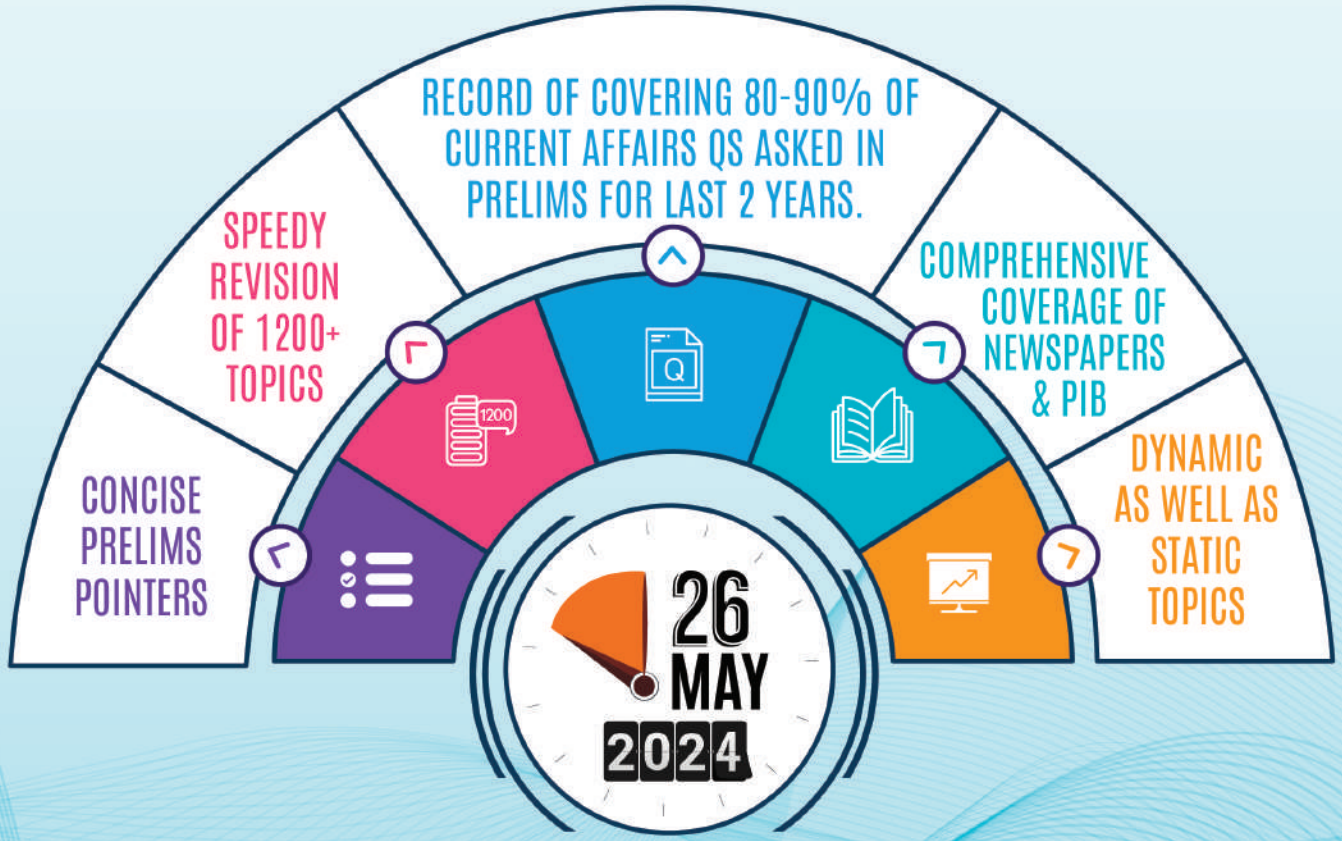
VAJIRAM & RAVI
Institute for IAS Examination

Prelims Quick Revision

2024

Part 1

May-Dec 2023



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Rani Durgavati
Mihir Bhoj (836 - 885 AD)
Bal Gangadhar Tilak (July 23, 1856- August 1, 1920)
Matangini Hazara (19 October 1870 – 29 September 1942)
Sri Alluri Sitarama Raju (4 July 1898 – 7 May 1924)
Sri Aurobindo Ghosh (5 August 1872 – 5 December 1950)
Sir Syed Ahmed Khan (17 October 1817 – 27 March 1898)
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Artificial Sweeteners
Vector Borne Diseases
Protosterol Biota
Neurotoxins
Virgin Birth
Leptospirosis Disease
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Nilotinib
Mosaic Virus
Brucellosis
Picolinic Acid
CH3+ Molecule (Methyl Cation)
Whole Genome Sequencing (WGS)
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Watson Crick Interaction and Hoogsteen Interaction
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Feline Panleukopenia Virus
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Blue Button Movement
Xpert MTB/RIF Test
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Monoclonal Antibodies (mAbs)
Thalidomide
Lycopene Sensors
Germicidal UV lights (UV-C lights)
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Genetic Engineering Appraisal Committee (GEAC)
Cell-Cultivated Meat
Phage Therapy
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Centralized Laboratory Network
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Low-Pungent Mustard
100 Microsites Project
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ART AND CULTURE

IMPORTANT PERSONALITIES

Gopal Krishna Gokhale (1866-1915)

G. K. Gokhale was an Indian political leader and a social reformer from Maharashtra during the Indian independence movement. He was also the **political guru of Mahatma Gandhi**.

