immortal Yaari hai imaan mera yaar meri zindagi from Zanjeer, featuring Pran in the role of Sher Khan, the Pathan — Modi described the building as India's tribute to democracy in Afghanistan. A block in the building is named after former PM AB Vajpayee.
- **STOR PALACE:** In 2016, Afghan President Ashraf Ghani and Prime Minister Modi inaugurated the restored Stor Palace in Kabul, originally built in the late 19th century, and which was the setting for the 1919 Rawalpindi Agreement by which Afghanistan became an independent country. The building housed the offices of the Afghan foreign minister and the ministry until 1965. In 2009, India, Afghanistan, and the Aga Khan Development Network signed a tripartite agreement for its restoration. The Aga Khan Trust for Culture completed the project between 2013 and 2016.
- **POWER INFRA:** Other Indian projects in Afghanistan include the rebuilding of power infrastructure such as the 220kV DC transmission line from Pul-e-Khumri, capital of Baghlan province to the north of Kabul, to beef up electricity supply to the capital. Indian contractors and workers also restored telecommunications infrastructure in many provinces.
- **HEALTH INFRA:** India has reconstructed a children's hospital it had helped build in Kabul in 1972 — named Indira Gandhi Institute for Child Health in 1985 — that was in a shambles after the war. 'Indian Medical Missions' have held free consultation camps in several areas. Thousands who lost their limbs after stepping on mines left over from the war have been fitted with the Jaipur Foot. India has also built clinics in the border provinces of Badakhshan, Balkh, Kandahar, Khost, Kunar, Nangarhar, Nimruz, Nooristan, Paktia and Paktika.
- **TRANSPORTATION:** According to the MEA, India gifted 400 buses and 200 mini-buses for urban transportation, 105 utility vehicles for municipalities, 285 military vehicles for the Afghan National Army, and 10 ambulances for public hospitals in five cities. It also gave three Air India aircraft to Ariana, the Afghan national carrier, when it was restarting operations.
- **OTHER PROJECTS:** India has contributed desks and benches for schools, and built solar panels in remote villages, and Sulabh toilet blocks in Kabul. New Delhi has also played a role in building capacity, with vocational training institutes, scholarships to Afghan students, mentoring programmes in the civil service, and training for doctors and others.
- **ONGOING PROJECTS:** At the Geneva Conference in November, Jaishankar announced that India had concluded with Afghanistan an agreement for the construction of the Shatoot Dam in Kabul district, which would provide safe drinking water to 2 million residents. He also announced the start of some 100 community development projects worth \$80 million.
- Last year, India pledged \$1 million for another Aga Khan heritage project, the restoration of the Bala Hissar Fort south of Kabul, whose origins go back to the 6th century. Bala Hissar went on to become a

significant Mughal fort, parts of it were rebuilt by Jahangir, and it was used as a residence by Shah Jahan.

Bilateral trade relations

- Despite the denial of an overland route by Pakistan, India-Afghanistan trade has grown with the establishment in 2017 of an air freight corridor.
- In 2019-20, bilateral trade crossed \$1.3 billion, Afghan government officials said at a recent interaction with Indian exporters in Mumbai. The balance of trade is heavily tilted — exports from India are worth approximately \$900 million, while Afghanistan’s exports to India are about \$500 million.
- Afghan exports are mainly fresh and dried fruit. Some of this comes overland through the Wagah border; Pakistan has permitted Afghan trade with India through its territory. Indian exports to Afghanistan take place mainly through government-to-government contracts with Indian companies. Exports include pharmaceuticals, medical equipment, computers and related materials, cement, and sugar.
- Two air corridors — Kabul-Delhi and Herat-Delhi — are in operation now. Trade through Chabahar started in 2017 but is restricted by the absence of connectivity from the port to the Afghan border. Trade volumes are minuscule.

A Kerala model for an anti-discrimination law

(Source: [The Hindu](#))

Context: *A couple turned down for a home they wish to rent, because they are Muslim. A qualified professional rejected for a job because he uses a wheelchair. A pair of students denied facilities on campus because of their caste or ethnicity. An air hostess dismissed for being above the weight deemed desirable, even though male stewards/pursers of that weight continue in their jobs.*

Forms of discrimination

- Such incidents are all too common in our society. “Silent segregation” on the grounds of marital status, gender, sexual orientation or eating preferences are followed in several housing societies and residents’ associations.
- The Housing Discrimination Project at Jindal Global Law School has shown how extensive housing discrimination is across the country.
- The recent Pew Research Center Report has confirmed that a substantial number of Indians prefer not to have a person from a different religious community as their neighbour.
- The absence of a proper legal recourse for those who suffer from housing discrimination only makes matters worse.
- Even though Section 377 of the Indian Penal Code was read down by the Supreme Court of India to exclude consensual relations between adults of the same sex, social prejudice against members of the LGBTQIA+ community in the country remains strong. Article 15(1) of the Constitution of India prohibits the state from discriminating against individuals on basis of certain protected characteristics such as religion, race, caste, sex and place of birth.
- But it does not bar private individuals or institutions from doing what the state is not permitted to. Nor does it expressly list ethnicity, linguistic identity, nationality, marital status, sexual orientation, disability, physical appearance and other personal characteristics as prohibited grounds of discrimination.
- The understanding of discrimination has also evolved over the years. It does not operate along a single axis; it can take the form of combined discrimination which is a combination of discrimination on two or more grounds.



- Last April, the Supreme Court, in Patan Jamal Vali vs State of Andhra Pradesh, recognised intersectional discrimination — discrimination on the basis of the intersection of personal characteristics, such as that faced by Dalit women as Dalits, as women and in the unique category of Dalit women.
- Discriminatory practices may also be indirect in nature, whereby policies that seem neutral and not expressly targeted at a particular group, still cause a disproportional adverse impact on disadvantaged sections of society.

Legal remedies are needed

- Since discrimination thus operates on a wide variety of grounds, legal remedies are needed for its victims, whether direct, indirect or intersectional.
- A comprehensive anti-discrimination legal framework is required to fill the existing legal lacunae. India is one of the few liberal democracies without such a framework.
- The Sachar Committee, in 2006, recognised the need for an anti-discrimination law. This was further reiterated by the Expert Group on Equal Opportunity Commission headed by Prof. N.R. Madhava Menon.
- Though the proposal for an anti-discrimination law was approved by the United Progressive Alliance Cabinet, it was put on the back-burner after the government changed in 2014.

