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January, 2023

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Chapter-
1

ART AND CULTURE

Sangai Festival

Why in News

The Prime Minister of India addressed the Manipur Sangai Festival via video message recently

Important Points

- Labelled as the grandest festival in the state, the Manipur Sangai Festival helps in promoting Manipur as a world-class tourism destination.
- The festival is organised by Manipur Tourism Department every year from 21 to 30 November.
- Even though many editions of this Festival has been celebrated over the past few years with the name of Tourism Festival, since 2010 this has been renamed as the Sangai Festival to stage the uniqueness of the shy and gentle brow-antlered deer popularly known as the Sangai, a regional name given to this rare species of deer.
- As this festival is being celebrated to promote Manipur as a world class tourism destination, it showcases the states contributions to art and culture, handloom, handicrafts, fine arts, indigenous sports, cuisine, music and adventure sports, as well as the natural environment.
- The Prime Minister expressed delight that the Sangai Festival is being organised not just in the state capital but in the entire state, thereby giving an extension to the spirit of the 'Festival of One-ness'.
- The Prime Ministe pointed out that different moods and colours of the festival could be seen at around 14 locations from the Nagaland border to the Myanmar border.
- The Prime Minister underlined that India in its Amrit Kaal is moving forward with the spirit of 'Ek Bharat Shreshtha Bharat'. Shedding light on the theme of the Sangai Festival which is the 'Festival of One-ness' the Prime Minister remarked that the successful organisation of this festival will act as a source of energy and inspiration for the nation in the days to come.
- "Sangai is not only the state animal of Manipur but also has a special place in India's faith and beliefs. The Sangai Festival also celebrates the biodiversity of India", the Prime Minister said.
- He further added that it also celebrates India's cultural and spiritual ties with nature.
- The Prime Minister also informed that the festival inspires indispensable social sensitivity towards a sustainable lifestyle.

About the Sangai

- The sangai is an endemic and endangered subspecies of Eld's deer found only in Manipur, India.
- It is also the state animal of Manipur.
- Its common English name is Manipur brow-antlered deer or Eld's deer and the scientific name is Rucervus eldii eldii.
- Its original natural habitat is the floating marshy grasslands of the Keibul Lamjao National Park(the only floating National Park in the world), located in the southern parts of the Loktak Lake, which is the largest freshwater lake in eastern India.

Ahom King Sukapha

Why in News

On the occasion of Assam Day, celebrated every year on December 2, tributes poured in for Swargadeo Chaolung Sukapha, the first Ahom king.

Important Points

- The Assam Day is also known as "Sukapha Diwas" in honour of the founder of the Ahom kingdom.
- Since 1996 December 2 has been celebrated in Assam as the Sukaphaa Divox, or Axom Divox (Assam Day), to commemorate the advent of the first king of the Ahom kingdom in Assam after his journey over the Patkai Hills.

Who is Swargadeo Chaolung Sukapha?

- Sukaphaa, also Siu-Ka-Pha, the first Ahom king in medieval Assam, was the founder of the Ahom kingdom and the architect of Assam.
- In reverence to his position in Assam's history the honorific Chaolung is generally associated with his name.
- The king played an important role in uniting Assam's various ethnic groups by treating them as equals and encouraging intertribal marriage.
- According to Ahom tradition, Sukaphaa was a descendant of the god Khunlung, who had come down from the heavens and had ruled Mong-Ri-Mong-Ram.
- The details of Sukaphaa's life and origins before his entry into Assam, available from different chronicles, both Ahom and non-Ahom, are full of contradictions.
- According to Phukan (1992) who has tried to hold up a consistent account, Sukaphaa was born to Chao Chang-Nyeu (alias Phu-Chang-Khang) and Nang-Mong Blak-Kham-Sen in the Tai state of Mong Mao (also called Mao-Lung, with the capital at Kieng Sen), close to present-day Ruili in Yunnan, China.
- After his 19 years as crown prince came to an end, Sukaphaa decided to leave Mong Mao in 1215.
- Sukapha came into Assam not as a raiding conqueror but as a head of an agriculture folk in search of land.
- It appears he didn't encroach upon the land of peasants, rather he opened up new areas for settlement, procuring with shrewd diplomacy what he direly needed for the purpose- the service of the local inhabitants.
- Over the next few years, he moved from place to place searching for the right capital, leaving behind his representative at each stage to rule the colonized land. Then he went up the Burhidihing river and established a province at Lakhen Telsa. Then he came back down the river and established his rule at Tipam.
- In 1236 he moved to Mungklang (Abhoipur), and in 1240 down the Brahmaputra to Habung (Dhemaji).
- In 1244 he went further down to Ligirigaon (Song-Tak), a few miles from present-day Nazira, and in 1246 to Simaluguri (Tun Nyeu), a place downstream from the present-day Simaluguri.
- Finally in 1253 he built himself his capital city at Charaideo near present-day Sibsagar town. The capital of the Ahom kingdom changed many times after this, but Charaideo remained the symbolic center of Ahom rule.
- With the help of local recruits, he established three large farms for sali rice cultivation, called Barakhowakhat, Engerakhat and Gachikalakhat.
- In 1268 Sukaphaa died.

- At the time of his death, his kingdom was bounded by the Brahmaputra River in the west, the Disang River in the north, the Dikhow River in the south and the Naga Hills in the east.
- The Ahom rule is hailed as a golden rule in the history of Assam, they are also credited for keeping the Mughal rulers away.

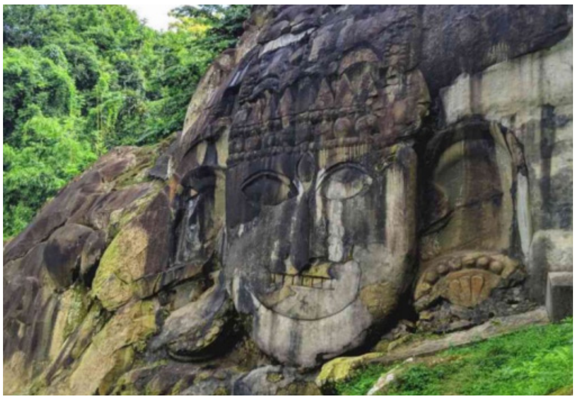
Unakoti of Tripura

Why in News

Unakoti, famously known as the 'Angkor Wat of the North-East', is vying for a UNESCO world heritage tag with both the government and ASI.

Important Points

- Dating back to the 7th-9th centuries, Unakoti is a 'Shaiva' (Saivite) pilgrimage site with marvellous rock carvings, murals with their primitive beauty and waterfalls.
- Literally, Unakoti means 'one less one crore' in Hindi and Bengali and it is believed that these many rock carvings (ninety-nine lakh ninety-nine thousand nine hundred and ninety-nine) are present here.
- In the local Kokborok language, it is called Subrai Khung and is the central tourist spot of the Unakoti District in the Kailashahar Subdivision of Tripura.
- According to Hindi mythology, when Lord Shiva was going to Kashi along with one crore gods and goddesses, he made a night halt at this location.
- He asked all his fellow gods and goddesses to wake up before sunrise and proceed for Kashi. I
- t is believed that in the morning, except Shiva, none of them could wake up so he set out for Kashi alone, cursing others to become stone images.
- As a result of this curse, ninety-nine lakh ninety-nine thousand nine hundred and ninety-nine stone images and carvings continue to be present at Unakoti.
- A local tribal myth says that Kallu Kumhar, a devotee of goddess Parvati who wanted to accompany Shiva-Parvati to Mount Kailash, was the maker of these idols.
- The images found at Unakoti are of two types, namely rock-carved figures and stone images.
- Among the rock-cut carvings, the central Shiva head and gigantic Ganesha figures deserve special notice.
- The central Shiva head is known as 'Unakotiswara Kal Bhairava' and is about 30 feet high including an embroidered head-dress which itself is 10 feet high.
- On each side of the head-dress of the central Shiva, there are two full-size female figures – one of Durga standing on a lion, and another female figure on the other. In addition, three enormous images of Nandi Bull are found half buried in the ground.
- Every year, a big fair, known as 'Ashokastami Mela', takes place in the month of April and is visited by thousands of pilgrims.



Why is it called Angkor Wat of North-East?

- The structures of the rock-cut sculptures are gigantic and have distinct mongoloid features and display almost the same mystical charm as the spellbinding figures in the Angkor Wat temple of Cambodia. So call it the Angkor Wat of North-East.

Angkor Wat temple

- It is a temple complex in Cambodia and is the largest religious monument in the world, on a site measuring 162.6 hectares.
- Originally constructed as a Hindu temple dedicated to the god Vishnu for the Khmer Empire by King Suryavarman II, it was gradually transformed into a Buddhist temple towards the end of the 12th century; as such, it is also described as a "Hindu-Buddhist" temple.
- The original name of the temple was Vrah Visnuloka or Parama Visnuloka meaning "the sacred dwelling of Vishnu.
- Angkor Wat was built at the behest of the Khmer King Suryavarman II in the early 12th century in Yaśodharapura, the capital of the Khmer Empire, as his state temple and eventual mausoleum.

- Angkor Wat combines two basic plans of Khmer temple architecture: the temple-mountain and the later galleried temple.
- It is designed to represent Mount Meru, home of the devas in Hindu mythology: within a moat more than 5 kilometres long and an outer wall 3.6 kilometres long are three rectangular galleries, each raised above the next.
- At the centre of the temple stands a quincunx of towers. Unlike most Angkorian temples, Angkor Wat is oriented to the west; scholars are divided as to the significance of this.
- The modern name Angkor Wat, alternatively Nokor Wat, means "Temple City" or "City of Temples" in Khmer.

Ratnagiri's prehistoric rock art

Why in News

Ratnagiri's proposed oil refinery has experts worried

Important Points

- Experts and conservationists have raised concerns over the proposed location for a mega oil refinery in Barsu village of Maharashtra's Ratnagiri district.
- They claim that the refinery might damage prehistoric geoglyphs found in the area.
- The sites are protected by the state archaeology department and the Archaeological Survey of India (ASI). In April, these sites in the Konkan region were added to a tentative list of UNESCO's world heritage sites.
- While the UNESCO listing dates these sites to be over 12,000 years old, some experts have claimed that these sites might go as far back as 20,000 years, and that this can be ascertained through carbon and geological dating.
- The Barsu-Solgaon site was proposed after the original plan to construct a refinery in Nanar village of the district was dropped in 2019.

What are geoglyphs?

- Geoglyphs are a form of prehistoric rock art, created on the surface of laterite plateaus (Sada in Marathi). They are made by removing a part of the rock surface through an incision, picking, carving or abrading.
- They can be in the form of rock paintings, etchings, cup marks and ring marks.
- The UNESCO listing mentions "Konkan geoglyphs." However, elsewhere, the term petroglyph (literally, "rock symbol/character") is also used.
- As per the UNESCO listing, petroglyphs and geoglyphs share similarities as both require the skills of removing parts or engraving a symbol on the rock surface.

Significance of Ratnagiri's prehistoric rock art

- Clusters of geoglyphs are spread across the Konkan coastline in Maharashtra and Goa, spanning around 900 km.
- Porous laterite rock, which lends itself to such carving, is found on a large scale across the entire region.
- Ratnagiri district has more than 1,500 pieces of such art, also called "Katal shilpa," spread across 70 sites. UNESCO's tentative world heritage list mentions seven sites with petroglyphs in Ratnagiri district — Ukshi, Jambharun, Kasheli, Rundhe Tali, Devihsol, Barsu and Devache Gothane, one in Sindhudurg district –Kudopi village, and nine sites at
- Phansamal in Goa.
- According to UNESCO, "rock art in India is one of oldest material evidence of the country's early human creativity."
- Ratnagiri's rock art is evidence of the continued existence of human settlements from the Mesolithic (middle stone age) to the early historic era. The geoglyphs also show the existence of certain types of fauna that are no longer present in the region today.

- Ratnagiri's prehistoric sites are among three Indian attractions that may soon become World Heritage Sites.
- The other two include Jingkieng Jri, the living root bridge in Meghalaya, and Sri Veerabhadra Temple in Andhra Pradesh's Lepakshi.

What does the imagery in these sites tell us?

- UNESCO's World Heritage Site listing says that imagery from these sites shows how people "adapted to ephemeral wetlands in a dry-arid plateau having shallow rock pools, streams and watercourses".
- Experts say that the discovery of geoglyphs has added to ongoing research on human resilience and adaptation to extreme fluctuations in climates.
- The geoglyph clusters also are examples of advanced artistic skills, showing the evolution of techniques of etching and scooping in rock art.
- The figures depicted in the geoglyphs include humans and animals such as deer, elephant, tiger, monkey, wild boar, rhinoceros, hippopotamus, cattle, pig, rabbit, and monkey.
- Moreover, they also include a high number of reptilian and amphibian creatures such as tortoises and alligators, aquatic animals such as sharks and sting rays, and birds like peacocks.
- Some clusters have one or two standalone figures of larger-than-life scale, while others show multiple figures gathered together, seemingly for a purpose.
- The largest rock engraving or geoglyph in India is at Kasheli in the Ratnagiri district, which has a large figure of an elephant with dimensions of 18X13 metres.
- "The iconography, content, scale and composition record faunal, especially marine and large mammals that have become extinct in the Indian subcontinent over 30,000 years," the UNESCO listing states.

Veer Bal Diwas

Why in News

In January 2022, the Centre announced that December 26 would be observed as 'Veer Bal Diwas'.

Important Points

- In January 2022, the Centre announced that December 26 would be observed as 'Veer Bal Diwas' to mark the martyrdom of Guru Gobind Singh's younger sons, Sahibzada Zorawar Singh (9) and Sahibzada Fateh Singh (7).
- The two Sahibzade were killed in 1704, in events sparked by the attack on Anandpur Sahib by the armies of the Mughals and the hill kings of present-day Himachal Pradesh.
- Guru Gobind Singh's mother Mata Gujari Ji, and two other sons, Sahibzaada Ajit Singh Ji (18) and Sahibzaada Jujhar Singh Ji (14), were also martyred within a week.
- Shaheedi Jor Mela or Shaheedi Sabha is observed at Fatehgarh Sahib, which is attended by lakhs of people.
- Guru Gobind Singh was raising an army, which the neighbouring hill kings were not comfortable with.
- In 1699, Guru Gobind Singh had established the Khalsa, which the hill kings and the Mughal empire saw as a threat.
- The kings had had several battles with the Sikhs in the last decade of the 17th century, but had been unable to dislodge them from Anandpur Sahib.
- The fateful attack of 1704 was led by Bilaspur King Bheem Chand and Handuria King Raja Hari Chand. They cordoned off Anandpur Sahib with support from the Mughal empire.
- The armies of Sarhand, Lahore, Jalandhar, Malerkotla and Saharnpur also joined the attack. Supplies to Anandpur Sahib were cut off for several months.
- It is said that the Hindu kings and Muslim Mughal governors finally reached an agreement with the Sikhs, and swore there would be no war if Guru Gobind Singh left Anandpur Sahib.
- According to the history published by the Shiromani Gurdwara Parbandhak Committee (SGPC), Guru Gobind Singh left Anadpur Sahib on December 20, 1704.
- However, their opponents violated their oath and the Guru and his followers were attacked near the river Sarsa, at a distance of about 25 kilometres from Anandpur Sahib.
- Battle on the banks of Sarsa
- The river was flooded. Many Sikhs soldiers were swept away while crossing the cold river. In the chaos, Guru Gobind Singh's family was separated, scattering in three directions.

- His wife, mata Sahib Kaur, and companion Bhai Mani Singh went towards Malwa. The Guru himself with his two eldest sons, Ajit Singh and Jujhar Singh, and 40 other Sikhs moved toward Chamkaur Sahib. Mata Gujar Kaur ji and the two younger sons started a journey that ended in Sarhand.
- Today, Gurdwara Parivaar Vichhora Sahib stands on the spot where the battle of Sarsa took place and the family was separated.
- Guru Gobind Singh and his band of followers were soon surrounded in a castle at Chamkaur Sahib, where they had taken refuge. The historic battle of Chamkaur was fought here, where a small number of Sikhs took on the huge army of the Mughals and the hill kings. Sahibzada Ajit Singh and Sahibzada Jujhar Singh both sacrificed their lives in this battle on December 22.
- Sahibzada Zorwar Singh and Sahibzada Fateh Singh along with their grandmother were staying in village Kheri at the house of one Gangu, who had served as a cook for the family.
- However, Gangu, tempted by the gold ornaments and coins Mata Gujari ji was carrying and the reward announced by the Mughal governor, handed over the children and their grandmother to Sarhind's Nawab Wazir Khan.
- The three – the 81-year-old Mata Gujari ji, and the two Sahibzade aged 7 and 9 – were imprisoned in the Thanda Burj (cold tower), which had a river flowing next to it and was thus bitterly cold.
- When the children were presented in court, they were offered riches and gifts and told to convert to Islam. They were told their father and elder brothers had been killed in the war. The Sahibzade refused to convert or to bow to Wazir Khan.
- After efforts to make them give up their religion failed, Wazir Khan decided that the boys would be bricked alive. There was resistance to this from some Muslim courtiers, like Nawab Sher Khan, who said it was against Islam to sentence two children to death.
- However, Wazir Khan prevailed. It is said that even as a wall was being erected around them, the Sahibzada stood unflinching. Two executioners then slit their throats, killing the younger, Sahibzada Fateh Singh, first. The same day, Mata Gujari ji died of shock.
- A few years later, Baba Banda Singh Bhadur avenged the execution of the Sahibzade, by attacking and capturing Sarhand.
- Hence, every December, Sikhs mark the supreme sacrifice made by the children and mother of the 10th Guru, Gobind Singh ji.

Guru Gobing Singh(Gobind Rai)

- He was born in 1666 in Patna, Bihar
- He was the 10th and last of the personal Sikh Gurūs
- Gobind Singhji was the son of the ninth Gurū, Tegh Bahādur, who suffered martyrdom at the hands of the Mughal emperor Aurangzeb.
- He was a linguist familiar with Persian, Arabic, and Sanskrit as well as his native Punjabi.
- He passed away in 1708.

India adds three new sites to UNESCO Tentative List

Why in News

Three new cultural sites in India, including the iconic Sun Temple at Modhera, historic Vadnagar town in Gujarat, and rock-cut relief sculptures of Unakoti in Tripura, have been added to the tentative list of UNESCO world heritage sites

Important Points

- The UNESCO website describes a tentative list as an "inventory of those properties which each State Party intends to consider for nomination".

India adds 3 more sites to UNESCO's Tentative List:

1: Vadnagar- A multi-layered Historic town, Gujarat

2: Sun Temple, Modhera and its adjoining monuments

3: Rock-cut Sculptures and Reliefs of the Unakoti, Unakoti Range, Unakoti District

- The Archaeological Survey of India (ASI) also shared his tweet and added that the step will provide a big boost to India's cultural heritage.
- With this, India now has 52 sites on the Unesco tentative list that capture the diverse cultural and natural wealth of India. In 2021 India had moved a proposal to add six sites to the list.
- These included the Satpura Tiger Reserve, iconic riverfront of the historic city of Varanasi, Megalithic site of Hire Benkal, Maratha Military Architecture in Maharashtra, Bhedaghat-Lametaghat in Narmada Valley- Jabalpur, and temples of Kanchipuram.

Sun Temple at Modhera

- Modhera Sun Temple is located at Modhera village of Mehsana district, Gujarat, India.
- Modhera finds a mention in the ancient scriptures like Skanda Purana and Brahma Purana.
- The old texts also refer to Modhera and its surrounding areas as Dharmaranya or the forest of righteousness.
- It is situated on the bank of the river Pushpavati.
- It was built after 1026-27 CE during the reign of Bhima I of the Chalukya dynasty.
- The place was later known as Sita ni Chauri and Ramkund locally.
- No worship is offered now and the temple is the Monument of National Importance and is maintained by the Archeological Survey of India.
- The temple is built on 23.6° latitude (approximately near the Tropic of Cancer).
- Earlier, during 1024–1025, Mahmud of Ghazni had invaded Bhima's kingdom, and a force of around 20,000 soldiers had unsuccessfully tried to check his advance at Modhera.
- Historian A. K. Majumdar theorizes that the Sun Temple might have been built to commemorate this defense.
- On a block in western wall of cella, there is an inscription "Vikram Samvat 1083" upside down carelessly incised in Devnagari script which corresponds to 1026-1027 CE.

Vadnagar town in Gujarat

- Vadnagar municipality is a multi-layered historic town, whose history stretches back to nearly 8th Century BCE.
- Its ancient name was Anartapura, and was also known as Anandapura. It was a Buddhist location visited by Xuanzang in 640 C.E.
- The epic tale Mahabharata mentions the Anarta Kingdom in the northern part of present-day Gujarat. The oldest Puranic legend about Gujarat is about a king named Anartha.
- The town is mentioned in the Tirtha Mahatmya section of Nagara Khanda of Skanda Purana by the name of Chamatkarapura.
- The Junagadh rock inscription (dating from 150 C.E.) of Western Kshatrapa King Rudradaman I mentions a region called "Anartha" (meaningless) in northern present-day Gujarat.
- Vadnagar is also the birthplace of the current Prime Minister of India Narendra Modi.

Unakoti in Tripura

- Dating back to the 7th-9th centuries, Unakoti is a 'Shaiva' (Saivite) pilgrimage site with marvellous rock carvings, murals with their primitive beauty and waterfalls.
- Literally, Unakoti means 'one less one crore' in Hindi and Bengali and it is believed that these many rock carvings (ninety-nine lakh ninety-nine thousand nine hundred and ninety-nine) are present here.
- In the local Kokborok language, it is called Subrai Khung and is the central tourist spot of the Unakoti District in the Kailashahar Subdivision of Tripura.

Chapter-
2

POLITY & GOVERNANCE

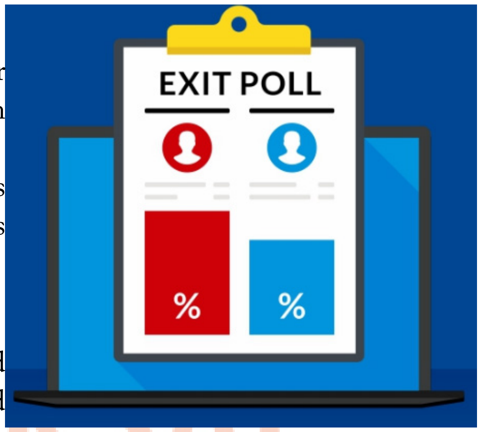
Exit Polls

Why in News

Amidst Gujarat Assembly Election, the Exit Poll once again came to light.

Important Points

- As voting for Gujarat elections ends, exit polls will be out by the evening. In India, results of exit polls for a particular election are not allowed to be published till the last vote has been cast.



What are exit polls?

- An exit poll asks voters which political party they are supporting after they have cast their votes in an election. In this, it differs from an opinion poll, which is held before the elections.
- An exit poll is supposed to give an indication of which way the winds are blowing in an election, along with the issues, personalities, and loyalties that have influenced voters.

What makes an exit poll good or bad?

- Some common parameters for a good, or accurate, opinion poll would be a sample size that is both large and diverse, and a clearly constructed questionnaire without an overt bias.
- Without a structured questionnaire, the data can neither be collected coherently nor be analysed systematically to arrive at vote share estimates.
- Political parties often allege that these polls are motivated, or financed by a rival party.
- Critics also say that the results gathered in exit polls can be influenced by the choice, wording and timing of the questions, and by the nature of the sample drawn.

Significance of exit polls: Gives an indication of

- Who might secure the maximum votes
- The issues, personalities and loyalties that have influenced voters

History of exit polls in India

- In 1957, during the second Lok Sabha elections, the Indian Institute of Public Opinion had conducted such a poll.

Rules governing exit polls:

- The issue of when exit polls should be allowed to be published has gone to the Supreme Court thrice in various forms.
- In 1998, the Election Commission of India (ECI) issued guidelines under Article 324 of the Constitution, restricting media from publishing results of opinion and exit polls during a prohibited period.
- In 1999, the SC stated that in the absence of a statutory sanction, the ECI cannot impose any guidelines prohibiting such polls.
- The inclusion of Section 126(A) in the Representation of the People Act, 1951, in 2010 imposed restrictions only on exit polls.
- Section 126(A): No person shall conduct any exit poll and publish or publicise its results through the print or electronic media, during such period as the ECI may notify in this regard.
- Any person who violates the provisions of this section shall be punished with imprisonment for a term up to 2 years/ a fine/ both.
- Currently, exit polls can be telecast only after the conclusion of the last phase of the election

Print and Digital Media Association (PADMA)

Why in News

The Government of India has approved the Print and Digital Media Association (PADMA) as a self-regulatory body for publishers of news and current affairs across the country.

Important Points

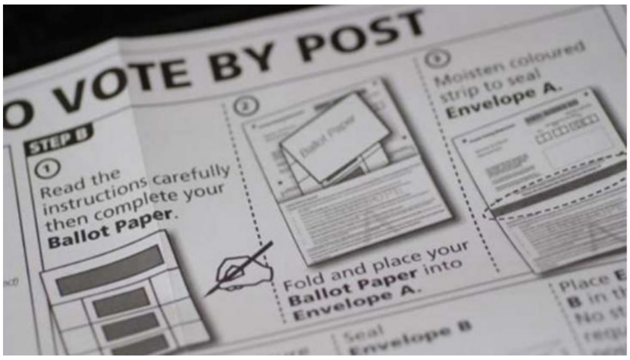
- Print and Digital Media Association (PADMA) with 47 digital news publishers on board — will look at grievances related to digital media news content on their platforms.
- The organisation will be headed by former HC Judge Mool Chand Garg and have part-time member of Prasar Bharati Ashok Kumar Tandon and journalist Manoj Kumar Mishra as members, according to the order.
- PDMA shall perform functions laid down in the sub rules (4) and (5) of rule 12 for the purpose of redressing grievances related to the code of ethics under the rules.
- The body shall also ensure that the member publishers have agreed to adhere to the provisions of the rules, including furnishing the requisite information under rule 18.
- With this, the Ministry has approved nine self-regulatory bodies since May 2021 under rule 12 of the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021.
- They include DIGIPUB News India Foundation, Confederation of Online Media (India), and NBF- Professional News Broadcasting Standards Authority, among others.
- The organisation will primarily look at grievances related to content on digital media platforms pertaining to current affairs that have not been addressed at the level of the platform.
- Rule 12 of the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021, states that self-regulatory bodies will oversee and ensure adherence by the publisher to the code of ethics; provide guidance to publishers on aspects of the code of ethics; address grievances which have not been resolved by publishers within 15 days; hear appeals filed by the complainant against the decision of publishers; issue such guidance or advisories to such publishers for ensuring compliance to the code of ethics.

Postal Ballots

Why in News

When the votes for an election are being counted, you must have often heard that the postal ballots are counted first.

Important Points



- A postal ballot is a ballot cast electronically or by mail: Except as otherwise stated in this Act, voting by postal ballot shall be subject to the provisions in a company's articles of association.
- Government employees serving in the central forces under the arms act and diplomats sent to embassies abroad are categorised as service voters and are eligible for online registration.
- Postal voting is only available to a specific group of voters. By retyping her choices on the ballot paper and returning it to the inspection officer before counting, a voter can remotely cast her ballot using this feature.

Feature

- Voters may use this service from any location outside of the designated constituency.
- This system makes it easier to create voter electoral roll data for services.
- It has two layers of security, making it a secure system:
- Downloading the encrypted electronically transmitted postal ballot (ETPB) file requires an OTP (one-time password).

- To decrypt, print, and deliver ETPB, a PIN is necessary.
- By sending postal ballots electronically to eligible service voters, this system addresses the time constraint associated with mailing postal ballots.
- The specific quick response code ensures confidentiality and prevents the duplication of cast ETPB.

Who can vote using PBs?

- A restricted set of voters can exercise postal voting. Through this facility, a voter can cast her vote remotely by recording her preference on an official ballot paper and sending it back to the election officer before counting.
- Members of the armed forces like the Army, Navy and Air Force, members of the armed police force of a state (serving outside the state), government employees posted outside India and their spouses are entitled to vote only by post.
- In other words, they can't vote in person. Voters under preventive detention can also vote only by post.
- Special voters such as the President of India, Vice President, Governors, Union Cabinet ministers, Speaker of the House and government officers on poll duty have the option to vote by post. But they have to apply through a prescribed form to avail this facility.
- There is also a facility for absentee voters to vote through PBs. These voters are those who are unable to physically cast their vote due to their service conditions.
- For instance, railway employees who are posted outside their home state are counted as absentee voters.
- In 2020, the Election Commission (EC) introduced the facility of PBs for senior citizens, people with disabilities (PwD) and those under Covid-19 quarantine.

How are voters supposed to vote using postal ballots?

- The Returning Officer (RO) is supposed to print ballot papers within 24 hours of the last date of nomination withdrawal and dispatch them within a day, to ensure that voters have enough time to receive the ballots, cast their vote and return the ballots to the RO on time.
- The voters are supposed to mark their preference such that "the intention of the voter to vote for a particular candidate is clear beyond any reasonable doubt." Unclear or improper marking can lead to the PB getting rejected.
- Alongside the ballot, the envelope containing the PB also contains a declaration by the voter in Form 13-A which must be appropriately filled for the vote to count with attestation from an official that marks the eligibility of the voter to avail this facility.

How are postal ballots counted?

- According to Election Commission rules, All PBs received by the RO up to the hour fixed for commencement of counting must be counted. Thus even if one's PB arrives at the office of the RO on the morning of counting, it can still be counted as long as it reaches before the commencement of counting itself.
- Each counting table receives not more than 500 ballots in each round with up to four tables dedicated for calculating just PBs.
- On a counting table, an Assistant Returning Officer (ARO), one counting supervisor, two counting assistants and a micro-observer are present.
- Persons involved in postal ballot counting are specifically trained about all aspects of postal ballot voting. Each table also has one counting agent representing each candidate.
- In the process of counting, first the declaration of each voter is checked for any issues.
- All legitimate declarations are then collected and sealed before the ballots themselves are opened. This is done to maintain the secrecy of the vote, a cornerstone of our democracy. After that the ballots are opened and tallied.
- The total number of postal votes received by each candidate so counted will be entered in the result sheet in Form 20 and announced for the information of the candidates/election agents/counting agents.
- Candidates are to know exactly how many PBs were received and how many PBs voted for them.
- All PBs that are rejected at the counting tables are reverified personally by the RO before being set aside. If the RO finds any of these rejected PBs fit to be counted, they are then counted as valid.

A PB paper will be rejected on the following grounds:

- If no vote is recorded thereon;
- If votes are given on it in favour of more than one candidate;
- If it is a spurious ballot paper;

- If it has been so damaged or mutilated that its identity as genuine ballot paper cannot be established;
- If it is not returned in the appropriate cover/envelope that was sent to the voter by the RO
- If the mark indicating the vote is made in such a way that it is doubtful to make out the candidate to whom the vote has been given; or
- If it bears any mark or writing by which the voter can be identified.

What happens at the end of counting?

- At the end of counting, all rejected and valid PBs are separately bundled away and packed in sealed packets by the RO. This is done to ensure that these PBs are available for a recount.
- According to EC rules, in case the victory margin is less than total number of postal ballots received then there should be a mandatory re-verification of all postal ballots.
- In the presence of Observer and the RO all the postal ballots rejected as invalid as well as the postal votes counted in favour of each and every candidate shall once again be verified and tallied. The Observer and the RO shall record the findings of re-verification and satisfy themselves before finalising the result.
- The entire proceeding should be video-graphed without compromising the secrecy of the ballot and the video -cassette/CD should be sealed in a separate envelope for future reference.

Concerned raised by political parties:

- Parties argue that allowing voters 65 and older to cast postal ballots violates voting confidentiality since a large portion of the population lacks education and may ask for help from others at various points, ultimately identifying their chosen candidate. Their exposure to "administrative influence or influence by the government or the ruling party" results from this as well.

Uttarakhand to give quota to women

Why in News

The Uttarakhand Assembly has recently passed a Bill to provide 30 per cent horizontal reservation to local women.

Important Points

- The Uttarakhand Assembly passed a Bill to provide 30 per cent horizontal reservation to local women in state government services.
- This comes weeks after the Supreme Court lifted an Uttarakhand High Court stay on a 2006 order of the government, providing the same benefit.
- The Uttarakhand Public Services (Horizontal Reservation for Women) Bill, 2022 has now been sent for the Governor's signature.

What does the Bill say?

- In the Bill's statement of objects and reasons, the government says that due to Uttarakhand's geographical structure, people living in remote areas lead a difficult life, especially the women.
- Because of this, their standard of living is below the women of other states.
- Also, women have very little representation in the state's public services.
- The Bill proposes to plug these gaps by providing women with 30 per cent horizontal reservation in public services and posts, in addition to the existing quotas applicable in the state.
- The beneficiaries need to be women with a domicile certificate of Uttarakhand.
- The reservation will be applicable for posts in local authorities, Uttarakhand co-operative committees in which the holding of the state government is not less than 51 per cent of share capital, board or corporation or legal body established by any central or Uttarakhand State Act which is under the ownership or control of the state government, and any educational institution under the ownership and control of the state government or which receives grants in aid from the state government.
- If enough women are not available to fill the reserved seats, they wil be filled with qualified male candidates in the order of proficiency.

What is horizontal reservation?

- In December 2020, the Supreme Court clarified the position of the law on the interplay of vertical and horizontal reservations.
- A decision by a two-judge Bench in the case of Saurav Yadav versus State of Uttar Pradesh dealt with issues arising from the way different classes of reservation were to be applied in the selection process to fill posts of constables in the state.
- In simple terms, while a vertical reservation applies separately for each of the groups specified under the law, the horizontal quota is always applied separately to each vertical category, and not across the board.
- Reservation for Scheduled Castes, Scheduled Tribes, and Other Backward Classes is referred to as vertical reservation. Horizontal reservation refers to the equal opportunity provided to other categories of beneficiaries such as women, veterans, the transgender community, and individuals with disabilities, cutting through the vertical categories.
- For example, if women have 50 per cent horizontal quota, then half of the selected candidates will have to necessarily be women in each vertical quota category — i.e., half of all selected SC candidates will have to be women, half of the unreserved or general category will have to be women, and so on.

How did the issue end up in court?

- In July 2006, Uttarakhand issued a government order to provide 30 per cent horizontal reservation to women domiciled in the state, irrespective of their caste, creed, place of birth, place of origin, and social status.
- The order was in operation till this year before being challenged in the Uttarakhand High Court by Pavitra Chauhan, Ananya Attri and others.
- These were women from outside the state belonging to the unreserved category who had appeared for the state civil examination.
- They pleaded that despite securing higher marks in the preliminary tests than the cut-off for women candidates with state domicile, they were denied the chance to appear for the main examination.
- They challenged the GOs on the ground that they provide horizontal reservation in the examination conducted for the Uttarakhand Combined Service and Senior Service of the State Public Service Commission on the basis of women's domicile status.
- The Uttarakhand High Court stayed the order and said the quota should be construed as a horizontal reservation for women irrespective of their domicile or place of residence.
- The matter then went to the apex court. Challenging the High Court, the state's standing counsel pleaded that the state's terrain and climate forced its youth to migrate elsewhere in search of livelihood, leaving the responsibility to run the household and raise children on women.
- The standing counsel defended the decision to provide quota in public employment to such women, and in November, a bench of Justices S Abdul Nazeer and V Ramasubramanian lifted the HC stay.

Multi state cooperative society(amendment) bill 2022

Why in News

The Bill to amend the Multi-State Cooperative Societies (MSCS) Act, 2002, was introduced in the Lok Sabha recently.

Important Points

- To plug the "loopholes" in the MSCS Act, the Centre introduced a Bill seeking to amend the 2002 law for more "transparency" and increase the "ease of doing business".
- The amendments have been introduced to improve governance, reform the electoral process, strengthen monitoring mechanisms and enhance transparency and accountability.
- The Bill also seeks to improve the composition of the board and ensure financial discipline, besides enabling the raising of funds in MCSCs.
- The Bill provides for the creation of a central Co-operative Election Authority to supervise the electoral functions of the MSCSs.
- The Authority will have a chairperson, vice-chairperson, and up to three members appointed by the Centre.
- Another provision makes it possible to override the board of directors of the society and the appointment of an administrator, not necessarily a member of the collective.
- The Bill seeks to amend Section 17 of the principal act to allow the merger of any State cooperative society with an existing MSCS. Opposition members argued that this was beyond the Centre's legislative competency as State cooperatives are not its domain.

- It envisages the creation of a Co-operative Rehabilitation, Reconstruction and Development Fund for the revival of sick MSCSs , financed by existing profitable MSCSs which will have to deposit either Rs. 1 crore or 1% of their net profit.
- In order to make the governance of these societies more democratic, transparent and accountable, the Bill has provisions for appointing a Cooperative Information Officer and a Cooperative Ombudsman.
- To promote equity and inclusiveness, provisions relating to the representation of women and Scheduled Caste/ Scheduled Tribe members on MSCS boards have been included.
- The Bill makes only members eligible to be elected to the board or as office bearers of the cooperative society.
- Active members have been defined as those who are availing a minimum level of services from the society or have attended at least three consecutive general meetings.
- The Bill also increases the penalty amount for violation of the law to Rs. 1 lakh and potential imprisonment from six months to a year.

Apex Court on MSCSs

- Notably, the constitutional domain of States in regulating cooperative societies was upheld by the Supreme Court in 2021 when it struck down a part of the 97th Constitution Amendment.
- The court held that the Centre required the ratification of the Amendment by 50% of the state legislatures as it sought to give a framework for State legislation on cooperative societies.
- The top court upheld only the part of the amendment that related to MSCSs, for which Parliament was competent to enact laws.

What are MSCSs?

- Multi-State cooperatives are societies that have operations in more than one state- for instance, a farmer-producers organisation which procures grains from farmers from multiple States. Such MSCSs are registered under the Multi-State Co-operative Societies Act 2002, and their regulation lies with the Central Registrar.
- The board of directors are from all the States these collectives operate in and controls all finances and administration function.
- There are close to 1,500 MSCSs registered in India, the highest number being in Maharashtra. A large number of MSCSs are credit societies, while agro-based societies, dairies and banks are also sizeable in number.
- According to the International Cooperative Alliance (ICA), cooperatives are people-centred enterprises jointly owned and democratically controlled by and for their members to realise their common economic, social and cultural needs and aspirations.
- Article 43B of the Constitution inserted by the 97th Amendment says that "states shall endeavour to promote voluntary formation, autonomous functioning, democratic control and professional management of cooperative societies".
- Cooperatives in India range from those providing credit to those producing, procuring, or marketing products like fertilisers, milk, sugar, and fish.

- Indian Farmers Fertilisers Cooperative (IFFCO) has around a third of the market share in fertilizers, while Gujarat's Amul is a highly profitable dairy cooperative.
- According to the Ministry of Cooperation, there are around 8.5 lakh cooperatives in India, with about 1.3 crore people directly attached to them.
- As per NCUI data from 2018, the percentage of cooperative members in proportion to the total population increased from 3.8% in 1950-51 to 22.2% in 2016-17.

History of India's cooperative movement

- India's cooperative movement originated in the agriculture and related sectors as a means for farmers to pool their resources to prevent exploitation by money lenders.
- India's cooperative movement was formalised at the end of the 19th century, inspired by the German model of agricultural credit banks.
- In 1904, the British government in India enacted the Cooperative Credit Societies Act.
- Agricultural Credit Cooperative Society, of Kanaginahal village of Gadag District in Karnataka was the first cooperative Society formed under First Cooperative law of India.
- While this Act dealt solely with the extension of credit, the sector was opened up to other activities in 1912. Administrative reforms in 1919 transferred cooperatives to provincial control.
- After Independence, the framers of the Constitution placed cooperatives in the State list. They came to be considered instruments of socio-economic development and became an essential focus of the initial Five-Year Plans.
- States made their own laws to regulate cooperatives within their jurisdiction, but in 1984, the Multi-State Co-operative Societies Act (amended in 2002) was enacted by Parliament to consolidate different laws at the central level.

Family pehchan patra(ID) for J&K residents

Why in News

Jammu and Kashmir has recently announced to introduce a family pehchan patra (identity card) for residents of the Union Territory.

Important Points

- Jammu and Kashmir Lt Governor Manoj Sinha's announcement that the government has decided to introduce a family pehchan patra (identity card) for residents of the Union Territory has been criticised by the mainstream opposition parties in Kashmir, with the PDP describing it as a surveillance tool to keep a watch on Kashmiris.

What is the proposed family pehchan patra for J&K residents?

- It will be an identity card with a unique eight-digit alphanumeric number to identify each family and its members through the head of the family.
- The card will contain details of all members of the family, including their names, ages, qualifications, employment status, etc.
- The card will be linked with the Aadhaar and bank account number of the head of the family.
- It will be a single identifier for every family and individual in the UT that will instantly confirm their eligibility for government welfare schemes and facilitate direct transfer of benefits to their bank accounts with minimum human interference.

What is the purpose of introducing the family identity card?

- According to government, the primary objective is to create an authentic, verified, and reliable database of families in J&K to ensure speedy and transparent doorstep delivery of welfare schemes to eligible beneficiaries.
- The database will help to identify and weed out duplicate ration cards and Aadhaar, and will help the government identify families that may have a number of educated youth, but without jobs. While Aadhaar contains information about an individual, the family ID card will collate information about families to help in the delivery of welfare schemes.

- Since the database will have information on births, deaths, and marriages that will be continuously and automatically updated, it will help the government plan policy based on authentic, updated population data.
- Because updations such as the removal of a woman's name from the family of her parents and addition in the family of her husband will be carried out automatically, people will no longer have to visit local officials for such purposes.

Will it be compulsory to have a family ID card?

- The government has said that the database will be created only with the consent of the family.
- But the families that do not consent to having the card will likely face practical difficulties because benefits such as subsidised rations through the targeted public distribution system under the National Food Security Act, free medical treatment, old age/ widow pensions, help to victims of militancy, family pensions in case of death of sole earning member of a family, scholarships, etc. will be linked with the family ID card.

Similar initiatives by other states

- Several other states have proposed or created similar databases.
- Haryana was the first state to introduce the concept of the family pehchan patra, and Punjab introduced it last year for direct transfer of benefits to families who are eligible for various social service schemes of the government.
- Recently Uttar Pradesh government decided to launch a UP Parivar Kalyan Card for similar purposes.
- Rajasthan's government has introduced something called a "Jan Aadhaar" which "aims to be the single identifier of a family and also an individual", and "the sole vehicle on which delivery of all kinds of cash as well non-cash benefits and services are riding and reaching to the door-step of the residents".
- According to the Rajasthan Jan Aadhaar Authority, 1.94 crore families with 7.55 crore individuals are enrolled under the Jan Aadhaar Yojana.