Contributions to Independence Struggle

- Gokhale campaigned for Indian self-rule and for social reforms.
- In **1905**, he was elected president of the Indian National Congress (**Benares Session**). He was also associated with the **Poona Sarvajanik Sabha.**
- Between 1899 and 1902, he was a member of the **Bombay Legislative Council** followed by a stint at the **Imperial Legislative Council** from 1902 till his death.
- At the Imperial legislature, Gokhale played a key role in framing the **Morley-Minto reforms of 1909** and advocated for the expansion of legislative councils at both the Centre and the provinces.
- Gokhale favored **decentralization** and the promotion of panchayat and taluka bodies.
- He also fiercely opposed the **indentured labor system**, raising their problems in the Imperial legislature as well as at Congress sessions.

Academic Contributions

- He advocated free and compulsory primary education.
- He was a professor at the Fergusson College in Pune, where he taught political economy and history.
- In 1908, he founded the **'Ranade Institute of Economics'**.

Journalistic Contributions

- He launched the English weekly newspaper named The **Hitavad** (The people's paper) in 1911.

Servants of India Society

- It was formed by him in Pune (Maharashtra) in 1905 with the help of MG Ranade to further the expansion of education in India.
- The aim of the society was to **train missionaries** for the service of India.
- It also strived to prepare a cadre of **selfless workers** who were to devote their lives to the cause of the country in a religious spirit.

Rani Durgavati

- Rani Durgavati was born in 1524, in **Mahoba's Chandela dynasty** in Uttar Pradesh.
- June 24 is marked as a day of sacrifice when the queen is believed to have died while fighting the Mughals in the mid-16th century.
- Durgavati, however, was widowed in 1550, a few years after her marriage. Her young **son Bir Narayan** presided over the throne in name, and she ruled as the regent.
- During her reign, Durgavati fought with **Baz Bahadur**, the sultan of the neighboring Malwa who was eventually defeated by Akbar.
- **Abul Fazl**, the court historian of Akbar who chronicled these years in **Akbarnama**, described Durgavati as a combination of **"beauty, grace, and manlike courage and bravery".** He further added that the prosperity of the kingdom was such that people paid their taxes in gold coins and elephants.

Mihir Bhoj (836 - 885 AD)

- Mihir Bhoj was a ruler of the **Gurjara- Pratihara** dynasty. He succeeded his father Ramabhadra and was in power from 836 until 885 CE.
- Some of Bhoja's coins feature the term **Adivaraha**, which indicates that he was a devoted **devotee of Vishnu.**

- During his reign, **Kannauj** served as the state **capital**, which was known as Panchala during this time. Mihir Bhoj's kingdom extended from Multan in the west to Bengal in the east and from Kashmir in the north to Karnataka in the south.

Bal Gangadhar Tilak (1856-1920)

- His famous declaration was - **"*Swaraj is my birthright, and I shall have it*".**
- The British Government termed him as the "**Father of Indian Unrest**" and his followers gave him the title of '**Lokmanya'**, which means, one who is respected by the people.
- He maintained that simple constitutional agitation was not enough against the British. Instead, he advocated boycott movement to fight imperial rule. Thus, Tilak and his supporters came to be known as the **extremist wing** of Indian National Congress.
- He was one of the trios of **Lal-Bal-Pal**; others being Bipin Chandra Pal of Bengal and Lala Lajpat Rai of Punjab.
- Tilak proposed grand celebrations on ***'Ganesh Chaturthi'*** and **'*Shivaji Jayanti*'**. He believed that these celebrations could bring a sense of unity and inspire nationalist sentiment among Indians.

Journalistic and Literary Contributions

- Tilak published two newspapers - **Mahratta (in English) and Kesari (in Marathi**). Both the newspapers stressed on making the Indians aware of the glorious past and encouraged the masses to be self-reliant.
- Following killing of plague commissioner Rand in 1897 by Chapekar brothers, Tilak was imprisoned for 18 months on sedition charges for inciting murder. He wrote **Gita Rahasya** during the imprisonment.

All India Home Rule League

- Tilak **founded** the All-India Home Rule League in **1916** along with Annie Besant. The goal of the League was to achieve **self-government** in India.
- Tilak's league worked in areas like **Maharashtra (excluding Bombay city), Karnataka, Central provinces and Bera**r, and Annie Besant's league worked in the rest of India.