When a Bill lapsed

- One of us (Tharoor) tried to revive the idea by introducing the Anti-Discrimination and Equality Bill, 2016 in the Lok Sabha.
- Perhaps predictably, the Treasury Benches were not interested to take it forward and the Bill lapsed in 2019 with the dissolution of the Lok Sabha. It seems clear to us that the only way progressive legislation of this nature can be passed in the present climate would be if the States lead the way, by enacting anti-discrimination laws in their respective jurisdictions.
- States have a vital role in strengthening our right to equality. A central Bill cannot, at any rate, cover subjects that are under the exclusive jurisdiction of State governments. And if States take the initiative, the demand for a national anti-discrimination law to cover services and institutions under the domain of the Union government will be reignited.
- Kerala is one the best placed States to take this proposal forward, especially since both the major political fronts in the State have previously committed themselves to such legislation.
- The CPI(M) in its 2019 manifesto and the United Democratic Front (UDF) in its 2021 State Assembly manifesto have both promised to enact an anti-discrimination law which covers the private and the public sectors.
- The State legislature can use its powers under Entry 8 of List III in the Seventh Schedule to the Constitution to enact an anti-discrimination law that attracts civil penalties for those who engage in discriminatory practices.

Crafted for Kerala

- With the invaluable assistance of Professor Tarunabh Khaitan of Oxford University, we have drafted an anti-discrimination Bill for the Kerala government to consider introducing in the State Legislative Assembly.
- The Bill prohibits employers, landlords, traders, service providers, private persons performing public functions, and public authorities, from discriminating on grounds of caste, race, ethnicity, descent, sex, gender identity, gender expression, pregnancy, sexual orientation, religious identity, tribe, disability, linguistic identity, HIV-status, nationality, marital status, dietary preference, skin tone, physical appearance, place of residence, place of birth, age or analogous characteristics which are beyond the control of an individual or those that constitute a fundamental choice.
- At the same time, the Bill balances the anti-discrimination mandate with other rights guaranteed by the Constitution. The anti-discrimination mandate can be restricted in pursuance of a legitimate objective: for instance, a drama company putting up a production of the Ramayana can insist on only male applicants for the role of Ram. That would not be discrimination in the terms covered by the law.



- The Bill also introduces affirmative-action provisions whereby public authorities are obliged to progressively realise diversification of their workforces by recruiting members of disadvantaged sections excluded from society, such as transgender persons or persons with disabilities.
- Given the backlogs in our judicial system, the Bill establishes a ‘Kerala Equality Commission’ to adjudicate complaints and to provide policy recommendations to the State government.
- Given that the proliferation of post-retirement public offices for judges does not augur well for judicial independence, the proposed commission does not follow the tried and tested model of former judges presiding over statutory bodies.
- Rather, appointments to the Commission are left to the political process, with substantial weightage given to the largest parties in the State, both in the Treasury and Opposition benches, to ensure bipartisan buy-in to the process.
- The Bill has been forwarded both to the Law Minister of Kerala and the Leader of the Opposition with the suggestion that it should be subjected to a pre-legislative consultation process, so that democratic participation in enacting this historic law is encouraged.
- If this Bill is enacted, it will be the largest expansion of civil rights in the State since the commencement of the Constitution, and it can be a model for other States to follow.
- An anti-discrimination law is not a panacea for the problems of inequality and social prejudice that are deeply rooted in our society. Nevertheless, it is a necessary step — an idea whose time has come.

How China eliminated malaria, and the road ahead for India

(Source: [Indian Express](#))

Context: *In the past two decades, path-breaking achievements have been made to eliminate malaria. Globally, with scientific advancement new knowledge on malaria parasites, insights into vector biology and newer control strategies have helped target interventions resulting in substantial transmission reduction leading to disease elimination. As per the Global Malaria Report 2020 by the World Health Organization (WHO), in 2019 an estimated 229 million malaria cases and 409,000 deaths in 87 malaria-endemic countries are recorded, with a large concentration of the total malaria burden (94%) in Africa. India shared 2% of the total global malaria cases in 2019.*

Global Malaria Elimination scenario: How many countries have successfully eliminated malaria?

- Since 1900, 127 countries have registered malaria elimination. In 2021, two countries El Salvador on February 25 and China on June 29 were declared malaria-free by the WHO.
- This is definitely not an easy task. It needs proper planning and a strategic action plan based on the local situations. All these countries followed the existing tools and strategies to achieve the malaria elimination goal. The main focus was on surveillance.

How did China eliminate malaria?

- China followed some specific strategies, namely strong surveillance following the ‘1-3-7’ system: malaria diagnosis within 1 day, 3 days for case investigation and by day 7 for public health responses.
- Molecular Malaria Surveillance for drug resistance and genome-based approaches to distinguish between indigenous and imported cases was conducted.
- All borders to the neighbouring countries were thoroughly screened to prevent the entry of unwanted malaria into the country.

What is the current scenario of malaria in India?

- India has a great history of malaria control. The highest incidence of malaria occurred in the 1950s, with an estimated 75 million cases with 0.8 million deaths per year.



- The launch of National Malaria Control Programme in 1953 and the National Malaria Eradication Programme in 1958 made it possible to bring down malaria cases to 100,000 with no reported deaths by 1961. This is no doubt a great achievement has been made so far.
- But from a nearing stage of elimination, malaria resurged to approximately 6.4 million cases in 1976. Since then, confirmed cases have decreased to 1.6 million cases, approximately 1100 deaths in 2009 to less than 0.4 million cases and below 80 deaths in 2019.
- India accounted for 88% of malaria cases and 86% of all malaria deaths in the WHO South-East Asia Region in 2019 and is the only country outside Africa among the world's 11 'high burden to high impact' countries.