Rule 267 of RS

Why in News

During the winter session of Parliament, opposition parties are demanding Chaiperson of Rajya Sabha(RS) to allow a discussion on the latest situation in India-China border by applying Rule 267.

Important Points

- The Rulebook is usually not of interest to observers of India's Parliamentary politics. But in this winter session of Parliament, Rule 267 of the Upper House has gained traction among lawmakers and observers.
- Rajya Sabha Chairman Jagdeep Dhankhar did not accept two notices under Rule 267 of the House for discussion on the border issue with China and rising prices of essential commodities and said they were not in order.

What is Rule 267?

- The Rule gives special power to a Rajya Sabha member to suspend the pre-decided agenda of the House, with the approval of the Chairman.
- The Rajya Sabha Rule Book says, "Any member, may, with the consent of the Chairman, move that any rule may be suspended in its application to a motion related to the business listed before the Council of that day and if the motion is carried, the rule in question shall be suspended for the time being: provided further that this rule shall not apply where specific provision already exists for suspension of a rule under a particular chapter of the Rules".
- Any discussion under Rule 267 assumes great significance in Parliament simply because all other business would be put on hold to discuss the issue of national importance.
- No other form of discussion entails suspension of other business. If an issue is admitted under Rule 267, it signifies it's the most important national issue of the day.
- Also, the government will have to respond to the matter by replying during the discussions under Rule 267.

Why this rule has become important?

- In the Upper House, the Opposition members have been consistent in demanding a debate on the India-China border situation.

- There have been hundreds of notices by Members to invoke Rule 267 in the past eight years.
- After the latest clash between the two sides in Arunachal Pradesh's Tawang, the Opposition members have become more vocal with their demand.

Is Rule 267 the only way to raise important issues in the House?

- In Parliament, a member has a number of ways to flag issues and seek the government's reply.
- An MP can ask questions related to any issue during the Question Hour in which the concerned minister has to provide oral or written answers. An MP can raise the issue during Zero Hour.
- Every day, 15 MPs are allowed to raise issues of their choice in the Zero Hour.
- An MP can even raise it during Special Mention. A Chairman can allow up to 7 Special Mentions daily.
- Otherwise, the MP can try to bring the issue to the government's notice during other discussions such as the debate on the President's speech.
- Opposition leaders have also used the Budget debate to attack the government politically.

Why the Opposition is insisting on Rule 267?

- Any discussion under Rule 267 assumes great significance in Parliament simply because all other business would be put on hold to discuss the issue of national importance.
- No other form of discussion entails suspension of other business.
- If an issue is admitted under Rule 267, it signifies it's the most important national issue of the day.
- Also, the government will have to respond to the matter by replying during the discussions under Rule 267.

What is the current controversy over Rule 267?

- Opposition members have alleged that the Rajya Sabha chairman has consistently refused to allow any discussion under Rule 267 for a long time.
- Rajya Sabha chairman Jagdeep Dhankhar maintained that "It is a painful duty for me that not only the rule is outraged, no attention whatsoever has been laid on the rule. The notices are drawn in a manner as if the rule doesn't exist."
- While Dhankhar has not allowed any matter under Rule 267, his predecessor M Venkaiah Naidu too didn't allow any admission under Rule 267 during his entire five years.

Has the Rule been used even once?

- Several times; the Chair had agreed to suspension the business to discuss urgent national issues in the past.
- The last time it was used was November 2016, when the Upper House invoked Rule 267 to discuss demonetisation.

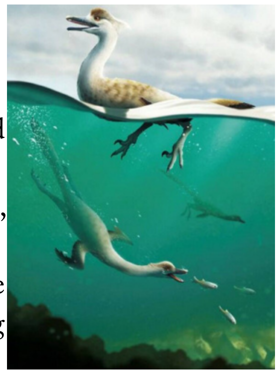
Chapter-
3

ENVIRONMENT AND ECOLOGY

Natovenator polydontus

Why in News

Recently, scientists said that the dinosaur, called Natovenator polydontus, lived about 72 million years ago during the Cretaceous Period.



Important Points

About Natovenator polydontus

- The expansive dinosaur group that included big predators such as T. rex also was populated by a number of oddballs, weirdos and outcasts.
- A newly described dinosaur from Mongolia – the size of a goose and looking a bit like one, too – fits that description.
- The scientists have found that it was built like a diving bird with a streamlined body while possessing a goose-like elongated neck and a long flattened snout with a mouth bearing more than 100 small teeth.
- It almost surely was covered in feathers.
- While it was a cousin of speedy little predator Velociraptor, Natovenator was adapted to a semi-aquatic lifestyle in a freshwater ecosystem, perhaps floating on rivers and lakes, paddling with its front limbs, and using its flexible neck to catch fish and insects or diving underwater to capture its prey.
- Its well-preserved remains – a skeleton about 70% complete – were unearthed in the Gobi Desert, which over the decades has been a treasure trove for dinosaur fossils.
- Natovenator is part of the dinosaur group called theropods, sharing traits including bipedalism – best known for large meat-eaters including Tyrannosaurus, Tarbosaurus and Giganotosaurus.
- But the theropods, many of which were feathered, branched out in unusual directions with examples such as long-clawed ground sloth-like Therizinosaurus, ostrich-like Struthiomimus, termite-eating Mononykus and the entire bird lineage.
- Not many of the dinosaurs called "non-avian" – in other words, not the birds – are known to have lived a semi-aquatic lifestyle.
- A close relative of Natovenator named Halszkaraptor, described in 2017, lived a similar lifestyle at roughly the same time in the same region. Both had a very bird-like appearance and were closely related to the bird lineage.
- Natovenator measured about 18 inches (45 cm) long, with a skull about 3 inches (7 cm) long. Its front limbs appeared somewhat flattened, perhaps as an adaptation for paddling and swimming.
- The streamlining of its body is shown by ribs that point toward the tail, as in diving birds, an arrangement that reduces drag in the water and allows efficient swimming.
- There were various diving birds during the Cretaceous, including North America's Hesperornis, which reached about 6 feet (1.8 meters) long, but none are known from the area Natovenator inhabited.

Project Great Indian Bustard (GIB)

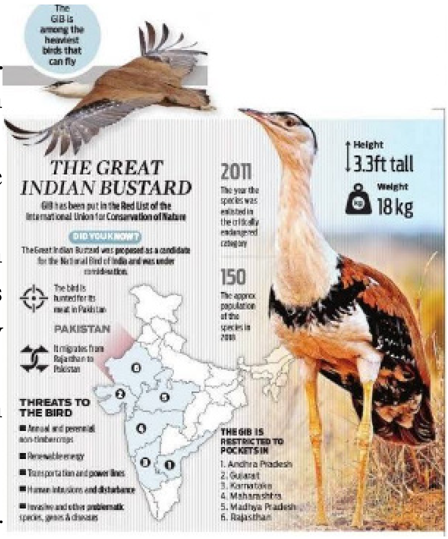
Why in News

The Supreme Court of India recently asked whether a 'Project GIB', on the lines of 'Project Tiger', could be launched.

Important Points

Great Indian Bustard

- GIBs are the largest among the four bustard species found in India – the other three being MacQueen's bustard, lesser florican and the Bengal florican.
- Being terrestrial birds, they spend most of their time on the ground with occasional flights to go from one part of their habitat to the other.



- It is found mainly in Rajasthan and Gujarat.
- Among the heaviest birds with flight, GIBs prefer grasslands as their habitats.
- The terrestrial birds spend most of their time on the ground, feeding on insects, lizards, grass seeds, etc.
- GIBs are considered the flagship bird species of grassland and hence barometers of the health of grassland ecosystems.
- Among the biggest threats to the GIBs are overhead power transmission lines. Due to their poor frontal vision, the birds can't spot the power lines from a distance, and are too heavy to change course when close. Thus, they collide with the cables and die.
- It has been categorised as critically endangered by the International Union for Conservation of Nature (IUCN).

Great Indian Bustard: Conservation efforts

- The Supreme Court in April 2021 ordered that all overhead power transmission lines in core and potential GIB habitats in Rajasthan and Gujarat should be made underground.
- The government has started a project, titled 'Habitat Improvement and Conservation Breeding of Great Indian Bustard-An Integrated Approach', for five years from the Compensatory Afforestation Fund Management and Planning Authority (CAMPA) for conservation and breeding of the GIB
- Also, in 2015, the Centre had launched the GIB species recovery programme. Under this, the WII and Rajasthan forest department jointly set up breeding centres where GIB eggs harvested from the wild were incubated artificially.

Coastal red sand dunes

Why in News

Scientists have urged Andhra Pradesh government to protect glacial-period coastal red sand dunes of Vizag.

Important Points

Coastal Red Sand Dunes

- Coastal Red Sand Dunes are popularly known as 'Erra Matti Dibbalu'.
- The site is located along the coast and is about 20 km north-east of Visakhapatnam city and about 4 km south-west of Bheemunipatnam.
- This site spread across an area of about 20 sq km was declared as a geo-heritage site by the Geological Survey of India (GSI) in 2014 and the Andhra Pradesh government has listed it under the category of 'protected sites' in 2016.
- Geologists say that this site has much significance geologically, archaeologically and anthropologically and it needs to be protected for further study and evaluation.
- Primarily this site needs to be protected to study the impact of climate change, as Erra Matti Dibbalu have seen both the glacial and the warm periods.
- According to geologists, the site is about 18,500 to 20,000 years old and it can be related to the last glacial period.
- Such sand deposits are rare and have been reported only from three places in the tropical regions in south Asia such as Teri Sands in Tamil Nadu, Erra Matti Dibbalu in Visakhapatnam and one more site in Sri Lanka.
- They do not occur in equatorial regions or temperate regions due to many scientific reasons.
- The uniqueness of this site is that the red sediments are a part of the continuation of the evolution of the earth and represent the late quaternary geologic age.
- With a height of up to 30 m, they exhibit badland topography with different geomorphic landforms and features, including gullies, sand dunes, buried channels, beach ridges, paired terraces, the valley in the valley, wave-cut terrace, knick point and waterfalls.
- It is a lively scientific evolution site, which depicts the real-time effects of climate change. About 18,500 years ago, the sea (Bay of Bengal) was at least 5 km behind from the present coastline.
- Since then it has been undergoing continuous active changes till about 3,000 years ago and still the changes are on.
- The top light-yellow sand unit could not attain the red colouration as the sediments were geochemically unaltered.

- These sediments are unfossiliferous and deposited over the khondalite basement. The dunes consist of light yellow sand dunes at the top followed by a brick red sand unit, a reddish brown concretion bearing sand unit with yellow sand at the bottom.
- The earlier studies indicate that the bottom-most yellow sand unit is fluvial while the other overlying three units are aeolian in origin.
- The site also has archaeological significance, as studies of artefacts indicate an Upper Palaeolithic horizon and on cross dating assigned to Late Pleistocene epoch, which is 20,000 BC.
- Scientists say that the site was home to the pre-historic man as the excavations at several places in the region revealed stone implements of three distinctive periods and also the pottery of the Neolithic man.
- A sand dune is any accumulation of sand grains shaped into a mound or ridge by the wind under the influence of gravity.
- Sand dunes are comparable to other forms that appear when a fluid moves over a loose bed, such as subaqueous "dunes" on the beds of rivers and tidal estuaries and sand waves on the continental shelves beneath shallow seas.
- Dunes are found wherever loose sand is windblown: in deserts, on beaches, and even on some eroded and abandoned farm fields in semiarid regions.

Kanger Valley National Park

Why in News

Bird watchers and forest department officials counted 200 types of birds in Chhattisgarh's first-ever inter-state bird survey conducted in the Kanger Valley National Park recently.

Important Points

- Nine species of owls (including the spot-bellied eagle-owl), 10 birds of prey, 11 species of woodpeckers (including white-bellied woodpecker, the largest woodpecker in peninsular India), and many other species were documented during the survey, according to a press statement.
- The survey was organised by the forest department of and birders from Chhattisgarh, in collaboration with non-profits Birds & Wildlife of Chhattisgarh and Bird Count India.
- The survey revealed that the landscape of Kanger Valley can potentially host species found in the Himalayas, the Northeast, the Eastern and Western Ghats.
- For instance, the Malabar trogon and white-bellied woodpecker are thought to be birds of the Western Ghats. Many species of flycatchers and warblers from temperate Eurasia visit the region during the winter.
- Both of these birds — pied wheatear and northern lapwing — are new birds for Chhattisgarh, with the pied wheatear having never before been observed in Central India.
- All observations have been uploaded to eBird — an online platform to record bird observations — through the eBird Mobile App.

About the Kanger Valley(Ghati) National Park

- The name of this National Park is derived from the Kangar river, which flows in its length. Kanger Valley is spread over 200 square kilometers.
- Kanger Valley got the status of a national park in the year 1982.
- Valley National Park is a typical mixed humid deciduous type of forest, in which the Sal, Saugaun, teak and bamboo trees are available in abundance.
- The most popular species in this area is Bastar Maina which enchants everyone with their human voice .
- The state bird, Bastar Maina, is a type of Hill maina (gruncula Dhariosoa), which is capable of emulating the human voices. The forest is home to migrant and resident birds.
- Apart from wildlife and plants, this National Park is home to three exceptional caves – famous for their amazing geological structures of Kutumbasar, Kailash and Dandak- Stellagmites and Stalactitees.
- National Park is known for the presence of underground limestone caves with dripstone and floston. The stalagmites and stalactite formation is still increasing.
- Caves in the National Park provide shelter for various species of wildlife.
- In the eastern part of the National Park, the Bhainsadhara is located where one can see the sandy beaches where crocodiles (crocodylus palustris) mostly found.
- Tirathgarh Waterfall is located in Kanger Valley National Park.

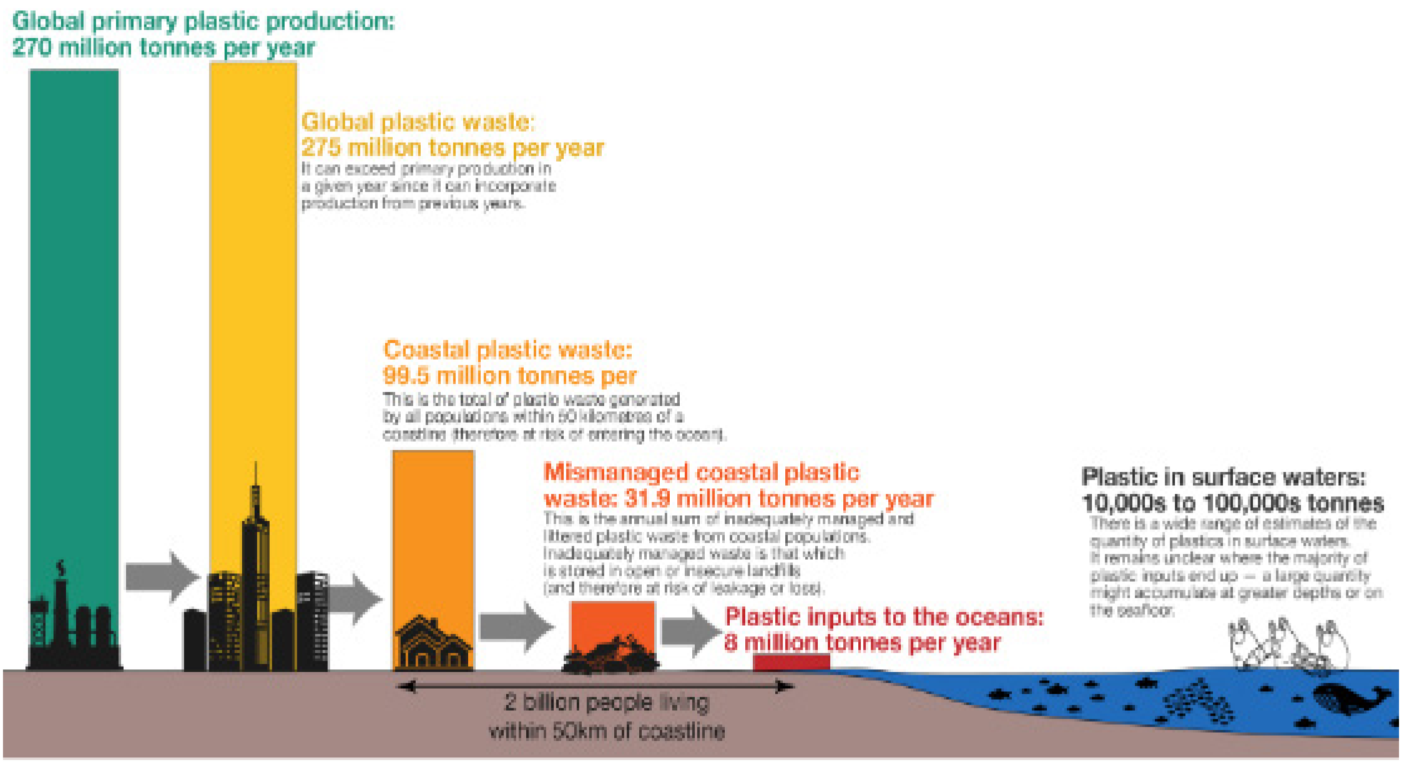
Intergovernmental Negotiating Committee (INC)

Why in News

The first session of the INC, tasked with developing an international legally binding instrument to end plastic pollution has recently concluded in Uruguay.

Important Points

- The first session of the Intergovernmental Negotiating Committee (INC-1), tasked with developing an international legally binding instrument to end plastic pollution, concluded in Uruguay.
- It implicitly endorsed the Centre for Science and Environment (CSE)'s position that plastic pollution is rooted in the material's lifecycle.
- The INC-1 was convened and managed by the United Nations Environment Programme.
- The UN Secretariat's document titled Summary of plastic pollution science noted that plastic pollution was an offshoot of the linear take-make-dispose economy.
- It said the current trends needed to be replaced by a circular economy which forms the basis of the solutions to the plastic pollution problem facing the world.
- The document proposed four strategic goals that can guide the transition to a circular economy:
    - o Reduce the size of the problem by eliminating and substituting problematic and unnecessary plastic items, including hazardous additives.
    - o Ensure that plastic products are designed to be circular — reusable as a first priority, and recyclable or compostable after multiple uses at the end of their useful life.
    - o Close the loop of plastics in the economy by ensuring that plastic products are reused, recycled, or composted.
    - o Manage plastics that cannot be reused or recycled (including existing pollution) in an environmentally responsible manner.
- The first session of the INC-1 came nine months after representatives from 175 countries endorsed a landmark resolution on plastic pollution at the United Nations Environment Assembly (UNEA).
- The UNEA resolution 5/14 calls for the international legally binding instrument to promote a comprehensive lifecycle approach to chemicals and waste through sustainable production and consumption of plastics by adopting sound product design, and environment-friendly waste management.
- The summary document identified and recognised the growing concern stemming from the links between plastic, human health, and environmental health.



Global plastic pollution

- Global plastic production totalled 460 million tonnes (Mt) in 2019, double of 234 Mt in 2000, according to the Organisation for Economic Co-operation and Development.
- Plastic waste more than doubled during the same period to 353 Mt from 156 Mt.
- In 2000 alone, 22 Mt of plastic material leaked into the environment. By 2019, 109 Mt had accumulated in rivers and 30 Mt in ocean

CSE position endorsed

- CSE had released a report titled The Plastic Life-cycle at the India Habitat Centre, New Delhi.
- The report identified issues in the upstream, midstream, and downstream of (primarily) India's plastic value chain, like the summary document.
- The trio of petroleum, petrochemical, and plastic industries continued to manufacture plastic at an increasingly alarming rate in India, it noted.
- Plastic had gradually replaced the alternate forms of packaging like metal, paper and glass, leaving consumers with the option of buying utilities packaged in plastic.
- Most of the plastic used in India today was for packaging and an increasing amount of crude oil was being converted to plastic every year.

Plastic pollution and recycling in India

- Most of this was single-use plastic and might not be recyclable.
- The EPR legislation, which exists in European Union, North America, Latin America, and OECD countries had been introduced in India in 2022 for plastic packaging.
- However, the implementation and enforcement of the EPR policy will be a major challenge for the authorities as the policy is weak and has gaps that will need to be plugged, according to CSE.
- It added that the informal sector was the workforce that made recycling possible in India.
- Most of the waste flowed to recovery systems through the informal workforce.
- Companies had been imposing the responsibility of collection of non-recyclable waste on the waste pickers, thus affecting their income and operations.
- Most of India's plastic waste was leaked in the environment or dumped in open dumpsites (67 per cent). The country burnt (20 per cent) more plastic waste in specialised facilities than it recycled (12 per cent).
- The CSE report noted that the potential of recycling was much higher in India due to an indigenous workforce and existing infrastructure.
- However, production of massive amounts of non-recyclable composite plastic material and promotion of false solutions by existing policies made a perfect cocktail for plastic pollution to thrive.
- It suggested short-term, mid-term and long-term measures that should be taken to tackle plastic pollution in the country.
- These included strengthening India's plastic waste production, consumption and recycling inventory; making brands disclose the amount of plastics produced, collected, recycled and burnt each year; including the informal sector in the formal plastic management value chain; designing product packaging keeping 'end-of-life' stage in consideration and making petrochemicals accountable.

Water Summit on Groundwater 2022

Why in News

The United Nations-Water Summit on Groundwater 2022 was held in Paris, France recently.

Important Points

- The UN-Water Summit on Groundwater 2022 is envisaged as a major contribution to making the groundwater more visible in order to better manage and protect it.
- It will bring attention to groundwater at the highest international level.
- The Summit will use the World Water Development Report 2022 as a baseline and the SDG 6 Global Acceleration Framework as a guidelines to define actions towards more responsible and sustainable use and protection of this vital natural resource.
- The five pillars of the SDG 6 Global Acceleration Framework released in June 2020 — data and information, capacity development, innovation, finance and governance — were the main themes of the discussions.

- The summit will unify the statements from all major water-related events in 2021 in one comprehensive groundwater message for the UN Water Conference 2023.
- The summit aims to raise awareness on groundwater conservation at the global stage will mark the completion of the "Groundwater: Making the invisible visible" campaign run by UN-Water throughout 2022.
- The campaign highlighted the role of groundwater in alleviating poverty, food and water insecurity and other socio-economic development hurdles.
- Groundwater management is imperative to meet the UN-mandated Sustainable Development Goal 6 of providing clean water and sanitation for all.
- The key takeaways from the summit will be presented at the UN 2023 Water Conference to be held in New York in March 2023.

Venue

- The UN-Water Summit on Groundwater will take place at UNESCO HQ, Paris.
- Participation is foreseen in hybrid mode, both in presence and remotely.
- A Pre-Summit Day, devoted to side events, will take place on 6 December 2022.
- English/French interpretation is foreseen. Registration is free of charge.

Ground water

- Groundwater is the water found underground in the cracks and spaces in soil, sand and rock.
- It is stored in and moves slowly through geologic formations of soil, sand and rocks called aquifers.
- Aquifers are typically made up of gravel, sand, sandstone, or fractured rock, like limestone.

Ground water status in India

- India is the largest user of groundwater with a fourth of the total global withdrawal. Indian cities cater to about 48 per cent of its water supply from groundwater.

The Wild Life (Protection) Amendment Bill, 2022

Why in News

Parliament has passed the Wild Life (Protection) Amendment Bill 2022

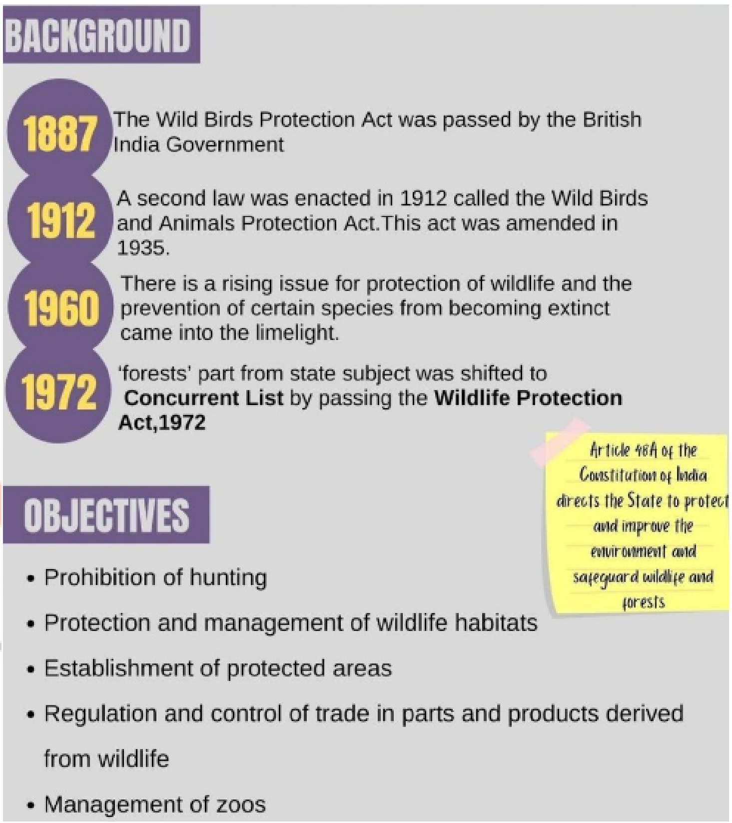
Important Points

Features & Proposed amendments of the bill

- The bill has has invited scrutiny on two major issues: the exemption made to allow the transfer of captive elephants, and the sweeping powers given to the Centre to declare species as vermin.
- It seeks to conserve and protect wildlife through better management of protected areas and rationalise schedules which list out species under the Wildlife (Protection) Act, 1972.
- It provides for certain permitted activities like grazing or movement of livestock and bona fide use of drinking and household water by local communities.
- It seeks to amend Section 43 of the principal Act to permit transfer or transport of a captive elephant for a religious or any other purpose by a person having a valid certificate of ownership.
- It inserts a new Schedule for specimens listed in the Appendices under CITES.
- Amendment to Section 6 to constitute Standing Committee to exercise such powers and duties as may be delegated to it by the State Board for Wildlife.
- Amendment to Section 43 to permit elephants, a Schedule I animal, to be used for 'religious or any other purpose'.
- It inserted Section 49E to empower Central government to designate a Management Authority to grant export or import permits for trade of specimens.
- It also inserts Section 49F to empower Central government to designate a Scientific Authority to advice on aspects related to impact on the survival of the specimens being traded
- The Bill seeks to regulate the control of sanctuaries. It provides that the Chief Wildlife Warden shall act in accordance with the management plans for the sanctuary, to be prepared as per Central guidelines.

- It also empowers both Central and State governments to declare areas adjacent to national parks and sanctuaries as a conservation reserve, for protecting flora and fauna, and their habitat.
- The Bill also empowers Central government to regulate and stop the import, trade or possession of invasive plant or animal alien species.
- It further requires every person possessing live specimens of scheduled animals to obtain a registration certificate from the Management Authority.
- It provides that people may "voluntarily surrender" any captive animals to the Chief Wildlife Warden, and such surrendered animals will become property of the state government.
- The Bill also enhances the penalties prescribed for violation of provisions of the Act. For 'General violations', maximum fine is increased from Rs 25,000 to Rs. 1 lakh. In case of Specially protected animals, the minimum fine of Rs. 10,000 has been enhanced to Rs. 25,000.

The legal dilemma over the elephant's status



- The Indian elephant— simultaneously an endangered wildlife species and a prized domestic animal — has persisted for long.
- In 1897, the Elephants' Preservation Act prohibited the killing or capture of wild elephants unless in self-defence or to protect property and crops, or under a licence issued by the district collector.
- In 1927, the Indian Forest Act listed the elephant as 'cattle', prescribing the highest fine of Rs 10 for every impounded jumbo — in comparison, a cow attracted a fine of Re 1, and a camel of Rs 2.
- The Wildlife (Protection) Act (WLPA), 1972, identified the elephant, along with the bullock, camel, donkey, horse, and mule, as a "vehicle".
- Given the highest legal protection in 1977, the elephant is the only animal in WLPA's Schedule -I that can still be owned legally — by means of inheritance or gift.
- In 2003, Section 3 of the WLPA prohibited trade in all captive wildlife and any (non-commercial) transfer across state boundaries without permission from the concerned chief wildlife warden.
- The WLPA (Amendment) Bill 2021 proposed an exception to Section 43: "This section shall not apply to the transfer or transport of any live elephant by a person having a certificate of ownership, where such person has obtained prior permission from the State Government on fulfillment of such conditions as may be prescribed by the Central Government."
- Along with conservation and animal welfare groups, the Parliamentary Standing Committee headed by Congress leader Jairam Ramesh objected to the blanket exemption, and recommended that it should be limited to temple elephants kept for religious purposes.

The vermin conflict

- The damage due to crop depredation by wild animals has never been computed. But for lakhs of farmers around the many protected forests, it is the biggest challenge to livelihood, not to mention the occasional threat to life.
- Since 1972, the WLPA has identified a few species — fruit bats, common crows and rats — as vermin or nuisance animals that spread diseases or destroy crops and are not protected under the Act. Killing animals outside this list was allowed under two circumstances:
- Under Section 62 of WLPA, given sufficient reasons, any species other than those accorded the highest legal protection (such as tiger and elephant but not wild boar or nilgai) can be declared vermin at a certain place for a certain time.
- Under Section 11 of WLPA, the chief wildlife warden can allow the killing of an animal irrespective of its status in the Schedules, if it becomes "dangerous to human life".

- The state governments took the decisions under Section 62 until 1991 when an amendment handed these powers to the Centre.
- The purpose was apparently to restrict the possibility of eliminating a large number of animals at a species level as vermin.
- Under Section 11, states could issue culling permits only locally and for a few animals.
- In recent years, however, the Centre has started using its powers under Section 62 to issue sweeping orders declaring species as vermin at even state levels, often without any credible scientific assessment.
- For example, nilgais were declared as vermin across 20 districts in Bihar for a year in 2015.
- The Centre cited "large-scale destruction of agriculture" as the ground for declaring monkeys (Rhesus macaque) vermin in Shimla municipality in 2019.
- The issue has since entered the realm of Centre-state politics.

Cyclone Mandous

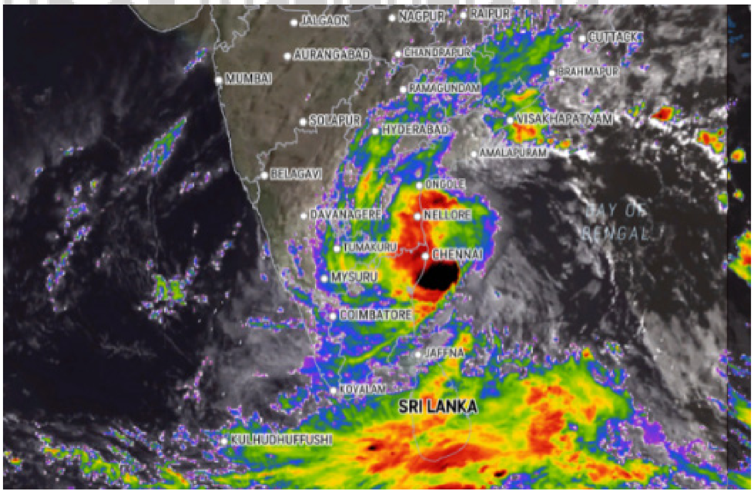
Why in News

Cyclonic Storm Mandous wreaked havoc across India's southeastern coast recently, bombarding the region with up to extremely heavy downpours and stormy winds.

Important Points

- Heavy rains lashed several parts of south coastal and Rayalaseema districts of Andhra Pradesh early on Saturday after cyclonic storm Mandous made landfall off Mamallapuram in neighbouring Tamil Nadu.
- After cyclone 'Sitrang' which had largely affected Odisha, West Bengal, and North Andhra Pradesh in October, the recent storm Mandous is named after the United Arab Emirates (UAE) proposal; it means "treasure box" in Arabic.
- In April 2020, IMD shared a list containing a total of 169 names including 13 names proposed by each member country, which take turns to name tropical cyclones in a sequential manner.
- The member nations who name such storms are a part of the World Meteorological Organisation and the United Nations economic and social commission for Asia Pacific panel (WMO/ESCAP) on tropical cyclones.

What are tropical Cyclones?



- A tropical cyclone is an intense circular storm that originates over warm tropical oceans and is characterized by low atmospheric pressure, high winds, and heavy rain.
- In extreme cases winds may exceed 240 km per hour, and gusts may surpass 320 km per hour.
- In the North Atlantic Ocean and the eastern North Pacific, they are called hurricanes.
- In the western North Pacific, the storms are referred to as typhoons.
- In the western South Pacific and the Indian Ocean, they are variously referred to as severe tropical cyclones, tropical cyclones, or simply cyclones.
- Tropical cyclones occur every year during the late summer months: July–September in the Northern Hemisphere and January–March in the Southern Hemisphere.
- Several factors are required for these thunderstorms to develop further, including-
  - o Sea surface temperatures of around 27 °C (81 °F).
  - o Low vertical wind shear surrounding the system.
  - o Atmospheric instability, high humidity in the lower to middle levels of the troposphere.
  - o Enough Coriolis force to develop a low-pressure center.
  - o A pre-existing low-level focus or disturbance.
- Characteristic features of tropical cyclones are the eye, a central region of clear skies, warm temperatures, and low atmospheric pressure; the eyewall, the most dangerous and destructive part where winds are strongest and rainfall is heaviest; and rainbands, secondary cells that spiral into the center of the storm.

UN Convention on Biological Diversity to meet in Montreal

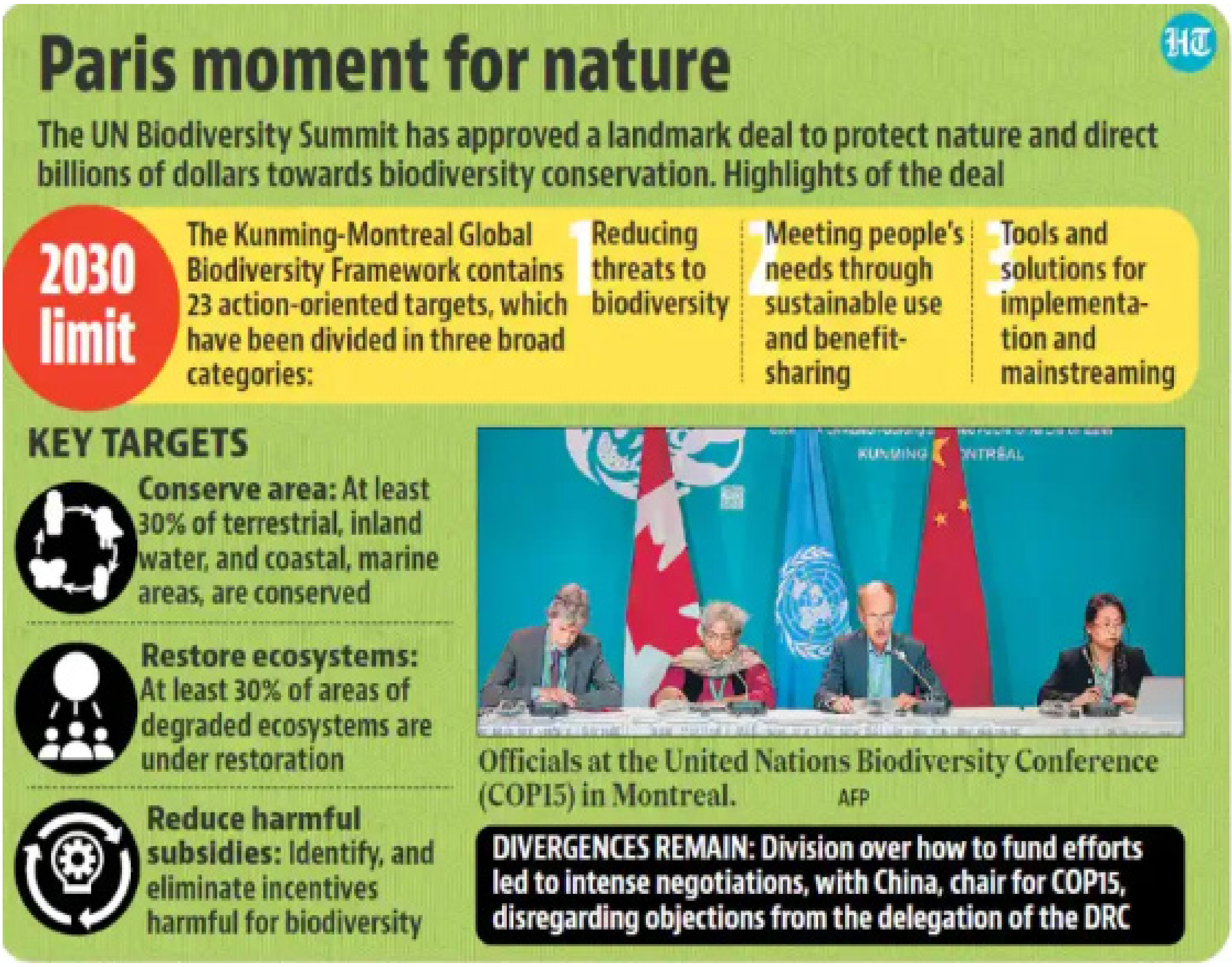
Why in News

Delegates from 196 countries, Parties to the United Nations Convention on Biological Diversity (CBD) are meeting in Montreal, Canada.

Important Points

Aichi Targets

- Many of the 24 conservation targets under discussion at the 15th Conference of the Parties (COP15) aim to avoid past mistakes and improve on the world's last set of conservation goals — the Aichi Biodiversity Targets that expired in 2020.
- The Aichi Targets, adopted during the 2010 CBD summit in Nagoya, located in Japan's Aichi prefecture, included goals such as reducing deforestation by at least half during the coming decade and curbing pollution so that it no longer harmed ecosystems.
- After parties adopted the Aichi Targets, they were expected to devise their own national biodiversity strategies that would mimic the goals laid out by Aichi. Nearly all parties created these strategies, but most were never fully implemented.



Status of the Aichi Targets

- The most notable Aichi objective — and one of the few to include a numerical goal, aimed to protect or conserve 17% of all land and inland waters and 10% of the ocean by the end of the decade.
- While some progress was made toward that goal, the world ultimately fell short.
- Today about 15% of the world's land and 8% of ocean territories are under some form of protection, though the level of protection varies.

- About 10% of the targets saw no significant progress. Six of the targets, including the land and ocean conservation target, were deemed "partially achieved".
- No single country met all 20 Aichi Targets within its own borders.
- In the end, Aichi was deemed a failure by the United Nations and the CBD secretariat called on parties to come up with another guiding document to direct conservation efforts through 2030 and beyond.

Reasons for failing to meet Aichi Targets

- A lack of clearly defined metrics by which to gauge progress made the Aichi goals tough to implement.
- Monitoring and reporting success was also a big issue with Aichi.
- Countries largely failed to update others on the progress they were — or were not — making.
- No robust monitoring, planning, reporting and review framework.
- A lack of financing to help developing countries meet the Aichi goals was also an obstacle to their success.
- The Global Environment Facility, the primary source of financing for international biodiversity protection, has collected around $5 billion from 29 countries for the funding period from 2022 to 2026.
- That is hardly enough to make up the $711 billion funding gap per year estimated by a 2019 assessment by several conservation institutes.
- The Aichi Targets also failed to garner buy-in from governments beyond the environmental ministers who brokered the deal.

Restoration Barometer Report by IUCN

Why in News

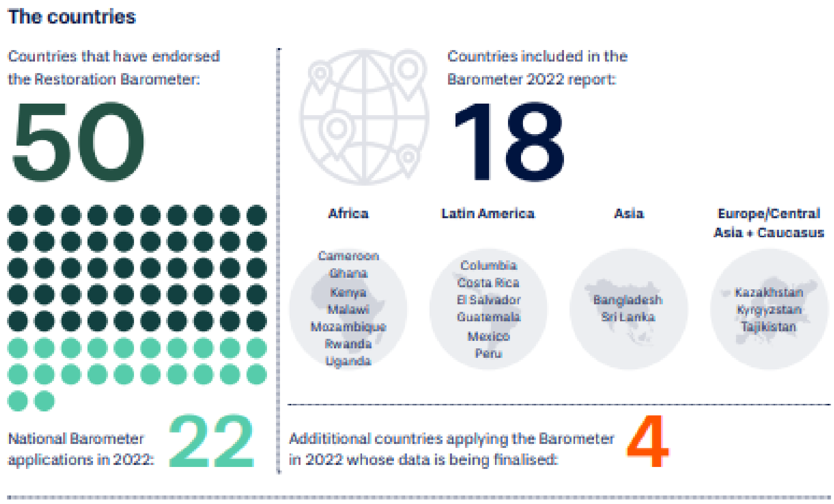
The International Union for Conservation of Nature (IUCN) has released the Restoration Barometer Report recently.

Important Points

- The Restoration Barometer (launched in 2016 as the Bonn Challenge Barometer) is the only tool already used by governments to track the progress of restoration targets across all terrestrial ecosystems including coastal and inland waters.
- It was designed for countries that have committed to restore landscapes under international goals or agreements.

What is Restoration Barometer?

- Restoration Barometer was launched in 2016 as the Bonn Challenge Barometer.
- The Barometer has eight indicators that build a comprehensive picture of a country's restoration progress.
- It records the size of the area being brought under restoration as well as the corresponding climate, biodiversity and socio-economic benefits, and covers the enabling policies and funding structures at the heart of successful restoration.



Highlights of Report

- The IUCN flagship (a first-of-its-kind report)Restoration Barometer report is based on data submitted by 18 countries to the IUCN Restoration Barometer from 2021 to 2022.
- This report demonstrates the progress that reporting countries are making on their restoration targets – and the flow of tangible benefits.
- As per the report, investments of USD 26 billion across 18 countries have restored 14 million hectares of degraded landscapes,an area about the size of Greece, created 12 million jobs and over 145 million tonnes of carbon sequestered.
- India is among four countries, including Ecuador, Pakistan, and Uzbekistan, which are still in the process of finalising the data.
- The report details how 18 countries are using the Restoration Barometer tool to track progress on their restoration commitments under global agreements, which total 48 million hectares by 2030.
- At present, only the restoration of inland waters, terrestrial habitats and coastlands are covered by the Barometer.
- Next year, the Barometer will be further extended to include restoration efforts relating to several key marine solutions and habitats including kelp, seagrasses and shallow reefs.
- Endorsed by over 50 Governments, the Restoration Barometer was developed by IUCN with the support of the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection.
- It is the only tool that is already being used by Governments to track restoration and its benefits across all terrestrial ecosystems, including coastal and inland waters, and report on their commitments against global frameworks such as the UN Decade on Ecosystem Restoration, Bonn Challenge, Paris Agreement
- It will also allow countries to track progress against restoration commitments under the forthcoming post-2020 Global Biodiversity Framework targets leaders will set at COP15.
- The 18 countries which have submitted their progress report are Colombia, Costa Rica, El Salvador, Guatemala, Mexico, Peru, Cameroon, Ghana, Kenya, Malawi, Mozambique, Rwanda, Uganda, Bangladesh, Sri Lanka, Europe, Central Asia and the Caucasus: Kazakhstan, Kyrgyzstan and Tajikistan.