Matangini Hazara (1870 – 1942)

- She was leading one of the five batches of volunteers (**Vidyut Bahini**) during Quit India Movement.
- Matangini Hazra actively joined the freedom struggle and was so influenced by Gandhi's beliefs, that she earned the name **Gandhi Buri (the old Gandhian woman).**
- She was arrested for taking part in the **Civil Disobedience Movement** in 1930.
- In 1942, Hazra led a large procession of around 6,000 protesters with the aim to take over the Tamluk police station from British authorities. Amid the conflict, Hazra was shot dead.
- Her death incited revolutionaries to establish their own parallel government in **Medinipur**, which functioned till 1944, when it was disbanded at Gandhi's request.
- In 1977, the first statue in the Kolkata Maidan dedicated to a woman revolutionary was that of Matangini Hazra.

Sri Alluri Sitarama Raju (1898 – 1924)

He was a prominent Indian freedom fighter from Andhra Pradesh. He hailed from a tribal community called the **Kondadora or Kondareddy community.**

Rampa Rebellion

- The **Forest Act of 1882** prohibited the collection of **minor forest products** like roots and leaves and tribal people were forced to work for the colonial government.
- While the **tribals were exploited by muttadars** (village headmen hired by the colonial government to extract rent), new laws and systems threatened their way of life.
- The tribals along with muttadars (dissatisfied with the British curtailment of their powers), erupted into armed resistance **led by Sitarama Raju** - **the Rampa or Manyam Rebellion** - in August 1922. The rebellion lasted until

May 1924, when Raju, the charismatic **'Manyam Veerudu**' or Hero of the Jungle, was apprehended and executed.

Sri Aurobindo Ghosh (1872 – 1950)

- Aurobindo Ghose was an Indian philosopher, yoga guru, poet, and Indian nationalist.
- He was one of the founders of the **Anushilan Samiti** which protested against the atrocities of the British government. He was also charged in the **Alipore Bomb Case** and sentenced to jail.
- He **gave up active politics after his stint in jail** and devoted himself to spiritualism. He reached **Pondicherry** in 1910. In 1926, with the help of his spiritual collaborator, **Mirra Alfassa** (referred to as "The Mother"), Sri Aurobindo Ashram was founded.
- His main literary works are **The Life Divine, Synthesis of Yoga, and Savitri: A Legend and a Symbol.**

Sir Syed Ahmed Khan (1817 – 1898)

- Sayyid Ahmad Khan was a leading Muslim **social reformer**. He was deeply impressed by modern scientific thought and dedicated his life to reconciling it with Islam.
- He declared the **Quran** as the sole authoritative work for Islam, considering all other writings as secondary. He interpreted the Quran in the light of contemporary rationalism and science.
- He urged people to develop **critical thinking and freedom of thought**, emphasizing that civilized life requires freedom of thought. He established the **Mohammaden Anglo-Oriental College in 1875**, which later became the Aligarh Muslim University.
- He emphasized *raising the status of women in society, advocating for the removal of purdah, and promoting education among women*. He also criticized practices like *polygamy and easy divorce*.
- In the initial phase, he stood for the Hindu-Muslim unity and was nationalistic in his point of view. In his later years, he discouraged his followers from participating in the national movement started by Congress.

Guru Tegh Bahadur (1621 – 1675)

- Guru Tegh Bahadur was born in Amritsar in 1621 to Mata Nanki and Guru Hargobind, the **sixth Sikh guru,** who raised an army against the Mughals and introduced the concept of **warrior saint**.
- As a boy, he was called **Tyag Mal** because of his ascetic nature. His **bravery and heroic swordsmanship** in the battle earned him the name of Tegh Bahadur. ("Tegh" is 'sword' in Punjabi).
- He contributed many hymns to the **Guru Granth Sahib** including the Saloks, or couplets. He is regarded as the savior guru, and he resisted the forced conversions of non-Muslims to Islam.
- His martyrdom is remembered as the **Shaheedi Divas** every year on **November 24.**

Lachit Borphukan (1622 – 1672)

- Born in 1622, Lachit Borphukon led the **Ahom troops** which fought and defeated the advancing Mughal troops at the **Battle of Saraighat** on the outskirts of Guwahati in 1671.
- Borphukan is also considered as the inspiration behind strengthening India's naval force and revitalizing inland water transport and creating infrastructure associated with it.
- **Since 1999**, the **Lachit Borphukan gold medal** has been awarded to the best cadet from the National Defence Academy.

FAIRS AND FESTIVALS

Bihan Mela

- The **Kondh tribe in Odisha's Nayagarh district** has introduced the **Bihan Mela, a seed festival**, to their calendar of celebrations. The event, which began in 2019, **mimics a traditional market where farmers exchange seeds.**
- Farmers from 40 villages participate in the event, which begins after harvesting kharif crops, including hybrid and indigenous varieties of paddy, millets, maize, and sorghum.

- Women collect seeds and store them in clay pots, which are decorated with red and white designs and carried to the fair.
- Since the Green Revolution, farmers have abandoned native crops and have shifted to monoculture cash crops, affecting their food security and soil quality. **The seed festival aims to help farmers return to their traditional farming methods.**

Kondh tribe

- The Kondhs are the largest tribal group in the state of Odisha. They are known for their rich cultural heritage, martial traditions and indigenous values, which are based on harmony with nature.
- Traditionally hunter-gatherers, they are divided into the hill-dwelling Khonds, and plain-dwelling Khonds for census purposes, but the Khonds themselves identify by their specific clans.
- Khonds usually hold large tracts of fertile land, but still practice hunting, gathering, and slash-and-burn agriculture in the forests as a symbol of their connection to, and as an assertion of their ownership of the forests wherein they dwell.
- Khonds speak the Kui/Kuvi language which is a Dravidian language and is written in the Odia script.