The road ahead for India:

- India is a signatory to National Framework for Malaria Elimination (NFME) 2016-2030 aiming for malaria elimination by 2030. This framework has been outlined with a vision to eliminate the disease from the country which would contribute to improved health with quality of life and poverty alleviation.
- India stands at a very crucial stage. The present challenge is the detection of asymptomatic/afebrile cases in most endemic areas.
- The current approach for mass screening with Rapid Diagnostic Tests (RDTs) would not fulfil the basic purpose because these tests fail to detect <100 parasites/ μL blood and also the problem of deletion of certain diagnostic genes in the Plasmodium falciparum dominated areas.
- To overcome this, a microPCR-based point-of-care device that detects <5 parasites/ μL blood can be used. The same technology is being used in Tuberculosis and COVID-19 diagnosis.
- Molecular Malaria Surveillance must be used to find out the drug-resistant variants and genetic-relatedness studies to find out the imported or indigenous cases.
- Finding active and functional gametocyte carriage of P. falciparum in endemic areas should get priority. It has been found that when transmission decreases malaria becomes focal and residual. The surveillance must be strengthened and using smart digital surveillance devices would be an important step. Real-time and organic surveillance is needed even in remote areas.
- The results of each malaria case can be registered in a central dashboard at the National Vector Borne Disease Control Programme, as it is done for COVID-19 cases by Indian Council of Medical Research. All intervention activities must strictly be monitored.
- Vector biology, site of actual vector mosquito bite, host shifting behaviour, feeding time, feeding behaviour and insecticide resistance studies need to be carried out to support the elimination efforts. Medical entomologists who would help accelerate elimination plans should be appointed at both Central and State levels.
- China collaborated with Harvard University and the Massachusetts Institute of Technology, USA for Molecular Malaria Surveillance. In India, there are very dedicated expert scientists who can take up such assignments.
- The entire world is now facing the once in a century pandemic of COVID-19. This has resulted in an over 32% decline in total blood smear collection for malaria surveillance in 2020 in India compared to 2019. India has to quickly overcome this and make the elimination process back on track and put all efforts to make India malaria-free by 2030.

Cauvery and the row over Makedatu project

(Source: [The Hindu](#))

Context: On July 6, Karnataka Chief Minister B.S. Yediyurappa said in Bengaluru that his government would go ahead with the long-pending Makedatu dam project in the Cauvery Basin to cater to the drinking



water needs of the Bengaluru Metropolitan City and surrounding areas. On the same day, in New Delhi, Tamil Nadu's Water Resources Minister Durai Murugan met Union Minister for Jal Shakti, Gajendra Singh Shekhawat, and impressed upon him not to grant Centre's clearance for the project. This was preceded by a July 3 letter Mr. Yediyurappa wrote to his Tamil Nadu counterpart M.K. Stalin, calling for talks on the subject. However, the latter did not explicitly react to Mr. Yediyurappa's offer of negotiations, even as he explained why Tamil Nadu continued to oppose the project. Mr. Stalin has called an all-party meeting in Chennai on July 12.

What do the Cauvery Water Disputes Tribunal and the Supreme Court say?

- The Cauvery Water Disputes Tribunal, in its final order on February 2007, made allocations to all the riparian States — Karnataka, Kerala and Tamil Nadu, apart from the Union Territory of Puducherry. It also stipulated “tentative monthly deliveries during a normal year” to be made available by Karnataka to Tamil Nadu.
- Aggrieved over the final order for different reasons, the States had appealed to the Supreme Court. In February 2018, the court, in its judgment, revised the water allocation and increased the share of Karnataka by 14.75 thousand million cubic feet (tmc ft) at the cost of Tamil Nadu.
- The enhanced quantum comprised 4.75 tmc ft for meeting drinking water and domestic requirements of Bengaluru and surrounding areas.

What is Karnataka planning?

- Encouraged by the Supreme Court verdict, Karnataka, which sees the order as an endorsement of its stand, has set out to pursue the Mekedatu project.
- Originally proposed as a hydropower project, the revised Mekedatu dam project has more than one purpose to serve.
- Estimated to cost ₹9,000 crore, the project envisages the construction of a reservoir of 67.16-tmc ft capacity, which will come up about 4 km away from the Karnataka-Tamil Nadu border. A hydropower plant of nearly 400 MW has also been proposed.
- The Karnataka government has argued that the proposed reservoir will regulate the flow to Tamil Nadu on a monthly basis, as stipulated by the Tribunal and the Supreme Court.
- This is why Mr. Yediyurappa has contended that the project will not affect the interests of Tamil Nadu farmers.

Why is Tamil Nadu opposed to it?

- Tamil Nadu feels that Karnataka, through the project, will impound and divert flows from “uncontrolled catchments” to it, a component which was taken into account by the Tribunal in the 2007 order while arriving at the water allocation plan for the State.
- As per an estimate, around 80 tmc ft of water flows annually to Tamil Nadu, thanks to the catchments including the area between Kabini dam in Karnataka and Billigundulu gauging site on the inter-State border, and the area between Krishnaraja Sagar dam in Karnataka and the gauging site.
- As the upper riparian State has adequate infrastructure even now to address the water needs of Bengaluru, there is no need for the Mekedatu project, according to Tamil Nadu. The Mekedatu project also does not find mention in the Tribunal's final order or the Supreme Court judgment. Besides, given the unpleasant experiences that it has had with Karnataka in securing its share of the Cauvery water over the years, Tamil Nadu is wary of the assurances of the other side.

What happens next?

- Tamil Nadu's petitions against the project are pending with the Supreme Court.
- The project is yet to get environmental clearance from the Centre.
- A way out can be found if the two parties agree to the idea of a joint execution, operation and maintenance of the project or a third party's participation.

What makes the UAPA so stringent?

(Source: [The Hindu](#))

Context: *The death of Father Stan Swamy, a Jesuit priest and tribal rights activist, while in judicial custody, has brought to focus the law under which he was imprisoned. The stringent nature of the Unlawful Activities (Prevention) Act (UAPA), which renders it difficult for one held under it to obtain bail, is being seen as one of the principal reasons for Fr. Swamy's death as a prisoner in a hospital. This has raised questions about the liberty of many others, including 15 others arrested in the Elgar Parishad case and incarcerated under the same law, which is also India's main anti-terrorism legislation.*

What is the origin of the UAPA?