The Arctic Report Card 2022

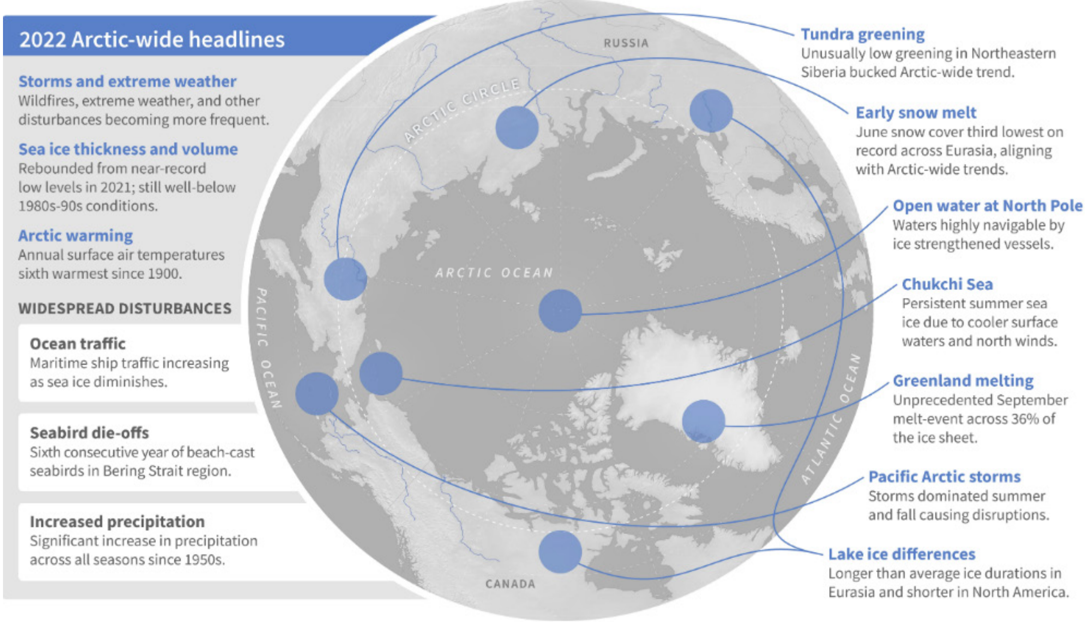
Why in News

NOAA has released the Arctic Report Card 2022 recently.

Important Points

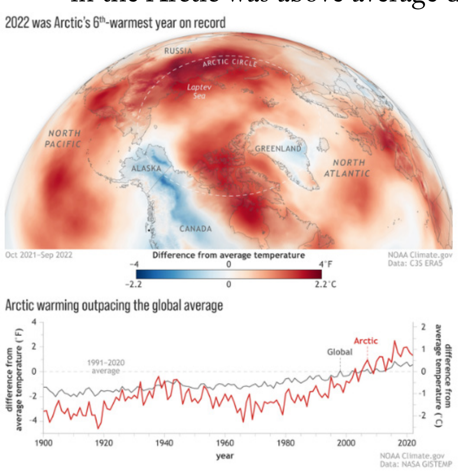
About the Arctic Report Card

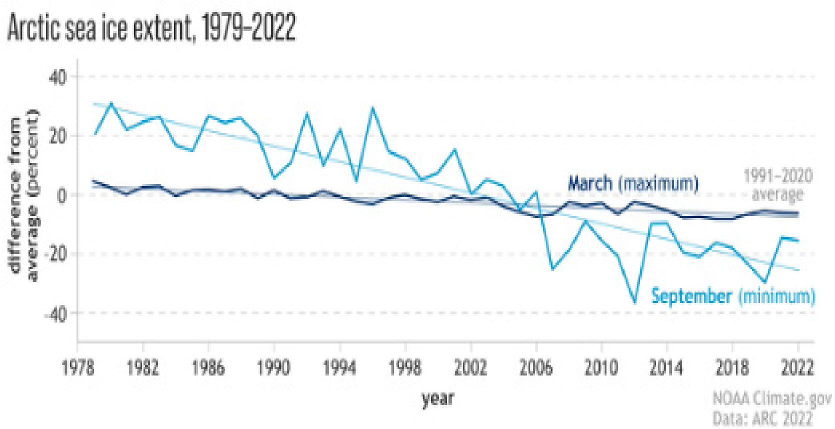
- It presents annually updated, peer-reviewed information on recent observations of environmental conditions in the Arctic relative to historical records.
- The NOAA has been publishing the Arctic Report Card annually since 2006.
- Nearly 150 experts from 11 nations compiled this year's assessment of Arctic conditions, the Arctic Report Card 2022.



Highlights of the report card for 2022:

- The average surface air temperature over the Arctic for this past year (October 2021-September 2022) was the 6th warmest since 1900. The last seven years are collectively the warmest seven years on record.
- In 2022 Arctic sea ice extent was similar to 2021 and well below the long-term average.
- Satellite records from 2009 to 2018 show increasing maritime ship traffic in the Arctic as sea ice declines.
- The most significant increases in maritime traffic are occurring from the Pacific Ocean through the Bering Strait and Beaufort Sea.
- Low pressure across the Alaska Arctic and northern Canada sustained warm summer temperatures over the Beaufort Sea and Canadian Archipelago.
- August 2022 mean sea surface temperatures continued to show warming trends for 1982-2022 in most ice-free regions of the Arctic Ocean.
- The report card said that Between October 2021 and September, air temperatures above Arctic lands were the sixth warmest since 1900, noting that the seven warmest years have been the last seven.
- Rising temperatures have helped plants, shrubs and grasses grow in parts of the Arctic tundra, and 2022 saw levels of green vegetation that were the fourth highest since 2000, particularly in the Canadian Arctic Archipelago, northern Quebec and central Siberia.
- The Greenland Ice Sheet experienced its 25th consecutive year of ice loss. In September 2022, unprecedented late-season warming created surface melt conditions over 36% of the ice sheet, including at the 10,500 ft ice sheet summit.
- A new chapter in this year's report deals with Arctic precipitation. Measuring snow, rain and freezing rain is tricky there: In the northernmost reaches of the region, there aren't many weather gauges.
- It says that precipitation levels have increased significantly in the Arctic since the mid-20th century. 2022 was the region's third-wettest year since 1950.
- Because of warmer temperatures, though, extra snow doesn't necessarily remain on the ground. Snow accumulation in the Arctic was above average during the 2021-22 winter.





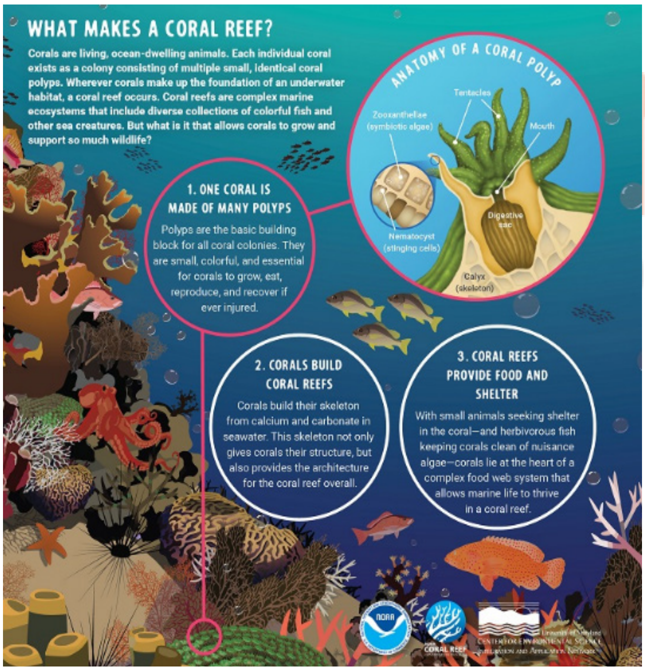
New method for freezing and storing coral larvae

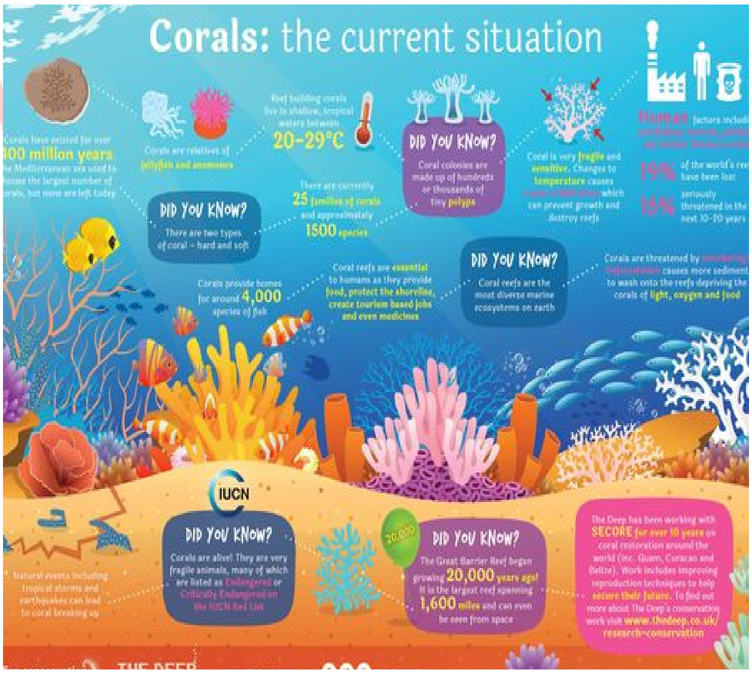
Why in News

Recently, Scientists have freezed Great Barrier Reef coral in a world-first trial.

Important Points

- Scientists working on Australia's Great Barrier Reef have successfully trialled a new method for freezing and storing coral larvae they say could eventually help rewild reefs threatened by climate change.
- Scientists are scrambling to protect coral reefs as rising ocean temperatures destabilise delicate ecosystems.
- The Great Barrier Reef has suffered four bleaching events in the last seven years including the first ever bleach during a La Nina phenomenon, which typically brings cooler temperatures.
- Cryogenically frozen coral can be stored and later reintroduced to the wild but the current process requires sophisticated equipment including lasers.
- Scientists say a new lightweight "cryomesh" can be manufactured cheaply and better preserves coral.
- In a recent lab trial, the world's first with Great Barrier Reef coral, scientists used the cryomesh to freeze coral larvae at the Australian Institute of Marine Sciences (AIMS).
- The coral had been collected from the reef for the trial, which coincided with the brief annual spawning window.
- The cryomesh was previously trialled on smaller and larger varieties of the Hawaiian corals. A trial on the larger variety failed.
- The mesh technology, which will help store coral larvae at -196°C (-320.8°F), was devised by a team from the University of Minnesota's College of Science and Engineering.





What are corals?

- Corals are marine invertebrates within the class Anthozoa of the phylum Cnidaria. They typically form compact colonies of many identical individual polyps.
- Coral species include the important reef builders that inhabit tropical oceans and secrete calcium carbonate to form a hard skeleton.
- Coral reefs are large underwater structures composed of the skeletons of colonial marine invertebrates called coral.
- The coral species that build reefs are known as hermatypic, or "hard" corals because they extract calcium carbonate from seawater to create a hard, durable exoskeleton that protects their soft, sac-like bodies.
- Other species of corals that are not involved in reef building are known as "soft" corals.
- These types of corals are flexible organisms often resembling plants and trees and include species such as sea fans and sea whips.
- Each individual coral is referred to as a polyp.

Outcomes of COP15 of Convention on Biological Diversity (CBD)

Why in News

COP15 of CBD was culminated recently with a global deal to protect the ecosystems that prop up half the world economy, and prevent the further loss of already ravaged plant and animal populations.

Important Points

Areas of negotiations

Conservation, protection and restoration (30×30 target)

- Delegates committed to protecting 30% of land and 30% of coastal and marine areas by 2030, fulfilling the deal's highest-profile goal, known as 30-by-30.
- Indigenous and traditional territories will also count toward this goal, as many countries and campaigners pushed for during the talks.
- The deal also aspires to restore 30% of degraded lands and waters throughout the decade, up from an earlier aim of 20%.
- And the world will strive to prevent destroying intact landscapes and areas with a lot of species, bringing those losses close to zero by 2030.

Money for nature

- Signatories aim to ensure $200 billion per year is channelled to conservation initiatives, from public and private sources.
- Wealthier countries should contribute at least $20 billion of this every year by 2025, and at least $30 billion a year by 2030.

Big companies report impacts on biodiversity

- Companies should analyse and report how their operations affect and are affected by biodiversity issues.
- The parties agreed to large companies and financial institutions being subject to "requirements" to make disclosures regarding their operations, supply chains and portfolios.
- This reporting is intended to progressively promote biodiversity, reduce the risks posed to business by the natural world, and encourage sustainable production.

Harmful subsidies

- Countries committed to identify subsidies that deplete biodiversity by 2025, and then eliminate, phase out or reform them.
- They agreed to slash those incentives by at least $500 billion a year by 2030, and increase incentives that are positive for conservation.

Pollution and pesticides

- One of the deal's more controversial targets sought to reduce the use of pesticides by up to two-thirds.
- But the final language to emerge focuses on the risks associated with pesticides and highly hazardous chemicals instead, pledging to reduce those threats by "at least half", and instead focusing on other forms of pest management.

- Overall, the Kunming-Montreal agreement will focus on reducing the negative impacts of pollution to levels that are not considered harmful to nature, but the text provides no quantifiable target here.

Monitoring and reporting progress

- All the agreed aims will be supported by processes to monitor progress in the future, in a bid to prevent this agreement meeting the same fate as similar targets that were agreed in Aichi, Japan, in 2010, and never met.
- National action plans will be set and reviewed, following a similar format used for greenhouse gas emissions under U.N.-led efforts to curb climate change.

Global Biodiversity Framework (GBF)

- The Montreal Conference has delivered a new agreement called the Global Biodiversity Framework (GBF), which contains four goals and 23 targets that need to be achieved by 2030.
- The GBF is being compared to the 2015 Paris Agreement on climate change that is guiding global climate action.
- In 2010, at COP10 in Nagoya, Japan, countries had agreed to a Strategic Plan for Biodiversity containing 20 targets.
- These used to be called the Aichi targets — Aichi is the region in which Nagoya city is located. A recent report showed that none of these targets were achieved at the end of the decade.
- The GBF is to the 2020-30 decade what the Aichi targets were for the previous one.

CBD, CCD & UNFCCC

- The comparison of the biodiversity meetings with the climate conferences is not incidental. The two are in fact closely related.
- The UN Framework Convention on Climate Change (UNFCCC) and the CBD were both outcomes of the 1992 Rio Earth Summit — as was the third member of the family, the Convention to Combat Desertification (CCD), which deals specifically with the issue of land degradation.
- The CBD came into force in 1993; the other two in the following year.
- The three environmental conventions seek to address the issues that overlap among them.
- The CBD is not just about conservation and restoration of ecosystems. It is also about sustainable use of natural resources, and equitable sharing of benefits from the use of these resources.
- The CBD has given rise to two 'supplementary' agreements — the Cartagena Protocol of 2003 and the Nagoya Protocol of 2014. Both agreements take their names from the places where they were negotiated.
- The Cartagena Protocol on Biosafety seeks to protect biodiversity from genetically modified organisms by ensuring their safe handling, transport and use. Genetically modified crops, for example, can interfere with natural ecosystems in ways that might not yet be fully understood. That is the reason why GM crops are cultivated on segregated farms.
- The Nagoya Protocol on Access and Benefit Sharing deals with the commercial utilisation of biological and genetic resources, for example, by pharma companies. It asks the host countries to provide access to its genetic resources in a legal, fair and non-arbitrary manner and, as mentioned above, offers them a fair and equitable share of benefits arising out of the utilisation of those resources.

Purse seine fishing

Why in News

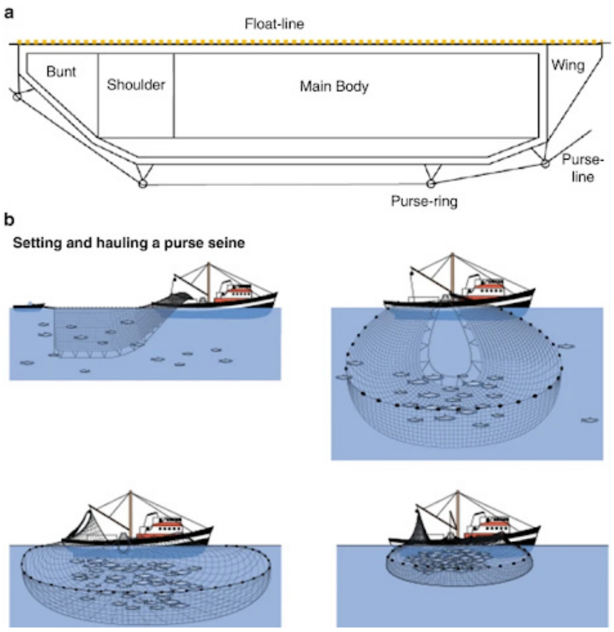
Ban by coastal States on purse seine fishing not justified, Centre tells SC.

Important Points

- The Centre has told the Supreme Court that a ban imposed by certain coastal States on purse seine fishing, which is known to disadvantage endangered species, is not justified.
- The mode of fishing which uses a wide net to draw in not only the targeted fish but also at-risk varieties, including turtles, is prohibited by several States and Union Territories, including Tamil Nadu, Kerala, Puducherry, Odisha, Dadra and Nagar Haveli and Daman and Diu Andaman and Nicobar Islands in their respective territorial waters of up to 12 nautical miles.
- States like Gujarat, Andhra Pradesh, Goa, Karnataka, West Bengal have not imposed any such ban on purse seine fishing. Maharashtra has issued certain orders for regulation of purse seine fishing in its territorial waters.

- The Fisheries Department of the Union government has recommended the lifting of the ban on purse seine fishing on a report submitted by an expert committee.
- The expert panel has said that this mode of fishing has "per se has not resulted in any serious resource depletion so far, given the available evidence".
- It recommended purse seiners to fish in territorial waters and the Indian Exclusive Indian Exclusive Economic Zone (EEZ) subject to certain conditions.
- The committee has also suggested the framing of a "national management plan on purse seine fisheries".
- This department agrees to the recommendation of the expert committee that a ban on purse seine fishing is not justified, and that the fishing may be allowed subject to certain stipulations, the Fisheries Department informed the Supreme Court.
- A Supreme Court Bench led by Justice A.S. Bopanna has asked the Centre's lawyer to "secure instructions with regard to the stipulations that are referred to in the affidavit so that the same could be finalised by them, if they have not yet been finalised, before the fishing season comes to an end".

Need of urgency



- The court's note of urgency has come even as the government, in its affidavit, has said it would take six months to work out a "national management plan" on purse seine fishing.
- The Centre has also said that it would similarly take six months for coastal States, as suggested by the expert panel, to devise an access plan (spatial as well as temporal) restricting purse seine fishing to a specified window every year.
- Noting that the ban was imposed by States on the premises that the purse seiners undertake unsustainable fishing and garner a disproportionate share of the fish in the seas as compared to other classes of fishing vessels, the Centre said this could be resolved by making it compulsory for them to submit a "species -wise and fish-size data of their catch for each voyage undertaken and to voluntarily reduce their fishing efforts to reduce conflicts".
- This could be rolled out as an interim measure till the national management plan was finalised.
- The Madras High Court had earlier dismissed petitions by fishermen groups challenging Rule 17(7) of the amended Tamil Nadu Marine Fishing Regulation Rules, 1983 which banned purse seine nets or pair trawling.

What is purse seine fishing?

- Seine fishing is a method of fishing that employs a surrounding net, called a seine, that hangs vertically in the water with its bottom edge held down by weights and its top edge buoyed by floats.
- Seine nets can be deployed from the shore as a beach seine, or from a boat.
- It used in the open ocean to target dense schools of single-species pelagic (midwater) fish like tuna and mackerel.
- A vertical net 'curtain' is used to surround the school of fish, the bottom of which is then drawn together to enclose the fish, rather like tightening the cords of a drawstring purse.
- Purse-seine fishing in open water is generally considered to be an efficient form of fishing. It has no contact with the seabed and can have low levels of bycatch (accidental catch of unwanted species).
- Purse seines can also be used to catch fish congregating around fish aggregating devices. This fishing method can result in higher levels of bycatch.

US-Canada Great Lakes turning acidic

Why in News

Scientists are building a sensor network to detect the trends in the water chemistry of Lake Huron, one of the five Great Lakes of North America.

Important Points

- Scientists are building a sensor network to detect the trends in the water chemistry of Lake Huron, one of the five Great Lakes of North America.

- It is the first step towards developing a system that would be capable of measuring the carbon dioxide and pH levels of the Great Lakes over several years.
- It is known that the increase in atmospheric carbon dioxide has caused the world's oceans to turn more acidic.
- Recently, it has been observed that by 2100, even the Great Lakes — Superior, Michigan, Huron, Erie, and Ontario — might approach acidity at around the same rate as the oceans.
- Researchers hope the data from the Lake Huron project would add to scientific information on the subject.
- In order to conduct the study, two sensors have been attached to a floating weather buoy at Thunder Bay National Marine Sanctuary near Alpena, Michigan, in the US.
- One of them measures carbon dioxide pressure in the water column and the other the pH.
- Crews are also collecting water samples at varying depths within a 11,137-sq km area for chemical analysis.

What are great lakes?

- The Great Lakes, five interconnected bodies of water straddling the US-Canada border that drain into the Gulf of St Lawrence in the North Atlantic through the St Lawrence River, are the largest group of freshwater lakes in the world.
- Together the Great Lakes cover an area of about 94,850 square miles (245,660 square kilometers).
- The Great Lakes are believed to have been born some 20,000 years ago, when the Earth started to warm and water from melting glaciers filled the basins on its surface.
- Today, the Great Lakes contain a fifth of the world's total freshwater and are a crucial source of irrigation and transportation. The Great Lakes also serve as the habitat for more than 3,500 species of plants and animals.
- The US-Canada border passes through Lakes Superior, Huron, Erie, and Ontario; Lake Michigan lies entirely in the US.
- Lakes Michigan and Huron are sometimes considered as a single water body; taken together, they are the world's largest freshwater lake by surface area.
- By itself, Lake Huron is the world's third largest freshwater lake, after Lake Superior and Lake Victoria.
- Lake Superior is the largest and the deepest of the Great Lakes.
- Lake Ontario is the smallest. Lake Erie is the shallowest. Lake Huron has the longest shoreline.
- Major cities in the region include Milwaukee, Wisconsin; Chicago, Illinois; Cleveland, Ohio; Detroit, Michigan; and Toronto, Ontario.

Acidification of water bodies

- Acidification of oceans or freshwater bodies takes place when excess carbon dioxide in the atmosphere gets rapidly absorbed into them. Scientists initially believed this might be a good thing, as it leaves less carbon dioxide in the atmosphere.
- But in the past decade or so, it has been established that absorption of carbon dioxide leads to a lowering of the pH, which makes the water bodies more acidic.
- According to the National Oceanic and Atmospheric Administration (NOAA) of the US government, oceans have 200 years alone, ocean water has become 30 percent more acidic.
- Over the years, a handful of computer modelling studies have suggested that atmospheric carbon might turn the Great Lakes and other freshwater bodies more acidic.
- However, so far there haven't been any long-term monitoring programs that are capable of detecting trends in the pH levels of lakes.
- The Lake Huron project might change that.

Consequences of acidification

- The Great Lakes are believed to have been born some 20,000 years ago, when the Earth started to warm and water from melting glaciers filled the basins on its surface, according to NOAA.

- Today, the Great Lakes contain a fifth of the world's total freshwater and are a crucial source of irrigation and transportation. The Great Lakes also serve as the habitat for more than 3,500 species of plants and animals.
- However, this rich ecosphere is under threat as the five lakes would witness a pH decline of 0.29-0.49 pH units — meaning they would become more acidic — by 2100, assuming current projections of anthropogenic carbon dioxide and constant alkalinity.
- In the absence of data, it is difficult to determine the precise consequences of the rise in the acidity of the Great Lakes. Acidification may lead to a decrease in native biodiversity, create physiological challenges for organisms, and permanently alter the structure of the ecosystem, scientists say.
- It would also severely impact the hundreds of wooden shipwrecks that are believed to be resting at the bottom of these lakes.
- In a 2018 study of four German reservoirs, aquatic researchers at Ruhr University Bochum found that their pH levels had declined three times faster in 35 years than in oceans since the Industrial Revolution.
- As a result of the increase in acidity the ability of water fleas to defend themselves against predators was compromised. Scientists fear that a similar trend might be seen in the Great Lakes as well.
- Another study, published in 2021, which looked into the consequences of acidification of freshwater bodies was carried out in Taiwan, where scientists experimented with Chinese mitten crabs.
- It was found that once the water acidity reaches the projected 2100 levels, it would more than triple the mortality rates of these crabs.

What's next for the Great Lakes

- Scientists have said that without a collective global effort to reduce concentrated atmospheric carbon dioxide, not much can be done to stop the acidification of the Great Lakes.
- Even if all countries were to take action to arrest the increase in carbon emissions, the lakes would continue to acidify due to the carbon dioxide that is already present in the atmosphere, along with carbon-laden water runoffs from land.

Lion @ 47: Vision for Amrutkal

Why in News

The Ministry of Environment, Forest and Climate Change has prepared the document Lion @ 47: Vision for Amrutkal" to secure and restore lions' habitats.

Important Points

- Project Lion envisages landscape ecology based conservation of the Asiatic Lion in Gujarat by integrating conservation and eco-development.
- The Project is being implemented in the Gir landscape in Gujarat which is the last home of the Asiatic lion.

Objectives

- To secure & restore lions' habitats for managing its growing population.
- Scale up livelihood generation and participation of local communities.
- Become a global hub of knowledge on big cat disease diagnostics and treatment.
- Create inclusive biodiversity conservation through project lion initiative.

About Asiatic Lion

- The Asiatic lion is a population of Panthera leo leo that today survives in the wild only in India.
- Since the turn of the 20th century, its range has been restricted to Gir National Park and the surrounding areas in the Indian state of Gujarat.
- Historically, it inhabited much of southwest Asia to northern India.
- The lion is a large cat of the genus Panthera native to Africa and India.
- The lions were once found throughout Africa, Asia and Europe but their numbers have dwindled over the years in these continents.
- These majestic cats that symbolise courage, ferocity, and power are threatened by extensive habitat loss.
- The lion is an apex and keystone predator. It inhabits grasslands, savannas and shrublands.
- The lion is one of five pantherine cats native to India, along with the Bengal tiger (P. tigris tigris), Indian leopard (P. pardus fusca), snow leopard (P. uncia) and clouded leopard (Neofelis nebulosa).

- It is sexually dimorphic; adult male lions are larger than females and have a prominent mane.
- It is a social species, forming groups called prides. A lion's pride consists of a few adult males, related females, and cubs.
- In the 19th and 20th centuries, several lion type specimens were described and proposed as subspecies, with about a dozen recognised as valid taxa until 2017.
- Between 2008 and 2016, IUCN Red List assessors used only two subspecific names: P. l. leo for African lion populations, and P. l. persica for the Asiatic lion population.
- IUCN list: Asiatic lion(Panthera leo leo)- Endangered & Panthera leo- Vulnerable.

Chapter-
4

ECONOMY

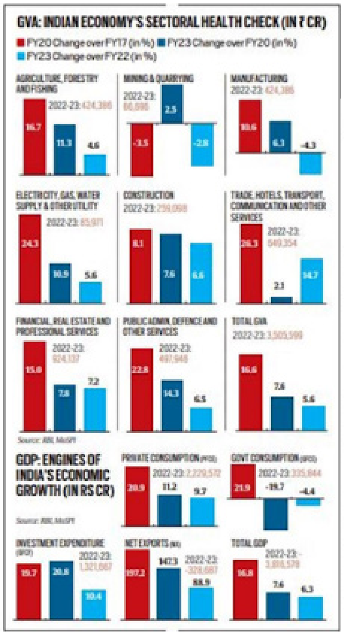
Q2 GDP India

Why in News

India's economic growth slows to 6.3% in July-September quarter

Important Points

- India's gross domestic product or GDP grew by 6.3 per cent in Q2 on a year-on-year basis. In other words, it was 6.3% more than the GDP in the same months in 2021. The second quarter or Q2 refers to the months of July, August and September.
- MoSPI also reported that India's Gross Value Added (or GVA) in Q2 grew by. 5.6 per cent on a year-on-year basis.



(₹ Crore)

Industry	GVA at Basic Price									
	2020-21		2021-22		2022-23		Percentage Change Over Previous Year			
							2021-22		2022-23	
	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2
1. Agriculture, Forestry & Fishing	462,006	393,424	472,258	405,870	493,325	424,386	2.2	3.2	4.5	4.6
2. Mining & Quarrying	68,000	59,916	80,243	68,626	85,423	66,696	18.0	14.5	6.5	-2.8
3. Manufacturing	387,448	591,929	577,249	624,891	605,104	598,011	49.0	5.6	4.8	-4.3
4. Electricity, Gas, Water Supply & Other Utility Services	67,901	74,997	77,297	81,385	88,640	85,971	13.8	8.5	14.7	5.6
5. Construction	131,437	224,897	225,166	243,071	262,918	259,098	71.3	8.1	16.8	6.6
6. Trade, Hotels, Transport, Communication & Services related to Broadcasting	331,582	516,278	445,454	565,940	559,723	649,354	34.3	9.6	25.7	14.7
7. Financial, Real Estate & Professional Services	787,925	812,108	805,847	861,973	880,313	924,137	2.3	6.1	9.2	7.2
8. Public Administration, Defence & Other Services*	347,501	391,371	369,150	467,491	466,380	497,946	6.2	19.4	26.3	6.5
GVA at Basic Prices	**2,583,801**	**3,064,920**	**3,052,664**	**3,319,248**	**3,441,826**	**3,505,599**	**18.1**	**8.3**	**12.7**	**5.6**

* Public Administration, Defence & Other Services category includes the Other Services sector i.e. Education, Health, Recreation, and other personal services

- The biggest news in GVA data is the contraction in the manufacturing sector. In Q2, manufacturing GVA declined by 4.3%.
- The contraction has meant that manufacturing GVA has grown by just 6.3 per cent over the three years since the Covid pandemic; look at the change between FY23 and FY20 in the CHART.
- The fact is, as borne by the data, manufacturing GVA grew by just 10.6% between FY17 and FY20.
- For perspective, it is important to remember that between FY14 and FY17, manufacturing GVA grew by 31.3%.
- In other words, Indian manufacturing has been struggling to add value for the past six years. This would explain why data from the Centre for Monitoring Indian Economy (CMIE) shows that jobs in the manufacturing sector halved between 2016 and 2020.
- The other big story is the almost 15 per cent growth in services such as trade and hotels, etc. If one looks at the Q2FY23 level and compares it to the pre-Covid level (Q2 of FY20), the growth is barely over 2 per cent. That this sector grew by over 26 per cent in the three years between FY17 and FY20 — when India was experiencing a serious economic deceleration — shows how badly it has been affected by the Covid disruption.
- Another sector crucial for job creation, even though it is smaller in terms of overall contribution to India's GVA, is mining and quarrying. It, too, has contracted by almost 3%.
- Looking back over the past six years, it has contracted by 3.5% between FY17 and FY20 and grown by just 2.5% since then.

- One positive story emerging from the GVA pertains to agriculture (along with forestry and fishing), which has done better than expected by growing at 4.6%.
- Typically, this is a good growth rate for this sector and has happened despite some worries that the sowing of crops did not happen in time.
- Overall, while the GVA has grown by 5.6 per cent year on year, the growth is just 7.6 per cent when compared to the pre-Covid level set in FY20.

What does GDP data show?

- On the GDP side, the biggest engine of growth is private consumption expenditure. It typically contributes over 55% of India's total GDP.
- This component is also crucial because if this is depressed, it robs businesses of any incentive to make fresh investments; and expenditures towards investments are the second biggest contributor to the GDP, accounting for around 33 per cent of the total.
- Data shows that private consumption has grown by a healthy 9.7 per cent over the past year. However, the growth is relatively modest just 11 per cent when compared over the last three years. That between FY14 and FY17, this component grew by almost 28% provides some perspective.
- The investment expenditures have grown by 10.4% over FY21 and by almost 21% between FY20 and FY23.
- This is the best growth over any three-year period going back to FY14. This suggests brighter prospects for the economy over the medium term.
- The biggest surprise though from the GDP is the contraction in government final consumption expenditures.
- While these types of expenditures account for just about 10-11% of the GDP, they have the ability to prop up an economy during tough times when people and businesses hold back spending.
- Oddly enough, data shows that not only did government consumption expenditure contract by 4.4% per cent in Q2 (over the Q2 of 2021), but that it is almost 20% below the pre-Covid level.
- The last component of the GDP equation is the Net Exports data. Typically, since India imports far more than it exports, the NX value is negative.
- In Q2, this negative value swelled by 89 per cent. Over the past three years, this drag on GDP has also increased in size by almost 150 per cent.

GDP and GVA

- GDP and GVA are the two main ways to ascertain the country's economic performance. Both are measures of national income.
- The GDP measures the monetary measure of all "final" goods and services— those that are bought by the final user— produced in a country in a given period.
- The GDP does this by adding up the total expenditures in the economy; in other words, it looks at who spent how much. That is why GDP captures the total "demand" in the economy.
- Broadly speaking there are four key "engines of GDP growth". These are
- All the money Indians spent for their private consumption (that is, Private Final Consumption Expenditure or PFCE)
- All the money the government spent on its current consumption, such as salaries [Government Final Consumption Expenditure or GFCE]
- All the money spent towards investments to boost the productive capacity of the economy. This includes business firms investing in factories or the governments building roads and bridges [Gross Fixed Capital Expenditure]
- The net effect of exports (what foreigners spent on our goods) and imports (what Indians spent on foreign goods) [Net Exports or NX].
- The GVA calculates the same national income from the supply side. It does so by adding up all the value added across different sectors.
- According to the RBI, the GVA of a sector is defined as the value of output minus the value of its intermediary inputs. This "value added" is shared among the primary factors of production, labour and capital.
- By looking at the GVA growth one can understand which sector of the economy is robust and which is struggling.

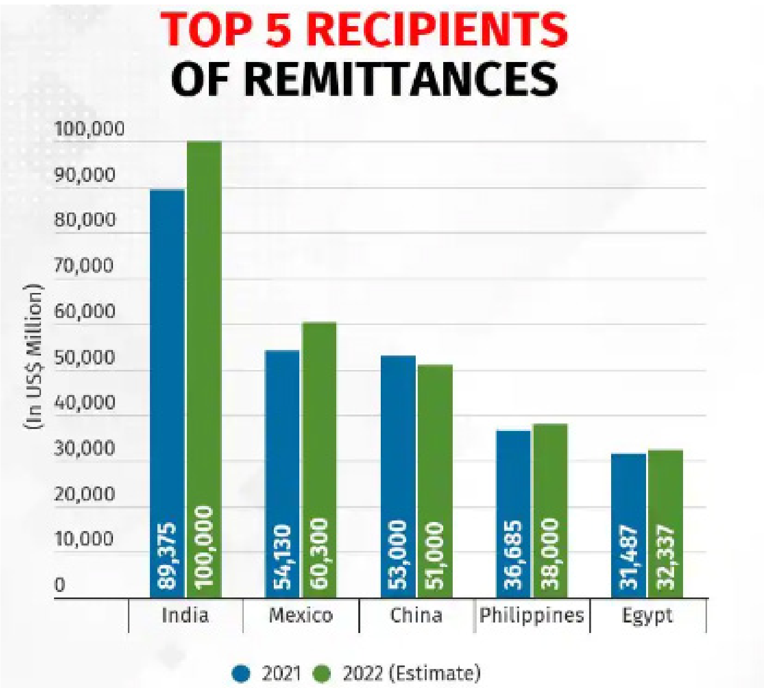
How are the two related?

- When one is looking at quarterly data, it is best to look at GVA data because it is this which is the observed data. The GDP is derived by looking at the GVA data.
- The GDP and GVA are related by the following equation: GDP = (GVA) + (Taxes earned by the government) — (Subsidies provided by the government)
- As such, if the taxes earned by the government are more than the subsidies it provides, the GDP will be higher than GVA.
- For the second quarter too, the GDP (at Rs 38,16,578 crore) is much higher than the GVA (which is at Rs 35,05,599 crore).
- The GDP data is more useful when looking at annual economic growth and when one wants to compare the economic growth of a country either with its growth in the past or with another country.

India to receive a record $100 billion in remittance in 2022

Why in News

According to World Bank Migration and Development Brief India is expected to India to receive a record $100 billion in remittance in 2022.



Important Points

- India is expected to receive a whopping $100 billion in remittances in 2022, according to the World Bank's latest 'Migration and Development Brief'.
- It noted that remittances to India, the world's biggest recipient, stood at $89.4 billion last year and will grow at 12 per cent in 2022.
- The report added that Mexico would be a distant second with $60 billion in remittances, while China will receive an estimated $51 billion this year.
- The report offered several reasons for the rise in remittances to India, including a gradual structural shift in immigration from low-skilled employment in Gulf nations to high-skilled jobs in high-income countries.
- "Between 2016–17 and 2020–21, the share of remittances from the United States, United Kingdom, and Singapore increased from 26 per cent to over 36 per cent, while the share from the 5 Gulf countries (Saudi Arabia, United Arab Emirates, Kuwait, Oman, and Qatar) dropped from 54 to 28 per cent," the report noted quoting a Reserve Bank of India survey.
- The Gulf nations, too, played a role in the spike in remittances, with the report suggesting that Covid-19 vaccinations and resumption of travel helped more Indian blue-collar workers to resume work in 2022.
- The price support policies in these nations kept inflation low and helped boost remittances to India.

- "Higher oil prices increased demand for labour, enabling Indian migrants to increase remittances and counter the impact of India's record-high inflation on the real incomes of their families," the report further added.
- The report also speculated that Indian ex-pats may have taken advantage of the depreciation of the rupee vis-à-vis the US dollar to increase remittances.
- Nevertheless, remittances to India are expected to account for just three per cent of the Gross Domestic Product this year, unlike neighbouring Nepal, where the figure is likely to reach 22 per cent.
- In general, remittances grew in low- and middle-income countries to $626 billion in 2022 - an estimated five per cent rise from last year.
- Globally, remittances are likely to take a hit in 2023 due to volatile oil prices and currency exchange rates, the war in Ukraine, and the economic downturn in advanced economies such as the United States.
- "Growth in global remittances is expected to fall to two per cent in 2023," it noted, adding that higher inflation and economic slowdown in the United States will "soften remittance flows" to India.

What is remittance?

- Remittance is derived from the word 'remit' which means 'to send back'. Remittance refers to money that is sent or transferred to another party, usually overseas.
- They are the private savings of workers and families that are spent in the home countries.
- The World Bank defines it as "the sum of worker's remittances, compensation of employees, and migrants' transfers as recorded in the IMF Balance of Payments. Workers remittances are current transfers by migrant who are considered residents in the source."
- Remittances are a vital source of household income for low- and middle-income countries.

RoDTEP

Why in News

Remission of Duties and Taxes on Exported Products (RoDTEP) Scheme gets extended to Chemicals, Pharmaceuticals and Articles of Iron & Steel.

Important Points

- Taking a major step to boost exports, Centre further expanded the scope of RoDTEP Scheme (Remission of Duties and Taxes on Exported Products) by including the exports made from the Chemical sector, Pharmaceuticals sector and exports of articles of iron & steel under chapters 28, 29, 30 and 73 of ITC(HS) schedule of items.
- The expanded list of items will be applicable for exports made from 15th December, 2022.
- This was a long-standing demand of the industry which has been accepted and will go a long way in boosting the exports and competitiveness in the global markets, generate employment and contribute to the overall economy.
- The expanded list of eligible export items under Appendix 4R will increase from current 8,731 export items (8 digit tariff lines) to 10,342 export items (8 digit tariff lines).
- RoDTEP is based on the globally accepted principle that taxes and duties should not be exported, and taxes and levies borne on the exported products should be either exempted or remitted to exporters.
- The RoDTEP scheme rebates/refunds the embedded Central, State and local duties/taxes to the exporters that were so far not being rebated/refunded.
- The scheme is being implemented from 1st January 2021 and the rebate is issued as a transferable electronic scrip by the Central Board of Indirect Taxes & Customs (CBIC) in an end to end IT environment.
- It replaced the ongoing Merchandise Exports from India Scheme (MEIS).
- It may be noted that Government is leaving no stone unturned to support domestic industry and make it more competitive in the international markets.
- Export centric industries are being reformed and introduced to better mechanisms so as to increase their competitiveness, boost exports, generate employment and contribute to the overall economy.
- This will go a long way in achieving the vision of building an Aatmanirbhar Bharat.
- In the present times, when exports are facing headwinds on account of signs of recession in some of the developed markets & supply chain disruptions on account of Russia-Ukraine conflict, extension of RoDTEP to uncovered sectors like Chemicals, Pharmaceuticals & Articles of Iron & Steel is likely to enhance the export competitiveness of these sectors.