Kharchi Puja

- It is centred around the worship of ancestral deities of the **Tripuri people**.
- It is also called the '**Festival of 14 Gods'**. The word 'Kharchi' is derived from two Tripuri words –'khar' or kharta meaning sin and 'chi' or 'si' meaning cleaning.
- It is believed that the Mother Goddess or Tripura Sundari, the presiding deity of the land who protects the people of Tripura, menstruates during the time of Ambubachi. Hence, Kharchi Puja is observed **to ritualistically clean the Earth** after her menstruation is over and wash away the sins of the people in the land.
- The festival involves the construction of the **Chaturdasha Mandapa**, which symbolizes the royal palace of the Tripuri kings and is constructed out of bamboo and thatched roofs.

Unmesha and Utkarsh Festivals

- The two events were jointly organized by Sangeet Natak Akademi and Sahitya Akademi, in association with the culture department, Madhya Pradesh.
- **Utkarsh** is a national festival of folk and tribal expressions. It means progress, and the festival is held in the spirit that the progress of the tribal group will lead to the progress of the country.
- **Unmesha** is India's most inclusive and Asia's largest literature festival in terms of the number of languages represented.
- **Sangeet Natak Akademi** is the apex body in the field of performing arts in the country. The Chairman of the Akademi is **appointed by the President** of India for a **term of five years**. It is presently an Autonomous Body of the **Ministry of Culture.**
- **Sahitya Akademi** - India's National Academy of Letters, is the central institution **for literary dialogue, publication, and promotion** in the country. It is the only institution that undertakes literary activities in 24 Indian languages, including English and Rajasthani (apart from 22 languages enumerated in the Constitution). It also gives special awards called **Bhasha Samman** to significant contribution to the languages.

Aadi Perukku Festival

- The festival is celebrated in Tamil Nadu to show the **gratitude to the mother nature and monsoon god** for providing uninterrupted **supply of water.**
- As per Tamil Calendar, this festival is celebrated on the **18th day of Aadi month** which marks the beginning of the monsoon season in Tamil Nadu.
- On this auspicious day, Mother nature is worshipped in the form of **Amman deities**.
- This day is also celebrated as Pathinettam Perukku, Padinattam or Pathinettam means eighteen and Perukku means rising.

Nadi Utsav

- The fourth Nadi Utsav was **organized by the National Mission on Cultural Mapping (NMCM**) of Indira Gandhi National Centre for the Arts (IGNCA) on the banks of **River Yamuna.**
- The event is an attempt **to document riverine culture, its tradition, rituals, and water wisdom.**
- IGNCA has been organizing the Nadi Utsav since 2018. The inaugural event was held in Nashik on the banks of **River Godavari**, second on the banks of **River Krishna**, and third on the banks of **River Ganga**.
- IGNCA was established in 1987 as a government-funded arts organization in India. It is an autonomous institute under the **Ministry of Culture.**

Kati Bihu

- It is celebrated in **Assam** annually on the first day of Kati month in the Assamese calendar. The Bihu festivals have agricultural significance and mark different farming cycle stages. Kati Bihu, also known as **Kongali Bihu**, **occurs when rice saplings are transplanted**.
- The name Kongali Bihu is derived from the fact that during this period the granaries are typically empty, and there's little left to consume.
- A special lamp called **Akash Banti or Sky Candle is** lit in paddy fields.

Bathukamma Festival

- Bathukamma is a flower-festival celebrated by the women of Telangana and some parts of Andhra Pradesh. Bathukamma is a **beautiful flower stack**, arranged with different unique seasonal flowers most of them with medicinal values, **in seven concentric layers in the shape of a temple gopuram.**
- In Telugu, 'Bathukamma' means **'Mother Goddess come Alive'**.
- During the entire preceding week, women make 'boddemma' (a deity of Gowri 'Mother Durga') along with Bathukamm.

Raja Parba

- Also called **Mithuna Sankranti**, it is a multi-day festival which is celebrated in **Odisha** to bring **prosperity in agriculture fields** and also **to celebrate womanhood.**
- The festival is dedicated to **Basu- Mata**, the Earth Goddess and during this festival, all the **agriculture activities are stopped to allow the Goddess to rest.** It is believed that during this period the **Goddess undergoes her menstrual cycle.**
- The festival is mostly celebrated by girls, women, and children. **Girls are forbidden from all kinds of manual work** during these days of festival. In many villages **night yatra and Gotipua dance** are performed by artists.