- The Union government was considering a stringent law against calls for secession in the mid-1960s. In March 1967, a peasant uprising in Naxalbari imparted a sense of urgency.
- On June 17, 1966, the President had promulgated the Unlawful Activities (Prevention) Ordinance “to provide for the more effective prevention of unlawful activities of individuals and associations”.
- Its stringency created a furore in Parliament when it was tabled, leading to the government dropping it. Instead, the Unlawful Activities (Prevention) Act, 1967, which was not identical to the ordinance, was passed.

What is its scope and how has it been expanded over the years?

- The Act provided for declaring an association or a body of individuals “unlawful” if they indulged in any activity that included acts and words, spoken or written, or any sign or representation, that supported any claim to bring about “the cession of a part of the territory of India”, or its “secession”, or which questions or disclaims the country's sovereignty and territorial integrity.
- Prior to the UAPA's enactment, associations were being declared unlawful under the Criminal Law (Amendment) Act, 1952.
- However, the Supreme Court held that the provision on bans was unlawful because there was no judicial mechanism to scrutinise the validity of any ban.
- Therefore, the UAPA included provisions for a Tribunal which has to confirm within six months the notification declaring an outfit unlawful.
- In its present form, the Act, after the amendments in 2004 and 2013, covers the declaration of associations as unlawful, punishment for terrorist acts and activities, acts threatening the country's security, including its economic security (a term that covers fiscal and monetary security, food, livelihood, energy ecological and environmental security), and provisions to prevent the use of funds for terrorist purposes, including money laundering.
- The ban on organisations was initially for two years, but from 2013, the period of proscription has been extended to five years.
- After the Prevention of Terrorism Act (POTA), 2002, was repealed, the UAPA was expanded to include what would have been terrorist acts in earlier laws. The 2004 amendments were also aimed at giving effect to various anti-terrorism resolutions of the United Nations Security Council.
- In 2012, there was a set of amendments, which was notified from early 2013, seeking to bring the UAPA in line with various requirements of the Financial Action Task Force, an inter-governmental body, to combat money laundering and terrorism financing. In 2019, the Act was amended to empower the government to designate individuals as terrorists.

How do UAPA provisions differ from regular criminal law?

- Just like other special laws dealing with narcotic drugs and the now-defunct laws on terrorism, the UAPA also modifies the Code of Criminal Procedure (CrPC) to give it more teeth.



- A remand order can be for 30 days instead of the usual 15, and the maximum period of judicial custody before the filing of a chargesheet is extendable from the usual 90 days to 180 days.
- This extension, however, depends on the Public Prosecutor filing a report on the progress in the investigation and giving reasons for seeking another 90 days to complete it. The law also makes it more difficult to obtain bail.

What is the controversy about its bail provisions?

- Under Section 43D(5) of the Act, bail cannot be granted to a suspect if the court is of the opinion that there are reasonable grounds to believe that the charges are prima facie true.
- A Supreme Court judgment on this has clarified that this meant that the court considering bail should not examine the evidence too deeply, but must go by the prosecution version based on broad probabilities.
- This means that the onus is on the accused to show that the case is false but without inviting the court to evaluate the available evidence.
- This is why human rights defenders feel that the provision is draconian, virtually rendering it impossible for anyone to obtain bail until the completion of the trial.

India needs a renewed health-care system

(Source: [The Hindu](#))

Context: *India has a new Union Health Minister after the recent cabinet reshuffle. So, what does the new Health Minister need to learn from previous experience, and what unfinished tasks need to be taken forward? As citizens, how should we expect the Government to perform better on the public health front, given the lessons of the COVID-19 pandemic? If the Union Health Ministry acts upon the following health system lessons, this would not only enable improved handling of COVID-19, but would also have widespread positive impacts extending much beyond the COVID-19 situation.*

Two States and a comparison

- For any population, the availability of functional public health systems is literally a question of life and death. This is evident by comparing two States which currently have the highest number of COVID-19 cases in India — Maharashtra and Kerala.
- Their per capita gross State domestic product (GSDP), reflecting the overall economic situation in each State, is similar.
- However, their COVID-19 case fatality rates are hugely different — this being 0.48% for Kerala and 2.04% for Maharashtra, with the shocking implication that on average, a COVID-19 patient in Maharashtra has been over four times more likely to die when compared to one in Kerala.
- A major reason for such critical divergence is likely to be the huge differences in the effectiveness of public health systems. Kerala has per capita two and a half times more government doctors, and an equally higher proportion of government hospital beds when compared to Maharashtra, while allocating per capita over one and half times higher funds on public health every year. Despite Maharashtra having a large private health-care sector, its weak public health system has proved to be a critical deficiency.
- **In contrast, robust government health-care services in Kerala have translated into: a more effective outreach, timely testing, early case detection and more rational treatment for COVID patients, which all together reduce fatality rates.**
- **Existing evidence from the COVID-19 pandemic provides a clear message: a neglect of public health systems can mean large-scale, avoidable losses of lives; hence, public health services must be upgraded rapidly and massively as a topmost priority.**

Focus on public health



- Talking of priorities, if the ₹20,000 crore or nearabout allocated for the Central Vista project were to be utilised instead to set up oxygen plants, two-thirds of the over 25,000 government hospitals across India could acquire their own oxygen source, thus helping to save the lives of lakhs of COVID-19 and non-COVID-19 patients.
- A larger programme which requires the immediate attention of the Health Minister is the National Health Mission (NHM); since 2017-18, Union government allocations for the NHM have declined in real terms, resulting in inadequate support to States for core activities such as immunisation, while systemic gaps affect the delivery of COVID-19 vaccination.
- Although urban people across India have experienced major shortages of public health services during COVID-19, the condition of the National Urban Health Mission (NUHM) remains pathetic.
- This year's Central allocation for the NUHM is ₹1,000 crore, which amounts to less than ₹2 per month per urban Indian.
- This situation must change, and as recommended by the Parliamentary Standing Committee, for reaching National Health Policy targets, the Government must allocate ₹1.6-lakh crore for public health during the current year.
- This would amount to a doubling of the present central health Budget, which could enable major strengthening of health services in rural and urban areas across the country.