India Inequality Report 2022

Why in News

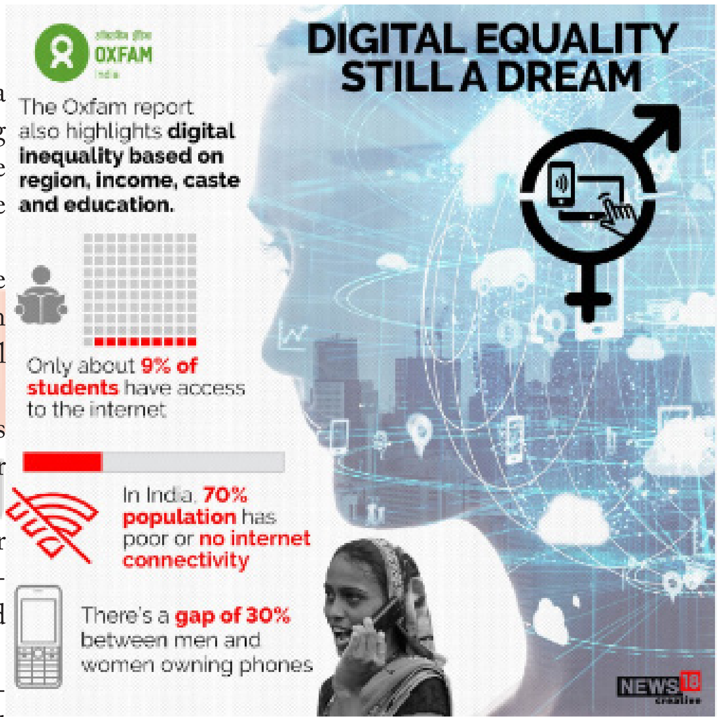
Oxfam has published the India Inequality Report 2022: Digital Divide recentl

Important Points

Digital Divide

- The digital divide refers to the gap between demographics and regions that have access to modern information and communications technology and those that don't. Though the term now encompasses the technical and financial ability to utilize available technology—along with access (or a lack of access) to the internet—the gap it refers to is constantly shifting with the development of technology.
- The digital divide describes the gap between people who have access to affordable, reliable internet service (and the skills and gadgets necessary to take advantage of that access) and those who lack it
- When the term was first used in the late 20th century, for example, it described the gap between those who had cellphone access and those who did not.

Highlights of the report



- Oxfam India's flagship publication—The India Inequality Report—is produced yearly to bring the attention of the public, policy makers and the government to the ongoing inequality crises in the country.
- The 2022 issue of the inequality report highlights the extent of the digital divide in India and its impact on essential services such as education, health and financial inclusion.
- As per the report, reach of digital technologies remains limited to largely male, urban, upper-caste, and upper -class households and individuals.
- Eight per cent of the General caste have a computer or a laptop whereas less than 1 per cent of the Scheduled Tribes (ST) and 2 per cent of the Scheduled Castes (SC) have it.
- The report revealed a digital divide based on employment status where 95 per cent of the salaried permanent workers have a phone whereas only 50 per cent of the unemployed (willing and looking for a job) have a phone in 2021.
- It has found that less than 32 per cent of women in India own a mobile phone – compared to over 60 per cent of men.
- The report says women generally have handsets that cost less and are not as sophisticated as those used by men, and that their usage of digital services is usually limited phone calls and text messages.
- It stated that women use digital services less often and less intensively, and they access the internet less frequently, for fewer reasons.
- Citing Observer Research Foundation data, the Oxfam report said India accounts for half the world's gendered digital divide given that only a third of all internet users are women.
- Oxfam said gendered social benchmarks tend to dictate what is 'appropriate' for men and women in this scenario, and that this has led to a relatively lower level of use and assimilation of digital services for women when compared to men.
- In addition, the report also highlights stark digital inequality based on region, income, caste and education, after analysing data from the Centre for Monitoring Indian Economy (CMIE) and the National Sample Survey (NSS).
- According to data presented in the report, there are only 57.29 internet subscribers per 100 people in the country and that number is significantly lower in rural areas than urban.
- In rural areas internet subscribers per 100 are less than 34. It is over 101 in urban centres.

Razorpay to support credit cards on UPI

Why in News

Razorpay has become India's First PG to support Credit Cards on UPI.

Important Points

- In an industry-first move, aimed at further strengthening digital payments and boosting India's credit penetration.
- Razorpay, India's Leading Full-Stack Payments and Banking Platform for Businesses announced the platform's readiness to support Credit Card Transactions on Unified Payments Interface (UPI).
- With this launch, Razorpay becomes India's First PG to support Credit Cards on UPI.
- Customers of HDFC Bank, Punjab National Bank, Union Bank and Indian Bank will be the first to enjoy the benefits of this innovation.
- This offering is in line with the National Payments Corporation of India (NPCI) and the Reserve Bank of India's (RBI) latest innovation in the digital space.
- Now, with RuPay credit cards being enabled on UPI, Razorpay merchants can begin accepting credit card payments on UPI, with minimal changes to their existing setup.
- This disruption is made possible in partnership with Axis bank, which shares Razorpay's focus on catering to the ever-evolving needs of merchants and delivering greater convenience
- At present, UPI enables customers to make transactions through their bank accounts.
- However, linking credit cards with UPI will ensure that customers will no longer have to carry their credit cards with them at all times for payments.
- Founded by IIT Roorkee alumni, Razorpay aims to revolutionize money management for online businesses by providing clean, developer-friendly APIs and hassle-free integration.
- Approximately 250 million Indians use UPI for their day-to-day transactions, and nearly 50 million users have one or more credit cards.
- The financial regulator's move is set to offer customers the best of both worlds – the seamless payment experience of UPI with the benefits of short-term credit and the rewards of cards.
- The credit card industry, as per RBI's data, despite growing steadily at the rate of 30% over the last three years, remains primarily underpenetrated with only 6% of Indians having access to a credit card.
- On the other hand, UPI has recorded over 731 crore transactions in Oct 2022 alone being used by more than 40% of Indians.

India-China trade

Why in News

Amid fresh demands for snapping of trade ties with China in the wake of the Tawang skirmish.

Important Points

- China is India's second biggest trading partner after the United States.
- In 2021-22, India-China bilateral trade stood at $115.83 billion, which was 11.19 per cent of India's total merchandise trade of $1,035 billion. The US was just a notch above, with 11.54 per cent ($119.48 billion) share.
- Till 20 years ago, China figured at the 10th position (2001-12) or lower.
- However, from 2002-03, it started an upward march and became India's top trading partner in 2011-12.
- In the next year, the UAE dislodged it to the second place. However, China bounced back and again became India's top trading partner in 2013-14, and remained there till 2017-18.
- For the next two years (2018-19 and 2019-20), the US was at the top but in 2020-21, China again became India's number trading partner.
- While China and the US have both been India's top trading partners in recent years, there is a big difference between the trade with the world's two largest economies.
- While with the US, India had a trade surplus of $32.85 billion during 2021-22, with China, it had a trade deficit of $73.31 billion, the highest for any country.
- In fact, India's trade deficit with China during 2021-2022 was double the previous year's level ($44.02 billion) and it was an all-time high.

- Apart from the US and China, the other eight countries and regions among India's top-10 trading partners during 2021-22 were UAE, Saudi Arabia, Iraq, Singapore, Hong Kong, Indonesia, South Korea, and Australia.
- India's trade deficit with China has increased from $1 billion to $73 billion in the past 21 years.
- Data show that imports from China have skyrocketed since the beginning of this century—from $2 billion in 2001-02 to $94.57 billion in 2021-20.
- However, during this period, India's exports to China have increased at a snail's pace—from about $1 billion to $21 billion.
- It is expected to rise further in 2022. In fact, China alone accounted for over one-third of India's total trade deficit ($191 billion) during 2021-22.
- The rising gap between imports and exports from China is evident from the fact that two decades ago, India's imports accounted for about 60 per cent of the total bilateral trade between two countries, but now it is over 80 per cent.

What does India buy from China?

- The top commodities that India bought included: electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers and parts; nuclear reactors, boilers, machinery and mechanical appliances and parts of thereof; organic chemicals; plastic and plastic articles; and fertilisers.
- A look at the item-wise list of the imports shows that the most-valued Chinese item in the Indian import basket was the personal computer (laptop, palmtop etc), which accounted for $5.34 billion in 2021-22.
- It was followed by 'monolithic integrated circuits-digital', lithium-ion, solar cells and urea.
- As far as the US is concerned, India imported petroleum crude, coking coal, LNG, diamonds, almonds, turbo -jets, etc.

What China buys from India?

- Among the top commodities China bought from India included: Ores, slag and ash; organic chemicals, mineral fuels, mineral oils and products of their distillation, bituminous substances, mineral waxes; iron and steel ($1.4 billion); aluminum and articles of thereof; and cotton.
- Among single items, light Naphtha ($1.37 billion) was India's most valued export item to China during 2021-22.
- As far as the United States is concerned, diamonds, gold jewellery set with diamonds, vannamei shrimp, and turbo-jets were among the top items imported from India.

Social stock exchange

Why in News

The National Stock Exchange of India (NSE) has received in-principle approval from the SEBI to set up the Social Stock Exchange as a separate segment of the NSE

Important Points

- Finance Minister of India in her Union Budget speech of 2019-20, had proposed creation of a Social Stock Exchange, under the regulatory ambit of SEBI for listing social enterprises and voluntary organizations working for the realization of a social welfare objective, so that they can raise capital as equity, debt or as units like a mutual fund (MF).

About Social Stock Exchange (SSE)

- An SSE allows the listing of non-profit or non-government organisations on stock exchanges, providing them with an alternative fund-raising structure.
- Setting up the SSE is on the lines of a proposal made by the government in the Union Budget of 2019-20 (April-March) to create a platform for listing social enterprises and voluntary organisations.
- Through this exchange, such organisations can raise capital through equity or debt instruments.
- Peer BSE had received in-principle approval for setting up an SSE in October.

- To enable fundraising for not-for-profit organisations, the government had announced a new security called "zero coupon zero principal" under the Securities Contracts Regulations Act.
- This instrument can be publicly or privately issued by these organisations upon registering with SSE to raise funds.
- Currently, the regulations allow minimum issue size as Rs 1 crore and minimum application size for subscription at Rs 2 lakh. Subscription to this instrument would be like a philanthropic donation.
- SSE provides a unified funding channel to listed social enterprises that are at the bottom of the socio-economic pyramid.
- The concept gained momentum, particularly in India during the pandemic, as the need for social capital for enterprises and voluntary organisations became essential.
- Countries like Brazil, Portugal, South Africa, the UK, Canada and Singapore already have established Social Stock Exchanges.

Urban-20 (U20)

Why in News

Chief Minister of Gujarat has recentlyunveiled the logo, website and social media handles of Urban-20 or U20 in Gandhinagar as part of G20 programmes.

Important Points

- Gujarat Chief Minister launches Urban 20 logo and social media platforms.
- Urban-20 (U20), one of the Engagement Groups of G20, provides a platform for cities from G20 countries to facilitate discussions on various important issues of urban development including climate change, social inclusion, sustainable mobility, affordable housing, and financing of urban infrastructure and propose collective solutions.
- Bearing in mind the importance of cities as growth centers of development, the U20 strives to enhance the profile of cities on the global stage.
- This city diplomacy initiative facilitates a productive dialogue between the national and local governments and helps promote the importance of urban development issues in the G20 agenda.
- Under the G20 presidency of India, Ahmedabad, a UNESCO World Heritage city, will host the U20 cycle.
- Along with C40 (Climate 40) and United Cities and Local Governments (UCLG), two international non-governmental advocacy groups on urban issues, Ahmedabad will organize various events including City Sherpas' inception meeting, thematic discussions and side events on urban development issues culminating with U20 Mayors' Summit in July 2023.
- It may be recalled that Ahmedabad became a member of the C40 in 2022 and has been a member of other global alliances like Global Covenant of Mayors for Climate & Energy and International Council for Local Environmental Initiatives (ICLEI). Ahmedabad city is actively working on climate change and sustainability issues for several years.
- Besides G20 countries, the Mayors and representatives of C40, UCLG member cities, and Observer Cities will participate in these events and enrich the discussions.
- During this year- long presidency, Ahmedabad will showcase its unique urban development and climate change initiatives and rich culture and heritage to the participants.
- Resonating with India's G20 theme of '**वसुधैव कुटुम्बकम्** - One Earth, One Family, One Future', U20 Ahmedabad will emphasize that actions at the city level can drive lasting positive global outcomes underscoring the interconnectedness of the world and our shared future.
- The effort of this cycle will be to move from 'intention to action' and draft a roadmap for closing the gaps between policy and practice to address critical urban issues.
- The Communiqué, outcome document reflecting the aspiration of the participating cities, will be presented by the Mayor of Ahmedabad to the Hon'ble Prime Minister of India or his representative.

Chapter-
5

SCIENCE AND TECHNOLOGY

Rht13

Why in News

A team of researchers discovered the new 'reduced height' or semi-dwarf gene called Rht13.

Important Points

About Rht-13

- A new drought-resilient semi-dwarf wheat gene which can be grown in drier soil conditions and it has given new hopes of sowing the crop in water-limited environments.
- Reduced height gene means that seeds can be planted deeper in the soil, giving access to moisture, without the adverse effect on seedling emergence seen with existing wheat varieties.
- Since the 1960s and the Green Revolution, reduced height genes have increased global wheat yields because the short-stemmed wheat they produce puts more investment into the grains rather than into the stems and has improved standing ability.
- However, these genes bred into wheat also have a significant disadvantage of not working in drought-like conditions.
- When these varieties are planted deeper to access moisture in water-limited environments, they can fail to reach the surface of the soil, the authors said.
- The newly discovered gene overcomes this problem of seedling emergence because the gene acts in tissues higher -up in the wheat stem.
- So, the dwarfing mechanism only takes effects once the seedling has fully emerged. This gives farmers a significant advantage when planting deeper in dry conditions.
- Researchers have found a new mechanism that can make reduced-height wheat varieties without some of the disadvantages associated with the conventional semi-dwarfing genes.
- The discovery of the gene, its effects and exact location on the wheat genome, means that they can give breeders a perfect genetic marker to allow them to breed more climate-resilient wheat.

- Experiments testing the effects of the gene in a range of transgenic wheat plants confirmed that the Rht13 variation represents a new class of reduced height gene—more commonly associated with disease resistance as opposed to widely used Green Revolution genes (Rht-B1b and Rht-D1b) which are associated with hormones and therefore affect overall growth.
- Additionally, the study found that the new semi-dwarfing gene may be able to withstand stormier weather too.

Origin of Earth's Oxygen

Why in News

A new study has found interesting information about the origin of earth's oxygen.

Important Points

- 21 percent of the atmosphere consists of this life-giving element. But in the deep past, as far back as the Neoarchean era 2.8 to 2.5 billion years ago this oxygen was almost absent.
- As per the new study at least some of the Earth's early oxygen came from a tectonic source via the movement and destruction of the Earth's crust.

- The Archean eon represents one third of our planet's history, from 2.5 billion years ago to four billion years ago.
- This alien Earth was a water-world, covered in green oceans, shrouded in a methane haze and completely lacking multicellular life. Another alien aspect of this world was the nature of its tectonic activity.
- On modern Earth, the dominant tectonic activity is called plate tectonics, where oceanic crust — the outermost layer of the Earth under the oceans — sinks into the Earth's mantle (the area between the Earth's crust and its core) at points of convergence called subduction zones.
- However, there is considerable debate over whether plate tectonics operated back in the Archean era.
- One feature of modern subduction zones is their association with oxidised magmas.

- These magmas are formed when oxidised sediments and bottom waters — cold, dense water near the ocean floor are introduced into the Earth's mantle. This produces magmas with high oxygen and water contents.
- This research aimed to test whether the absence of oxidised materials in Archean bottom waters and sediments could prevent the formation of oxidised magmas.
- The identification of such magmas in Neoarchean magmatic rocks could provide evidence that subduction and plate tectonics occurred 2.7 billion years ago.
- Researchers collected samples of 2750- to 2670-million-year-old granitoid rocks from across the Abitibi-Wawa subprovince of the Superior Province — the largest preserved Archean continent stretching over 2000 km from Winnipeg, Manitoba to far-eastern Quebec.

Zombie virus

Why in News

Recently, scientists revived 48,500-year-old 'Zombie Virus' buried in ice in Russia.

Important Points

- Zombie virus is the term given to a virus that is frozen in ice and therefore dormant.
- It does not mean that it is a virus that will turn you into a zombie, like those in horror movies and shows.
- However, in sync with the analogy, these viruses are 'undead' like the fictional zombie, and can come back alive and active under certain circumstances.
- European researchers have revived 13 "zombie viruses" from Russia's Siberian permafrost.
- The study revealed that one of these viruses, Pandoravirus yedoma, is more than 48,500 years old. It breaks the previous record held by a 30,000-year-old virus that was uncovered by the same team in 2013.
- Other viruses are also tens of thousands of years old.
- According to the study, it is global warming that is responsible for the revival of the Zombie Virus.
- The viruses were infectious despite being trapped in the frozen ground for many millennia.
- The researchers found out that the Zombie Viruses could pose a "health danger" after studying the live cultures.
- They are of the view that Covid-19-style pandemics could erupt in the future as long-dormant viruses like a microbial Captain America are coming from the melting permafrost.
- The scientists have earlier cautioned that the melting permafrost owing to global warming will deteriorate the climate change by releasing previously trapped greenhouse gasses into the atmosphere. However it is less understood how this impacts the dormant pathogens.
- The researchers said the biological risk of reviving the viruses was "totally negligible" because of the strains they targeted, which were capable of infecting amoeba microbes.

Powerless Heating Technology

Why in News

New low cost 'Powerless Heating System' activated with water can heat food in remote areas

Important Points

- A new low-cost heating system which can be activated by water anytime and anywhere, and does not require any fuel or electricity to heat or power it, can act as a heating solution in any location.
- Lack of heating sources at remote places with no access or uncertain access to power sources is an inconvenience faced by many, especially in remote areas like some of those in the northeastern region.
- Sumer Singh, Associate Professor, Department of Design, IIT Delhi along with his research team addressed this with a technology that works on chemical energy. It is called 'Powerless Heating Technology'.
- The active heating element consists of a mixture of eco-friendly minerals and salts, which generates exothermic energy resulting in heat on contact with water.
- This provides enough energy to raise the temperature of any food or beverage by 60 to 70 degree Celsius. The weight of the heater is only 50 grams, and after every heating, the by-product (natural mineral rock) inside the heating pad can be disposed of.
- The rock helps in improving the fertility of the soil and is 100 per cent biodegradable.
- Officials of Ministry of Science and Technology said that with this technology, users can heat ready-to-eat food, make instant noodles, and any beverage like tea, coffee, etc.
- The by-product of the heating process is a natural mineral that easily integrates into the soil without any toxic effects.
- North East Centre for Technology Application and Reach (NECTAR), an autonomous body under the Department of Science Technology supported Singh and his team to develop a food box and a liquid container that can be integrated with the Powerless Heating Technology.
- They have used it to develop containers which can heat food and beverages on demand.
- These products will be of great use to military personnel, tourists, and office-goers in the northeast.
- This Powerless Heating Technology eliminates the need for burning forest wood for heating purposes, thus also reducing forest fires, which is a major problem in the northeastern parts of the country.
- The prototypes were successfully developed and tested. Several FMCG companies are keen to launch it in the market.
- Anchiale Technologies, a Gurgaon-based spin-off start-up, is scaling up this technology and has started supplying it to the Indian Navy and some food manufacturing companies. A patent for the technology has been filed.
- A nondisclosure agreement (NDA) has been signed with the Indian Tobacco Company (ITC) for integration of this technology in their food products.

World's first steam-propelled spacecraft

Why in News

Japan's space agency JAXA has successfully used water to propel a spacecraft (EQUULEUS).

Important Points

- Japanese space agency JAXA has successfully demonstrated use of steam to propel spacecraft that was launched as one of the payloads aboard NASA's Orion spacecraft.
- This feat goes down in history as the world's first successful orbit control beyond low-Earth orbit using a water propellant propulsion system, according to JAXA.
- Japan claimed that it represents "the world's first successful orbit control beyond low-Earth orbit using a water propellant propulsion system."
- The EQUULEUS mission's primary goal is to demonstrate low-energy trajectory control technologies for reaching deep space locations such as EML2 using less fuel.
- It performed a maneuver that moved it toward its planned orbital path on the second Earth-Moon Lagrange point (EML2), located beyond the Moon.
- To get there it used an engine named AQUARIUS (AQUA ResIstojet propUlsion System) that uses water as fuel. The craft uses waste heat from communications kit to heat the water into steam that is squirted out to produce thrust.

- Lagrangian points are locations in space where the gravity of large objects, such as planets, are balanced out by the centrifugal force of a spacecraft, allowing for a very stable orbit.
- Much like NASA's CAPSTONE mission, which is testing a lunar orbit for the U.S. space agency's lunar Gateway orbital station project, the EQUULEUS spacecraft will allow scientists to test the stability of EML2 for a potential construction of a deep spaceport that will enable deep space exploration.
- The mission will carry out a number of investigations, including testing of the radiation environment to help determine what precautions future astronauts would have to take out in the deep space location.
- EQUULEUS carries an instrument called DELPHINUS (DEtection camera for Lunar impact PHenomena IN 6U Spacecraft) designed to observe Lunar impact flashes and near-Earth asteroids from EML2.
- Another instrument aboard EQUULEUS will observe Earth's plasmasphere.
- The plasmasphere, or inner magnetosphere, is a region of the Earth's magnetosphere consisting of low-energy plasma.
- It is located above the ionosphere. The outer boundary of the plasmasphere is known as the plasmapause, which is defined by an order of magnitude drop in plasma density.

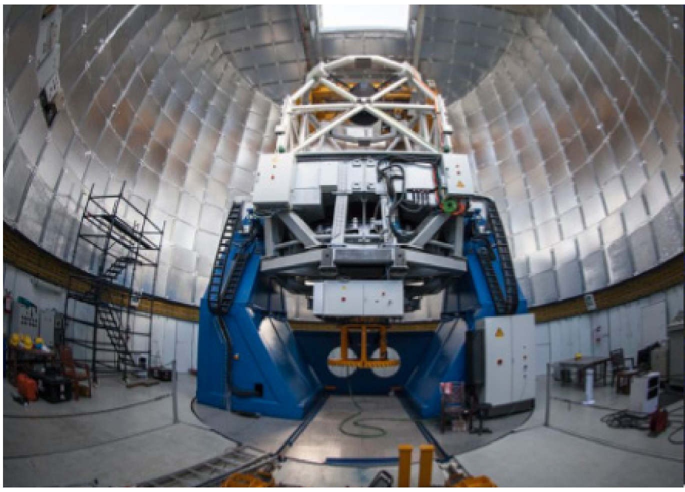
Kilonova Emission

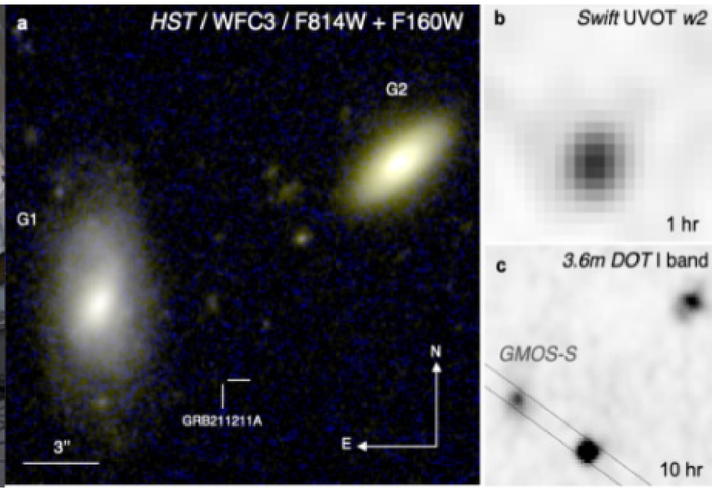
Why in News

First data taken by the 3.6-meter telescope has detected unexpected kilonova emission from 'a long-duration gamma-ray burst'.

Important Points

- While tracing a burst of high-energy light detected in 2021, from the outskirts of the Milky Way located approximately 1 billion light-years away, astronomers have spotted the first astronomical event in which a long gamma-ray bursts (GRBs) has been accompanied by the unexpected discovery of a kilonova emission.
- Generally, kilonova are visible and infrared light associated with short-period GRBs thought to be heat produced by the radioactive decay of heavier elements.
- Photometric observations taken with the 3.6 m Devasthal Optical Telescope(DOT) have provided vital information on the earliest phase of a kilonova ever detected, radically changing the understanding of scientists about the origin of GRBs.
- GRBs are powerful astronomical cosmic bursts of high-energy gamma-ray. GRB emits more energy in a few seconds than our Sun will emit in its lifetime and has two distinct emission phases:
- The short-lived prompt emission (the initial burst phase that emits gamma-rays).
- A long-lived multi-wavelength afterglow phase.
- The prompt emission (initial gamma-ray emission) of GRBs are automatically discovered by space-based gamma -ray missions such as NASA's Fermi Gamma-ray Space Telescope, Neil Gehrels Swift Observatory, and India's AstroSat.
- In recent years, scientists have discovered a special phenomenon called a kilonova of visible and infrared light with short-period GRBs, also known as a potential source of gravitational waves.
- It has been hypnotized that the heat produced by the radioactive decay of heavier elements may emit kilonova. This process also produces heavier elements, such as gold and platinum.
- However, observing kilonovas at near-infrared wavelengths is technically challenging, and only a few telescopes on Earth, including the 3.6-m DOT of the Aryabhatta Research Institute of Observational Sciences (ARIES), can detect kilonova and gravitational wave objects at these wavelengths upto faint limits.
- The scientists from the ARIES, an autonomous institute of DST, used data from the 3.6 m DOT of the ARIES along with other telescopes, including Hubble Space Telescope in studying the aftermath of the long GRB (GRB 211211A), detected by the NASA's Neil Gehrels Swift Observatory and the Fermi Gamma-ray Space Telescope on December 11, 2021.
- The high-energy outburst lasted about a minute, and follow-up observations taken from the 3.6-meter Devasthal Optical Telescope identified a kilonova.
- The spectral energy distribution of GRB afterglow is usually explained in terms of non-thermal emission (due to synchrotron radiation).
- However, in this event, both thermal and non-thermal emissions were included in the spectral energy distribution of the afterglow, modeled using the magnificent and dim observations of the 3.6 m DOT.





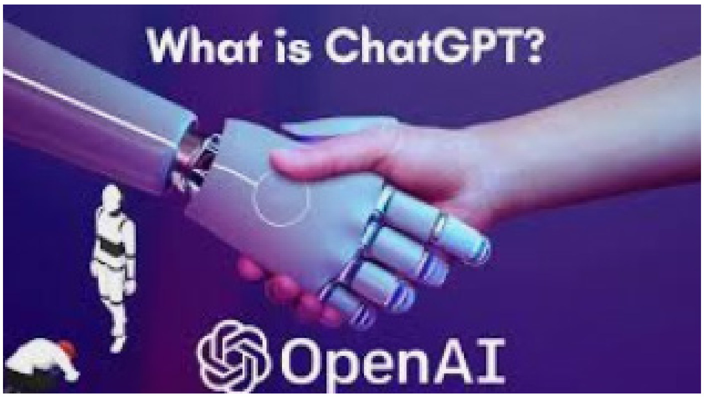
3.6 m Devasthal Optical Telescope(DOT)

- It is a clear-aperture Ritchey–Chrétien telescope built by Aryabhatta Research Institute of Observational Sciences (ARIES).
- It is located at the Devasthal Observatory site near Nainital, Kumaon, India. ARIES operates another 1.3m telescope at the same location.
- The telescope was activated remotely in March 2016 by Indian and Belgian Prime Ministers.
- The telescope optics has been built in collaboration with the Belgian firm Advanced Mechanical and Optical System (AMOS).
- The 3.6m DOT is currently the largest reflecting telescope in Asia.
- It intends to fill a large longitudinal gap in the 4m class of telescopes in the Asia region.
- It features an optical spectrograph, a CCD imager and a near-infrared spectrograph.
- The telescope is also the first of its kind in India that features an active optics system, featuring a wavefront sensor and pneumatic actuators which compensates for small distortions in the shape of the 4.3 tonne mirror due to gravity or atmospheric aberrations.

OpenAI's ChatGPT

Why in News

Recently, OpenAI, the company best known for Dall-E, the AI-based text-to-image generator has introduced a new chatbot called ChatGPT.



Important Points

ChatG0PT

- ChatGPT is a 'conversational' AI and will answer queries just like a human would– well, at least that's the promise and premise.
- So one can ask ChatGPT for anything; tips on how to set up a birthday party, write an essay on why parliamentary democracy is better, and even a fictional meeting between two well-known personalities.
- The reason ChatGPT has gone viral is because of the kind of responses it gives, being seen as a replacement for much of the daily mundane writing, from an email to even college-style essays.
- OpenAI has created ChatGPT, a start-up focused on artificial intelligence and its potential use cases.
- OpenAI's notable investors include Microsoft, Khosla Ventures and Reid Hoffman's charitable foundation.
- According to OpenAI's description, ChatGPT can answer "follow-up questions", and can also "admit its mistakes, challenge incorrect premises, and reject inappropriate requests."
- It is based on the company's GPT 3.5 series of language learning models (LLM).
- GPT stands for Generative Pre-trained Transformer 3 and this is a kind of computer language model that relies on deep learning techniques to produce human-like text based on inputs.

- The model is trained to predict what will come next, and that's why one can technically have a 'conversation' with ChatGPT.
- According to OpenAI, the chatbot was also trained using "Reinforcement Learning from Human Feedback (RLHF)."
- Currently, it is open in beta to all users. One can go to the OpenAI website and sign up to try out ChatGPT.
- OpenAI uses Microsoft Azure's cloud infrastructure to run these models.
- Interestingly, ChatGPT has been trained to decline 'inappropriate' requests, presumably those which are 'illegal' in nature.
- The chatbot gives answers which are grammatically correct and read well– though some have pointed out that these lack context and substance, which is largely true.
- ChatGPT capable of writing fiction, but not at the level of a humans, at least not for now. Nor is OpenAI the only company trying to get AI to take over writing.
- Google had recently showcased how its LaMDA chatbot is being used to help with fiction writing, but it too admitted that this was only a helper right now and cannot take over the entire task.
- Still, ChatGPT showcases an interesting and exciting use case for AI, where humans can have a 'real' conversation with a chatbot.
- However, it should be noted that ChatGPT has limitations, as it may generate incorrect information, and create biased content.

Sindhuja-I

Why in News

Recently, researchers at IIT Madras have developed and deployed a system that could generate electricity using energy from seawaves.

Important Points

Sindhuja-I

- The system, dubbed Sindhuja-I, was deployed by the researchers about six kilometres from the coast of Tuticorin in Tamil Nadu, where the sea has a depth of about 20 metres.
- Sindhuja-I can currently produce 100 watts of energy. It will be scaled up to produce one megawatt of energy in the next three years.
- Currently, if you want to power a city like Chennai or a small part of it, it would be very expensive to do it with wave power and it would be much cheaper to use conventional energy sources.
- But for remote applications like on island and offshore locations, the cost of transporting power over the sea could be higher than generating electricity from waves at the location.
- The Sindhuja-I system consists of a floating buoy, a spar and an electrical module.
- The buoy moves up and down as the waves oscillate up and down.
- There is a hole at the centre of this buoy that will allow the spar to pass through it.
- The spar is fixed to the seafloor to ensure that the waves don't move it.
- But when the buoy moves and the spar doesn't, the waves produce a relative motion between both.
- This relative motion is used by an electric generator to produce power.
- But building such a complex system at an offshore location comes with its own set of challenges.
- The amount of energy generated from wind energy fluctuates over the course of the day and over the course of the year as the climate changes.
- During different seasons, wave height and period change.
- It is okay if the system does not produce energy when the weather is calm.
- But what is important is to make sure that the system can endure rough weather because there is no point investing so much in a system if it gets washed away during difficult weather.
- This is also why the researchers tested the system in November when IMD (India Meteorological Department) issued a red alert for districts in the state of Tamil Nadu.

- Right now, there are no devices using the power generated by the system as it is still in its infancy.
- The research team plans to deploy a remote water desalination system and a surveillance camera at the location by December 2023.
- It also plans to conduct further testing to help understand how to deal with power generation fluctuations caused by weather events.
- This wave energy system comes at a time when there is increased global attention for the potential of using waves to generate electricity.
- In January this year, the US Department of Energy announced a $25 million grant to companies demonstrating technologies that can harness waves to generate electricity.
- The European Union also hopes to generate 10 per cent of the region's power demand through ocean energy by the year 2025.
- While the IIT Madras researchers wave energy generation device uses a technology called "point absorber wave energy converter", it is only one of the many such technologies being developed by companies around the world.
- Islay LIMPET, the first grid-connected wave energy power device in the world deployed in 2000, uses a shoreline device that uses "Oscillating Water Column" technology to generate power.
- It was later decommissioned in 2018. But researchers believe that such grid-scale technology is still a distant dream for Indian shores.

PathoDetect Kit

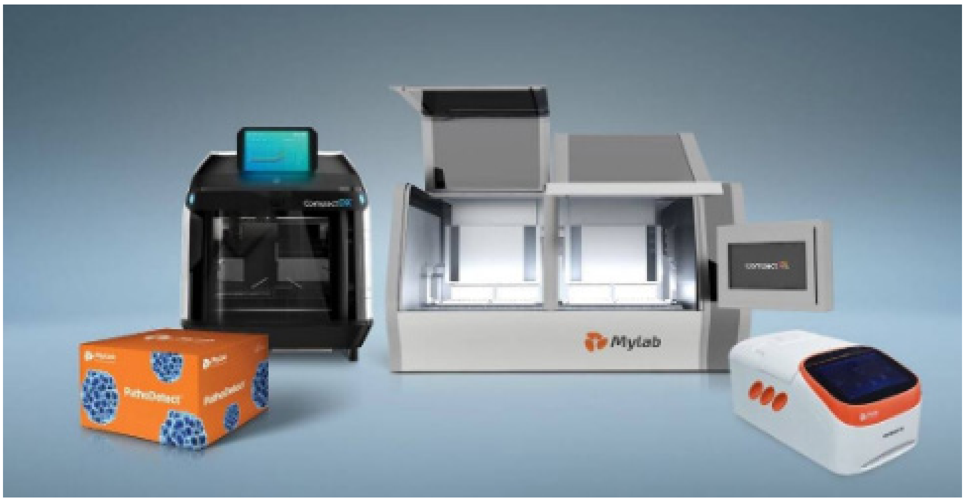
Why in News

Pune-based Mylab Discovery Solutions private limited has launched PathoDetect Kit for TB detection recently.

Important Points

- Annually, 20 lakh new cases of TB are detected and around 4.9 lakh deaths are reported every year due to the disease.
- Data indicates 25% of the global cases of TB were in India and there is a 5-18 per cent death rate in drug resistance.
- Mylab and Serum Institute of India have come together to create a unique Cy-Tb solution which is Fast, Accurate, and Cost Effective.
- The Drug Controller General of India has granted market authorisation to SII's Cy-TB kit which can be used as skin test for diagnosis of latent tuberculosis.

PathoDetect Kit



- It simultaneously detects multiple drug resistance to Rifampicin and Isoniazid in a single test(tuberculosis and multidrug-resistant tuberculosis).
- Mylab had received Central Drugs Standard Control Organisation CDSCO, TB Expert Committee and ICMR approval for the first indigenous TB Detection kit to detect tuberculosis.
- The kit has been named PathoDetect MTB RIF and INH drug resistance kit.
- The kit is an RT-PCR-based kit for accurate detection and will be used with Mylab Compact device systems – which will allow automated testing of multiple samples within two hours.
- The entire project was estimated at a cost Rs 275-300 crore and the test kit will cost Rs 650. This PathoDetect kit combined with the Mylab Compact device platform will fill the current gaps in tuberculosis testing,
- With automation, the complete testing process can be done even in rural areas with the mobile molecular lab.
- The test kits have been designed to work in ambient temperatures compared to existing PCR options which needed 2-8 degrees cold storage.

- The TBConnect App — an Integrated TB Workflow app from diagnostics to treatment — will also directly push results to the central grid and needs no manual upload.
- Presently there are two different tests to be conducted: one to detect TB and the other to check drug resistance – against only one drug (Rifampicin). With this kit, there will be no liquid handling and it is a cartridge-based system.

GLAS report-2022

Why in News

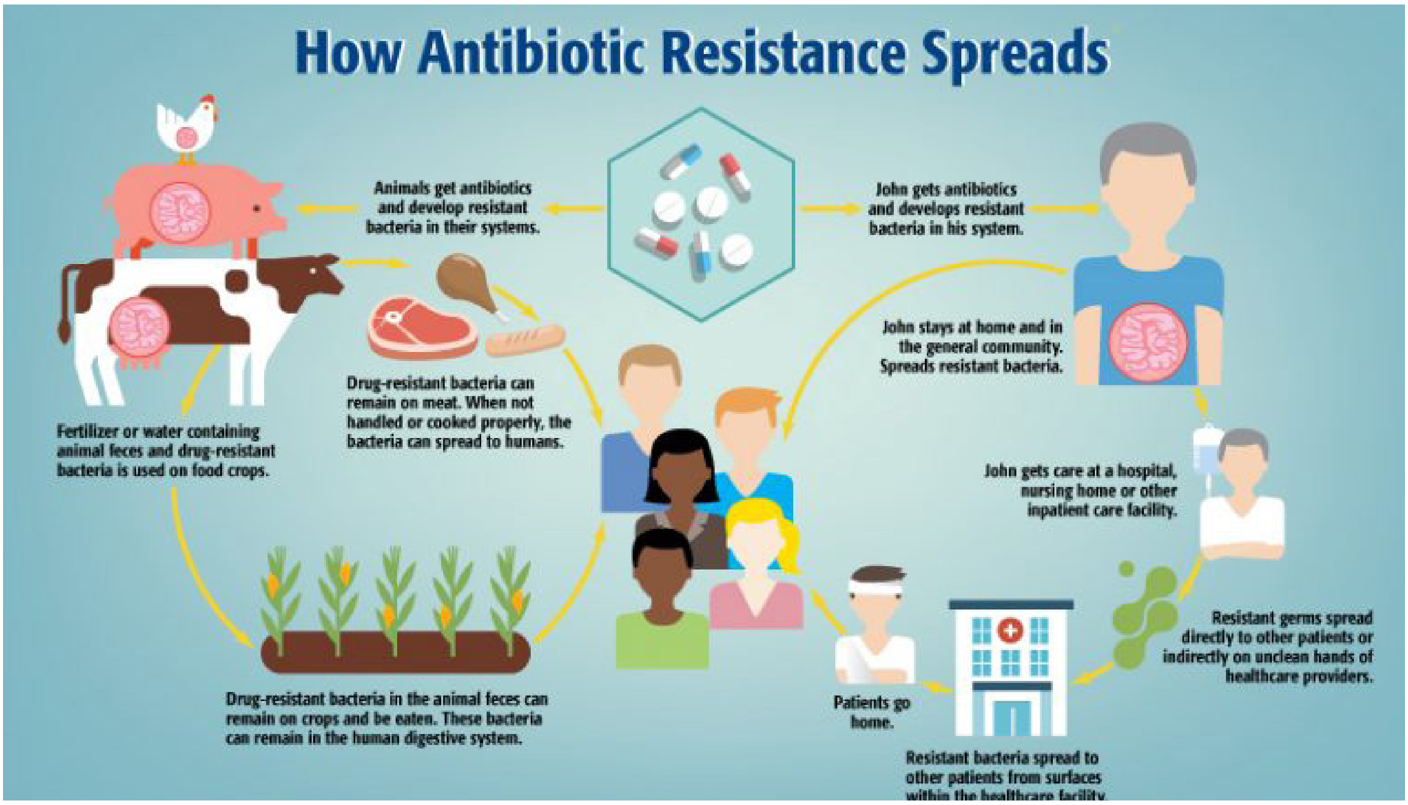
Recently, World Health Organization (WHO) has released the GLASS report-2022.

Important Points

- The report is the fifth issued by GLASS, which was established by the WHO in 2015 to inform the AMR response at a national and global level through the monitoring of resistance rates in common bacteria.
- Standardizing the collection and sharing of AMR data from countries is seen as crucial to understanding the global burden of AMR.
- New global data on antimicrobial resistance (AMR) and consumption shows high levels of resistance in the pathogens that cause the deadliest infections.

What does the report say?

- As per the report, the spectre of untreatable disease, caused by Antimicrobial Resistance (AMR), ravaging humanity is inching closer.
- For the first time, the GLASS report provided analyses for antimicrobial resistance (AMR) rates in the context of national testing coverage, AMR trends since 2017, and data on antimicrobial consumption in humans in 27 countries.
- Within six years, GLASS achieved participation from 127 countries with 72% of the world's population. The report includes an innovative interactive digital format to facilitate data extraction and graphics.
- The report shows high levels (above 50%) of resistance were reported in bacteria frequently causing bloodstream infections in hospitals, such as Klebsiella pneumoniae and Acinetobacter spp.
- These life-threatening infections require treatment with last-resort antibiotics, such as carbapenems.
- However, 8% of bloodstream infections caused by Klebsiella pneumoniae were reported as resistant to carbapenems, increasing the risk of death due to unmanageable infections.
- Over 60 per cent of Neisseria gonorrhoea infections, a common sexually transmitted disease, show resistance to ciprofloxacin, one of the most widely used oral antibacterials.
- And over 20 percent of E.coli isolates, the most common pathogen in urinary tract infections, were resistant to ampicillin and co-trimoxazole, first-line drugs, as well as second-line treatments known as fluoroquinolones.
- Although most antimicrobial resistance trends have remained stable over the past four years, bloodstream infections due to resistant E.coli, Salmonella and gonorrhoea infections, have jumped by at least 15 per cent compared to 2017 rates.
- The data in the World Health Organization's (WHO's) Global Antimicrobial Resistance and Use Surveillance System (GLASS) 2022 report, which includes resistance data collected from 87 countries in 2020, show high levels of resistance to the antibiotics used to treat bloodstream infections (BSIs) caused by Acinetobacter spp. (more than 56%) and Klebsiella pneumoniae (more than 57%).
- The two pathogens accounted for more than 20% of the BSIs reported to GLASS.
- Overall, more than 3 million bacterial infections were reported for 2020. Rates of resistance were substantially higher in low- and middle-income countries (LMICs)
- The 2022 GLASS Report also, for the first time, included data on antibiotic consumption at the national level.
- Although only 27 countries provided data, the report shows that 65% of countries met the target of 60% consumption of Access group antibiotics, which the WHO considers the narrow-spectrum, first-line treatments for bacterial infections under its AWaRE (Access, Watch, and Reserve) classification system.



What is AMR?

- Antimicrobial resistance occurs when microbes evolve mechanisms that protect them from the effects of antimicrobials. All classes of microbes can evolve resistance. Fungi evolve antifungal resistance. Viruses evolve antiviral resistance.