Ambubachi Mela

- Ambubachi is one of the major festivals of north-eastern India and it is held at **Kamakhya temple** of Guwahati in the State of Assam. It has also been dubbed as the **'Mahakumbh of the East'.**
- It is celebrated **during the monsoon season** that happens to fall during the **Assamese month Ahaar**, around June. This mela is also known as **Ameti or Tantric fertility festival** since it is closely associated with Tantric Shakti cult prevalent in eastern parts of India.
- The festival has been **associated with fertility rituals** and many devotees come **to seek the blessing for a child** from the Goddess.
- During the festival, the patron Goddess Kamakhya is said to be undergoing her **annual menstrual cycle**. Hence, the temple remains closed for three days.

Ker Puja

- Ker **means austerity.** This puja is celebrated **after 14 days of Kharchi puja.**
- During Ker a particular area is demarcated, this area is bounded by the **Ker symbol**. The road to the entry or exit is **totally blocked** by the symbol.

- Before the Ker puja is started, all the **dying person, or expectant mothers are shifted** to a neighboring village. Once Ker is started, then no one shall be allowed to go out of the area.

ARCHITECTURE

Tungnath Temple

- The central government issued a notification declaring the temple of Tungnath as **a monument of national importance.**
- It **is located in Rudraprayag, Uttarakhand**. It is the **highest Shiva temple in the world.** It is the third of the five Panchkedars (Kedarnath, Madhmaheshwar, Tungnath, Rudranath, Kalpnath) of Uttarakhand.
- The temple is believed to have been built by **Adi Shankaracharya.**

Konark Wheel

- A replica of Konark Wheel from the Sun temple in Odisha's Puri served as the backdrop at the G20 summit.
- The **Konark Sun Temple** was built in the 13th century by **King Narasimhadeva I** of the **Eastern Ganga Dynasty.** It is also a **UNESCO World Heritage site**. It follows the **Kalinga or Orissa style of architecture,** which is a subset of the nagara style of Hindu temple architecture.
- The Konark Chakra represents the **wheel of the Sun God's chariot.** The wheel has 24 spokes which can be used as a sundial. By observing the shadow cast by spokes, one can determine the approximate time of day.
- This temple was called the "**Black Pagoda**" in European sailor accounts. Similarly, the Jagannath Temple in Puri was called the "White Pagoda".

Edakkal Caves

- Located in **Wayanad** in **Kerala**, the Edakkal Caves are **among the oldest human settlements** ever discovered.
- Despite their name, the Edakkal Caves are **not actually caves**. They are part of a prehistoric **rock shelter.** The name Edakkal itself means “a stone in between”.
- Inside the caves are pictorial drawings and engravings that indicate the presence of ancient human settlements in the region. The oldest among them **date back to 6000 B.C.** to the age of Stone Age.

Sacred Ensembles of Hoysalas

- Three temples of Hoysalas have been inscribed on the **UNESCO’s World Heritage List.** These include **Chennakeshava** temple at Belur, the **Hoysaleswara** Temple in Halebidu and the **Keshava** Temple in Somanathapura village.
- Hoysalas
  - These began as **provincial Governors under the Western Chalukyas**, held power in Karnataka from the 10th century to the 14th century.
  - The capital of the Hoysalas was initially located at **Belur** but was later moved to **Halebidu** (or Dwarasamudra).
  - One notable feature of Hoysala architecture is the use of **soapstone**, a malleable stone that is easy to carve. The temples are generally built on **stellate (star-shaped)** platforms.

Chausath Yogini Temple

- It is believed that the **design of the old Parliament** building was inspired from Chausath Yogini temple located in Madhya Pradesh.
- The temple is **circular**, with 64 chambers dedicated to the 64 yoginis, and a central shrine **dedicated to Shiva.**
- It was built around 1323 by King Devapala of the Kachchhapaghata dynasty. It is **hypaethral**, which means **it has no roof and no shikharas.**

LITERATURE

Vinaya Pitaka

- It is the first of the three divisions of the Tripitaka (Triple Basket), the definitive canonical collection of scriptures of the **Theravada Buddhism**.
- The other two parts of the Tripiṭaka are the **Sutta Piṭaka** and the **Abhidhamma Piṭaka.**
- The Vinaya Pitaka consists of three parts -
  - Suttavibhaṅga: Rules for monks and nuns
  - Khandhaka: 22 chapters on various topics
  - Parivāra: Analysis of rules from various points of view

Democratic Roots in Vinaya Pitaka

- In the context of India's new Parliament building inauguration, parallels were drawn to the speech of Dr BR Ambedkar in 1948 where he remarked how aspects of democracy were not imports of British rule **but located in Indian history itself.** In the speech, he said that the reference for **democratic setups in India can be found in Vinay-Pitaka.**
- He said that Vinay-Pitaka regulated meetings of the Bhikkhus Sangh (the monks) and there was the well-known rule that **no debate could take place except on 'Neti' motion.** There could be no debate held unless there was a motion, and no vote could be taken unless a motion was put.
- There was also a system of '**secret ballot'**, where the Bhikkhu could drop his 'Salpatraka' in the ballot box.