Private sector regulation

- Another clear priority that has been highlighted during the COVID-19 pandemic is the need to regulate rates and standards of care in the private sector. Massive hospital bills have caused untold distress even among the middle class; COVID-19 care often costs ₹1 lakh to ₹3 lakh per week in large private hospitals.
- The 'Remdesivir panic' was significantly linked with major overuse of this medicine by unregulated private hospitals, despite the drug lacking efficacy to reduce COVID-19 mortality.
- Although various determinants have contributed to the Mucormycosis outbreak, irrational use of steroids in COVID-19 patients, especially diabetics, appears to be an important factor.
- Yet, despite accumulating evidence on the need for comprehensive regulation of private hospitals, the central government is yet to take necessary steps to promote the implementation of the Clinical Establishments (Registration and Regulation) Act (CEA).
- Passed in 2010 and presently applicable to 11 States across India, this Act is not effectively implemented due to a major delay in notification of central minimum standards, and failure to develop the central framework for regulation of rates.
- Responding to public distress, around 15 State governments invoked disaster-related provisions to regulate rates for COVID-19 treatment in private hospitals. However, initiatives from the central government to promote regulation of private hospitals during the COVID-19 situation are conspicuously inadequate.
- Learning from stark market failures during the COVID-19 pandemic, comprehensive regulation of private health care in public interest now must be a critical agenda for the new Health Minister.

NITI Aayog prescriptions

- A logical corollary of the first two lessons is that health services should not be further privatised. However, flying in the face of health-care distress faced by ordinary Indians during the last 16 months, NITI Aayog has recently published the document, 'Investment Opportunities in India's Healthcare Sector'.
- This promotes further privatisation of health care in a country which already has one of the most privatised health systems in the world.
- Published in the midst of widespread experiences of large-scale overcharging and irrational care by private providers during the COVID-19 epidemic, the report fails to acknowledge the negative aspects of unregulated private health care; neither is there any mention of the need for regulation of private hospitals.

- Instead, the document celebrates the COVID-19 epidemic as a prime business opportunity to be exploited, stating that ‘in the hospital segment, the expansion of private players to Tier 2 and Tier 3 locations, beyond metropolitan cities, offers an attractive investment opportunity’.
- Proposals for handing over public hospitals to private operators, who would presumably now run these key public institutions on commercial lines under the ‘Viability Gap Funding’ scheme are deeply worrisome, especially since public health services which were hitherto free of cost, would begin to be charged for.
- Assuming that the Union Health Ministry has a primary mandate to shape national health policy in India, the Health Minister must assert his authority to stop such moves for further privatisation, which might benefit health-care corporates but would be damaging for ordinary people.
- To conclude, this is a time when it is critical to rebuild people’s trust in public health systems. This would help in overcoming COVID-19 vaccination hesitancy while strengthening the promotion of healthy behaviours necessary to deal with the current wave of COVID-19 and prevent a third wave.
- This would be done best if the new Health Minister acts on three core health system lessons of the COVID-19 pandemic — a need for strengthening public health systems; regulating private health care, and preventing further privatisation of the health sector.
- It is not unjustified to expect our new Health Minister to present an example to the people of India, by acting decisively for public health systems.

GS III

Growth matters but income levels matter more

(Source: [The Hindu](#))

Context: *The provisional estimates of annual national income (2020-21), released on May 31 by the National Statistical Office, did not have any surprises, but for one, that is, there is nothing encouraging in the numbers.*

Details:

- The agriculture sector continued its impressive growth performance, reiterating that it still remains as the vital sector of the economy, especially at times of crisis.
- The manufacturing sector continued its subdued growth performance, failing to emerge as the growth driver, with production interruptions due to localised lockdowns to be blamed.
- The contraction in trade (-18.2%), construction (-8.6%), mining (-8.5%) and manufacturing (-7.2%) is a matter of concern as these sectors account for the bulk of low-skilled jobs. Gross Domestic Product (GDP) at Constant (2011-12) Prices in Q4 of 2020-21 is showing a growth of 1.6%, slightly better than expected, but for a period when the restrictions on mobility and economic activity witnessed reduction, this performance looks below par.
- Further, this growth, which is an improvement over the 0.5% rate of growth in the previous quarter, is a statistical artefact as it is not devoid of the base effect and seasonality which plagues quarterly estimates.
- The magnitude of contraction in the economy and the policy responses towards it raises an important issue, that is, the question of growth prospects for the next year.

Rising unemployment rate



- Contextualising the current growth rates in terms of some other macroeconomic data would provide us a better perspective on growth recovery.
- First, the unemployment data released by the Centre for Monitoring Indian Economy (CMIE) which says, “In May 2021, India’s labour participation rate at 40 per cent was the same as it was in April 2021. But, the unemployment rate shot up to 11.9 per cent from 8 per cent in April. A stable labour participation rate combined with a higher unemployment rate implies a loss of jobs and a fall in the employment rate. The employment rate fell to 35.3 per cent in May 2021 from 36.8 per cent in April 2021. This is a very sharp fall for a single month... May 2021 was therefore a particularly stressful month on the jobs front”.
- According to CMIE, over 15 million jobs were lost in May 2021, higher than the 12.3 million in November 2016, the month of demonetisation. May 2021 was also the fourth consecutive month of a fall in employment.
- The more worrying fact is that the cumulative fall in employment since January 2021 is 25.3 million of which 22.7 million were in the first quarter of FY 2021-2022, that is, during April and May. This shows that the second wave of the pandemic has already dented economic activities, postponing recovery further.
- The job losses also bring out the high informality and vulnerability of labour in India as of the total jobs lost during April-May, 17.2 million were of daily wage earners.
- Elementary textbook economics tells us that employment and aggregate demand in an economy are related via the channel of disposable incomes of workers.
- We also know that aggregate demand and output growth have a positive correlation. Hence, the prospects of growth revival in the next year look bleak at the moment and from this perspective, it is worrying that in just April and May 2021, India lost 25 million non-farm jobs.