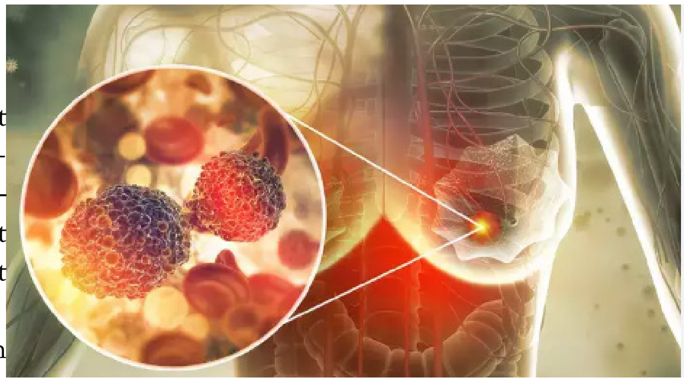
Carboplatin drug to treat Breast Cancer

Why in News

A commonly available and inexpensive drug, carboplatin, increases cure rate and survival in triple-negative breast cancer, a aggressive type of breast cancer.

Important Points

- The results of the study by the Tata Memorial Centre show that a commonly available and inexpensive drug, carboplatin, increased the cure rate and survival of a very aggressive type of breast cancer, called triple-negative breast cancer, especially among young women who have this disease.
- Until the results of this study there was no conclusive evidence that this drug should be routinely used as part of the treatment of this disease.



Key highlights of the study

- Dr Sudeep Gupta, Professor of Medical Oncology at Tata Memorial Centre, presented, as a podium presentation, the results of the landmark 'TMC Study – Platinum in TNBC' at the ongoing San Antonio Breast Cancer Symposium, which is the largest and most important breast cancer conference in the world.
- The study was a randomized controlled trial which enrolled women with stage II-III triple negative breast cancer from 2010 to 2020 who were divided into two groups, both of whom received chemotherapy to downstage the disease prior to surgery.
- The results were hailed by oncologists worldwide as immediately practice defining.
- A commonly available and inexpensive treatment like carboplatin will now be routinely offered as part of pre-operative chemotherapy regimen to women with TNBC which is the most aggressive type of breast cancer.

- Given that TNBC constitutes about 30% of breast cancer in India and about 45% of breast cancer in women younger than 50 years, the implications of this result are very important.
- Until the results of this study there was no conclusive evidence that this drug should be routinely used as part of the treatment of this disease.

What is triple-negative breast cancer(TNBC)?

- Triple-negative breast cancer is a kind of breast cancer that does not have any of the receptors that are commonly found in breast cancer.
- The term triple-negative breast cancer refers to the fact that the cancer cells don't have estrogen or progesterone receptors (ER or PR) and also don't make any or too much of the protein called HER2. (The cells test "negative" on all 3 tests.)
- TNBC differs from other types of invasive breast cancer in that it tends to grow and spread faster, has fewer treatment options, and tends to have a worse prognosis (outcome).
- Breast cancer is the commonest cancer affecting women not only in India but globally.
- Inclusion of Yoga in the treatment of breast cancer patients-
- As per a study by the Tata Memorial Hospital, inclusion of Yoga in the treatment of breast cancer patients is highly beneficial.
- The inclusion of Yoga resulted in a 15% relative improvement in disease free survival (DFS) and 14% in overall survival (OS).
- The yoga protocol included gentle and restorative yoga postures(asana) with regular periods of relaxation and pranayama.
- The largest clinical trial is an important milestone in use of YOGA in breast cancer since this is the first example of a very Indian traditional remedy being tested in a rigorous western design of randomized study with robust sample size.

Base genetic editing

Why in News

A 13 year old patient named Alyssa become the first person in the world to benefit from base editing, the experimental cancer treatment.

Important Points

What is base editing?

- According to a BBC report, "Bases are the language of life. Just as letters in the alphabet spell out words that carry meaning, the billions of bases in our DNA spell out the instruction manual for our body."
- With advances in genetic technology, scientists have been able to zoom into a precise part of the genetic code to alter the molecular structure of just one base, effectively changing its genetic instructions.
- A team at the Great Ormond Street Hospital managed to use base-editing to create a new type of T-cell from a healthy donor that would not attack other cells in Alyssa's body, not kill each other, survive chemotherapy and finally, hunt down all other T-cells in Alyssa's body (healthy and cancerous).
- After this therapy worked in its initial stages, Alyssa was given another bone marrow transplant to restore her immunity.
- As of today, Alyssa is 6 months into remission. While doctors are still monitoring her and will do so for the foreseeable future, currently the cancer cells have disappeared with no signs of reappearing just yet.
- Prof Waseem Qasim, consultant immunologist and the doctor at the forefront of Alyssa's treatment, told the BBC that genetic manipulation is a "very fast-moving area of science" with "enormous potential" across a range of diseases. Success in Alyssa's case will have a positive impact on the research that is conducted and ultimately benefit many patients.
- "Base editing is particularly promising, not just in this case but for genetic disorders," Robin Lovell-Badge of the Francis Crick Institute in London told the NewScientist.
- Currently, three more trials that use this technique are underway

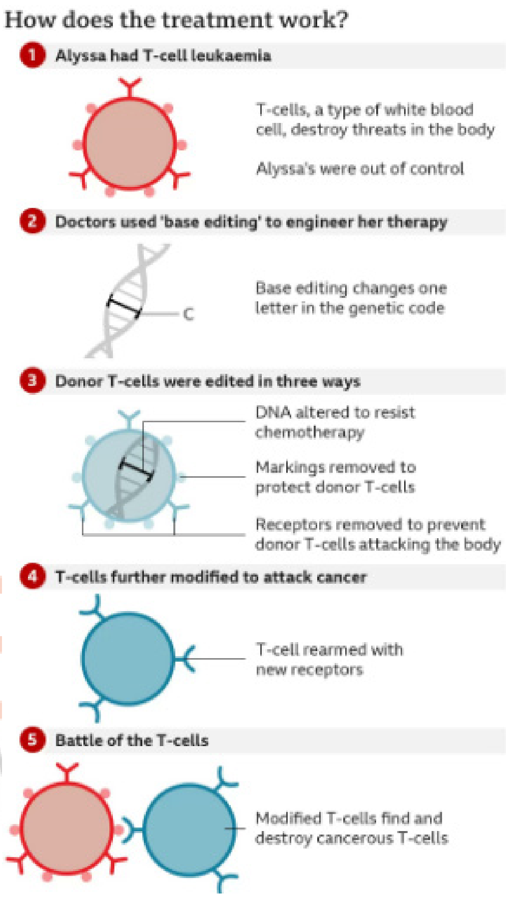
What was the disease Alyssa suffered from?

- Alyssa was diagnosed with a kind of blood cancer known as T-cell acute lymphoblastic leukaemia (T-ALL).

- T-ALL affects the stem cells in the bone marrow that produce a particular kind of white blood cells (WBC) called T lymphocytes (T cells). These cells provide a person immunity by killing cells carrying infections, activating other immune cells, and regulating the immune response.
- At least 20% of these WBC are atypical– as they accumulate in the bone marrow, they crowd out "good" WBCs and hence weaken the immune system. These unhealthy cells can also accumulate in other parts of the body like the liver, spleen and lymph nodes.
- While found in both children and adults, T-ALL's incidence decreases with age.

What is the experimental treatment Alyssa received?

- Alyssa, from Leicester in UK, began a trial where she received a dose of healthy T-cells from a donor that would hopefully attack her cancerous cells without destroying each other.
- Known as CAR-T therapy, this principle has been around for a while, but Alyssa's case was different.
- Traditionally, CAR-T therapy involves adding a gene to T-cells that causes them to seek out and destroy cancerous cells.
- The modified cells are known as CAR-T cells. First, an individual's own T-cells are removed, which are then modified and reintroduced to the individual.
- The problem with such an approach (besides the expense) is that very often, when an individual is really sick, it is simply impossible to obtain enough healthy T-cells to create CAR-T cells.
- While donors can provide healthy T-cells to an individual, these T-cells from a foreign body are going to attack every single cell in that patient's body, making the treatment counterproductive.
- Thus, scientists have resorted to what is known as base editing – through this technique of genetic editing, they make it possible for one donor to supply T-cells to multiple recipients, without the traditional risks associated with it.
- Thus, Alyssa received genetically modified cells that were programmed to specifically attack her cancer while leaving the rest of her body alone.



How is T-ALL typically treated?

- Typical treatment for T-ALL is similar to that of any leukaemia– chemotherapy and stem cell/bone marrow transplant.
- Doctors will first administer multiple rounds of chemotherapy. This either kills the cancerous cells or stops them from further dividing. The exact schedule is guided by an individual's age and general health.
- If this fails, and the individual is suitable, doctors will conduct bone marrow transplant.
- First the patient will undergo radiation therapy and/or chemotherapy that will kill the cancerous cells but also wreck an individual's immunity system along with it.
- Thus, patients receive an infusion of healthy bone marrow cells that will hopefully multiply and restore immunity.
- Overall treatment for T-ALL is pretty effective– children have a survival rate of over 85 per cent after five years of receiving this treatment.
- Unfortunately, Alyssa lay in the unlucky 15 per cent of children where the treatment just did not work.

US announces Fusion energy breakthrough

Why in News

Scientists in the United States have, for the first time, achieved a net gain in energy from a nuclear fusion reaction

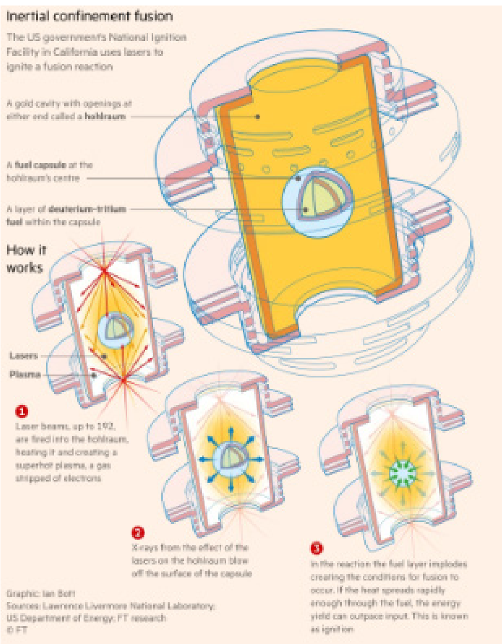
Important Points

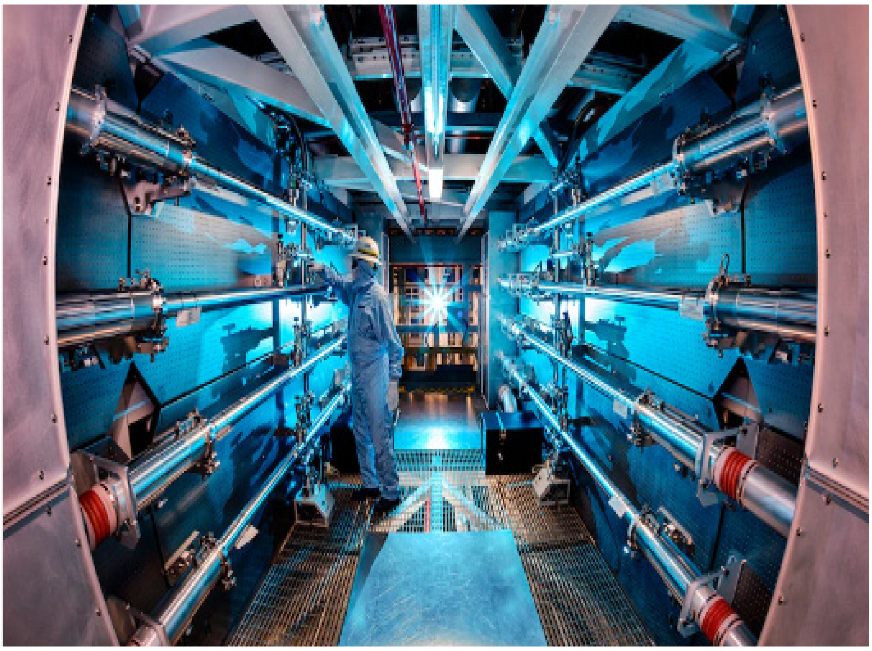
- US scientists have made a major breakthrough on nuclear fusion energy. For the first time, scientists have successfully conducted a nuclear fusion reaction resulting in a net energy gain.

- As many as 192 high energy lasers were used to achieve the nuclear fusion reaction. The researchers at LLNL heated a capsule of deuterium and tritium, and briefly simulated the reactions taking place in a star.

Fusion nuclear energy

- Nuclear fusion is the process by which two light atomic nuclei combine to form a single heavier one while releasing massive amounts of energy.
- Fusion reactions take place in a state of matter called plasma — a hot, charged gas made of positive ions and free-moving electrons with unique properties distinct from solids, liquids or gases.
- The sun, along with all other stars, is powered by this reaction.
- To fuse in our sun, nuclei need to collide with each other at extremely high temperatures, around ten million degrees Celsius.
- The high temperature provides them with enough energy to overcome their mutual electrical repulsion.
- Once the nuclei come within a very close range of each other, the attractive nuclear force between them will outweigh the electrical repulsion and allow them to fuse.
- For this to happen, the nuclei must be confined within a small space to increase the chances of collision.
- In the sun, the extreme pressure produced by its immense gravity creates the conditions for fusion.
- Fusion is a different, but more powerful, way of harnessing the immense energy trapped in the nucleus of an atom. This is the process that makes the Sun and all other stars shine and radiate energy.
- Attempts to master the fusion process have been going on at least since the 1950s, but it is incredibly difficult and is still at an experimental stage.





Fusion far from reality

- Significant though the achievement is, it does little to bring the goal of producing electricity from fusion reactions any closer to reality.
- By all estimates, use of the fusion process for generating electricity at a commercial scale is still two to three decades away. The technology used in the US experiment might take even longer to get deployed.
- There are at least two different ways in which fusion reactions are being experimented with. These differ mainly in the way the input energy is supplied to create the extreme heat to enable fusion, but that also results in differences in design and capabilities.
- At the Lawrence Livermore facility, scientists use high-energy laser beams to achieve those temperatures, also called 'inertial fusion'.
- At some other places, including the international collaborative project in southern France called ITER in which India is a partner, very strong magnetic fields are used for the same purpose.
- According to current timelines, the ITER project is expected to demonstrate the viability of a commercially scalable nuclear fusion reactor between 2035 and 2040.

- ITER, when operational, would become the biggest machine anywhere in the world, more complex than the Large Hadron Collider at CERN, or the LIGO project to detect gravitational waves. Right now, the ITER reactor is in the machine assembly phase.
- India joined the ITER project in 2005. The Institute for Plasma Research in Ahmedabad, a laboratory under the Department of Atomic Energy, is the lead institution from the Indian side participating in the project.
- As a member country, India is building several components of the ITER reactor, while also carrying out a number of experiments and R&D activities related to the project.
- ITER is an international nuclear fusion research and engineering megaproject aimed at creating energy by replicating, on Earth, the fusion processes of the Sun.

Fusion VS Fission technology

- The nuclear energy currently in use across the world comes from the fission process, in which the nucleus of a heavier element is split into those of lighter elements in a controlled manner.
- A large amount of energy is released in both these processes, but substantially more in fusion than fission.
- For example, the fusion of two nuclei of a heavier isotope of hydrogen, called tritium, produces at least four times as much energy as the fission of a uranium atom which is the normal process of generating electricity in a nuclear reactor.
- Besides greater energy yield, fusion is also a carbon-free source of energy, and has negligible radiation risks.
- But fusion reactions happen only at very high temperatures, 10 times the temperature that exists at the core of the Sun, and creating such an extreme environment in a laboratory requires huge amounts of energy.
- So far, the energy released in such experimental fusion reactions have been lower than what is consumed to create the enabling high temperatures.
- At best, some of these reactions have produced 'near break-even' energies

Geminids meteor shower

Why in News

Some of the cities in India witnessed an all-colourful dazzling sky recently as part of the annual Geminid meteor shower.

Important Points

- Meteors are usually fragments of comets. As they enter the Earth's atmosphere at high speed, they burn up, creating a spectacular "shower".
- Meteors come from leftover comet particles and bits from asteroids. When these objects come around the Sun, they leave a dusty trail behind them.
- Every year Earth passes through these debris trails, which allows the bits to collide with our atmosphere where they disintegrate to create fiery and colorful streaks in the sky.

Geminid meteor shower

- The Geminids are one of the best and most reliable annual meteor showers. If their peak coincides with the new moon, and if the weather is clear, the Geminids can produce approximately 100-150 meteors per hour for viewing.
- This year(2022) however, the moon is bright, and so only 30-40 meteors per hour will be visible in the Northern Hemisphere. But the Geminids are so bright that this should still be a good show.
- The Geminid meteor shower can be traced back to dusty debris left behind by the asteroid 3200 Phaethon, which Earth passes through every December.
- This 3.6-mile (5.8-kilometre) wide space rock is the closest to the sun of any named asteroid and is thought to be a strange hybrid of an asteroid and a comet.

- The 3200 Phaethon was discovered on October 11, 1983. It is named after the Greek mythology character Phaethon, son of the Sun God Helios.
- It takes 1.4 years to complete one round of the Sun.
- As the 3200 Phaethon moves close to the Sun while orbiting it, the rocks on its surface heat up and break off.
- When the Earth passes through the trail of this debris, the Geminids are caused.
- That comes from the constellation Gemini, from whose location in the sky the meteor shower appears to originate.
- According to NASA, the constellation for which a meteor shower is named only serves to aid viewers in determining which shower they are viewing on a given night. The constellation is not the source of the meteors.

Geminid meteor shower 2022: The Geminids showers will peak between 2 and 3 a.m., with over 100 meteors approaching Earth, and Indian residents will be able to see them all with their own eyes. However, much depends on how clear the sky is.

Here's how to view the Geminids showers:

- Though 100-150 meteors will pass by in an hour, Weather Channel predicts that people in Bengaluru will not be able to see all of them owing to light pollution
- Meanwhile, areas like Hessarghatta, Bannerghatta, Devarayanadurga and Kolar near Bengaluru might offer a good view of the meteor showers.
- Once you get to the destination of your choice, find a spot with no buildings.
- Reach there 30 minutes before the shower starts to get you eyes adjusted to the dark
- Fortunately, you will not require any equipment. In fact, even telescopes are not recommended because they limit the field of view.
- The Jawaharlal Nehru Planetarium has planned special arrangements at the planetarium on December 13 to view the Gemenids.

Forabot

Why in News

Recently, researchers at North Carolina State University, USA have developed and demonstrated a robot capable of sorting, manipulating and identifying microscopic marine fossils

Important Points

- Foraminifera, also called forams, are very simple micro-organisms that secrete a tiny shell, a little longer than a millimetre.
- The organisms have existed in our oceans for more than 100 million years. When forams die, they leave behind their shells.
- Examining their shells give scientists insights into the characteristics of the oceans from a time when the forams were alive.
- Different types of foram species thrive in different ocean environments and chemical measurements can tell scientists everything from the ocean's chemistry to its temperature when the shell was being formed.

About the robot

- It is capable of sorting, manipulating and identifying microscopic marine fossils. Such fossils are key to understand of the world's oceans and climate of today and in the prehistoric past.
- The team of engineering and paleoceanography experts developed the robot, called Forabot, to automate the sorting of forams.
- Physical inspection and sorting of forams can require human time and effort.
- Forabot has an accuracy rate of 79 per cent for identifying forams, which is better than most trained humans.
- Currently, Forabot is capable of identifying six different types of foram and processing 27 forams per hour.
- The robot's AI uses images to identify the type of foram and sorts it accordingly. It has the potential to be a valuable piece of research equipment, allowing student 'foram pickers' to spend their time learning more advanced skills.

Japanese firm's lunar lander on way to the moon

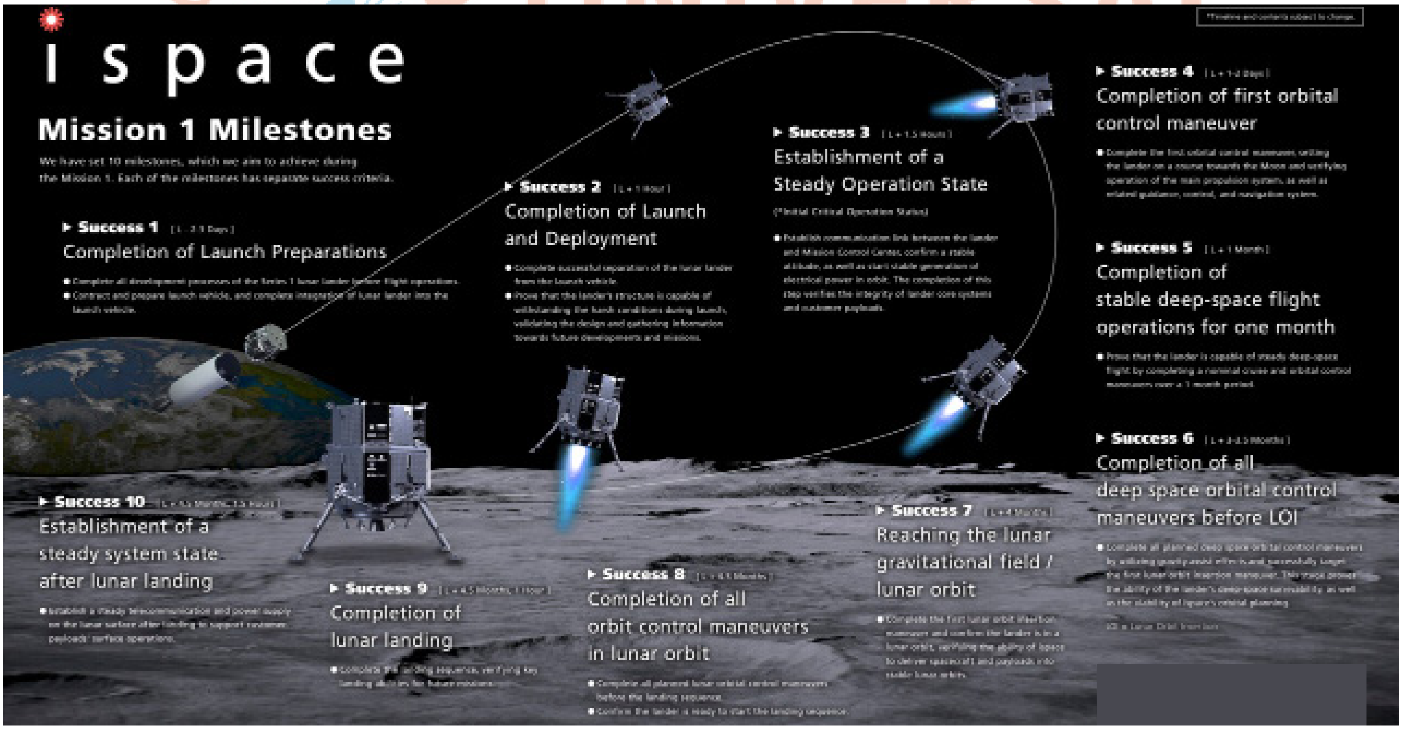
Why in News

Japanese company Ispace has recently launched a lander named M1 under its HAKUTO-R mission with the help of Falcon 9 rocket of SpaceX.

Important Points

About the mission

- The payloads on M1 include a rover from the United Arab Emirates and a small two-wheeled Transformers-like robot for the Japanese space agency.
- This will be the first privately-led Japanese mission to land on the lunar surface.
- The Ispace company started as one of the competitors for the Google Lunar X Prize, a competition that offered a $20 million prize for the first private spacecraft to land on the moon, travel 500 meters and send back video from the lunar surface.
- At the time, the Japanese group, known as Team Hakuto, focused on developing a rover, and it was to rely on a competing team from India for the ride to the surface of the moon.
- The group known as Team Hakuto evolved into Ispace, attracting sizable investment, and the company plans to launch a series of commercial moon landers in the coming years.
- The Japanese company's lander is not the only passenger on the flight. A secondary payload on the Falcon 9 is a small NASA mission, Lunar Flashlight, which is to enter an elliptical orbit around the moon and use an infrared laser to probe the deep, dark craters at the moon's polar regions.
- Much like some other recent moon missions, M1 is taking a circuitous, energy-efficient trip to the moon and will not land, in the Atlas Crater in the Northern Hemisphere of the moon, until late April. The fuel-efficient trajectory allows the mission to pack in more payload and carry less fuel.



Objective of the Mission:

- It is aimed to search for water deposits before touching down in the Atlas Crater, which lies in the northeastern section of the Moon's near side and measures more than 87km (54 miles) across and just over 2km (1.2 miles) deep.
- Mission success would also represent a milestone in space cooperation between Japan and the US at a time when China is becoming increasingly competitive and rides on Russian rockets are no longer available in the wake of Russia's invasion of Ukraine.
- Japan has a contract with NASA to ferry payloads to the Moon from 2025 and is aiming to build a permanently staffed lunar colony by 2040.

Moon's other recent visitors

- As part of the Artemis I mission, NASA's Orion spacecraft travelled to, then orbited the moon. It returned to Earth recently, with a splashdown into the Pacific Ocean.
- A small NASA-financed mission called CAPSTONE also arrived recently to explore an orbit in which NASA plans to build a lunar outpost where astronauts will stop on the way to the moon.
- And while it hasn't arrived yet, the moon will get a third new visitor in January 2023. Danuri, a South Korean space probe, was launched in August 2022 and is due to enter lunar orbit Dec. 16.

Are other companies attempting what Ispace is doing?

- A NASA program called Commercial Lunar Payload Services, or CLPS, has been looking to send experiments to the surface of the moon.
- The first two missions, from Intuitive Machines of Houston and Astrobotic Technology of Pittsburgh, plan to launch next year after considerable delays.
- Intuitive Machines' lander, which could be launched as early as March, could even beat Ispace to the moon because it's using a quick six-day trajectory.

Dark patterns on the Internet

Why in News

Some Internet-based firms have been tricking users into agreeing to certain conditions or clicking a few links.

Important Points

- The unsuspecting users would not have accepted such terms or clicked URLs (uniform resource locator), but for the deceptive tactics deployed by tech firms.
- Such acceptances and clicks are flooding inboxes of the users with promotional emails they never wanted, making it hard to unsubscribe or request deletion.
- These are examples of "dark patterns," also known as "deceptive patterns."

What are dark patterns?

- Such patterns are unethical user interface designs that deliberately make your Internet experience harder or even exploit you. In turn, they benefit the company or platform employing the designs.
- By using dark patterns, digital platforms take away a user's right to full information about the services they are using, and reduce their control over their browsing experience.
- The term is credited to UI/UX (user interface/user experience) researcher and designer Harry Brignull, who has been working to catalogue such patterns and the companies using them since around 2010.
- Social media companies and Big Tech firms such as Apple, Amazon, Skype, Facebook, LinkedIn, Microsoft, and Google use dark or deceptive patterns to downgrade the user experience to their advantage.
- Amazon came under fire in the EU for its confusing, multi-step cancellation process for the Amazon Prime subscription.
- In social media, LinkedIn users often receive unsolicited, sponsored messages from influencers. Disabling this option is a difficult process with multiple steps that requires users to be familiar with the platform controls.
- As Meta-owned Instagram pivots to video-based content to compete against TikTok, users have complained that they are being shown suggested posts they did not wish to see and that they were unable to permanently set preferences.
- Another dark pattern on the application is sponsored video ads getting scattered between reels and stories that users originally opted to view, tricking them for several seconds before they can see the small "sponsored" label.
- Google-owned YouTube nudges users to sign up for YouTube Premium with pop-ups, obscuring the final seconds of a video with thumbnails of other videos — a way of disrupting what should have been an otherwise smooth user experience.

Impact of dark patterns on users

- Dark patterns endanger the experience of Internet users and make them more vulnerable to financial and data exploitation by Big Tech firms.
- Dark patterns confuse users, introduce online obstacles, make simple tasks time-consuming, have users sign up for unwanted services/products, and force them to pay more money or share more personal information than they intended.
- In the U.S., the Federal Trade Commission [FTC] has taken note of dark patterns and the risks they pose. In a report released in September 2022, the regulatory body listed over 30 dark patterns, many of which are considered standard practice across social media platforms and e-commerce sites.
- These include "baseless" countdowns for online deals, conditions in fine print that add on to costs, making cancellation buttons hard to see or click, making ads appear as news reports or celebrity endorsements, auto-playing videos, forcing users to create accounts to finish a transaction, silently charging credit cards after free trials end, and using dull colours to hide information that users should know about.
- However, dark and deceptive patterns don't just stop with laptops and smartphones.
- The FTC report has warned that as augmented reality (AR) and virtual reality (VR) platforms and devices grow in usage, dark patterns will likely follow users to these new channels as well.

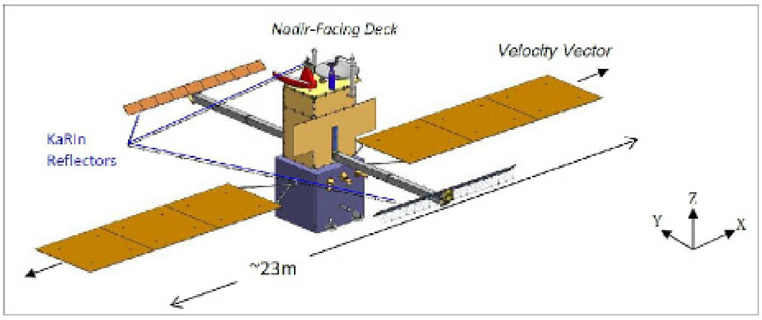
First global survey of Earth's surface waters by SWOT

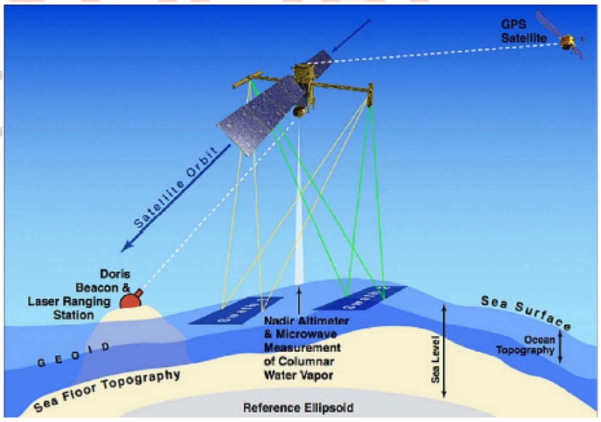
Why in News

NASA is planning to conduct the first global water such as oceans, lakes and rivers survey from space for the first time.

Important Points

- A NASA-led international satellite mission was set for blastoff from Southern California on a major Earth science project to conduct a comprehensive survey of the world's oceans, lakes and rivers for the first time.





About the SWOT

- Dubbed SWOT, short for Surface Water and Ocean Topography, the advanced radar satellite is designed to give scientists an unprecedented view of the life-giving fluid covering 70% of the planet, shedding new light on the mechanics and consequences of climate change.
- A Falcon 9 rocket, owned and operated by billionaire Elon Musk's commercial launch company SpaceX, was set to liftoff before dawn from the Vandenberg U.S. Space Force Base, about 170 miles (275 km) northwest of Los Angeles, to carry SWOT into orbit.
- If all goes as planned, the SUV-sized satellite will produce research data within several months.
- Nearly 20 years in development, SWOT incorporates advanced microwave radar technology that scientists say will collect height-surface measurements of oceans, lakes, reservoirs and rivers in high-definition detail over 90% of the globe.
- The data, compiled from radar sweeps of the planet at least twice every 21 days, will enhance ocean-circulation models, bolster weather and climate forecasts and aid in managing scarce freshwater supplies in drought-stricken regions, according to researchers.
- The satellite was designed and built at NASA's Jet Propulsion Laboratory (JPL) near Los Angeles.

- Developed by the U.S. space agency in collaboration with its counterparts in France and Canada, SWOT was one of 15 missions listed by the National Research Council as projects NASA should undertake in the coming decade.
- It's really the first mission to observe nearly all water on the planet's surface.
- One major thrust of the mission is to explore how oceans absorb atmospheric heat and carbon dioxide in a natural process that moderates global temperatures and climate change.
- Scanning the seas from orbit, SWOT is designed to precisely measure fine differences in surface elevations around smaller currents and eddies, where much the oceans' drawdown of heat and carbon is believed to occur.
- And SWOT can do so with 10 times greater resolution than existing technologies.
- SWOT's radar instrument operates at the so-called Ka-band frequency of the microwave spectrum, allowing scans to penetrate cloud cover and darkness over wide swaths of the Earth.
- This enables scientists to accurately map their observations in two dimensions regardless of weather or time of day and to cover large geographic areas far more quickly than before.

Looking for ocean's tipping point

- Oceans are estimated to have absorbed more than 90% of the excess heat trapped in Earth's atmosphere by human -caused greenhouse gas emissions
- SWOT's ability to discern smaller surface features also be used to study the impact of rising ocean levels on coastlines.
- More precise data along tidal zones would help predict how far storm-surge flooding may penetrate inland, as well as the extent of saltwater intrusion into estuaries, wetlands and underground aquifers.
- By comparison, previous studies of water bodies relied on data taken at specific points, such as river or ocean gauges, or from satellites that can only track measurements along a one-dimensional line, requiring scientists to fill in data gaps through extrapolation.
- Freshwater bodies are another key focus SWOT, equipped to observe the entire length of nearly all rivers wider than 330 feet (100 meters), as well as more than 1 million lakes and reservoirs larger than 15 acres (62,500 square meters).
- Taking inventory of Earth's water resources repeatedly over SWOT's three-year mission will enable researchers to better trace fluctuations in the planet's rivers and lakes during seasonal changes and major weather events.

Chapter- 6

SOCIAL ISSUES

The Tribal Development Report 2022

Why in News

A first-of-its-kind (since 1947)Tribal Development Report-2022 was released recently.

Important Points

- The report looks at the status of tribal communities at an all-India level and in central India with respect to livelihoods, agriculture, natural resources, economy, migration, governance, human development, gender, health, education, art, and culture.
- It was released by the Bharat Rural Livelihoods Foundation, an independent society set up under the Ministry of Rural Development.
- The first volume of the report, published by Routledge and CRC Press, combines data from government sources, case studies, archival research, and interviews on crucial dimensions of tribal lives and livelihoods.
- The first volume provides a broad overview of the contemporary macroeconomic situation of tribal communities, with a focus on the challenges of agriculture, land, energy, and water use, especially groundwater management; and highlights the need to move into a new paradigm of agroecology-based, nature-positive farming and sustainable water use driven by local institutions.
- The volume also looks at the neglect faced by tribal areas in developing infrastructure, from irrigation to energy; shares insights on the invisibility of tribal voices in policy processes; and discusses tribal communities in the informal sector and in migration.
- The second volume of the report, on the other hand, focuses on human development and governance.
- It discusses challenges faced by tribal communities by focusing on the status of health, education, and nutrition; explores issues related to gender and development and the impact of the loss of traditional rights over land and forest resources; and also presents a progress report on the implementation Panchayat (Extension to Scheduled Areas) Act (or PESA), 1996, and the Forest Rights Act (FRA).
- It also looks at the state of Denotified Tribes in the country; and presents an overview and remedial policy actions for upholding tribal arts, crafts, language and literature, and knowledge systems.

What does the report say?

- It said that India's tribal communities form 8.6 per cent of the country's population according to the 2011 Census. But they are at the bottom of the country's development pyramid even after 75 years of independence.
- The report stated that indigenous communities of India have been pushed farther away from alluvial plains and fertile river basins into the harshest ecological regions of the country like hills, forests, and drylands.
- Of the 257 Scheduled Tribe districts, 230 (90 per cent) are either forested or hilly or dry. But they account for 80 per cent of India's tribal population.
- Adivasi sub-districts belong to a larger contiguous backward region or Adivasi belt, which goes beyond the frozen administrative categories of state, district and sub-district.
- In fact, mapping of predominantly Adivasi concentrated sub-districts suggests a continuum of pockets of underdevelopment that are connected to one another and to the larger development processes around them.
- It further stated that during British colonial rule, the bond between Adivasis and their relation of symbiosis with their immediate environment was ruptured.

- After the enactment of the Forest Conservation Act in 1980, the conflict came to be seen as between environmental protection and the needs of local Adivasi communities, driving a wedge between people and forests.
- It was in the National Forest Policy of 1988 that domestic requirements of local people were explicitly recognised for the very first time.
- The Policy emphasised safeguarding their customary rights and closely associating Adivasis in the protection of forests. But the movement towards a people-oriented perspective has not been matched by reality on the ground.

Social Hostilities Index (SHI)

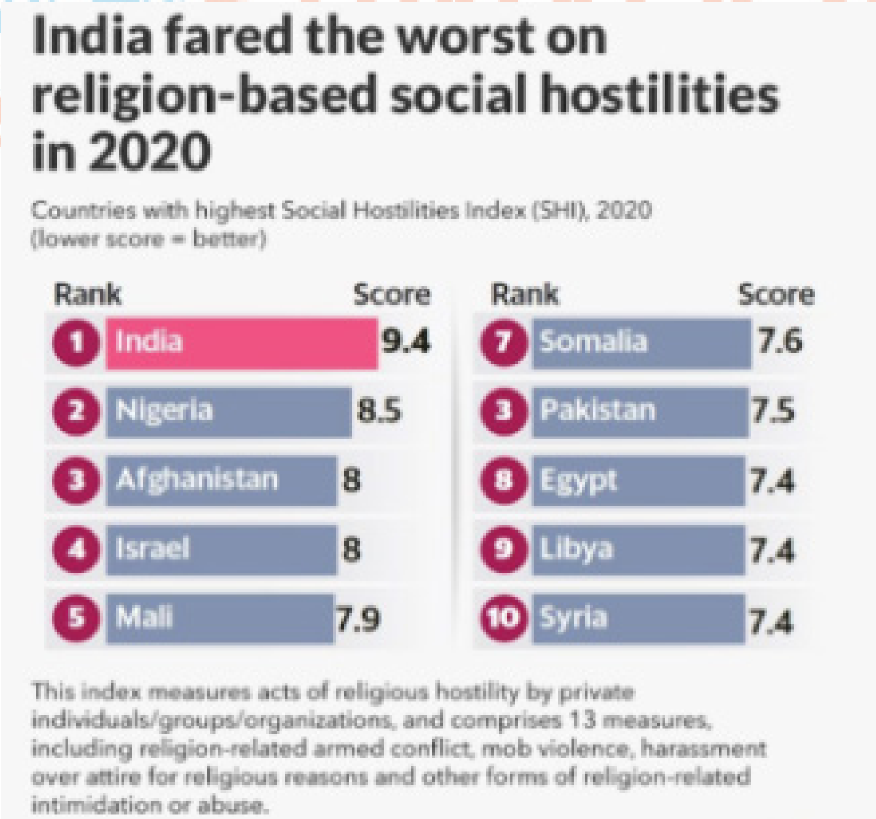
Why in News

The US think-tank Pew Research Center has published the SHI recently.

Important Points

Social Hostilities Index (SHI)

- The SHI measures acts of religious hostility by private individuals, organizations or groups. The index comprises 13 metrics, including religion-related armed conflict or terrorism and mob or sectarian violence.
- The report covered 198 countries, by the US think-tank Pew Research Centre.
- Questions used to compute the SHI included whether the country saw violence motivated by religious hatred or bias, whether individuals faced harassment or intimidation motivated by religious hatred or bias and whether there was mob violence against those of particular religious groups.
- Among the most populous countries, India, Nigeria, Pakistan, Egypt and Bangladesh had "very high" social hostilities involving religion, according to the report.
- The country had the highest rate of social tensions along religious lines globally in 2020.
- Social Hostilities Index (SHI) in 2020 India's score was 9.4 out of a maximum possible score of 10, was worse than neighbouring Pakistan and Afghanistan, and a further increase in its own index value for 2019.



Government Restrictions Index (GRI).

- This index looks at laws, policies and state actions restricting religious beliefs and practices.
- The GRI comprises 20 measures, including efforts by governments to ban particular faiths, prohibit conversion, limit preaching or give preferential treatment to one or more religious groups.
- China ranked the worst, with a score of 9.3. India's 34th rank was enough to categorize it among countries with "high" levels of such government restrictions.

- India was one of just four countries in the world that saw pandemic-related social hostilities against religious groups involving physical violence or vandalism by private individuals or organizations. Argentina, Italy and the US were the others.
- India was also among the countries in which private individuals or organizations linked the spread of the coronavirus to Minority religious groups.

Important Data

- By India's own official crime statistics, the picture is more mixed.
- According to police data, religious riots for which cases were filed rose substantially in 2020, and declined again in 2021.
- But there have been significant variations over time, and the numbers are too low as a share of overall rioting incidents to indicate a definitive trend.
- Moreover, the home ministry no longer provides data on "communal incidents", and the National Crime Records Bureau (NCRB) now only publishes data on religious "riots".
- Even within available data, there are large gaps between the data provided by the NCRB and the home ministry.

Dominique Lapierre

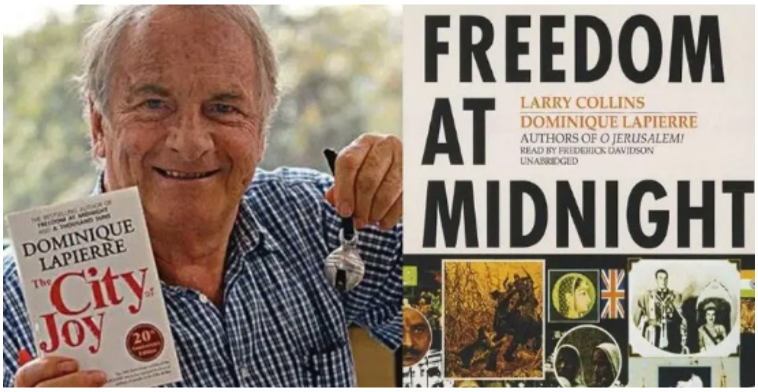
Why in News

Dominique Lapierre, the acclaimed French author and Padma Bhushan awardee, passed away recently.

Important Points

- Lapierre was born on July 30, 1931, at Chatelaillon in France.
- His father's job as a diplomat led to a peripatetic childhood for Lapierre, who spent a considerable part of his youth hitchhiking and travelling across the United States and doing odd jobs to fund his travels.
- It was around this time that Lapierre developed a flair for writing. His travelogues would often be published in papers in the US.
- At 18, Lapierre received a Fulbright scholarship to study economics at Lafayette College in Easton, Pennsylvania.
- Afterwards, he began his career as a reporter for the weekly news magazine, Paris-Match.
- In 1954, when he was 23 and serving in the French army, Lapierre met a young American named Larry Collins, a Yale graduate who later became a journalist with Newsweek. The two went on to forge a deep friendship that later also translated into a successful literary partnership.
- Together, Lapierre and Collins wrote six bestselling books, including O Jerusalem! (1972) on the creation of the state of Israel; Freedom at Midnight (1975); Is Paris Burning? (1965), on the liberation of Paris during World War II, which sold close to 10 million copies in 30 languages; The Fifth Horseman (1980); Is New York Burning? (2005); and Or I'll Dress You In Mourning (1968).