National Manuscripts Bill, 2023

- A manuscript is a handwritten **composition on paper, bark, cloth, metal, palm leaf** or any other material dating back **at least 75 years** and has significant scientific, historical content or aesthetic value.
- India possesses an estimated **10 million manuscripts in 80 ancient scripts** like Brahmi, Kushan, Gaudi, Lepcha, and Maithili.
- The **Bakhshali** manuscript, an ancient Indian mathematical text written on birch bark, is considered to be the earliest recorded example of the **use of zero**.
- The bill envisages setting up the 10 member **National Manuscripts Authority (NMA)** as the apex policy making body for manuscripts. It will have the **Union Minister of Culture as the Chairperson.**

National Mission for Manuscripts

- It was **established in 2003 by the Ministry of Tourism and Culture** with the aim to unearth and preserve the vast manuscript wealth of India.
- The motto of the mission is- **Conserving the past for the future**. The mission focuses on locating manuscripts through surveys, documentation, conservation, and to train the next generation of scholars.
- It has **digitized 3.3 lakh manuscripts**, containing about 3.1 crore folios. It has also uploaded 1.18 lakh manuscripts and has made available online about 70,000 manuscripts for public access.

Gnanamuyarchi

- **Palm manuscripts** from the 18th Century, titled Gnanamuyarchi, have been discovered in an **Armenian monastery in Northern Italy.** The findings highlight the rich history and cultural exchanges between different regions during that time.
- The manuscripts are **written in Tamil**, showcasing the influence of the language and its spread beyond its homeland. They offer valuable insights into the time period they originated from, providing a first-hand account of the **social, literary, and religious practices during that era.**

Bhartiya Bhasha Summit

- The summit was organized as part of the **Bharatiya Bhasha Utsav**, jointly by the **Ministry of Education, Ministry of Skill Development and Entrepreneurship**, and their constituent institutions.

- The summit aimed to facilitate a **seamless transition from the current education ecosystem** to one rooted in Bharatiya Languages, **in line with the New Education Policy-2020 vision.**
- The government has proposed to celebrate the birthday of renowned Tamil poet and freedom fighter Mahakavi Chinnaswami Subramania Bharati as **Bharatiya Bhasha Divas (11 December).**

SCULPTURES

Sengol

- A historic sceptre called Sengol, has been installed in the new Parliament building. Sengol is derived from the Tamil word Semmai, meaning **righteousness**.
- Pandit Nehru accepted Sengol on August 14, 1947, through the Adhinam of Tamil Nadu. It was as a sign of the **shift of power from Britishers to the people of India.**
- In the traditions of **Chola dynasty**, the symbol (for the transfer of power) used was the handover of the 'Sengol' from one King to his successor.
- The sceptre has **a Nandi, Lord Shiva's sacred bull**, on the top, **symbolising justice.**

Chola Dynasty

- The dynasty was founded by the king **Vijaylaya**, described as a "feudatory" of the Pallavas, and stretched across present-day Tamil Nadu, Kerala, and parts of Andhra Pradesh and Karnataka.
- The achievements of the Chola dynasty were its naval power and building magnificent temples like the **Brihadeeswara temple** of Thanjavur.

Nataraj At G20 Summit

- A magnificent 27 feet Nataraja, the tallest statue of Lord Shiva's dancing form in the world, was placed at the G20 summit at Bharat Mandapam in New Delhi. It has been constructed using the **lost-wax casting method**.
- The design of this Nataraja at the summit is inspired by three Nataraja idols - **Thillai Nataraja** Temple in Chidambaram, the **Uma Maheswarar** Temple in Konerirajapuram, and the **Brihadeeswara** Temple, a UNESCO World Heritage Site, in Thanjavur.
- *Nataraja*: It is a depiction of Lord Shiva as the divine cosmic dancer. The dance performed by Nataraja is called Tandava. The image of Nataraja is encircled in a **prabhamandala, that is the circle of fire.**

Dancing Girl Figurine of Mohenjodaro

- It is a prehistoric bronze sculpture made in **lost-wax casting** about 2300-1750 BC in Mohenjodaro of Indus Valley Civilization.
- It depicts a nude young woman or girl with stylized ornaments, standing in a confident, naturalistic pose. The statue was excavated by British archaeologist **Ernest Mackay in 1926**.
- It signifies that people of Indus Valley knew metal blending and casting. Also, it indicates that entertainment, especially dance, was part of the culture.
- **Lost wax casting technique**: Also known as "investment casting," is the process by which a single metal object is cast from a wax model. Lost wax casting builds a mould around a sacrificial wax model. After the mould investment is set, the wax is melted out and forms a cavity where the metal or glass flows in.

OTHER ART FORMS

Lambani Art

- At one of the G20 meetings in Hampi, a Guinness world record was created for the 'largest display of Lambani items' with a total of 1755 items.

- **Lambani embroidery** is a vibrant and intricate **form of textile decoration** characterized by **colorful threads**. Lambani craft tradition involves skillfully stitching together small pieces of discarded fabric to create a beautiful fabric.
- The embroidery traditions of the Lambanis are shared with textile traditions **across Eastern Europe, West, and Central Asia**. This refers to the movement of the nomadic communities across such regions historically, forming a shared artistic culture.
- Lambanis, also called **Lambadis or Banjaras**, were **nomadic tribes who came from Afghanistan** to Rajasthan and have now spread themselves across Karnataka, Andhra Pradesh, Rajasthan, MP, Gujarat, & Maharashtra.