Low business confidence

- This gets reflected in the business confidence of Indian companies, which is the second important data point that needs to be examined.
- Business confidence index (BCI), from the survey by the industry body FICCI, plummeted to 51.5 from 74.2 in the previous round.
- The survey also highlights the weak demand conditions in the economy.
- It says, “With household income being severely impacted and past savings being already drawn on during the first wave of infections, demand conditions can be expected to remain weak for longer.”
- Compounding this is the uncertainty arising out of the imposition of localised curbs due to the second wave of infections and a muddled vaccine policy in the country.
- Manufacturing Purchasing Managers’ Index (PMI) also throws some light on the shape of things to come. PMI has slipped to a 10-month low indicating that the manufacturing sector is showing signs of strain with growth projections being revised lower.
- Both BCI and PMI slipping down indicates that the overall optimism towards 2021-22 is low, which could impact investments and cause further job losses.

Demand recovery

- Growth recovery depends on demand recovery. External demand looks robust as India’s exports touched \$32 billion in May 2021, 67% higher than in May 2020 and 8% more than in May 2019. The combined increase in exports of April and May 2021 is over 12% indicating that global demand rebound is much faster than the domestic demand.
- Stimulus programmes and a sharp decline in COVID-19 infections seem to be aiding these economies. What needs to be addressed immediately is the crisis of low domestic demand.
- Since last year, the policy responses have been to rely on credit easing, focusing more on supply side measures, with more and more guarantees by the government to improve flow of credit to important sectors.
- There has been less direct action by the government to support the vulnerable to alleviate their hardships. There were some sector-specific measures to alleviate distress in certain sectors, which were timely.



- However, this policy stance is unlikely to prop up growth for three reasons.
 - First, the bulk of the policy measures, including the most recent, are supply side measures and not on the demand side. In times of financial anxiety, what is needed is direct state spending for a quick demand boost.
 - Second, large parts of all the stimulus packages announced till now would work only in the medium term. These include policies related to the external sector, infrastructure and manufacturing sector. In fact, some of the policies towards agriculture, such as productivity enhancement through the introduction of new varieties, will only work over years.
 - Third, the use of credit backstops as the main plank of policy has limits compared to any direct measure on the demand side as this could result in poor growth performance if private investments do not pick up.
- Further, the credit easing approach would take a longer time to multiply incomes as lending involves a lender's discretion and borrower's obligation. Interestingly, a tight-fisted fiscal policy approach comes at a time when conventional fiscal stimulus packages might not be enough as supply side issues arising out of episodic lockdowns need to be addressed simultaneously.
- What is required now is a sharp revival in overall demand. Focusing on short-term magnified growth rates resting on low bases might be erroneous, as income levels matter more than growth rates at this juncture.
- Focusing on growth rates has its merits in the long term as achieving higher income levels require sustained growth for longer periods. Bangladesh seems to be doing this without much fanfare, but the quest for sustained higher growth has been elusive for India for the last five years.

The 're-wilding' of wild animals and the challenges

(Source: [Indian Express](#))

Context: *The recent attempt of Periyar Tiger Reserve (PTR) to reintroduce into the wild an abandoned nine-month-old cub named Mangala after rearing it in 'captivity' for two years has once again brought the controversial concept of 're-wilding' of abandoned or injured animals under the lens. What is re-wilding, and why has it been contentious?*

What is the intervention known as 're-wilding'?

- As per the Standard Operating Procedures/Guidelines laid down by the National Tiger Conservation Authority (NTCA) under Section 38(O) of The Wildlife Protection Act, 1972, there are three ways to deal with orphaned or abandoned tiger cubs.
 - The first is to make an effort to reunite the abandoned cubs with their mother.
 - Second, if a reunion of the cub with its mother is not possible, then shift the cub to a suitable zoo.
 - Third, reintroduction of the cub into the wild after a certain time when it appears that the cub is capable of surviving in the wild independently. This is what is known as 're-wilding'.
- NTCA stresses that the tiger cub should be reared in an in situ enclosure for a minimum of two years, and during this time, each cub should have a successful record of at least 50 'kills'.
- Within the enclosure, the persons responsible for handling cubs must approach them by putting a tiger mask along with work day clothes of a tiger stripe pattern smeared with tiger urine and faeces.
- Various conditions must be complied with at the time of releasing the cub in the wild. The tiger cubs should be in prime health, and of dispersing age (three/four years). There should be no abnormality/incapacitation.



How have attempts at re-wilding of carnivores gone in India?

- The tiger conservationist Billy Arjan Singh was credited with the re-introduction of three leopards — a male named Prince and two females, Harriet and Juliette — and a Siberian tigress cub named Tara in Dudhwa forest area in the 1970s.
- The re-wilding attempt, however, ran into controversy after several incidents of killing of humans were reported in Dudhwa. These incidents of man-eating were blamed on the tigress Tara, who was reportedly shot dead in 1980.
- Billy, however, disputed this, and maintained that Tara had died a natural death, and that the wrong animal had been killed in 1980.
- The re-wilding in Panna Tiger Reserve of two abandoned tigress cubs, named T4 and T5, that were brought up at Kanha Tiger Reserve, is considered to be a success in tiger conservation.
- Both T4 and T5 produced offspring before dying. T4 died reportedly due to illness, while T5 perished in a territorial fight.
- In March 2021, a three-year-old tigress, PTRF-84, the daughter of the ‘man-eater’ tigress T1, was released in the Pench Tiger Reserve after two years of a re-wilding programme.
- T1, famous by the name of Avni, was shot dead in the Pandharkawada forests of Yavatmal in Maharashtra. One of her two cubs, PTRF-84, was captured.
- The experiment of releasing PTRF-84 into the wild after the re-wilding programme, however, ended badly. Just eight days after being released, PTRF-84 died of injuries sustained during a territorial clash in the jungle.

What are the challenges in the re-wilding process?

- The process of re-wilding of a wild animal after rearing it in captivity is very complicated, and fraught with risks.
- There have been instances, for example, of captivity-reared animals, especially carnivores, attacking human beings after being introduced in the wild.
- Besides, the process is very costly. Huge funds are needed for constructing large, well-fenced enclosures, for the equipment required for technical surveillance of the animal, for providing it with regular prey, and to maintain a well-documented progress report of the animal.
- Authorities have to keep tabs on the overall movement of a released animal till the end, which needs a lot of resources and manpower.