His connections with India



- Lapierre had a special bond with India, travelling through the country and spending a lot of time in the city that was then called Calcutta, as well as in Bhopal.
- He was awarded the Padma Bhushan, India's third highest civilian award, in 2008.
- City of Joy, the novel that made him a household name in the country, was set in the slums near Howrah in West Bengal.
- In the aftermath of the success of the novel, Lapierre set up the City of Joy Foundation and donated a large share of his royalties to it to support humanitarian projects in West Bengal, which included the setting up of dispensaries, care centres for those suffering from leprosy and tuberculosis, hospital boats, schools and rehabilitation centres.
- Lapierre spoke Bengali fluently and would often travel in rickshaws on his visits to the city.
- His investigative account, Five Past Midnight in Bhopal: The Epic Story of the World's Deadliest Industrial Disaster (1997; English translation in 2001), written in collaboration with Javier Moro, traced the 1984 Bhopal gas tragedy and the role of Union Carbide in it.

- The royalties from the sale of the book were directed to a NGO clinic in Bhopal, which provides free medical treatment to the victims of the tragedy.
- The author also set up a primary school in the Oriya Basti colony in Bhopal, a neighbourhood that features prominently in the book.
- However, the book also became controversial. In July 2009, a defamation suit was filed against Lapierre and Moro. It was later lifted by the Madhya Pradesh High Court in October 2009.
- Perhaps the best known of Lapierre's works centred on India is Freedom at Midnight, (with Collins) which told the story of India's struggle for independence and the great humanitarian tragedy of the Partition.
- The authors interviewed a large number of people with first-hand knowledge of the events of those years, and was stylistically similar to their earlier works on Jerusalem and Paris.

Districts as Export Hub (DEH)

Why in News

ODOP initiative merged with 'Districts as Export Hub (DEH)' initiative

Important Points

- One District One Product (ODOP) initiative is operationally merged with DEH initiative of Directorate General of Foreign Trade, the Department of Commerce, with the Department for Promotion of Industry and Internal Trade (DPIIT) as a major stakeholder.
- Central Government has initiated One District One Product (ODOP) in all States/UTs of the country, as a transformational step towards realizing the true potential of a district, fueling economic growth, generating employment and rural entrepreneurship, taking us to the goal of Aatmanirbhar Bharat.
- The ODOP Initiative is aimed at fostering balanced regional development across all districts of the country, enabling holistic socio-economic growth across all regions.
- The objective is to focus on District of the country as unit for converting into a manufacturing and export hub by identifying products with export potential in the District.

Some of the achievements of ODOP

- The ODOP GeM Bazaar was launched on the Government e-Marketplace (GeM) in August 2022 with over 200 product categories created on the platform to promote sales and procurement of ODOP products across the country.
- ODOP products are showcased in various International forums such as World Economic Forum, DAVOS in May 2022, at International Yoga day (IYD) in New York, US in June 2022 etc.
- The ODOP initiative has been identified for the prestigious Prime Minister's Award for Excellence in Public Administration in Holistic Development through One District One Product (ODOP) category in April, 2022.
- Under DEH, State Export Promotion Committee (SEPC) and District Export Promotion Committee (DEPC) has been constituted in all the 36, States/UTs.

What is DEH initiative?

- Under the DEH initiative, a District Export Promotion Committee (DEPC) is formed which is responsible for preparing a district export action plan.
- Under this, Districts Export Action Plans include specific actions required to support local exporters / manufacturers in producing / manufacturing identified products in adequate quantity and with the requisite quality, for reaching potential buyers outside India, thereby creating economic value.
- The Districts as Export Hub (DEH) and the One District One Product (ODOP) initiatives aim to link local producers in rural and remote districts with global supply chains, and bring them into the economic mainstream.

South Korea

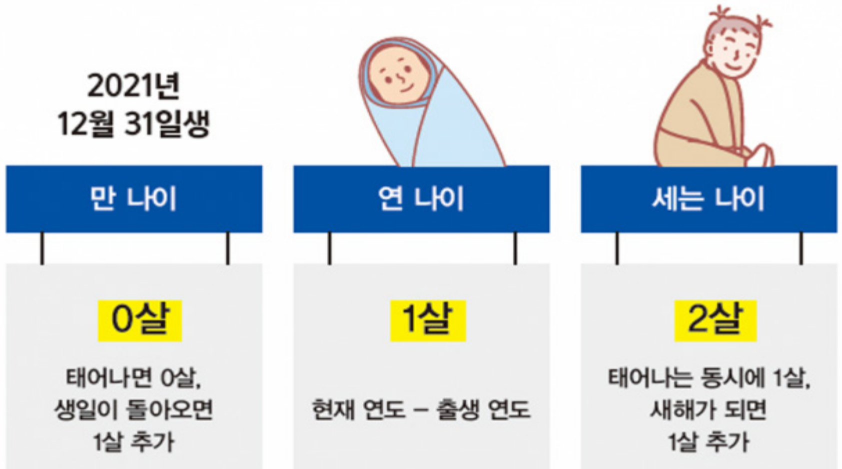
Why in News

South Korea has approved changes in its system for calculating age.

Important Points

- South Korean lawmakers approved a measure that will help standardise the existing system for measuring people's ages, which is based on a traditional method that sometimes adds up to two years to an individual's biological age.
- The revision is aimed at reducing unnecessary socio-economic costs because legal and social disputes, as well as confusion, persist due to the different ways of calculating age.

How do Koreans calculate age?



- There are three methods in use at the moment.
- The first is the one used by the rest of the world, where the age at birth is zero and subsequent birthdays lead to the addition of a year, and this is used for certain legal and administrative purposes in South Korea as well.
- The second is the 'Korean age', the method most popularly used in society, where a baby is born and aged one, and turns a year older on January 1, regardless of the date of birth.
- Thus, a child born on December 31, 2021, will have turned two years old by January 2, 2022.
- The third method is the 'year age', where a baby is born zero years old, and turns a year older every January 1.
- This method is again used for some legal and official purposes, most notably for compulsory military conscription, to determine when a child can start school, and to determine when a juvenile needs legal protection from abuse.

Why do Koreans calculate age differently?

- Historians have trouble pinpointing a government decree for the current system seen as a remnant of an ancient culture. Some say the traditional ways of determining age take into account the time spent in the womb.
- Others say the unique method came about as ancient counting systems in this part of Asia did not have the concept of zero.
- While similar methods of calculating age existed in China, Japan, Vietnam, etc., gradually, all the countries moved to the international system.
- North Korea adopted the international system in 1985, but with a difference – it follows its own calendar, based on the birth of the national founder and president-for-life Kim Il Sung.

Why is it being changed now?

- After President-elect Yoon Suk-yeol won the Presidential elections this year, it was expected the system would be changed given his promise to do so while campaigning.
- Multiple surveys have shown that around 70 to 80 per cent of the population prefers a standard system linked to how it is done globally. Though some have lamented a quaint aspect of Korean culture being altered, the idea of getting 'younger' by a year or two is largely being welcomed.

World Bank's new toolkit

Why in News

World Bank's new toolkit on making urban transport better for Indian women launched recently.

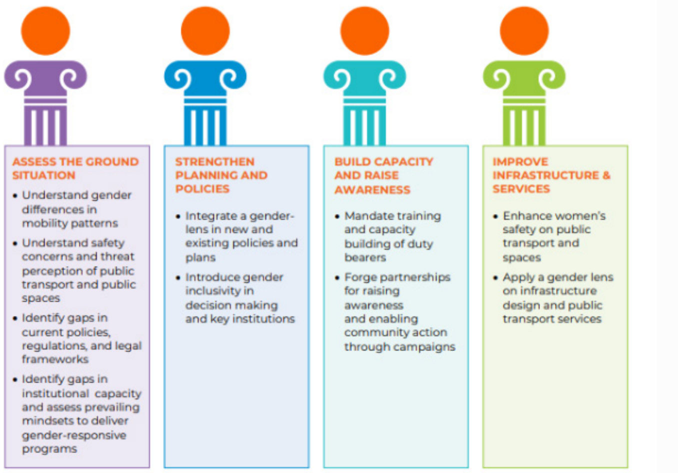
Important Points

- World Bank launched a "Toolkit on Enabling Gender Responsive Urban Mobility and Public Spaces in India" with the aim of suggesting ways to make public transport in Indian cities more inclusive of women's travelling requirements.

- The toolkit emphasises on the importance of integrating a gender lens in transport policies and infrastructure, making various recommendations on interventions that can help make urban transport safer, especially for women.
- It brings together 50 case studies of best practices and efforts from across the world, along with a special inculcation of the Indian context.

What does the World Bank toolkit suggest?

The World Bank suggests a four-pillared approach to help address prevailing issues in urban transport for women.



1st approach

- ➢ First, there has to be greater effort made to understand the on-ground situation with a gender lens.
- ➢ Gender blind planning and infrastructure development leaves major gaps that specifically impact women but are often not overtly visible.
- ➢ The first step to addressing these gaps is to better identify what they are.
- ➢ Any new transport policy or infrastructure development must be preceded by an honest evaluation of issues concerning women.

2nd approach

- ➢ Second, once prevailing issues are identified, policies and development plans must reflect the concerns of women.
- ➢ For this to happen, there must be more women in key institutions in charge of decision making.
- ➢ Until such time women are not adequately represented, their needs are always likely to be secondary.
- ➢ Thus key to actually inculcating a gender lens in public transport planning and development is involving and giving authority to more women stakeholders in the first place.

3rd approach

- ➢ Third, the toolkit emphasises on building gender sensitivity and awareness among service providers through mandatory programmes and community action.
- ➢ Everyone from the bus conductor to local beat constables must be aware of concerns that women have and how to address them.

4th approach

- ➢ Fourth, investment has to be made in better infrastructure and services with a focus on women-friendly design.
- ➢ While increasing services and strengthening infrastructure is a good idea in general, if such development is made from a specific gender lens, it is far more useful.
- ➢ For example, while creating new bus stops is good, it would be even better if these bus stops were designed to be level with the floors of buses, adequate lighting, SOS buttons, and well-maintained washrooms.
- ➢ Some concrete interventions that the toolkit suggests include creation of wide obstruction-free footpaths, street lighting, clear signages, dedicated bicycle lanes, introduction of short and circuitous bus routes, and subsidising/making free public transport for women.

Who does this toolkit help?

- According to the World Bank, the toolkit contains practical tools that can inform a wide set of policymakers as well as private or community-based organisations.
- The aim is for this toolkit to be a reference for any entity engaging in any work regarding public transport and urban mobility.
- Not only does this tool kit provide many practical interventions, it also highlights certain thematic issues that one can encounter in this space.
- Crucially, the point of this toolkit is not to make gender an additional concern for policy makers and developers.
- Rather, it is to integrate a gender lens into everyday planning and development in order to make our cities safer and more accessible to women.

Major Concerns

- Safety, efficiency and cost are major concerns.
- Lack of safety and also the lack of a perception of safety are a major impediment for women when it comes to accessing public transport.
- Dearth of good street lighting, no reliable last mile transport, and high waiting time at remote bus stops are just some of the challenges in this regard.
- Crucially, beyond being safe, public transport infrastructure also needs to be perceived to be safe, as it is the perception that guides decisions to use such transport.
- With safety issues turning women away from using public transport, a vicious cycle is created — unsafe transport leads to fewer women travelling out which in turn leads to fewer women out in public spaces which actually make these spaces even more unsafe.
- Since the burden of care work (mostly unpaid) lies disproportionately on women, they often need to plan their travel far more meticulously than men, having to juggle various responsibilities at home and work.

Poor public transport curtails women's financial independence and agency

- Studies show that women, especially those from lower socio-economic groups, are among the biggest users of public transport in Indian cities.
- Their dependence on public transport stems from lower discretionary incomes.
- Further, women have unique mobility patterns, often travelling shorter distances, using multiple modes of transport, and travelling with dependents, during "off-peak hours".
- Currently, urban mobility systems are not catered to these unique needs of women.
- This can make travel inconvenient, unsafe, and also more expensive for them, putting an additional burden on a section of society which is already disadvantaged.
- While many women use public transport on a daily basis out of compulsion, the state of public transport systems has a major impact on a variety of decisions made by women.
- Studies have shown that lack of safe, inexpensive and reliable public transport has a profound impact on women's ability to access education and employment opportunities, in turn leading to poorer life outcomes for them.
- India's female labour force participation rate is among the lowest in the world, standing at just 30% in 2019-20. Lack of viable urban transport is frequently cited as a major impediment for women to access better employment opportunities.
- Studies have also shown how distance from home impacts women's choice of colleges and other educational institutions — and by implication their financial independence and agency.

Global Pandemic Treaty

Why in News

Pandemic treaty draft negotiations to begin in February 2023

Important Points

- Member states of the World Health Organization (WHO) will discuss the 'zero draft' of the legally binding pandemic accord in February 2023, they announced during the third meeting of the Intergovernmental Negotiating Body (INB) concluded recently.
- Ensuring equity and solidarity, promoting preparedness while respecting sovereignty will form the crux of this document, WHO said.
- This decision is a landmark moment in the world's learning from the COVID-19 pandemic and the steps being taken to avoid a similar situation in the future, the United Nations health agency added.
- The zero draft will be based on the conceptual zero draft released late November, as well as discussions during the third meeting of INB.
- Countries have delivered a clear message that the world must be better prepared, coordinated and supported to protect people across the globe from a repeat of the COVID-19 pandemic.
- In December 2021, the World Health Assembly agreed to start a global process to draft the pandemic treaty.
- The need for an updated set of rules was felt after the COVID-19 pandemic exposed the shortcomings of global health systems.
- The Health Assembly adopted a decision titled "The World Together" at its second special session since it was founded in 1948.

- Under the decision, the health organisation established an intergovernmental negotiating body (INB) to draft and negotiate the contents of the pandemic treaty in compliance with Article 19 of the WHO Constitution.
- The INB's work is based on the principles of inclusiveness, transparency, efficiency, Member State leadership and consensus.
- The pandemic treaty is expected to cover aspects like data sharing and genome sequencing of emerging viruses and equitable distribution of vaccines and drugs and related research throughout the world.

Article 19 of the WHO Constitution

- Article 19 of the WHO Constitution gives the World Health Assembly the authority to adopt conventions or agreements on matters of health.
- A two-third majority is needed to adopt such conventions or agreements.
- The WHO Framework Convention on Tobacco Control was set up under Article 19 and it came into force in 2005.

New Zealand bans sale of tobacco to certain age group

Why in News

New Zealand Parliament has recently passed a legislation that will increase the legal age to buy tobacco products each year, with the aim of eventually stamping out smoking altogether.

Important Points

About the Law

- The Smokefree Environments and Regulated Products (Smoked Tobacco) Amendment Bill bans the sale of tobacco to anyone born after 2008.
- Those found violating the provision will be fined up to NZ$150,000 (Rs 79 lakh approximately).
- This bill significantly limits the number of retailers able to sell smoked tobacco products; aims to prevent young people from taking up smoking by prohibiting the sale of smoked tobacco products to anyone born on or after 1 January 2009; and aims to make smoked tobacco products less appealing and addictive.
- It also brings in other restrictions on tobacco products, such as limiting the amount of nicotine allowed in cigarettes and other consumables.
- The rate of smoking in New Zealand is already very low, but there are disparities within communities.

Countries with restrictions on Tobacco & Smoking

- Saudi Arabia banned smoking in government spaces and several public places, including supermarkets, coffee shops and restaurants and prohibits selling tobacco to those under the age of 18.
- In Canada, smoking is banned in almost all enclosed public and indoor workplaces across the country.
- In 2004, Bhutan became the first nation in the world to ban the sale of tobacco and to outlaw smoking in all public places. In June 2010, the country implemented one of the world's strictest anti-tobacco legislations by forbidding the sale or smuggling of tobacco into Bhutan.
- In 2012, Costa Rica passed one of the strictest smoking regulations in the world. Legislation prohibits lighting up in taxis, buses, trainer, public buildings, bars, casinos and workplaces.
- In 2009, Colombia extended its anti-smoking regulation to include indoor workplaces and public places.
- Uruguay became the first Latin American country to prohibit smoking in public places, including restaurants, bars and the workplace in March 2004.
- Malaysia has banned smoking in several public spaces, including hospitals, airports, public toilets, government premises, Internet cafes and government premises.
- On 12 July 1999, Kerala became the first state in India to ban smoking in public places when a Division Bench of the Kerala High Court declared that public smoking as illegal first time in the history of whole world, unconstitutional and violative of Article 21 of the Constitution.
- Smoking in public places is a punishable offense in India, and a fine of Rs. 200 may be imposed for violating the law.
- The Government of India has implemented strict rules against the advertisement of any tobacco product.

Law on acid attacks in India

Why in News

According to data compiled by the National Crime Records Bureau (NCRB), West Bengal and UP consistently record the highest number of such cases generally accounting for nearly 50% of all cases in the country year on year.

Important Points

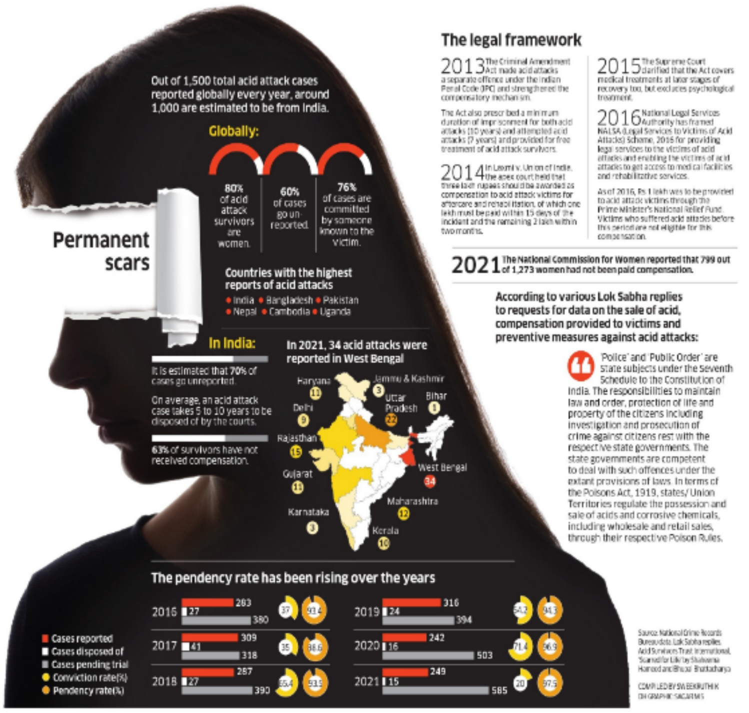
- Recent incident of acid attack has once again brought back to focus the heinous crime of acid attacks and the easy availability of corrosive substances in India.

How prevalent are acid attacks in India?

- Though heinous, acid attacks on women are not as prevalent a crime as others against women.
- According to data compiled by the National Crime Records Bureau (NCRB), there were 150 such cases recorded in 2019, 105 in 2020 and 102 in 2021.
- West Bengal and UP consistently record the highest number of such cases generally accounting for nearly 50% of all cases in the country year on year.
- The chargesheeting rate of acid attacks stood at 83% and the conviction rate at 54% in 2019. In 2020, the figures stood at 86% and 72% respectively.
- In 2021, the figures were recorded to be 89% and 20% respectively. In 2015, MHA issued an advisory to all states to ensure speedy justice in cases of acid attacks by expediting prosecution.

What is the law on acid attacks?

- Until 2013, acid attacks were not treated as separate crimes.
- However, following amendments carried out in the IPC, acid attacks were put under a separate section (326A) of the IPC and made punishable with a minimum imprisonment of 10 years which is extendable to life along with fine.
- The law also has provisions for punishment for denial of treatment to victims or police officers refusing to register an FIR or record any piece of evidence.
- Denial of treatment (by both public and private hospitals) can lead to imprisonment of up to one year and dereliction of duty by a police officer is punishable by imprisonment of up to two years.



What is the law on the regulation of acid sales?

- In 2013, the Supreme Court took cognizance of acid attacks and passed an order on the regulation of sales of corrosive substances.
- Based on the order, the MHA issued an advisory to all states on how to regulate acid sales and framed the Model Poisons Possession and Sale Rules, 2013 under The Poisons Act, 1919. It asked states to frame their own rules based on model rules, as the matter fell under the purview of states.
- According to the MHA's directions and the model rules, over-the-counter sale of acid was not allowed unless the seller maintains a logbook/register recording the sale of acid.
- This logbook was to also contain the details of the person to whom acid is sold, the quantity sold, the address of the person and also specify the reason for procuring acid.

- The sale is also to be made only when the buyer produces a photo ID containing his address issued by the government. The buyer must also prove he/she is above 18 years of age.
- Sellers are also required to declare all stocks of acid with the concerned Sub-Divisional Magistrate (SDM) within 15 days and in case of undeclared stock of acid.
- The SDM can confiscate the stock and suitably impose a fine of up to Rs 50,000 for a breach of any of the directions.
- The rules ask educational institutions, research laboratories, hospitals, government departments and the departments of Public Sector Undertakings, which are required to keep and store acid, to maintain a register of usage of acid and file the same with the concerned SDM.
- A person shall be made accountable for the possession and safe keeping of acid in their premises.
- The acid shall be stored under the supervision of this person and there shall be compulsory checking of the students/ personnel leaving the laboratories/place of storage where acid is used,the rules say.
- In 2021 MHA issued another advisory to all States/ UTs to review and ensure that the retail sale of acids and chemicals is strictly regulated in terms of the Poison Rules so that these are not used in crime.

Victim compensation and care

- Based on Supreme Court directions, the MHA asked states to make sure acid attack victims are paid compensation of at least Rs. 3 lakhs by the concerned State Government/Union Territory as the aftercare and rehabilitation cost.
- Out of this, a sum of Rs 1 lakh is to be paid to the victim within 15 days of the occurrence of such an incident to facilitate immediate medical attention and expenses in this regard.
- The balance sum of Rs. 2 lakhs is to be paid as expeditiously as may be possible and positively within two months thereafter.
- States are supposed to ensure that treatment provided to acid attack victims in any hospital, public or private, is free of cost. The cost incurred on treatment is not to be included in the Rs 1 lakh compensation given to the victim.
- Acid attack victims need to undergo a series of plastic surgeries and hence 1-2 beds at the Apex State Tertiary Hospital could be earmarked for the treatment of acid attack victims so that the victims need not run from pillar to post to get these operations performed expeditiously, the 2013 MHA advisory said.
- In addition, private hospitals which have availed the facility of concessional land for setting up the hospital could also be persuaded to earmark 1-2 beds for treatment of underprivileged victims of acid attacks which the State Government can identify for treatment, it added.
- Apart from this, MHA suggested states should also extend social integration programs to the victims for which NGOs could be funded to exclusively look after their rehabilitative requirements.

How do these help in prevention?

- According to sources in the police, the regulations on acid sales largely help in tracking the accused and not so much in prevention.
- The implementation of the regulations is not very strict.
- Acid is still easily available in many places.
- Then these are crimes of passion.
- In a majority of cases the accused is not even thinking about consequences.
- The key to solving this problem will always remain in society.
- We must create more awareness.
- Parents must teach their children the importance of boundaries and consent

Golden jubilee of North-Eastern Council (NEC)

Why in News

The Golden Jubilee of the NEC was observed on the 18th December 2022.

Important Points

- During the 70th Plenary meeting at Guwahati in October 2022, which was held under the chairmanship of the Union Home Minister and Chairman NEC, it was decided that this important milestone of the NEC would be celebrated in a befitting manner.

- The "GOLDEN FOOTPRINTS", a commemorative volume chronicling NEC's contribution towards the development of the North Eastern Region over the last fifty years released during the Golden Jubilee event.
- The contents of this book have been gleaned from the Archives of the Council and from the official records of the eight member states of the Council besides capturing in colour the iconic infrastructure and development works supported by the NEC in the recent past.
- The Jubilee Celebration is expected to provide a new platform for the NEC to deliver even better in the days to come and to spearhead more development initiatives as has done effectively in the last five decades across the eight North Eastern states.

North Eastern Council (NEC)

- Established by an Act of the Parliament in 1971 , NEC was formally inaugurated on 7th November, 1972 at Shillong, Meghalaya, marking the beginning of a new chapter of concerted and planned endeavor on the part of the Government of India for the North Eastern Region.
- Originally consisting of the seven states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura, Sikkim was included as the eighth member state through the NEC (Amendment) Act, 2002.
- North Eastern Council (NEC) is under the administrative purview of the Ministry of Development of the North-Eastern Region (MDoNER).

Some of the most iconic Institutions of the North Eastern Region such as-

- o The Regional Institute of Medical Sciences (RIMS), Imphal;
- o North East Police Academy (NEPA), Shillong;
- o North East Region Institute of Water and Land Management (NERIWALM), Tezpur;
- o North Eastern Space Application Centre (NESAC), Shillong;
- o Dr. Bhubaneswar Borooah Cancer Institute (BBCI) Guwahati etc. have been set up with NEC support.

- The policy deliberations at the NEC are conducted at the Plenary meetings of the Council.
- Since 1972, the NEC Plenary has been held in various North Eastern States and the national capital on seventy occasions.

Abetment of suicide

Why in News

After TV star Tunisha Sharma allegedly kiled herself on the set of a TV show recently, her co-actor, Sheezan Khan, has been booked for abetment to suicide.

Important Points

Abetment to suicide

- Abetment is defined as including instigating, engaging in a conspiracy or assisting in committing the offence.
- However, abetment is not same as murder. The Supreme Court clarified this issue in 1997 in the case of 'Sangarabonia Sreenu v State of Andhra Pradesh'.
- Despite the intention of the accused to drive a person to commit suicide, abetment of suicide is not the same as murder.
- In the case of a murder, the final 'act' of causing the death of a person is committed by the accused, which is not the case in abetment of suicide.
- The Indian Penal Code, 1860 makes abetment of suicide a punishable offence. Section 306 of the Indian Penal Code (IPC) prescribes either a jail term of up to 10 years or a fine or both.
- As per section 306 of IPC, if any person commits suicide, whoever abets the commission of such suicide shall be punished with imprisonment of either imprisonment for a term which may extend to ten years, and shall also be liable to fine.
- The IPC also has a separate chapter on abetment and describes who is an abettor under Section 108.
- Abetment of suicide is a serious offence that is tried in a Sessions court and is cognizable, non-bailable and non-compoundable.

- A cognizable offence is one in which a police officer can make an arrest without a warrant from a court. A non-bailable offence means bail is granted to the accused at the discretion of the court and not as a matter of right.
- A non-compoundable offence is one in which the case cannot be withdrawn by the complainant even when the complainant and the accused have reached a compromise.

How does a court determine abetment?

- There are two primary ingredients of the crime of abetment of suicide. First is a suicidal death. The second ingredient is the intention of the accused to abet such suicide.
- Legally, whether a death is a suicide or not is a determination of a fact, which means evidence has to be evaluated to pronounce that death is a suicide.
- A determination of suicide is made when the deceased person is understood to have known the probable consequence of their act of self-harm before proceeding to do it intentionally.
- Once such a determination is made, then the intention of the person accused of abetment of suicide is looked into.
- The only exception to this is the abetment of the suicide of a woman married for seven years or less.
- Through an amendment in 1983 in the Code of Criminal Procedure, the law was changed to presume that the husband is guilty if his wife commits suicide within seven years of the marriage.
- The amendment was made to curb rising dowry deaths that were categorised as suicides.

QR Codes for LPG Cylinders

Why in News

Recently, a pilot project for QR code tagging of cylinders has been undertaken by Indian Oil Corporation Ltd. (IOCL).

Important Points

- Petroleum and Explosives Safety Organisation (PESO) has accorded approval for a period of 3 months for filling of QR coded LPG cylinders at Madanpur Khadar Bottling plant and dispatch to only two distributors of Delhi Market.
- The move is aimed at helping track the gas quantity in cylinders using this QR code. Furthermore, it will be relatively simple to locate stolen gas from a gas cylinder.
- This project is scheduled to be completed in three months.
- It should be noted that the QR code will be placed in the new gas cylinder.
- The gas cylinder will also have a metal sticker with the QR code.

Benefits

- Without the QR code, it was difficult to trace gas complaints when people complained about obtaining less gas.
- Before, neither the location of the gas cylinder's removal by the dealer nor the identity of the delivery person who placed it at the customer's house was known.
- However, everything will be much easier to trace if the QR code is installed. This will make the people feel at ease because the thief will be quickly apprehended. He won't be able to steal gas because of this.
- The benefits of using QR codes go far beyond preventing theft.
- Customers will know how frequently the gas has been refilled, How long did it take the gas to go from the refilling

station to your home? Additionally, since it will be known from this QR code which dealer delivered the gas cylinder, no one will be able to use the domestic gas cylinder for commercial purposes going forward

About Petroleum and Explosives Safety Organisation

- The PESO, formerly known as Department of Explosives, since its inception in 1898, has been serving the nation as a nodal agency for regulating safety of hazardous substances such as explosives, compressed gas and petroleum.
- Apart from the normal functions of enforcement of statutory safety regulations to safeguard public safety, life, property and environment, the organization has rendered meritorious voluntary services in examination and disposal of explosives, improvised explosives devices till late eighties of the last century, some of which were of national importance encountered during freedom struggle of the country, terrorist activities in different regions in the country.
- PESO's major work is to administer the responsibilities delegated under the Explosives Act 1884 and Petroleum Act 1934 and the Rules made thereunder related to manufacture, import, export, transport, possession, sale and use of Explosives, Petroleum products and Compressed gases.

Republic Day Chief Guest-2023

Why in News

Egypt's President Abdel Fattah al-Sisi will be the chief guest at the Republic Day celebrations in January 2023.

Important Points

- India has invited Egyptian President Abdel Fattah Al Sisi as the chief guest on Republic Day 2023. This would be the first time that an Egyptian president would be the chief guest at the Republic Day celebrations.
- Egypt is also one of the nine guest countries to the G20 summit under India's presidency in 2023.
- India has officially assume the G20 presidency from the current chair Indonesia on December 1.
- India and Egypt enjoy warm and friendly relations based on civilizational and deep-rooted people-to-people ties.
- Both countries are celebrating the 75th anniversary of establishment of diplomatic relations this year.
- Egypt has been invited as a 'Guest Country' during India's G20 Presidency in 2022-23.
- Last month, External Affairs Minister S Jaishankar is learnt to have extended the formal invitation to el-Sisi during an official visit to Cairo.
- It is pertinent to mention that India has not invited any foreign dignitary as the chief guest for the Republic Day celebrations in 2021 and 2022 due to the Covid-19 pandemic.
- Before Covid-19 pandemic, former Brazilian president Jair Bolsonaro was the chief guest to participate in the 2020 Republic Day celebrations on January 26.
- The invitation of chief guest came after Jaishankar's recent visit to Egypt during which he highlighted that many well-reputed Indian companies are coming to invest in the Arab nation.
- Egyptian President Abdel Fattah El-Sisi had also urged India to increase the turnover of trade and also said that the current revenue was not enough.
- The most central consideration is the nature of the relationship between India and the country concerned. Invitation to be the Chief Guest of the Republic Day parade is the ultimate sign of friendship between India and the country of the invitee.
- Political, commercial, military and economic interests of India are crucial drivers of the decision, with MEA seeking to use the occasion to strengthen ties with the country of the invitee in all these respects.
- Another factor that has historically played a role in the choice of the Chief Guest is the association with the Non-Aligned Movement (NAM) which began in the late 1950s, early 1960s.
- The first Chief Guest of the parade in 1950 was President Sukarno of Indonesia, one of the five founding members of the NAM alongside Nasser (Egypt), Nkrumah (Ghana), Tito (Yugoslavia) and Nehru (India).
- Al-Sisi's invitation invokes the history of the NAM and the close relationship India and Egypt have shared for 75 years.

What happens after the MEA has zeroed in on its options?

- After due consideration, the MEA seeks approval of the Prime Minister and the President on the matter. If the MEA receives clearance to proceed, it then gets to work. Indian ambassadors in the concerned country try to discreetly ascertain the availability of the potential Chief Guest.
- This is also a reason why the MEA does not just choose one option but a list of potential candidates. Discretion is of utmost importance as no formal invitation has yet been made by India.
- After this process is completed and a candidate is finalised, more official communication between India and the country of the invitee follows. Territorial divisions in the MEA work towards meaningful talks and agreements.

- The Chief of Protocol works on the details of the programme and logistics. A detailed programme for the trip and the Republic Day ceremonies is shared by the Protocol Chief to his counterpart from the visiting nation. This programme has to be followed with military precision.
- The planning of the visit involves the Government of India, state governments which the foreign dignitary might visit, and the government of the concerned country.
- The Chief Guest of the Republic day is a ceremonial honour presented to the head of state oc a country but its significance rises beyond purely the ceremonial. Such a visit can open new possibilities and go a long way in furthering India's interests in the world.

Significance of being the Chief Guest at India's Republic Day

- While similar to any other state visit by a foreign high dignitary, given the grandiosity and importance of the ceremony involved for India, it is the highest honour that the country accords to a guest in terms of protocol.
- The Chief Guest is front and centre in many ceremonial activities which have over time become a part of the fabric of the event and the run-up to it.
- They are given the ceremonial guard of honour at Rashtrapati Bhavan followed by a reception hosted by the President of India in the evening.
- They also lay a wreath at Rajghat, to honour Mahatma Gandhi. There is a banquet in their honour, a lunch hosted by the Prime Minister, and calls by the Vice-President and the External Affairs Minister.

Who is al-Sisi?

- The Chief Guest for the 2023 Republic Day parade, Abdeh Fatah al-Sisi was Egypt's military chief and defence minister before he took over control from democratically elected Md Morsi after a coup in 2013.
- He went on to win a subsequent election in 2014 on an economic development plank.
- His presidency has thus far received mixed responses with critics pointing at Egypt's current economic distress and violent stifling of opposition voices as causes for concern.
- When he arrives in January next year, al-Sisi will be the first Egyptian leader to grace the occasion.

G-20 and India's Presidency

Why in News

India holds the Presidency of the G20 from December 1, 2022 to November 30, 2023.

Important Points

- December 1, 2022 is a red-letter day as India assumed the G20 Presidency from Indonesia and will convene the G20 Leaders' Summit for the first time in the country in 2023.
- A nation deeply committed to democracy and multilateralism, India's G20 Presidency would be a watershed moment in her history as it seeks to play an important role by finding pragmatic global solutions for the well-being of all, and in doing so, manifest the true spirit of 'Vasudhaiva Kutumbakam' or the 'World is One Family'.

So, what is the G20?

- The Group of Twenty (G20) is an intergovernmental forum comprising 19 countries - Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Turkey, United Kingdom and United States and the European Union.
- The G20 members represent around 85% of the global GDP, over 75% of the global trade, and about two-thirds of the world population.
- The G20 was founded in 1999 after the Asian financial crisis as a forum for the Finance Ministers and Central Bank Governors to discuss global economic and financial issues.
- It was upgraded to the level of Heads of State/Government in the wake of the global economic and financial crisis of 2007, and, in 2009, was designated the "premier forum for international economic cooperation".

What is the G20 Summit?

- The G20 Summit is held annually, under the leadership of a rotating Presidency.

How does the G20 work?

- The G20 Presidency steers the G20 agenda for one year and hosts the Summit.
- The G20 consists of two parallel tracks: the Finance Track and the Sherpa Track. Finance Ministers and Central Bank Governors lead the Finance Track, while Sherpas lead the Sherpa Track.
- The Finance Track is led by Finance Ministers and Central Bank Governors of the member countries.
- Within the two tracks, there are thematically oriented working groups in which representatives from the relevant ministries of the members as well as from invited/guest countries and various international organisations participate.
- The G20 process from the Sherpa Track is coordinated by the Sherpas of member countries, who are personal emissaries of the Leaders.
- The Sherpa Track oversees inputs from 13 Working Groups, 2 Initiatives – Research Innovation Initiative Gathering (RIIG) and G20 Empower, and various Engagement Groups, all of whom meet throughout the year and develop their Issue Notes and Outcome Documents in parallel.
- These substantive discussions then feed consensus-based recommendations to the Sherpa Meetings.
- The outcome document of the Sherpa-level meetings eventually forms the basis of the Leaders' Declaration, which will be debated and signed (after and if consensus is reached) at the final New Delhi Summit in September next year by the Leaders of all G20 member countries.
- In addition, there are Engagement Groups which bring together civil societies, parliamentarians, think tanks, women, youth, labour, businesses and researchers of the G20 countries.
- The Startup20 Engagement Group will be established under India's G20 Presidency for the first time, recognising the role of startups in driving innovation that responds to a rapidly changing global scenario.
- Active consultation with the Engagement Groups forms an integral part of India's "inclusive ambitious, decisive, and action-oriented", G20 approach, as outlined by Prime Minister Narendra Modi in the Bali Summit this year.

India's G -20 Presidency

- India holds the Presidency of the G20 from December 1, 2022 to November 30, 2023. The 43 Heads of Delegations- the largest ever in G20-will be participating in the final New Delhi Summit in September next year.
- The G20 Logo draws inspiration from the vibrant colours of India's national flag – saffron, white and green, and blue.
- It juxtaposes planet Earth with the lotus, India's national flower that reflects growth amid challenges.
- The Earth reflects India's pro-planet approach to life, one in perfect harmony with nature. Below the G20 logo is "Bharat", written in the Devanagari script.
- The theme of India's G20 Presidency - "Vasudhaiva Kutumbakam" or "One Earth · One Family · One Future" - is drawn from the ancient Sanskrit text of the Maha Upanishad.
- Essentially, the theme affirms the value of all life – human, animal, plant, and microorganisms – and their inter-connectedness on the planet Earth and in the wider universe.
- The theme also spotlights LiFE (Lifestyle for Environment), with its associated, environmentally sustainable and responsible choices, both at the level of individual lifestyles as well as national development, leading to globally transformative actions resulting in a cleaner, greener and bluer future.
- For India, the G20 Presidency also marks the beginning of "Amritkaal", the 25-year period beginning from the 75th anniversary of its independence on 15 August 2022, leading up to the centenary of its independence, towards a futuristic, prosperous, inclusive and developed society, distinguished by a human-centric approach at its core.
- A new working group on Disaster Risk Reduction will be established under India's Presidency to encourage collective work by the G20, undertake multi-disciplinary research and exchange best practices on disaster risk reduction.
- India's special invitee guest countries are Bangladesh, Egypt, Mauritius, Netherlands, Nigeria, Oman, Singapore, Spain and UAE.

- G-20's invited international organisations are UN, IMF, World Bank, WHO, WTO, ILO, FSB, OECD, AU Chair, NEPAD Chair, ASEAN Chair, ADB, ISA and CDRI.
- G20 meetings will not be limited only to New Delhi or other metropolises.
- Drawing inspiration from its G20 Presidency theme of "Vasudhaiva Kutumbakam'-"One Earth One Family One Future, as well as the Prime Minister's vision of an 'all of government" approach, India will host over 200 meetings in over 50 cities across 32 different workstreams, and would have the opportunity to offer G20 delegates and guests a glimpse of India's rich cultural heritage and provide them with a unique Indian experience.
- The Presidency is also a chance for the G20 Secretariat to provide the country's citizens with the unique opportunity be a part of India's G20 story.
- The Indian G20 presidency has also planned a year-long India Experience' for G20 member countries, special invitees, and others.

What are India's G20 Priorities?

Green Development, Climate Finance & LiFE

- The opportunity to lead G20 comes at a time of compounding existential threat, with the COVID-19 pandemic having exposed the fragilities of our systems under the cascading impacts of climate change.
- In this regard, climate change is a key priority for India's presidential Presidency, with a particular focus towards not only climate finance and technology, but also ensuring just energy transitions for developing nations across the world.
- Understanding that the issue of climate change cuts across industry, society, and sectors, India offers the world LiFE (Lifestyle for Environment) -a behaviour-based movement that draws from our nation's rich, ancient sustainable traditions to nudge consumers, and in-turn markets, to adopt environmentally-conscious practices.
- This ties closely with India's G20 theme: 'Vasudhaiva Kutumbakam' or 'One Earth. One Family. One Future.

Accelerated, Inclusive & Resilient Growth

- An accelerated, resilient and inclusive growth is a cornerstone for sustainable development. During its G20 Presidency, India aims to focus on areas that have the potential to bring structural transformation.
- This includes an ambition to accelerate integration of MSMEs in global trade, bring in the spirit of trade for growth, promote labour rights and secure labour welfare, address global skills gap, and build inclusive agricultural value chains and food systems etc.

Accelerating progress on SDGs

- India's G20 Presidency collides with the crucial midpoint of the 2030 Agenda.
- As such, India acknowledges the detrimental impact of COVID-19, which changed the current decade of action into a decade of recovery. In line with this perspective, India wants to focus on recommitting G20's efforts to achieving the targets laid out in the 2030 Agenda for Sustainable Development

Technological Transformation & Digital Public Infrastructure

- As G20 Presidency, India can foreground its belief in a human-centric approach to technology, and facilitate greater knowledge-sharing in priority areas like digital public infrastructure, financial inclusion, and tech-enabled development in sectors ranging from agriculture to education.

Multilateral Institutions for the 21st century

- India's G20 priority will be to continue pressing for reformed multilateralism that creates more accountable, inclusive just, equitable and representative multipolar international system that is fit for addressing the challenges in the 21st century.

Women-led development

- India hopes to use the G20 forum to highlight inclusive growth and development, with women empowerment and representation being at the core of India's G20 deliberations.
- This includes a focus on bringing women to the fore, and in leading positions, in order to boost socio-economic development and achievement of SDGs.
- India kick-started its presidency term agenda with a series of cultural initiatives that included various Jan Bhagidari activities, a special University Connect event with 75 educational institutions from across the country, the lighting up of 100 ASI monuments with the G20 logo and colours, and showcasing G20 at the Hombill festival in Nagaland.

- Sand artist Shri Sudarshan Pattnaik also created sand art of India's G20 logo on Puri beach in Odisha.
- Various other events, youth activities, cultural performances, and site excursions showcasing the sights and traditions of respective city-venues, are also planned throughout the year-long calendar.