Artworks Presented to Greece

- The Indian Prime Minister recently presented several artworks and traditional items to the Greek counterpart.
- **Meghalaya Shawls:** These were originally woven for the Khasi and Jaintia royalty, who considered them a symbol of their power and status. Their intricate designs and vibrant colors were a reflection of the royal family's wealth and prestige.
- **Dokra Art:** It is one of India's prehistoric art forms. One of the earliest expressions of this ancient art is the *dancing girl artefact found from Mohenjo-Daro and Harappan excavations*. It is named after the **Dhokar Damar**, a nomadic Indian tribe indigenous to the central and eastern regions of the country. It involves the use of non-ferrous metal casting through lost-wax casting method.
- **Bidri Artware:** Bidri is a form of **metal handicraft**. It was developed in the 14th century during the rule of the Bahmani Sultans.

Pulikali

- Pulikali (**Tiger Dance**) is one of the folk art forms of **Kerala**. On the fourth day of Onam festival, **artists paint their bodies like tigers** with stripes of yellow, red, and black and dance to the rhythm of traditional percussion instruments such as thakil, udukku and chenda.
- The main theme of this folk art is **tiger hunting** with participants playing the role of tiger and hunter.
- **Onam** is one of the important festivals of Kerala that celebrates **rice harvest.** It is also celebrated to pay homage to legendary **King Mahabali's homecoming**. Onam is celebrated in the **Chingam month,** which marks the **beginning of the Malayalam calendar.**

TRIFED's Artisanal Treasure at G20 Summit

- The G20 Summit witnessed India's rich tribal heritage and craftsmanship, presented by TRIFED (Tribal Cooperative Marketing Development Federation of India), Ministry of Tribal Affairs.
- **Longpi Pottery**: **Tangkhul Naga tribes** practice this pottery style. Unlike most pottery, Longpi does not use the potter's wheel. All shaping is done with the hand and with the help of moulds.
- **Chhattisgarh Wind Flutes:** Curated by the **Gond Tribe** of Bastar, the Sulur bamboo wind flute is a unique musical creation. It produces melodies through a simple one-handed twirl.
- **Gond Paintings:** Paintings made by the Gond tribe show their deep connection to nature and tradition.
- **Gujarat Hangings:** Curated by the **Bhil & Patelia Tribe** in Dahod, Gujarati wall hangings are rooted in ancient Gujarat art form.
- **Sheep Wool Stoles:** These are crafted by **Bodh, Bhutia, and Gujjar Bakarwal tribes** from Himachal Pradesh and Jammu & Kashmir.
- **Araku Valley Coffee: It** comes from Araku Valley in Andhra Pradesh. This coffee is renowned for its unique flavors, aroma, purity, and sustainable cultivation practices.
- **Rajasthan Artistry:** It consisted of Glass Mosaic Pottery, Meenakari (art of decorating metal surfaces), and Metal Ambabari craft curated by the Meena Tribe.

Mylara Cult

- The discovery of two sculptures in the Udupi district of Karnataka has proved that the ancient Mylara cult existed in the coastal region.
- Mylara is a **folk deity** identified as a manifestation of **Lord Shiva**. This deity is also commonly known as Mailara in Karnataka and as Khandoba in Maharashtra.
- This cult is prevalent in **southern India**, including Karnataka, Maharashtra, Andhra Pradesh, and Tamil Nadu.

Cham Lama Dance

- Cham **was introduced in 8th century** by **Padmasambhava** (who introduced Tantric Buddhism to Tibet), to subjugate the local demons who were obstructing the construction of monastery.
- The dance also known as the **God Dance** is performed by Buddhist monks and is unique to **Tibetan Buddhism.** For them, performing this dance **is a form of offering**. During the dance, monks **impersonate deities and protectors.**
- **Monks in colorful costumes wear masks** and they dance to the music played from traditional instruments (such as ritual drum).

Kolattam Dance

- The Kolattam dance was recently performed in **Andhra Pradesh** during a children's festival.
- '**Kol' means a small stick, and 'Attam' means play,** hence, it is a play or dance performed with sticks. Kolattam dance is one of the most popular dances in **Andhra Pradesh and Tamil Nadu**. The dance form is also known as Kolkollannalu or Kollannalu.
- It is part of a religious offering, where **women dancers pay homage to the temple Goddess.** It is **predominantly a dance of women**. Men mostly take up the role as drummers or play the music.