Is the concept of re-wilding limited to big cats like tigers and leopards?

- Re-wilding is not limited to cats. There have been efforts to reintroduce other endangered species, including scavengers, into the wild after rearing them in captivity.
- The Bombay Natural History Society (BNHS) in collaboration with the Haryana Forest and Wildlife Department has been running a vulture conservation centre named ‘Jatayu’ near Pinjore for the last 17 years.
- Several pairs of endangered gyps species, including the white-backed, the long-billed, and the slender-billed, have been successfully introduced into the wild.
- Again, an Elephant Rehabilitation Centre (ERC) has been running in Yamunanagar, Haryana, in collaboration with Wildlife SOS.
- The ERC aims to rehabilitate and provide high-quality veterinary care, treatment, and enrichment to facilitate recovery for elephants that are found astray, injured, abused, exploited, maimed, orphaned, trapped, sick, or treated in a cruel manner by owners or handlers/mahouts.



Why the Amazon forests are no longer acting as a carbon sink?

(Source: [Indian Express](#))

Context: *The Amazon forests in South America, which are the largest tropical forests in the world, have started emitting carbon dioxide (CO₂) instead of absorbing carbon emissions. In a study published in the journal Nature, scientists who conducted this research over a period of nine years in the eastern Amazon forests have said that a significant amount of deforestation in eastern and southeastern Brazil has turned the forest into a source of CO₂ that has the ability to warm the planet.*

Not only the Amazon rainforests, some forests in Southeast Asia have also turned into carbon sources in the last few years as a result of formation of plantations and fires.

The Amazon basin

- The Amazon basin is huge with an area covering over 6 million square kilometres, it is nearly twice the size of India.
- The Amazon rainforests cover about 80 per cent of the basin and as per NASA's Earth observatory, they are home to nearly a fifth of the world's land species and is also home to about 30 million people including hundreds of indigenous groups and several isolated tribes.
- Other than this, the basin produces about 20 per cent of the world's flow of freshwater into the oceans.
- Over the last few years, the forest has been under threat due to deforestation and burning. In 2019, fires in the Amazon were visible from space. Forest fires, according to Brazil's National Institute for Space Research (INPE), have doubled since 2013.
- One reason that they happen is when farmers burn their land to clear it for the next crop.
- Deforestation in the Brazilian Amazon, which comprises about two-thirds of the area of the rainforest, started in the 1970s and 1980s when large-scale forest conversion for cattle ranching and soy cultivation began.
- NASA's Earth Observatory notes that state policies that encourage economic development, such as railway and road expansion projects have led to "unintentional deforestation" in the Amazon and Central America.

So, what have the researchers found?

- Over the years as fossil-fuel emissions across the world have increased, the Amazon forests have absorbed CO₂ from the atmosphere, helping to moderate the global climate.
- But researchers are not saying that because of significant levels of deforestation (over the course of 40 years) there has been a long-term decrease in rainfall and increase in temperatures during the dry season.
- Because of these reasons the eastern Amazon forests are no longer carbon sinks, whereas the more intact and wetter forests in the central and western parts are neither carbon sinks nor are they emitters.
- Another reason for the eastern region not being able to absorb as much CO₂ as it did previously is the conversion of forests into agricultural land, which has caused a 17 per cent decrease in the forest cover, an area that is almost the size of continental US.
- In the southeast region, which forms about 20 per cent of the Amazon basin and has experienced about 30 per cent of the deforestation in the last four decades, scientists have recorded a 25 per cent reduction in precipitation and a temperature increase of at least 2.7 degrees Fahrenheit or 1.5 degrees Celsius during the dry months of August, September and October.
- This means that if the ability of tropical forests to act as carbon sinks is to be maintained, fossil fuel emissions need to be reduced and temperature increases need to be limited as well.

Current Affairs Quiz

- 1) Which of the following statements is/are correct with respect to SuperLuminous Supernova (SLSNe)?
1. It is a type of stellar explosion generally originated from very massive stars with minimum mass limit 25 times more than that of the sun.
 2. It occurs very rare because the number distribution of such massive stars in our galaxy or in nearby galaxies is sparse.

Codes:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

- 2) Consider the following statements:

1. The River Cauvery rises at Talakaveri on the Brahmagiri range in the Western Ghats in Karnataka and drains into the Bay of Bengal.
2. The disputed Mokedatu Dam Project is being proposed to be built across River Cauvery.
3. Harangi, Shimsha and the Arkavati River are the important tributaries of the River Cauvery.

Select the correct answer code:

- a. 1 and 2 only
- b. 1 and 3 only
- c. 2 and 3 only
- d. 1, 2 and 3

Answer : d

- 3) Which of the following statements is/are correct with respect to National Bank for Agriculture and Rural Development (NABARD)?

1. It was established on the recommendations of B.Sivaraman Committee by an Act of the Parliament.
2. NABARD is wholly owned by the Government of India.

Codes:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

- 4) Consider the following statements with respect to Speaker of the house:

1. Constitution has prescribed specific qualifications for a person being elected as Speaker.
2. Any one even outside the respective house can become a speaker.
3. The Constitution provides that the office of the Speaker should never be empty.

Which of the statements given above is/are correct?

- a. 1 & 2 only
- b. 2 only
- c. 2 & 3 only
- d. 3 only

Answer : d

- The Speaker holds Office from the date of his/her election till immediately before the first meeting of the next Lok Sabha.

- The Constitution of India requires the Speaker to be a member of the House.
- Although there are no specific qualifications prescribed for being elected the Speaker, an understanding of the Constitution and the laws of the country is considered a major asset for the holder of the Office of the Speaker.
- Usually, a member belonging to the ruling party is elected Speaker.
- The Speaker (along with the Deputy Speaker) is elected from among the Lok Sabha members by a simple majority of members present and voting in the House.

5) Which of the following statements is/are correct with respect to NASA's VIPER Mission?

1. It aims to explore the Moon's South Pole region and plans to create lunar resource maps.
2. It will evaluate the concentration of water as well as other potential resources on moon's surface.