UNSC

Why in News

India has assumed the presidency of UNSC along with G20 recently.

Important Points

- December of 2022 began with India assuming the presidency of two global bodies — G20 on the first day of the month and UNSC on the second.
- New Delhi has said that while its G20 presidency is driven by the vision of "Vasudhaiva Kutumbakam" (the world is one family), its presidency of the United Nations Security Council seeks to prioritise countering terrorism and reformed multilateralism.
- Both these positions are rotating, that is, they come to all members of the bodies by turn.

What are the roles and powers of the UNSC and its President nation?

- Some of the significant roles of the UNSC broadly include maintaining "international peace in accordance with the principles and purposes of the United Nations,"and "to determine the existence of a threat to the peace or act of aggression and to recommend what action should be taken."
- The Council President, according to the UNSC handbook, exercises a vast range of powers such as holding meetings of the Security Council, approving provisional agendas, signing records of the meetings, besides other crucial decisions.
- On the first working day of the presidency, the Council president holds an informal meeting to discuss the draft programme," which is "attended by the permanent representatives of all Council members.
- The programme of work (PoW) — which in simpler terms, is a calendar of priorities which the President nation would work towards during its tenure — is adopted soon after the breakfast.

How is the UNSC President nation elected?

- The official website of the UNSC highlights that each of its 15 member states assume its presidency for a duration of one month, following the English alphabetical order.
- India had also been in the presidential position in August 2021.

What are India's priorities as the Council President?

- India's PoW includes briefings, consultations and reports on global developments in Syria, Libya, Middle East, Colombia, South Sudan, and Congo among others.
- An open debate on the "maintenance of international peace and security" through "new orientation for reformed multilateralism" and a briefing on "threats to international peace and security caused by terrorist acts" which would involve discussions on principles and way forward through a "global counter-terrorism approach" remain key to the Council.
- The country's Permanent Representative to the United Nations Ruchira Kamboj will preside over the Council.

The United Nations Security Council (UNSC)

- It is one of the six principal organs of the United Nations, charged with ensuring international peace and security and approving any changes to the UN Charter.
- Its powers include establishing peacekeeping operations, enacting international sanctions, and authorizing military action.
- All members of the United Nations agree to accept and carry out the decisions of the Council.
- The UNSC is the only UN body with the authority to issue binding resolutions on member states.
- It held its first session on 17 January 1946 at Church House, Westminster, London.

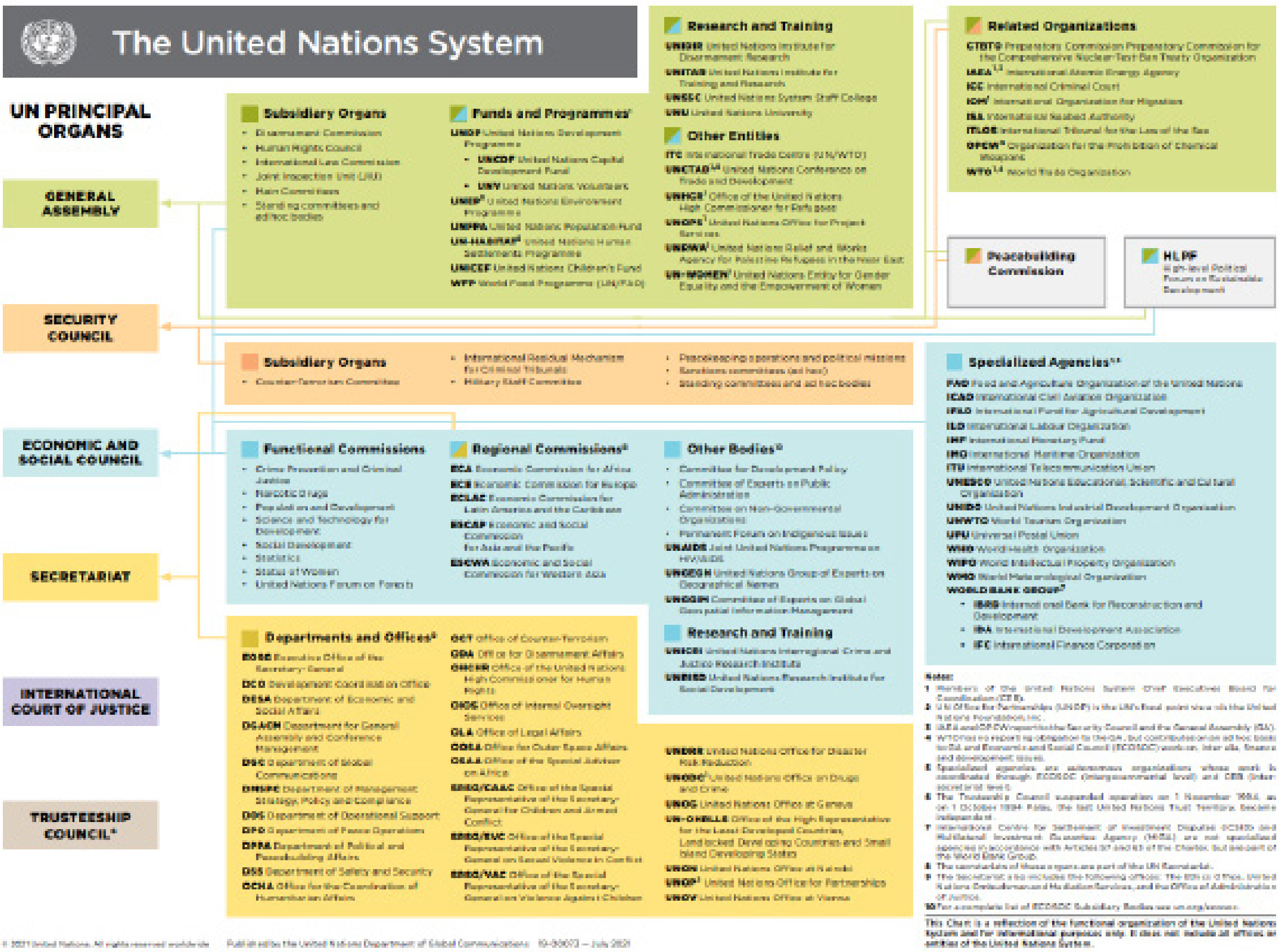
- It has permanent residence at the UN Headquarters in New York City.
- The Security Council consists of fifteen members, of which five are permanent: China, France, Russia, the United Kingdom, and the United States of America.
- The remaining ten non-permanent members are elected on a regional basis to serve a term of two years.
- The body's presidency rotates monthly among its members.

How are the non-permanent members elected?

- Each year the General Assembly elects five non-permanent members (out of 10 in total) for a two-year term.
- In accordance with the General Assembly resolution 1991 (XVIII) of 17 December 1963, the 10 non-permanent seats are distributed on a regional basis as follows: five for African and Asian States; one for Eastern European States; two for the Latin American and Caribbean States; and two for Western European and other States.

India has served in the UNSC as a Non-permanent member seven times previously

- In 1950-51: India, as President of UNSC, presided over the adoption of resolutions calling for cessation of hostilities during the Korean War and for assistance to the Republic of Korea.
- In 1967-68: India co-sponsored Resolution 238 extending the mandate of the UN mission in Cyprus.
- In 1972-73: India pushed strongly for admission of Bangladesh into the UN. The resolution was not adopted because of a veto by a permanent member.
- In 1977-78: India was a strong voice for Africa in the UNSC and spoke against apartheid. Then External Affairs Minister Atal Bihari Vajpayee spoke in UNSC for Namibia's independence in 1978.
- In 1984-85: India was a leading voice in UNSC for resolution of conflicts in the Middle East, especially Palestine and Lebanon.
- In 1991-92: PM P V Narasimha Rao participated in the first ever summit-level meeting of the UNSC and spoke on its role in maintenance of peace and security.
- In 2011-2012: India was a strong vice for developing world, peacekeeping, counter-terrorism and Africa.



Iran's Morality Police

Why in News

Iran's public prosecutor said that the country's morality police, which is tasked with enforcing the country's Islamic dress code, would be disbanded.

Important Points

- There is uncertainty over the status of Iran's morality police, which enforces its dress code, after a senior official suggested that it had been disbanded.
- Iran has seen months of protests over the death of a young woman in custody. Mahsa Amini had been detained by the morality police for allegedly breaking strict rules on head coverings.

What is Iran's Morality police/ Gasht-e Ershad?

- The Gasht-e Ershad are part of the police force and supervised by Supreme Leader Ayatollah Ali Khamenei, but the elected government has a say in their activities through the Interior Ministry.
- Both men and women officials are part of the morality police.
- Mahsa Amini was allegedly beaten by the morality police who had detained her for "incorrectly" wearing the mandatory hijab.
- Over the past weeks, the protests have expanded from anger over the hijab regulation to a wider dissatisfaction with state representatives seen to be reinforcing these laws.
- Iran has a long history of policing the hijab. During the reign of Reza Shah Pahlavi in 1936, the hijab was actually banned in an effort to "modernise" the country.
- The police would then remove the hijab from the heads of women seen wearing it in public.
- While wearing the hijab was made mandatory, a force was constituted to enforce the rules on morality and the public appearance of women only in the 1990s, after the war broke out with Saddam Hussein's Iraq, and the regime felt the need to centralise its power and underline an Iranian national identity.
- Over the years, the strictness with which the morality rules have been enforced has varied in accordance with the nature of the regime in the country's dual theocratic-democratic political system.
- Not only the enforcement of hijab, but the implementation of other rules on public appearance and conduct are also the responsibility of the police.
- In 2010, for instance, Iran's Ministry of Culture and Islamic Guidance issued a template for suitable haircuts for men in order to halt Western influence on culture, and the morality police were tasked with enforcement at salons.
- What a possible disbandment of the force would mean was not immediately clear.

International Lusophone Festival

Why in News

International Lusophone Festival to be held in Goa

Important Points

- Ministry of External Affairs (MEA) in partnership with Indian Council of Cultural Relations (ICCR) and the Goa government will organize the International Lusophone Festival in Goa.
- The festival seeks to further India's connect with the Lusophone world.
- Goa has had historical linkages with the Lusophone world, which has been nurtured through the presence of Portuguese cultural institutions like the Orient Foundation and the Camoes Institute which promote Portuguese language and culture in India.
- This has deepened our economic, cultural co-operation and people-to-people ties with the CPLP member countries.
- The International Lusophone Festival will be inaugurated by the Chief Minister of Goa, Pramod Sawant at Durbar Hall in Raj Bhavan. Minister of State for External Affairs, Meenakshi Lekhi will be the Guest of Honour.

- The festival will include performances by visiting cultural troupes from the CPLP countries (approximately 70 artists) at several venues in Goa namely ESG complex, Azad Maidan, Sanskruti bhavan, Institute Menezes Braganza among others. As part of the festival, workshops on Lusophone music for artists and volunteers, various workshops cum exhibition of photocopies of historical records, unique Goan architecture, Goan handicrafts and Goan furniture are being organised.
- In addition, the Lusophone Food and Spirits Festival will also showcase the culinary links between India and the Lusophone world.
- Round Table discussions themed on "India's Outreach to the Global South – Exploring Convergence with CPLP" and "India-Lusophone Historical and Cultural Linkages: Retrospect and Prospects" will explore not only India's existing and historical Lusophone connect, but also deliberate on the way forward for future engagement.

Community of Portuguese Language Countries (CPLP)

- The Community of Portuguese Language Countries (Comunidade dos Países de Língua Portuguesa) also known as the Lusophone Commonwealth (Comunidade Lusofona), is a multilateral forum, founded on 17 July 1996 at the 1st CPLP Heads of State & Government Summit in Lisbon.
- The founding members were Angola, Brazil, Cabo Verde, Guinea Bissau, Mozambique, Portugal and Sao Tome and Principe; while Timor Leste and Equatorial Guinea joined later.
- These 9 Lusophone countries comprise approximately 300 million people in 4 different continents (Africa, Latin America, Asia and Europe).
- India joined CPLP as an associate observer in July 2021.
- As part of India's engagement with CPLP, the Ministry of External Affairs celebrated the World Portuguese Language Day in Delhi on 05 May 2022, soon after joining CPLP.
- India's trade with the Lusophone world has grown six-fold in the last decade.

Group of Friends

Why in News

India has launched a 'Group of Friends' to promote accountability for crimes against peacekeepers

Important Points

- India has launched a 'Group of Friends' to promote accountability for crimes against peacekeepers, with External Affairs Minister of India announcing that New Delhi will soon have a database that will record all crimes against the Blue Helmets.

About the group

- India, Bangladesh, Egypt, France, Morocco and Nepal are co-chairs of the 'Group of Friends to Promote Accountability for Crimes Against Peacekeepers' launched during India's current presidency of the UN Security Council.
- UN Peacekeeping today has become more challenging than ever before.
- Peace operations are also being conducted in an ambiguous and complex environment.
- Today's peacekeeper is not mandated to keep the peace but to take on robust mandates in extremely hostile conflict zones. The involvement of armed groups, terrorists and transnational organised crime has adversely impacted their operations.

- The Group of Friends represents the "political will" of member states, particularly of the troop and police contributing countries, to champion the implementation of the provisions of UN Security Council resolution 2589, which was adopted in August 2021 under India's Presidency of the Council.
- Resolution 2589 had called upon member states, hosting or having hosted United Nations peacekeeping operations, to take all appropriate measures to bring to justice perpetrators of the killing of, and all acts of violence against United Nations personnel, including, but not limited to, their detention and abduction.
- The resolution had also called on member states to take all necessary measures to investigate such acts and arrest and prosecute perpetrators of such acts in line with their national law, consistent with applicable international obligations, including under international humanitarian law.
- UNSC resolution was co-sponsored by more than 80 member states and unanimously adopted by the Council.
- It is, therefore, very befitting that this 'Group of Friends' being launched tunder India's ongoing Presidency of the UNSC, will seek to promote accountability in practical terms both within and outside the UNSC.
- Technology can be a force multiplier in achieving these goals.
- Comprehensive databases and analytical tools for recording and assessing crimes against peacekeepers will be key to addressing impunity.
- India has facilitated the launch of a database that will record all crimes against UN peacekeepers. I am glad to note that it will soon be ready for launch as well.
- It is also a fact that in some cases, the host States do not have the political will or the necessary capabilities to ensure such accountability when crimes are committed against Peacekeepers.
- Data shows that in the last three years alone, 68 peacekeepers belonging to 20 countries have lost lives for the cause of peace.
- India, among the largest troop-contributing countries to UN peacekeeping, has lost 177 of its peacekeepers in the line of duty, the largest by far from any troop-contributing country.
- Disinformation campaigns about peacekeeping missions and their mandates have also led to an increase of risks for peacekeepers.
- Peacekeeping is one of the key tools available with the Security Council to maintain international peace and security, to practically stabilise conflict zones and move towards peace building.
- Peacekeepers from across the world contribute to this endeavour.
- They venture forth into hostile conflict zones to protect those who are unable to protect themselves. As those member states, who send them in that cause, it is our solemn duty to 'Protect the Protectors.
- A concept note on the Group of Friends said that it will seek to facilitate the promotion of accountability for all acts of violence against United Nations peacekeepers; seek facilitation of capacity building and technical assistance to the host state authorities.
- The Group of Friends will convene two meetings of its members per year, organise and host one event per year involving Permanent Missions and other stakeholders, designed to inform and galvanise support for promoting accountability for crimes against peacekeepers; and organize and hold other meetings, briefings, and events as needed, based on the annual work plan and developments relevant to safety and security of peacekeepers.
- The Group will convene and be moderated by representatives of the Permanent Missions of Bangladesh, Egypt, France India, Morocco and Nepal as co-chairs and include all interested Member States and United Nations partners.

The Manthan platform

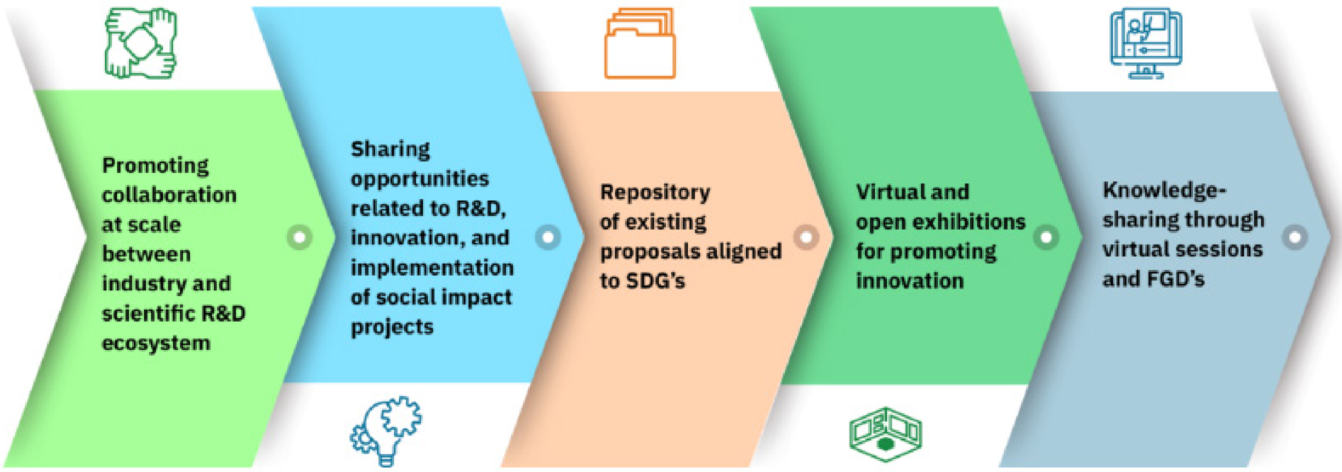
Why in News

The Manthan platform won NSEIT the Best Tech Initiative of the Year at the Dun & Bradstreet Business Excellence Awards 2022.

Important Points

Dun & Bradstreet Business Excellence Awards 2022:

- Dun & Bradstreet is a global provider of B2B data, insights, and AI-driven platforms for organizations around the world.
- Since 1841, companies of every size have relied on Dun & Bradstreet to help them manage risk and reveal opportunity.
- The Dun & Bradstreet SME and Mid-Corporate 'Business Excellence Awards 2022' is an endeavor to acknowledge and recognize the achievements and performance of SMEs and Mid-Corporates.
- The award covers 23 categories largely based on business performance parameters.
- The award was presented for building the technology infrastructure to support Manthan.



The Manthan platform

- It is a platform that promotes collaboration at scale between industry and the scientific research and development ecosystem.
- The development of the platform was conceptualized and implemented by the Office of the Principal Scientific Adviser (PSA) to the Government of India.
- Launched on India's 76th Independence Day, Manthan empowers multiple stakeholders to collaborate for co-creating solutions aligned with the United Nations' Sustainable Development Goals (SDGs) and our national scientific missions.
- Through this platform – Manthan – India aims to present an opportunity to bring national and global communities closer to the nation's technology revolution.
- The forum will facilitate knowledge transfers and interactions through Information Exchange Sessions, Exhibitions, and Events to develop a framework for future science, innovation, and technology-led growth.
- In addition, the platform aims to empower the scale-up of the interactions among stakeholders, facilitating research and innovation, and sharing challenges in various emerging technologies and scientific interventions, including those that make a Social Impact.
- NSEIT Limited is a global technology enterprise focused on delivering excellence in a complex digital environment,

primarily in the banking, insurance, and capital market ecosystem, and a 100% subsidiary of the National Stock Exchange of India.

- Their key service pillars are Application Modernization, Business Transformation, Data Analytics, Infrastructure & Cloud Services, Cybersecurity, EdTech, and online examinations solutions.

State of Global Water Resources 2021

Why in News

WMO has published its first State of Global Water Resources report in order to assess the effects of climate, environmental and societal change on the Earth's water resources.

Important Points

- The first annual State of Global Water Resources Report was launched at a hybrid event at WMO headquarters in Geneva.
- WMO has published its first State of Global Water Resources report in order to assess the effects of climate, environmental and societal change on the Earth's water resources.
- The aim of this annual stocktake is to support the monitoring and management of global freshwater resources in an era of growing demand and limited supplies.

The report focusses on three major areas:

- Streamflow, the volume of water flowing through a river channel at any given time.
- Terrestrial water storage (TWS) — all water on the land surface and in the sub-surface.
- The cryosphere (frozen water).
- Report shows how large areas of the globe recorded drier than normal conditions in 2021 - a year in which precipitation patterns were influenced by climate change and a La Niña event.
- The area with below-average streamflow was approximately two times larger than the above-average area, in comparison to the 30-year hydrological average.
- Currently, 3.6 billion people face inadequate access to water at least a month per year and this is expected to increase to more than 5 billion by 2050.
- Between 2001 and 2018, UN-Water reported that 74% of all natural disasters were water-related.
- The recent UN climate change conference, COP27, urged governments to further integrate water into adaptation efforts, the first-time water has been referenced in a COP outcome document in recognition of its critical importance.
- The first edition of the report looks at streamflow – the volume of water flowing through a river channel at any given time.
- It also assesses terrestrial water storage – all water on the land surface and sub-surface and the cryosphere (frozen water).
- It highlights the lack of accessible verified hydrological data.
- WMO's Unified Data Policy seeks to accelerate the availability and sharing of hydrological data, including river discharge and transboundary river basins information.
- The information and accompanying maps are largely based on modelled data (to achieve maximum geographical coverage) and remotely sensed information from NASA's GRACE (Gravity Recovery and Climate Experiment) mission for terrestrial water storage.
- WMO's Unified Data Policy seeks to accelerate the availability and sharing of hydrological data, including river discharge and transboundary river basins information.

What does the report say about the Indian subcontinent and Asia?

- According to the World Meteorological Organization (WMO), there is more evidence of the worsening impact of global warming on the Indo-Gangetic Plain (IGP) that straddles eastern Pakistan, northern India, southern Nepal and the whole of Bangladesh.
- The Ganga-Brahmaputra and Indus basins that form the Plain, recorded more water flowing in the river channels due to glacial melt even as their total water storage declined in 2021.
- Southern and northern China (the Amur river basin) were characterized by above-average discharge, similar to some basins in northern India.

- In India, headwaters of the Ganges River were characterized by above- to much above-normal discharge.
- Major Indian river basins (the Brahmaputra, Ganges and Indus), as well as other important river basins in Asia (Huang He, also known as Yellow, and Mekong), exhibit a gradual decline in TWS over the period 2002-2021.

Climate Investment Opportunities in India's Cooling Sector report

Why in News

World Bank has released a Climate Investment Opportunities in India's Cooling Sector report recently.

Important Points

- A new World Bank report finds that as temperatures steadily rise in India due to climate change, keeping spaces cool using alternative and innovative energy efficient technologies can open an investment opportunity of $1.6 trillion by 2040.
- This also has the potential to reduce greenhouse gas emissions significantly and create nearly 3.7 million jobs.
- India is experiencing higher temperatures every year. By 2030, over 160-200 million people across the country could be exposed to lethal heat waves annually.
- Around 34 million people in India will face job losses due to heat stress related productivity decline.
- The current food loss due to heat during transportation is close to $13 billion annually.
- By 2037, the demand for cooling is likely to be eight times more than current levels.
- This means there will be a demand for a new air-conditioner every 15 seconds, leading to an expected rise of 435 percent in annual greenhouse gas emissions over the next two decades.
- The World Bank study, "Climate Investment Opportunities in India's Cooling Sector", which is also supported by the EU-GFDRR, finds that shifting to a more energy efficient pathway could lead to a substantial reduction in expected CO_2 levels over the next two decades.
- The report suggests a sustainable roadmap for cooling that has the potential to reduce 300 million tons of carbon dioxide annually by 2040.
- Recognizing this challenge, India is already deploying new strategies to help people adapt to rising temperatures.
- In 2019, it launched the India Cooling Action Plan (ICAP) to provide sustainable cooling measures across various sectors, including indoor cooling in buildings and cold chain and refrigeration in the agriculture and pharmaceuticals sector and air-conditioning in passenger transport.
- Its aim is to reduce the demand for cooling by up to 25 percent by 2037-38.
- The new World Bank report proposes a roadmap to support the ICAP's new investments in three major sectors: building construction, cold chains, and refrigerants.
- Adopting climate-responsive cooling techniques as a norm in both private and government-funded constructions can ensure that those at the bottom of the economic ladder are not disproportionately affected by rising temperatures.
- The report suggests that India's affordable housing program for the poor, the Pradhan Mantri Awas Yojana (PMAY), can adopt such changes on scale. This could benefit over 11 million urban homes and over 29 million rural houses that the government aims to construct.

Suggestions

- o The report also recommends private investments in district cooling technologies.
- o These generate chilled water in a central plant which is then distributed to multiple buildings via underground insulated pipes.
- o This brings down the cost for providing cooling to individual buildings and can reduce energy bills by 20-30 percent compared to the most efficient conventional cooling solution.
- o To minimize rising food and pharmaceutical wastage during transport due to higher temperatures, the report recommends fixing gaps in cold chain distribution networks.

- o Investing in pre-cooling and refrigerated transport can help decrease food loss by about 76 percent and reduce carbon emissions by 16 percent.
- India aims to phase out the production and use of ozone-depleting hydrochlorofluorocarbons, used as coolants in air conditioners and refrigerators by 2047.
- The report recommends improvements in servicing, maintenance and disposal of equipment that use hydrochlorofluorocarbons, alongside a shift to alternative options with a lower global warming footprint.
- This can create 2 million jobs for trained technicians over the next two decades and reduce the demand for refrigerants by around 31 percent.

Horticulture Cluster Development Programme

Why in News

The Union Ministry of Agriculture and Farmers Welfare has prepared the Horticulture Cluster Development Programme (CDP).

Important Points

- The Union Ministry of Agriculture and Farmers Welfare has prepared the Horticulture Cluster Development Programme (CDP), for which a meeting was held under the chairmanship of Agriculture and Farmers Welfare Minister for its proper implementation.
- Through Programme the main objective of the government is to promote the Agriculture sector in the country and to increase the income of the farmers by giving them a reasonable price for their produce, so the interest of the farmers should be paramount in the center of any programme/scheme.
- The overall development of horticulture in the country would be focused with the help of the implementation of the Cluster Development Programme and it would be emphasized that the farmers should be benefited from this programme.
- Land available with Indian Council of Agricultural Research (ICAR) affiliated institutions within the identified clusters should be utilized for the implementation of this programme.
- Horticulture Cluster Development Programme will also emphasized on crop diversification and linking this ambitious programme with the market for produce sale and capacity building.
- Under the programme there is a need for geo-tagging of infrastructure for benefitting small and marginal farmers, tracking of activities implemented in the fields, monitoring purpose, etc.
- The CDP will also create cluster-specific brands, while helping the economy, to integrate them into national and global value chains, thereby providing higher remuneration to farmers.
- The CDP will benefit around 10 lakh farmers and related stakeholders along the value chain.
- The CDP aims to improve exports of targeted crops by about 20% and create cluster-specific brands to enhance the competitiveness of cluster crops.
- A lot of investment will also come in the horticulture sector through CDP.
- It is a Central Sector programme implemented by the National Horticulture Board (NHB).

What is Horticulture cluster?

- Horticulture cluster is a regional/geographical concentration of targeted horticulture crops, offering scope for specialisation in pre-production, production, post-harvest management, logistics, marketing and branding.

Status of Horticulture in India

- India is the second-largest producer of horticulture crops globally, accounting for approximately 12% of the world's production of fruits and vegetables.
- Due to its high remunerative capability, the horticulture sector has emerged as one of the potential agriculture enterprises that will accelerate the growth of the Indian economy.

Transmission System

Why in News

India takes another big step towards achieving 500 GW of non-fossil fuel based electricity installed capacity by 2030.

Important Points

- Ministry of Power had constituted a high-level committee under Chairperson, Central Electricity Authority for planning the transmission system required for having 500 GW of non-fossil fuel based installed capacity by 2030.
- The Committee prepared a detailed Plan titled "Transmission System for Integration of over 500 GW RE Capacity by 2030" in consultation with States and other stakeholders.
- The Plan is a major step towards achievement of the goal of integrating 500 GW of non-fossil fuel based capacity by 2030 by providing broad plan of required transmission system for having 537 GW of Renewable Energy capacity by the year 2030.
- The transmission plan also includes transmission system required for evacuation of 10 GW off-shore wind located in Gujarat and Tamilnadu.
- With the planned transmission system, the inter-regional capacity will increase to about 1.50 lakh MW by 2030 from 1.12 lakh MW at present.
- Considering the availability of Renewable Energy based generation for a limited period during day, the Plan also envisages installation of Battery Energy Storage Capacity of the order of 51.5 GW by 2030 to provide Round the Clock power to end-consumers.
- The Plan has identified major upcoming non-fossil fuel based generation centres in the country, which include Fatehgarh, Bhadla, Bikaner in Rajasthan, Khavda in Gujarat, Anantapur, Kurnool RE Zones in Andhra Pradesh, offshore wind potentials in Tamil Nadu and Gujarat, RE park in Ladakh etc.
- The planned transmission system projected will provide a visibility to the Renewable Energy Developers about the potential generation sites and scale of investment opportunity.

- Further, it will also provide the Transmission Service Providers the vision of growth opportunity available in the transmission sector along with investment opportunity of about 2.44 lakh crore.
- India has emerged as one of the world leaders in energy transition with the fastest rate of growth of renewable energy capacities in the world.
- India has huge ambitions in energy transition and plans to have 500 GW of non-fossil fuel based electricity installed capacity by 2030, so that cleaner fuel comprises of 50% of the installed capacity mix by 2030.

- The installed electricity generating capacity in the country at present is 409 GW comprising of 173 GW from non-fossil fuel sources, which is about 42% of the total installed electricity generating capacity.
- For evacuation of power from the planned Renewable capacity by 2030, a robust transmission system needs to be in place in advance as the gestation period of wind and solar based generation projects is much less than that of associated transmission system.
- A comprehensive plan has been finalized to meet this objective.

SATAT scheme

Why in News

SATAT initiative envisages setting up of 5000 Compressed Biogas (CBG) plants for production of 15 Million Metric Ton (MMT) per annum of CBG by 2023-24.

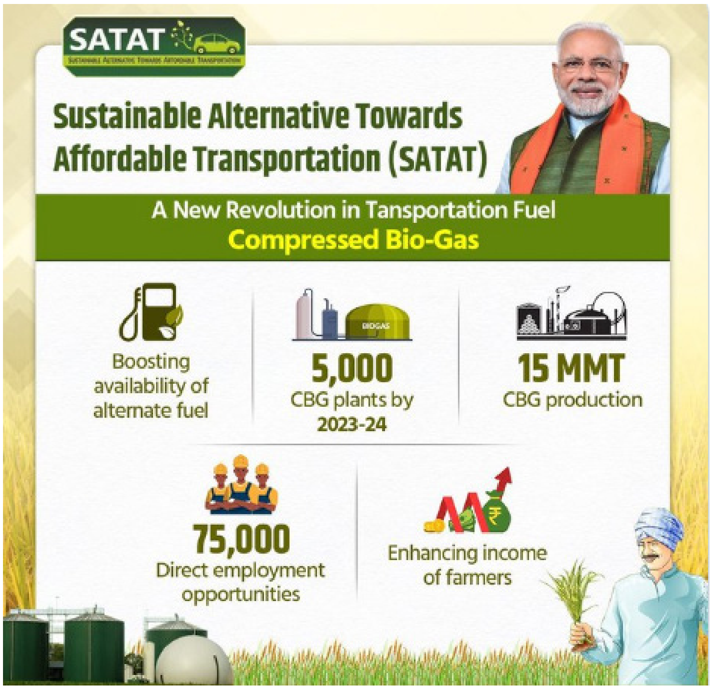
Important Points

SATAT scheme

- It is an initiative aimed at setting up of Compressed Bio-Gas production plants and make it available in the market for use in automotive fuels by inviting Expression of Interest from potential entrepreneurs.
- The initiative was launched in October 2018 by the Ministry of Petroleum & Natural Gas in association with Public Sector Undertaking (PSU) Oil Marketing Companies (OMC) viz.
- Indian Oil Corporation Ltd.
- Bharat Petroleum Corporation Ltd. and
- Hindustan Petroleum Corporation Ltd.
- Compressed Bio-Gas (CBG) plants are proposed to be set up mainly through independent entrepreneurs.
- CBG produced at these plants will be transported through cascades of cylinders to the fuel station networks of OMCs for marketing as a green transport fuel alternative.
- The 1,500-strong CNG stations network in the country currently serves about 32 lakh gas-based vehicles.
- The entrepreneurs would be able to separately market the other by-products from these plants, including bio-manure, carbon-dioxide, etc., to enhance returns on investment.
- It is planned to roll out 5,000 Compressed Bio-Gas plants across India in a phased manner, with 250 plants by the year 2020, 1,000 plants by 2022 and 5,000 plants by 2025.
- These plants are expected to produce 15 million tonnes of CBG per annum, which is about 40% of current CNG consumption of 44 million tonnes per annum in the country.
- As on 31st October 2022 Oil and Gas Marketing Companies participating in SATAT have issued 3694 Letters of Intent (LoI) to entrepreneurs for procurement of CBG produced by them.
- Further, 38 CBG/biogas plants with installed capacity around 225 MT per annum have been commissioned by LoI holders.

What is Compressed Bio-Gas?

- Bio-gas is produced naturally through a process of anaerobic decomposition from waste / bio-mass sources like agriculture residue, cattle dung, sugarcane press mud, municipal solid waste, sewage treatment plant waste, etc.
- The Bio-Gas is purified to remove hydrogen sulphide (H_2S), carbon dioxide (CO_2), water vapour and compressed as Compressed Bio-Gas (CBG), which has methane (CH_4) content of more than 90%.
- Compressed Bio-Gas is exactly similar to the commercially available natural gas in its composition and energy potential.
- CBG has calorific value and other properties similar to CNG and hence can be utilized as green renewable automotive fuel.



World Ayurveda Congress

Why in News

Ninth World Ayurveda Congress, Arogya Expo 2022 inaugurated in Goa

Important Points

- The spread of Ayurveda worldwide has been facilitated by the setting up of a separate ministry of Ayush by the Centre in 2014.
- Vasudhaiva Kutumbakam is the spirit of India since the beginning.
- In 2015, the United Nations decided to celebrate the International Day of Yoga.
- Now it is benefiting citizens all over the world.
- The Ayurveda Congress' activities go a long way in propagating such traditional systems of healing and well-being all over the world.
- The introduction of Ayush visa for Ayush treatment was a historic decision by the government.
- The upcoming satellite centre of All India Institute of Ayurveda in Goa will boost Ayurvedic tourism in the state.
- Goan students will get 50% reservation in admissions for various courses at the institute.
- The third edition of the 'Ayushman' comic book series was also released at the event.
- A Memorandum of Understanding (MoU) was signed between All India Institute of Ayurveda (AIIA) and Rosenberg's European Academy of Ayurveda, Germany, to facilitate advanced studies in traditional Indian medicine systems.
- .The market size of AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy) in the country has grown from $3 billion in 2014 to over $18 billion now.
- According to official data, the AYUSH industry grew 17% year-on-year during 2014-2020, while the Ayurveda market is forecast to grow at 15% CAGR from 2021-2026.
- Over 4500 participants from all over the world including 400 foreign delegates from 53 countries are participating in the Ayurveda Congress and Arogya Expo.

World Ayurveda Congress

- The World Ayurveda Congress (WAC) is a platform established by World Ayurveda Foundation to propagate Ayurveda globally in its true sense.
- The World Ayurveda Congress & Arogya Expo 2022 will be held in Goa with an objective to provide a global platform to stakeholders, including industry leaders, practitioners, traditional healers, educationists, students, medicine manufacturers, etc. for networking and engaging in intellectual exchange to strengthen the Ayurveda sector, envision its future, and facilitate interaction between professionals and consumers to boost Ayurveda commerce
- The first WAC was held in 2002 at Kochi as an outreach programme, to create greater awareness and opportunities in the practice, science, and trade of Ayurveda.
- 9th edition of the World Ayurveda Congress has this very important overarching theme 'Ayurveda for One Health.'
- The WHO defines 'One Health' as an approach to designing and implementing programmes, policies, legislation and research in which multiple sectors communicate and work together to achieve better public health outcomes.
- The 'One Health' approach is critical to addressing health threats in the animal, human and environment interface.

World Ayurveda Foundation

- Founded in 2011, the World Ayurveda Foundation (WAF) is an initiative by Vijnana Bharati aimed at global propagation of Ayurveda.
- As part of a larger intellectual movement under the aegis of the Swadeshi Science Movement undertaken by Vijnana Bharati, WAF is a platform that would take Ayurveda to the world for all the benefits mankind can draw from traditional health sciences.
- The objectives of WAF reflect global scope.
- Propagation and encouragement of all activities – scientific and Ayurveda-related – are the core principles.

GHAR Portal

Why in News

GHAR-GO Home and Re-Unite portal developed and launched by NCPCR.

Important Points

- National Commission for Protection of Child Rights (NCPCR), has developed and launched a portal namely GHAR - GO Home and Re-Unite (Portal for Restoration and Repatriation of Child).
- The GHAR portal has been developed to digitally monitor and track the restoration and repatriation of children according to the protocol.

The following are the salient features of the portal :

1. Digital tracking and monitoring of children who are in the Juvenile Justice system and have to be repatriated to another Country/State/District.
2. Digital transfer of cases of children to the concerned Juvenile Justice Board/Child Welfare Committee of the State. It will help in speedy repatriation of children.
3. Where there is a requirement of a translator/interpreter/ expert, request will be made to the concerned State Government.
4. Child Welfare Committees and District Child Protection Officers can ensure proper restoration and rehabilitation of children by digitally monitoring the progress of the case of the child.
5. A checklist format will be provided in the forms so that the children who are being hard to repatriate or children who are not getting their entitled compensation or other monetary benefits can be identified.
6. List of Government implemented schemes will be provided, so that at the time of restoration the Child Welfare Committees can link the child with the schemes to strengthen the family and ensure that child remains with his/her family.

Legal Provisions

- Ministry of Women and Child Development is administering the Juvenile Justice (Care and Protection of Children) Act, 2015 (JJ Act, 2015) (as amended in 2021) and Rules thereunder, for ensuring safety, security, dignity and well-being of children.
- The Act provides for protection of children in need of care and protection and those in conflict with law by catering to their basic needs through care, protection, development, treatment and social re-integration.
- Under the JJ Act, 2015 (Sections 27-30), the Child Welfare Committees have been empowered to take decisions with regard to the children in need of care and protection for the best interest of the children. They are also mandated to monitor the functioning of the Child Care Institutions (CCIs).
- Similarly, under section 106 of JJ Act, 2015, every State Government has to constitute a District Child Protection Unit (DCPU) for every district to take up matters relating to children to ensure the implementation of JJ Act, 2015 and rules thereunder.
- To ensure effective coordination in the Child Safety, Protection and Development; District Magistrates have been made the head of DCPUs. DMs have been empowered to review the functioning of DCPUs and CWCs at regular intervals to ensure prompt decisions as per provisions of JJ Act and Rules are taken by these bodies, keeping in mind best interests of Children.

Amrit Bharat Station Scheme

Why in News

The Indian railway is planning to modernise 1,000 small yet important stations.

Important Points

- The railway is planning to modernise 1,000 small yet important stations under the new “Amrit Bharat Station Scheme”.

About the scheme-

- Under this scheme, the small stations would be identified not just for their footfalls but also based on the cities they cater to.

- It aims at preparing master plans of railway stations and implementing those in phases to enhance facilities including and beyond the minimum essential amenities and aim for the creation of roof plazas and city centres at stations.
- The aim is also to identify developing cities with potential and envisage railway stations as city centres that would link not just various parts of the city but also between different cities in the future.

- The plan is to map everything connected to it, bridges and different modes of transport.
- The idea is to start modernising stations in a cost-effective manner.
- According to need, the divisional railway managers (DRMs) will take a call on modernisation works in a phased manner.
- A special fund will also be earmarked with the DRMs for this purpose.
- The scheme's target is the introduction of new amenities as well as to upgrade and replace existing facilities.
- These stations will be redeveloped under what is being internally called the "Khurda model of redevelopment".
- Khurda station in Odisha was modernised for Rs 4 crore with all contemporary amenities for passengers.
- DRMs were taken on a tour of the Khurda station to get a feel of what can be done under the new scheme, the official said.
- The new scheme envisages cost-efficient improvement to facades and makes provisions for wide, well-lit and aesthetically pleasing entrance porches.
- The scheme seeks to relocate redundant/old buildings in a cost-efficient manner so that the space is released for higher priority passenger-related activities and so that future development may be carried out smoothly.
- The station should also have a second entry station building and high-level platforms with a length of 600m.
- This is apart from the ambitious plan to revamp 200 big stations under a separate redevelopment programme.
- "Creation of new buildings should generally be avoided other than those required for relocation of old structures or relocation of structures to improve circulation or provision of structures to improve the size of waiting halls. Decision on this shall be taken by the DRM," the scheme document said.
- Modernisation of these stations would include improved station approaches to ensure smooth access by widening roads, removal of unwanted structures, properly designed signages, dedicated pedestrian pathways, well-planned parking areas, and improved lighting among others.
- Elements of landscaping, green patches and local art and culture should be used to create a pleasant experience for the station users. This should be done with the help of suitable professionals.

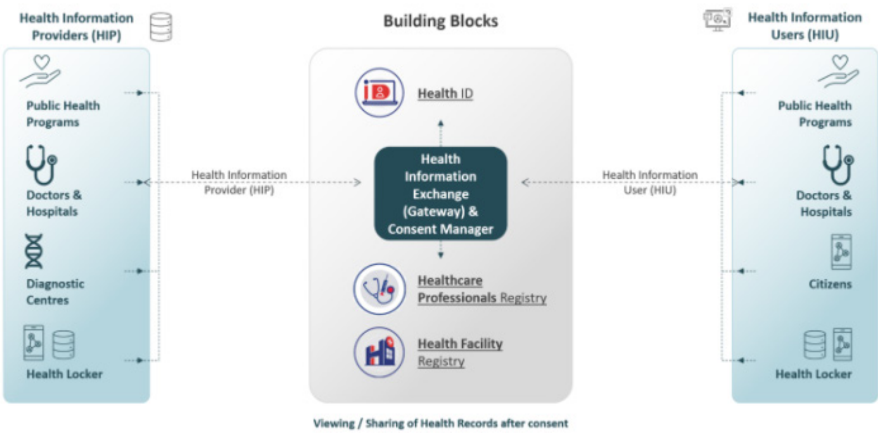
Operationalising Unified Health Interface (UHI)

Why in News

The National Health Authority (NHA) has released a consultation paper on 'Operationalising Unified Health Interface (UHI) in India' that outlines the market rules that will govern the UHI Network.