Codes:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

6) Kesaria Buddha Stupa, recently in news, is located in -

- a. Bihar
- b. Uttar Pradesh
- c. Odisha
- d. Madhya Pradesh

Answer : a

7) The first country in our immediate neighbourhood to accept mobile based payments through the BHIM App is-

- a. Nepal
- b. Bhutan
- c. Maldives
- d. Sri Lanka

Answer : b

8) Which of the following statements is/are correct with respect to Carbon capture and Sequestration?

1. It is the process of capturing waste CO₂ from large point sources, such as fossil fuel power plants, and transporting it to a storage site.
2. There is only artificial process to capture and store Carbon dioxide which includes Industrial & Technological methods.

Which of the statement(s) given above is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : a

- Carbon capture and sequestration is the process of capturing waste carbon dioxide (CO₂) from large point sources, such as fossil fuel power plants, transporting it to a storage site, and depositing it where it will not enter the atmosphere, normally an underground geological formation.
- Carbon dioxide is naturally captured from the atmosphere through biological, chemical, and physical processes.

9) Consider the following statements with respect to Gram Nyayalayas:

1. It was established based on the recommendations of 114th Law Commission of India Report.

2. The Gram Nyayalayas will only try civil suits and not criminal cases.
3. The Gram Nyayalaya shall not be bound by the rules of evidence provided in the Indian Evidence Act, 1872.

Select the correct answer code:

- a. 1 and 2 only
- b. 1 and 3 only
- c. 2 and 3 only
- d. 1, 2 and 3

Answer : b

The Gram Nyayalayas will try criminal cases, civil suits, claims or disputes which are specified in the First Schedule and the Second Schedule to the Act.

10) Consider the following statements with respect to Karman Line:

1. It is an imaginary boundary between the Earth's Atmosphere and the Outer Space, 100 kilometers above the mean sea level. .
2. It has been recognised as the legal boundary in the Outer Space Treaty adopted in 1967.

Select the correct answer code:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : a

- It is an attempt to define a boundary between Earth's atmosphere and outer space.
- The most widely accepted boundary of space is known as the Karman line, 100km above mean sea level.
- But the United States uses 80km as the cutoff point.
- The Karman line has been compared to international waters, as there are no national boundaries and human laws in force beyond the line.
- It was named after aerospace pioneer Theodore von Karman.
- But, various countries and entities define space boundary differently for various purposes.
- International law does not define the edge of space, or the limit of national airspace.
- Defining a legal boundary of what and where space is can help avoid disputes and keep track of space activities and human space travel.
- Some countries, including the United States, believe that defining or delimiting outer space is not necessary.

11) Consider the following statements with respect to Net Stable Funds Rate (NSFR)

1. It is one of the liquidity ratios created by RBI based on the recommendations of NITI Aayog.
2. The minimum NSFR requirement is 100%, therefore it measures medium-term (1 year) resilience.

Select the correct answer code:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : b

Basel-III created two liquidity ratios namely Liquidity Coverage Ratio (LCR) and Net Stable Funds Rate (NSFR).

The Net Stable Funds Rate (NSFR) requires banks to maintain a stable funding profile in relation to their off-balance-sheet assets and activities.

12) Which of the following statementd is/are correct with respect to Electron Bubble?

1. An electron bubble is the empty space created around a free electron in a cryogenic gas or liquid, such as neon or helium.
2. They are typically very small, about 2 nm in diameter at atmospheric pressure.

Codes:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

13) Gravelia Boro is -

- a. It is a newly discovered virus that affects Asiatic Lions
- b. It is a newly discovered tree frog in Arunachal Pradesh
- c. It is a newly discovered fish species discovered in Mizoram
- d. It is a newly discovered burrow spider in Assam

Answer : d

14) State of Food Security and Nutrition in the World 2021 report is released by -

- a. World Health Organization (WHO)
- b. UN-Children's Emergency Fund (UNICEF)
- c. Food and Agriculture Organization (FAO)
- d. UN-Human Rights Council (UNHRC)

Answer : c

15) Which of the following statements is/are correct with respect to Legal Information Management & Briefing System (LIMBS)?

1. It is a web based portal developed by Department of Legal Affairs, Ministry of Law & Justice.
2. It aims to facilitate delivery of legal advice through an expert panel of lawyers, with special focus on those pending for more than 10 years.

Codes:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : a

It aims to create a National Portal of all cases pending in various courts/ Tribunals as a part of the e-Governance initiative.

16) Which of the following statements is/are correct with respect to Gaganyaan programme?

1. It is a Space based Augmentation programme which will provide the best possible navigational services over Indian Flight Information Region (FIR) with the capability of expanding to neighbouring FIRs.
2. The mission's objectives will be accomplished using ISRO's latest generation Launch Vehicle, LVM3 with the liquid stage Vikas Engine.

Codes:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : d

17) Which of the following statements is/are correct with respect to Chemotaxis?

1. It is the directed motion of an organism toward environmental conditions it deems attractive and/or away from surroundings it finds repellent.
2. White blood cells that are needed for healing injuries find the site of injury or inflammation by chemotaxis.

Codes:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

18) Consider the following statements with respect to Article 311:

1. Under the article, no civil servant can be dismissed or removed or reduced in rank except after an inquiry.
2. Under the article, the safeguard of an inquiry provided to a Civil servant does not apply in cases of conviction on a criminal charge.

Which of the statements given above is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

19) Consider the following statements with respect to Rewilding of Wild Animals :

1. It a systematic, scientifically planned re-establishment of viable populations of tigers in this historical range over the longer term.
2. The chances of success of re-wilding of hand reared carnivores in the wild is 80 % more when compared with the herbivores animals.

Select the correct answer code:

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : a

- There are 50-50 chances of success and failure of re-wilding of hand reared carnivores in the wild.
- The chance of success is less than 1 per cent if we look at all the failures of reintroductions and failures have led to deaths of many tigers as well as serious livestock depredations, and even man-eating problems.

20) The first country to harvest rice from Space Rice Cultivation is-

- a. USA
- b. China
- c. Russia
- d. Japan

Answer : b