Important Points

- UHI is envisioned as a foundational layer of the Ayushman Bharat Digital Mission (ABDM) and aims to enable interoperability in health services in India through open protocols.
- The consultation paper focuses on the different elements of UHI and the market rules that will govern them.



- These include guidelines that will govern the way search and discovery will take place in a fair and transparent manner, payment & settlement processes, rules around cancellation & rescheduling, grievance redressal mechanism, and more.
- Each section has specific open questions where feedback from stakeholders is sought.
- Comments from the public are invited to ensure that the UHI Network is designed and operationalised in a collaborative and consultative manner.
- Unified Health Interface will enable interoperability of health services in India.
- Since the development of UHI involves several stakeholders, it is important to clearly define how different elements will be operationalised in a fair, efficient and transparent manner.
- National Health Authority urge the stakeholders to share their valued comments and play a role in shaping India's digital healthcare ecosystem.
- This stakeholder participation can help avoid roadblocks in implementation, and help make adoption faster and easier.

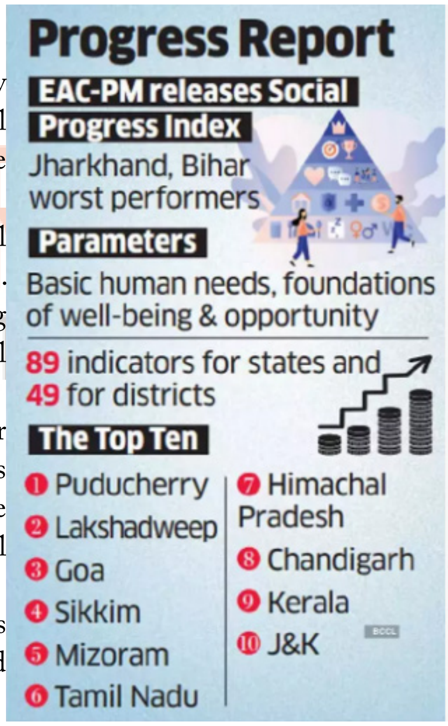
Social Progress Index

Why in News

Economic Advisory Council-Prime Minister (EAC-PM) along with the Institute for Competitiveness and Social Progress Imperative has released the Social Progress Index(SPI) recently.

Important Points

- The report has been prepared by Institute for Competitiveness, headed by Dr Amit Kapoor and the Social Progress Imperative, headed by Michael Green and was mandated by Economic Advisory Council to the Prime Minister of India.
- SPI is a comprehensive tool intended to be a holistic measure of the Social Progress made by the country at the national and sub-national levels. Understanding that the social progress of citizens is key to sustaining economic growth in the long run, the index complements the conventional measures of economic growth and development.
- Keeping in mind the pressing need for a measurement model that can better understand the needs of society, while also equipping decision-makers with the necessary knowledge and tools, the team embarked on an extensive research phase to identify appropriate indicators and measures of social progress for the report.
- SPI assesses the performance of states and districts on three dimensions of social progress: Basic Human Needs, Foundations of Wellbeing, and Opportunity. Within each dimension, there are four components.



  - o The dimension of Basic Human Needs assesses the performance of states and districts in terms of Nutrition and Basic Medical Care, Water and Sanitation, Personal Safety and Shelter.
  - o The dimension of Foundations of Wellbeing evaluates the progress made by the country across the components of Access to Basic Knowledge, Access to Information and Communication, Health and Wellness, and Environmental Quality.
  - o The dimension of Opportunity focuses on aspects of Personal Rights, Personal Freedom and Choice, Inclusiveness, and Access to Advanced Education.
- The index uses an extensive framework comprising 89 indicators at the state level and 49 at the district level.
- Based on the SPI scores, states and districts have been ranked under six tiers of social progress which are Very High Social Progress, High Social Progress, Upper Middle Social Progress, Lower Middle Social Progress, Low Social Progress and Very Low Social Progress.
- It presents a cross-section of data across states and districts and the focus is on looking at various tiers of development by grouping the states rather than the individual rankings of the selected states and districts.
- As per the index, Puducherry, Lakshadweep and Goa emerged as best-performing states and Aizawl (Mizoram), Solan and Shimla (Himachal Pradesh) were the top three districts on SPI.

- According to the report, Puducherry had the highest score of 65.99 for its remarkable performance across components like personal freedom and choice, shelter, and water and sanitation.
- Jharkhand and Bihar scored the lowest, 43.95 and 44.47, respectively.
- Mizoram, Himachal Pradesh, Ladakh, and Goa emerged as the best-performing states for the Foundations of Wellbeing.
- Within the dimension for the Access to Basic Knowledge component, Punjab had the highest component score of 62.92, while Delhi topped the list for Access to Information and Communication with a score of 71.30.
- For Health and Wellness, Rajasthan had the highest component score of 73.74. For Environmental Quality, the top three states belong to the northeast, namely, Mizoram, Nagaland, and Meghalaya.
- Tamil Nadu achieved the highest component score of 72.00 for the Opportunity dimension.
- Within this dimension, Andaman and Nicobar Islands have the highest component score for Personal Rights, while Sikkim has topped the list for Inclusiveness.
- It is commendable to witness Puducherry attaining the highest scores across two components in this dimension, i.e., Personal Freedom and Choice and Access to Advanced Education.

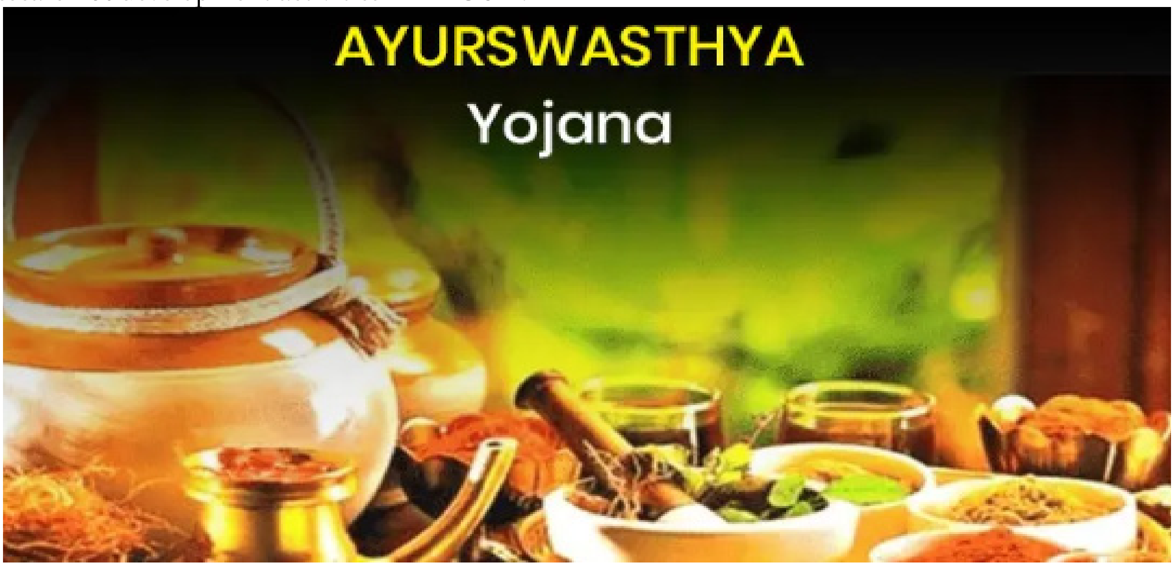
AYURSWASTHYA Yojana

Why in News

Currently, the Ministry of Ayush is running a Central Sector Scheme namely, AYURSWASTHYA Yojana.

Important Points

- Currently, the Ministry of Ayush is running a Central Sector Scheme namely, AYURSWASTHYA Yojana with two components (i) AYUSH and Public Health (PHI) and (ii) Centre of Excellence (CoE) from the Financial Year 2021-22 by merging two erstwhile schemes of this Ministry namely
  (i) Central Sector Scheme of Grant-in-Aid for Promotion of AYUSH Intervention in Public Health Initiatives (PHI) and
  (ii) Central Sector Scheme for assistance to AYUSH organizations (Government / Non-Government Non-Profit) engaged in AYUSH Education/ Drug Development & Research / Clinical Research etc. for upgradation to Centre of Excellence (CoE).
- Under the Centre of Excellence component of AYURSWASTHYA Yojana, financial assistance is provided to eligible individual organizations/institutes for establishing and upgrading their functions & facilities and/or for research & development activities in AYUSH.



The objectives of the Centre of Excellence component of AYURSWASTHYA Yojana are as under: -

i. To support establishment of advanced/ specialized AYUSH medical health unit in reputed AYUSH and Allopathic institutions both in Government and Non-Government sector.
ii. To support creative and innovative proposals for establishment and upgradation of both functions and facilities of reputed institutions to strengthen competencies of AYUSH professionals in education technology, research & innovation and such other fields necessary for promotion of AYUSH at national as well as international level.

iii. To support creative and innovative proposals for prestigious organizations which have well-established buildings and infrastructure, and wish to work for AYUSH systems to the level of Centre of Excellence.

- The maximum admissible financial assistance under the Centre of Excellence component of AYURSWASTHYA Yojana, to an organization/institute is Rs.10.00 crores for maximum period of three years.
- The projects are sanctioned and funds are released directly to the eligible individual organizations/institutes based on the merit of the proposals received from them, under the Centre of Excellence component of AYURSWASTHYA Yojana. There is no provision for State/UT-wise sanction/allocation of funds under the Centre of Excellence component of AYURSWASTHYA Yojana and under erstwhile Centre of Excellence scheme also
- The wider aspect of health care services i.e. preventive, promotive, curative and palliative health care services are provided by the grantee organizations/institutions under the erstwhile Centre of Excellence scheme and Centre of Excellence component of AYURSWASTHYA Yojana all over the country as per the objectives of the projects.
- These services are provided to the public including Economical Weaker Section of the society as per scheme guidelines. Special attentions are provided for quality improvement of these health care services also.
- No organization/institute of Puducherry is supported under erstwhile Centre of Excellence scheme and Centre of Excellence component of AYURSWASTHYA Yojana.
- Further, no proposals were received under the Centre of Excellence component of AYURSWASTHYA Yojana from the UT of Puducherry.
- Under Centre of Excellence component of AYURSWASTHYA Yojana, there is provision to support AYUSH institutions/organizations for their up-gradation to the level of Centre of Excellence.
- Ministry of Ayush consider project proposals for up-gradation of AYUSH institutions, whenever received from the eligible organizations/institutes from all over the country including Puducherry, based on the merit of the proposal, as per the provisions of the Scheme guidelines and as per the availability of funds.

Chapter-
9

MISCELLANEOUS

Baguette

Why in News

Important Points

Baguette, the staple French bread was inscribed into the UN's list of intangible cultural heritage (ICH)

Baguette

- The baguette is a long and thin loaf made of flour, water, salt and yeast, and is consumed as a staple in France.
- Some believe that it was invented by August Zang, a baker and an entrepreneur from Vienna in 1839, who introduced the world to the taste of crusty bread with softer insides, using a steam oven.
- It gained its official name in 1920.
- The history of the bread is uncertain, some also believe that Napoleon Bonaparte, the French military leader, ordered thin sticks of bread for consumption by his soldiers as they could be carried from one place to another more conveniently.

What are India's intangible cultural symbols on the UNESCO list?

- In 2022 India nominated Garba, a traditional dance form that originated in the state of Gujarat, for inscription on UNESCO's ICH list.
- The elements which have been on the representative list of intangible cultural heritage from India in the past decade include Kolkata's Durga Puja (2021), Kumbh Mela (2017), Navroz (2016), Yoga (2016), traditional brass and copper craft of utensil-making among coppersmiths of Punjab (2014), Sankirtana, a ritual musical performance of Manipur (2013), and the Buddhist chanting of Ladakh (2012).
- Before 2011, the list included Chhau dance, Kalbelia folk songs and dance of Rajasthan, and Mudiyettu, a dance drama from Kerala (2010), Ramman, a religious festival and theatre performance of Garhwal in the Himalayas (2009), and Kutiyattam or Sanskrit theatre, and Vedic chanting (2008).
- Ramlila, a traditional performance of Ramayana, was also included in 2008.

Who manages nominations to the UNESCO list in India?

- Several autonomous bodies within the Ministry of Culture actively function towards promoting and preserving intangible cultural heritage within the country.
- Sangeet Natak Akademi is the nodal organisation which looks after this function, and files nominations of intangible cultural entities from India, for evaluation by the international body.

What is the intangible cultural heritage of UNESCO?

- UNESCO defines "intangible" as "expressions that have been passed from one generation to another, have evolved in response to their environments and contribute to giving us a sense of identity and continuity…"
- Intangible cultural heritage includes "oral traditions, performing arts, social practices, rituals, festive events, knowledge and practices concerning nature and the universe or the knowledge and skills to produce traditional crafts."
- The adoption of the Convention for the Safeguarding of the ICH by the General Conference of UNESCO in 2003 was a crucial step towards preserving intangible heritage from across the globe.
- UNESCO's list of Intangible Cultural Heritage of Humanity was established in the year 2008.

What are the criteria for the selection?

- There are three criteria for an intangible cultural heritage to be inscribed in the United Nations list.
- The entity must be recognized by communities, groups and, in some cases, individuals as part of their cultural heritage.
- It must be transmitted from generation to generation and be constantly recreated by communities and groups in response to their environment, their interaction with nature and their history and
- Provide them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity.

Rooibos tea

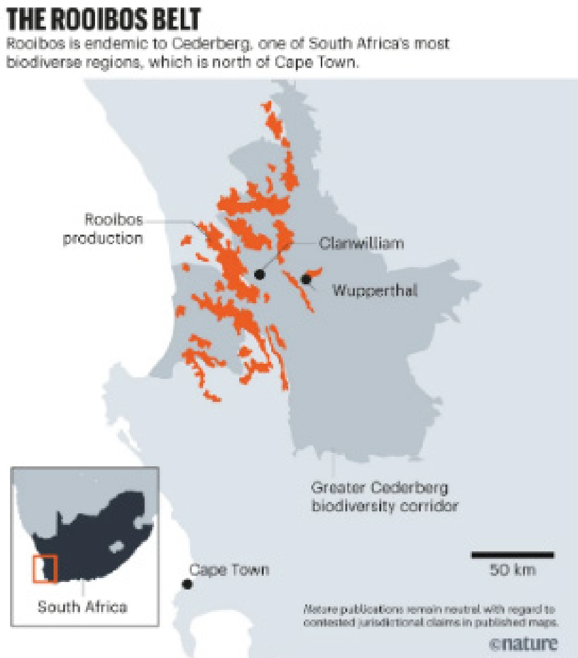
Why in News

Indigenous groups in South Africa benefit from rooibos tea industry.

Important Points

- The Convention on Biodiversity's (CBD) COP15 in Montreal is a success story from South Africa that the negotiators could do well to keep in mind.
- The mountain bush rooibos is endemic to South Africa and is used to prepare a deep red brew with a deliciously unique flavour.
- The San and Khoi communities were the first to learn the health benefits of rooibos' needle-like leaves that grew widely on their land.
- But they have remained marginalised in its trade that began in early 20th century during the colonial regime.
- Today, rooibos is a widely traded and exported commodity, sold to over 30 countries, with the United States and Europe being the biggest importers.
- But the San and Khoi control less than seven per cent of the land under the shrub.
- In July 2022, the rooibos industry paid 12.2 million rands (around $709,000) to organisations that represent the communities for sharing this biological resource and associated knowledge.
- Discussions are now underway to ascertain how the money would be used to benefit the communities.
- This agreement between the industry and the communities happened under the CBD's objective that supports fair and equitable sharing of benefits arising from the use of biological diversity with the communities that have protected biodiversity and hold the knowledge on how it can be used.
- Rooibos, devoid of caffeine and low in tannins, is a healthy alternative to coffee or tea, studies showed.
- It also comes loaded with antioxidants that can boost immunity, reduce risks of heart diseases, protect from viral infection and has anti-ageing properties.

Attempts to profit



- Multinational corporations have come up with ways to profit from the tea as well as products made using chemical derivatives of the shrub, called Aspalathus linearis in scientific lexicon. But they did not keep the community's well-being in mind.
- One such attempt was made by the Swiss company Nestlé in 2010. The company claimed five patents on products prepared from rooibos, such as medicines to treat inflammatory diseases and probiotic foods.
- But this time, the San and Khoi communities opposed the move and Nestlé's patent applications were rejected.
- The South African government asked the company to share benefits arising from the use of this biological resource with the communities.
- Nestlé agreed to share three per cent of its net sales with the community in 2014. The South African government also initiated a process to identify true owners of the knowledge around rooibos to facilitate agreements between the industry and the communities.

- In 2019, the government facilitated an agreement between 10 processors and the San and Khoi, wherein the communities would receive 1.5 per cent of the farm-gate price (net price after cutting marketing costs) annually.

What is Rooibos tea?

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- Rooibos, devoid of caffeine and low in tannins, is a healthy alternative to coffee or tea, studies showed.
- It also comes loaded with antioxidants that can boost immunity, reduce risks of heart diseases, protect from viral infection and has anti-ageing properties.
- Rooibos is a broom-like member of the plant family Fabaceae that grows in South Africa's fynbos biome.
- The leaves are used to make a herbal tea that is called rooibos (especially in Southern Africa), bush tea, red tea, or redbush tea (predominantly in Great Britain).

New Energy Outlook report-2022

Why in News

The Bloomberg NEF has published the New Energy Outlook report-2022 recently.

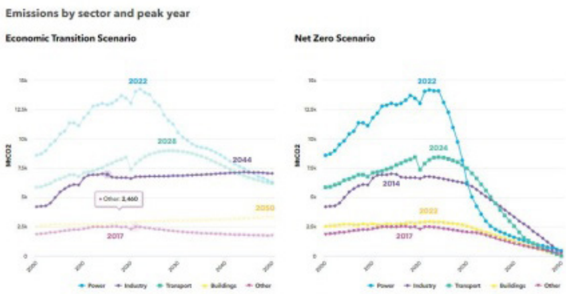
Important Points

About this report

- The New Energy Outlook (NEO) is BloombergNEF's long-term scenario analysis on the future of the energy economy covering electricity, industry, buildings and transport and the key drivers shaping these sectors until 2050.
- This edition presents detailed country-level energy and climate scenarios for corporates, financial institutions and policy makers navigating the energy transition.
- The report is BloombergNEF's long-term scenario analysis on the future of the energy economy covering electricity, industry, buildings, buildings and transport and the key drivers shaping these sectors until 2050.
- The Bloomberg NEF's Economic Transition Scenario is its baseline assessment of how the energy transition might evolve from today as a result of cost-based technology changes.

NEO 2022 Key Messages

1. Emissions



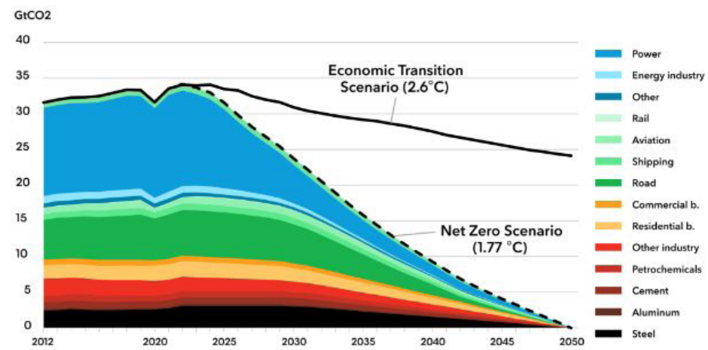
- The energy transition in the power sector is well under way and global power sector emissions have most likely peaked in 2022.
- In order to stay on track for net zero, emissions in all sectors need to peak now and start declining fast.
- In the Net Zero Scenario, transport sector emissions peak in 2024 and fall quickly due in particular to the electrification of road transport.
- Industrial sector emissions are already leveling off and then begin their steep decline in 2030.
- Building-sector emissions, already far lower than industrial or transport emissions, decline relatively slowly from a peak this year.
- By comparison, industry and buildings emissions both increase through 2050 in the Economic Transition Scenario (ETS), albeit slowly.

2. Carbon Budgets

- The modelling shows that, while a pathway that limits global temperature increases to 1.5 degrees Celsius by 2050 looks increasingly out of reach, there are still plausible pathways to stay within 1.77C of warming in our Net Zero Scenario.

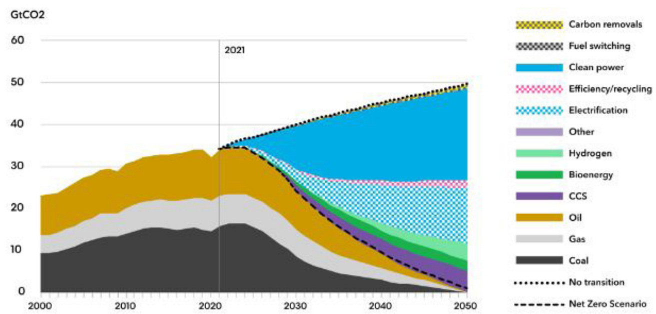
- Even then, a revolution will be needed in the energy sector to increase momentum and accelerate emissions reductions.
- The modelling suggests emissions need to fall by 30% by 2030 and overall 6% a year to 2040.
- If achieved, this orderly transition would reach zero emissions in 2050 and achieve the Paris Agreement objective, with climate change of 1.77C by 2050, without overshooting or creating the need for net-negative emissions post-2050.
- In contrast, emissions in our Economic Transition Scenario fall at 0.9% on average each year, resulting in emissions consistent with 2.6C warming trajectory by the end of the century.

CO2 emissions (budgets) by sector, Net Zero Scenario



3. Abatement

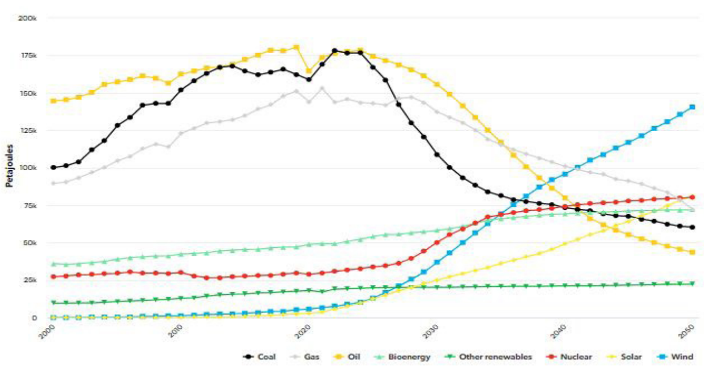
CO2 emissions reductions from fuel combustion, Net Zero Scenario versus no transition scenario



- Switching power generation from fossil fuels to clean power is the single biggest contributor to global emission reductions in our Net Zero Scenario, accounting for half of all emissions abated over 2022-50.
- This includes displacing unabated fossil fuel with wind, solar, other renewables and nuclear.
- Electrification of transport and industrial processes, buildings and heat–using increasingly lower -carbon electricity – is the next biggest contributor, abating about a quarter of total emissions over the period.
- Hydrogen is a sizeable contributor as well in absolute terms, though significantly smaller in relative terms, accounting for about 6% of reductions.
- CCS gains in importance from the early 2030s, as hard-to-abate sectors are being tackled and unabated fossil fuel plants are retrofitted with the technology.
- CCS accounts for 11% of all emissions abated over the scenario period.

4. Primary Energy

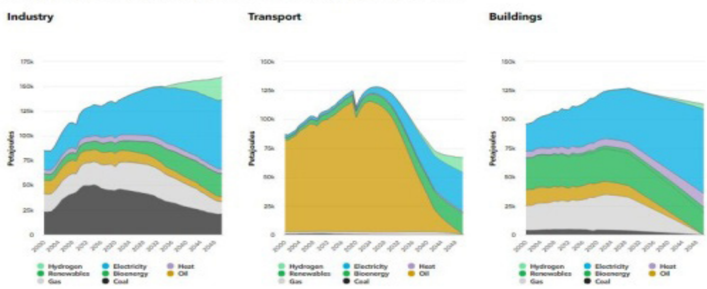
Primary energy consumption by fuel, Net Zero Scenario



- In our Net Zero Scenario, oil, gas and coal consumption all peak nearly immediately, if they have not done so already. Under this scenario global coal demand peaks in 2022, gas demand peaked in 2021, and oil demand peaked in 2019, before the Covid-19 pandemic.
- For oil and gas, this is a marked departure from the trajectories in our Economic Transition Scenario.

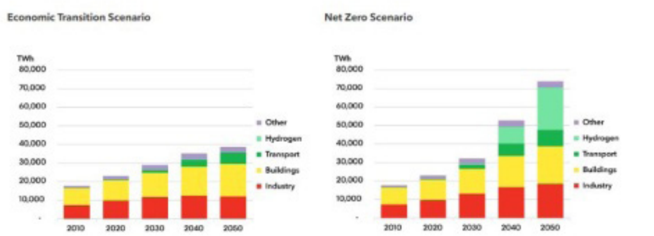
5. End Use Sectors

Final energy consumption by sub-sector and fuel, Net Zero Scenario



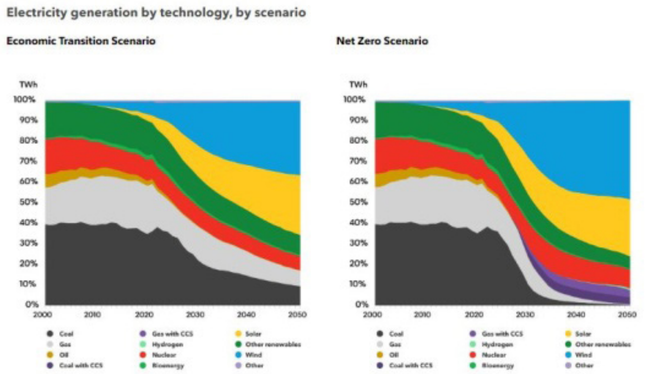
- Final energy use in the Net Zero Scenario has very different profiles for each sector.
- This is due to several factors, but first among them is electrification of transport, industrial processes and heat.

6. Electrification



- Reaching net-zero emissions by mid-century requires a significant increase in global electricity generation.
- The Energy Transition Scenario requires 46,000 terawatt -hours of power generation in 2050, nearly double today's amount. The Net Zero Scenario, however, requires more than 80,000 terawatt-hours of generation, more than triple today's amount.
- Power demand from hydrogen, which is insignificant in the Economic Transition Scenario, is close to 23,000TWh per year in the Net Zero Scenario by mid-century as we assume that 88% of hydrogen production is achieved via grid-connected electrolyzers.
- That makes hydrogen the single biggest source of power demand globally by 2050, equal to total global demand in 2020.

7. A Low-Carbon Power System

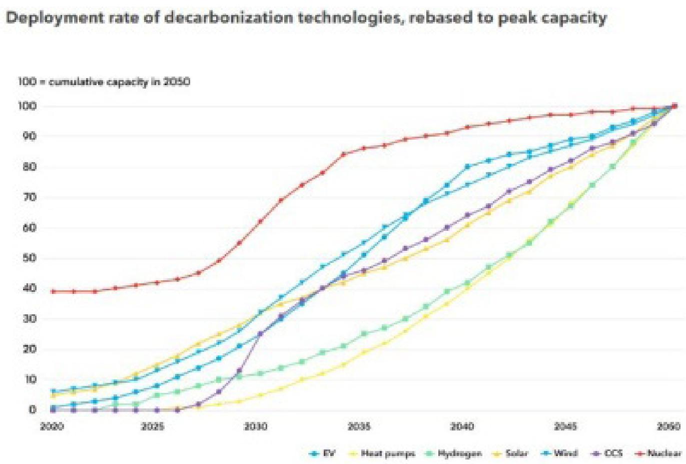


- In addition to increasing total power generation significantly, the Net Zero Scenario requires a significant change in the production mix. This is not an evolution of the Economic Transition Scenario – it is effectively a completely different power system.
- Reaching net zero will result in almost zero fossil fuel -fired power generation operating without carbon capture and storage; it will also require more nuclear power generation, and even more wind and solar power to be deployed.
- In the Net Zero Scenario, wind and solar power are more than three-quarters of total power generation.

8. CCS and Hydrogen

- Carbon capture and storage and hydrogen emerge as major technologies for deep decarbonization, with applications across industry, power, buildings and transport.
- Report estimate that about 7 gigatons of carbon dioxide will need to be captured annually in 2050 – the equivalent of today's power sector emissions from Europe, China and India combined.
- Hydrogen production will rise to 500 million metric tons annually in 2050, a fivefold increase from today's levels.

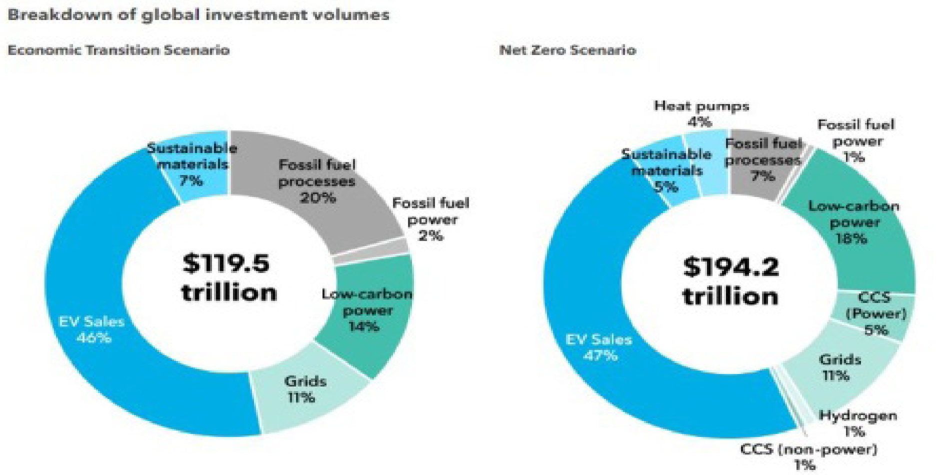
9. The Need for Deep Decarbonization



- The net zero transition is still in its infancy.
- Each of these key technologies is still at a fraction of the scale that is needed.
- Today, more than 40% of the nuclear power capacity needed in 2050 already exists, but less than 10% of the necessary total wind and solar has been installed, and effectively none of the heat pumps, hydrogen electrolyzers, or CCS capacity that are needed.
- That said, the ramp rates needed for the four technologies that do exist today – electric vehicles, wind, solar and nuclear power – are very different.
- Each of these technologies reach peak annual deployments considerably higher than today's levels.
- Electric vehicle sales will need to increase fivefold, from under 11 million to 55 million per year, in order to satisfy net-zero targets and meet sector carbon budgets.
- Solar installations will need to more than triple and wind installations will need to increase sixfold.

10. Investments

- Getting to net zero is a multi-trillion investment opportunity, but to stay on track will require a shift away from fossil-fuel investment.
- To stay on track in the Net Zero Scenario, this means that for every dollar invested in fossil energy supply, nearly five are invested into low-carbon supply through 2050.



New design of President's Standard and Colour and Indian Navy Crest

Why in News

The Hon'ble President of India has approved introduction of a new design for the President's Standard and Colour and Indian Navy Crest for the Indian Navy.

Important Points

- While the design of the President's Standard incorporated the new ensign of the Navy unveiled by the Prime Minister in September 2022, the new crest of the Navy does away with the symbolic nautical rope which was there in the earlier crest, a change already introduced in the new ensign.
- The St George's Cross in the earlier ensign of Indian Navy Crest was removed.
- The new ensign crest of the Indian Navy on a navy blue background encompassed an octagon representing the royal seal or Rajmudra of Chhatrapati Shivaji Maharaj.
- The anchor inside the octagon, which was earlier a 'foul anchor' entangled in a nautical rope was replaced with a 'clear anchor' without the rope 'underscoring the steadfastness of the Indian Navy.'
- While the practice of carrying the Standards or Colours, a symbolic flag into battle is long gone, the tradition of receiving, holding and carrying them continues even today in the Indian Armed forces.
- The erstwhile design of the President's Standard and the Colour for the Indian Navy was instituted in September 2017.
- The design comprised one horizontal and vertical red band intersecting at the centre, known as St George's cross and the national emblem inserted at their intersection.
- The national flag was at the upper left canton adjacent to the flagstaff and a golden elephant was at the lower right canton on the fly side. This design was inspired by the erstwhile naval ensign.
- The Navy has said that the new design of the President's Standard and Colour comprises three main constituents —
- The national flag in the upper left canton adjacent to the staff.
- The state emblem under-scribed with 'Satyamev Jayate' in golden colour on the upper right canton on the fly side, and
- A Navy Blue gold octagon below the golden state emblem.
- The octagon has twin golden octagonal borders, encompassing the golden national emblem — lion capital of Ashoka – under-scribed with 'Satyamev Jayate' in blue Devnagri script resting atop an anchor, and superimposed on a shield.
- Below the shield, within the octagon, in a golden bordered ribbon, on a navy blue background, is inscribed the motto of the Indian Navy 'Sham No Varunah' in golden devnagri script.
- The golden state emblem signifies 'power, courage, confidence and pride' whilst the navy blue – golden octagon shape draws inspiration from the Seal of Chhatrapati Shivaji Maharaj, and represents the eight directions symbolising the Indian Navy's maritime outreach.

- The new naval crest has a traditional naval clear anchor below the Ashoka lion head with 'Sham No Varunah' inscribed below it, which has been taken from Vedas and means 'may the ocean God be auspicious unto us'.
- The phrase was adopted as the motto of the Indian Navy at the suggestion of Chakravarti Rajagopalachari, the first Indian Governor General of Independent India.
- In line with the change in the Indian Navy Crest, a minor amendment to the crest of the Indian Naval Command Headquarters, which has the Indian Navy Crest in the inset, has also been approved by the President of India.
- The President's Standard and President's Colour are awarded to static and mobile formations of the Indian Navy respectively, to acknowledge their distinguished and meritorious service to the Nation.
- The Indian Navy was the first among the three Services to be awarded the President's Colour on 27 May 1951 by the then President Dr. Rajendra Prasad.
- In the Indian Navy, the President's Colour has been awarded to the Western, Southern, and Eastern Naval Commands, both Western and Eastern Fleets, the Submarine Arm, the Naval Air Arm, INS Shivaji, INS Valsura and the Indian Naval Academy.
- The 22nd Missile Vessel Squadron was the first Naval Combatant Squadron to be honoured with the President's Standard.

New chief of IOA

Why in News

PT Usha became the new chief of the Indian Olympic Association (IOA)

Important Points

- Former Indian athlete PT Usha became the new chief of the Indian Olympic Association (IOA) as well as its first woman president.

About Indian Olympic Association (IOA)

- The Indian Olympic Association or Indian Olympic Committee is the body responsible for selecting athletes to represent India at the Olympic Games, Asian Games and other international athletic meets and for managing the Indian teams at these events.
- It plays under the name of Team India.
- The seeds for creation of an organisation for coordinating the Olympic movement in India was related to India's participation in the 1920 and 1924 Olympics, when Sir Dorabji Tata suggested the need for a Sports body at National level for promoting Olympic Sport in united India.
- After the 1920 Games, the Committee sending the team to these Games met, and, on the advice of Sir Dorabji Tata, invited Dr. A.G. Noehren (Physical Education Director of YMCA India) to also join them.
- Subsequently, in 1923-24, a provisional All India Olympic Committee was set-up, which organised the All India Olympic Games (that later became the National Games of India) in February 1924.
- Eight athletes from these Games were selected to represent India at the 1924 Paris Summer Olympics, accompanied by manager Harry Crowe Buck.
- This gave impetus to the development and institutionalisation of sports in India, and, in 1927, the Indian Olympic Association (IOA) was formed, with Sir Dorabji Tata as its founding President and Dr. A.G. Noehren as Secretary.
- The same year as it was formed, 1927, the Indian Olympic Association was officially recognised by the International Olympic Committee.

About PT Usha

- Pilavullakandi Thekkeraparambil Usha is a retired Indian track and field athlete. She was born in Kuthali, Kozhikode, Kerala.
- She has been associated with Indian athletics since 1979.

- She has won 4 Asian gold medals and 7 Silver medals. She is often called the "Queen of Indian track and field"
- On 6 July 2022, she was nominated to the Rajya Sabha by former President Ram Nath Kovind.
- With her appointment as chief of IOA,she also became the first Olympian and first international medallist to head the IOA in its 95-year-old history.
- Usha is the first sportsperson to have represented the country and also become IOA chief since Maharaja Yadavindra Singh, who played a Test match in 1934.
- Singh was the third IOA president who held office from 1938 to 1960.

Clash between India-China troops

Why in News

Recently, Indian troops clashed with the PLA troops tried to transgress the LAC in Yangtse area of Tawang Sector of Arunachal Pradesh.

Important Points

- The Chinese intrusion in the Yangtse area is as clear a signal that can be sent by Beijing that the disputed Sino -Indian border has become central to its relationship with New Delhi.

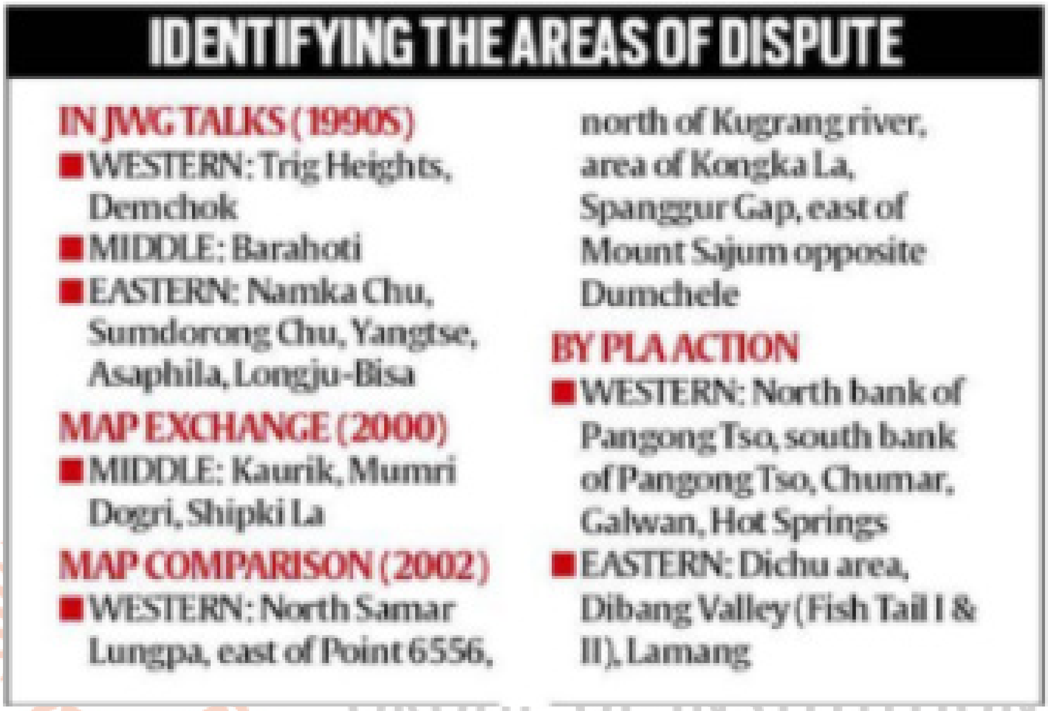
Scale of the Intrusion

  - o Reportedly 600 PLA personnel were involved in the incident.
  - o This is virtually a battalion of the PLA, where patrols are usually of platoon size.
- Indian and Chinese soldiers suffered minor injuries following a clash near the LAC in the Yangtse area.
- There are reports that the Chinese have established control over the sacred Chumig Gyatse waterfall earlier this year. This is just about three km as a crow flies from the Yangtse area and has been a focus of tourism development efforts by the Tawang administration.
- Reports suggest that in Yangtse, the target is a 17,000 ft peak which provides excellent views of the terrain on the Indian side, particularly the road connecting Tawang with the Se La Pass, the main supply line from the plains to the Tawang tract.
- But there is another reason why the area is important: The Chumig Gyatse, a collection of 108 waterfalls also known as Holy Waterfalls, which is sacred to the Buddhists. Folklore has it that Guru Padmasambhava flung his rosary at a rock which led to 108 streams gushing out
- There have been reports that the Chinese have been trying to establish themselves at the Chumig Gyatse area and the current stand off may be a consequence of that.
- The waterfall was just 250 metres from the Chinese side of the LAC. The Chinese name for the waterfall is Dongzhang waterfall and there are claims that earlier this year they had established control over it.
- There are several Indian posts and some are perched in the very heights that the Chinese were trying to capture.
- It is more than likely that they successfully prevented the Chinese from occupying the peak that the PLA has been aiming at.
- The first time that Chinese acted in this area was during the Kargil war of 1999 when, along with action in eastern Ladakh, the PLA took up positions in the Yangtse area and stayed there for 40 days. Later, they drew down their deploymen

Tawang area

- It is one of the more serious dispute points between India and China in the overall border question.
- Tawang is the birthplace of the sixth Dalai Lama and an important pilgrimage centre for Tibetan Buddhists.
- The 14th Dalai Lama took refuge in Tawang after he crossed over from Tibet to India in 1959, spending some days in the monastery there before proceeding further.
- Within Tawang, there are three "agreed areas" of differing Indian and Chinese perceptions of the LAC.
- Yangtse, which is about 25 km from Tawang town, north of the Lungroo grazing ground, is one of these areas.

- As a result, it has been the site of regular "physical contact" between the Indian Army and the PLA, especially as the high ground is on the Indian side, giving it a commanding view of the Chinese side.
- In October 2021, patrol parties of the PLA and the Indian Army in the area came face to face in Yangtse, leading to a scuffle. No one was hurt. A similar incident was reported in 2016.
- The December 2022 incident is the most serious encounter between the two sides in recent years in this sector, and the first one resulting in injuries since the Galwan clash, in which 20 soldiers on the Indian side and an unspecified number of Chinese troops lost their lives.
- The incident came days after China expressed objection to Operation Yudhabhyas, an India-US joint military exercise at Auli in the Uttarakhand hills, claiming it was a violation of 1993 and 1996 border agreements.



Joint Working Group (JWG)

- In the eighth meeting of the Joint Working Group (JWG) in August 1995, the two sides had agreed that there were eight areas where there was a difference of perception over where the LAC ran.
- There were two in eastern Ladakh, four in the central sector, and six in the eastern sector including Yangtse and Namka Chu, the place where the 1962 war began.

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