Seethakali Folk Art

- It is a unique centuries-old **folk art form** that is believed to have originated at Perinad in the Kollam district of **Kerala**. This is practiced by **Vedar and Pulayar communities.**
- It is based on episodes of the **Indian epic Ramayana.** The characters of Rama and Laxmana appear in green since the color is used to represent gods and goddesses in **Kathakali.**
- The props and instruments used during performances are all made of **natural materials like bamboo and palm leaves.**

Mewar School Of Painting

- The emergence of the Mewar School is associated with a set of Ragamala paintings painted at Chawand in 1605 by an artist named Nisardin.
- The early Mewar painting was dominated by the Sahibdin which focuses on his depiction of literary texts- Ragamala, the Ramayana and the Bhagavata Purana. Mewar painting in the 18th century increasingly became secular and courtly in ambience.
- The unique feature was the 'tamasha' paintings that show court ceremonial and city views.

MISCELLANEOUS

Jallikattu and Kambala

- **Jallikattu** originated from the Tamil words Jalli and Kattu, referring to silver or gold coins tied to the bulls' horns.
- Its first references date back to a *seal discovered* at Mohenjodaro, which is dated between 2,500 BC and 1,800 BC. During that time, it was called **Eru Thazuval,** meaning "embracing the bull."

- It is a **bull-taming sport** traditionally played in **Tamil Nadu** as part of the **Pongal harvest festival**. On this occasion, people worship the **Sun God** for abundant agricultural crops.
- **Kangayam, Pulikulam, Umbalachery, Bargur and Malai Maadu** are among some native cattle breeds reared for Jallikattu.
- Jallikattu also finds mention in **Silappadikaram,** one of the great Tamil epics from the Sangam age.
- **Kambala** is a buffalo race held during a harvest festival dedicated to an incarnation of **Lord Shiva.**

Tankai Method

- The Ministry of Culture and the Indian Navy have signed an MoU to revive 2000-year-old **technique of shipbuilding** known as the Tankai Method.
- The ships, **constructed by stitching wooden planks** together rather than using nails, offered flexibility and durability, making them less susceptible to damage from shoals and sandbars.
- **Significance:** It aims to instill a sense of pride in India's rich maritime heritage among its citizens.

Meri Maati Mera Desh

- The Union government launched the 'Meri Maati Mera Desh' campaign, as a culminating event of the '**Azadi Ka Amrit Mahotsav'**, celebration of 75 years of Indian Independence.
- Under this initiative, **young volunteers collected soil** from every panchayat/village and brought it to the block, from where the **'Mitti Kalash'** was transported to Delhi.
- The mitti (soil) from all parts of the country was utilized to develop a unique garden, called the **Amrit Vatika**, with the planting of indigenous species.

Namda Project

- The Namda craft of **Kashmir** is being revived under a **Skill India's pilot project** with more than 2000 candidates receiving training in the dying art form.
- Due to low availability of raw material, lack of skilled manpower and marketing techniques, the **export of this craft has declined almost 100 percent between 1998 and 2008.**
- Namda craft is a **rug made of sheep wool** through felting technique instead of normal weaving process. It is believed that a Sufi saint named **Shah-e-Hamdan** introduced Namda art to the Kashmiris.
- Namda has been practiced by **Pinjara and Mansuri** communities and **Sama Muslims in Kachchh**. Although people working on this wool craft can be found across India, they are mainly seen in **Rajasthan, Himachal Pradesh, and Kashmir**.

Geographical Indication Tags

- Seven different products from Uttar Pradesh were recently given Geographical Indication (GI) tag.
- **Amroha Dholak**: It is a musical instrument made of natural wood. Mango, jackfruit, and teakwood are preferred for making dholaks.
- **Baghpat Home Furnishings:** Exclusive handloom home furnishing products and running fabrics in cotton yarn.
- **Barabanki Handloom Products**
- **Kalpi Handmade Paper**
- **Mahoba Gaura Patthar Hastashilp:** It is a stone craft. Gaura stone craft is made of radiant, white-colored stone that is predominantly found in this region.
- **Mainpuri Tarkash:** It is primarily brass wire inlay work on wood. It was mainly used for khadaous (wooden sandals), a necessity for every household, since leather was considered unclean.
- **Sambhal Horn Craft.**
- **GI Tag:** A GI is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin. The tag stands valid for 10 years.
- **Nodal Agency**: Department for Promotion of Industry & Internal Trade, Ministry of Commerce & Industry

Pahari Paddari Tribes

- **Pahari** is primarily a linguistic group forming 8.16% of **Jammu & Kashmir's** population. It includes Hindu, Muslim, Sikh, and Kashmiri origin people. Paharis were always considered a linguistic group ("Pahari Speaking People") and were thus unable to fulfill the requisite criteria to be considered as ST.
- **Paddaris'** homeland is spread over **Ladakh, Himachal Pradesh, and Jammu & Kashmir.**

Khadi Rakshasoot

- The Khadi and Village Industries Commission (KVIC) has launched 'Khadi Rakshasoot' to commemorate the **Raksha Bandhan**. It was introduced under the aegis of **Ministry of MSMEs.**
- This product is entirely natural, **without any chemical additives**. It includes basil, tomato, brinjal seeds that further enhances its composition. The idea behind this is that, when disposed of into the earth, it will sprout up to basil, tomato, and brinjal plants.
- **KVIC***:* It is a **statutory body** under the KVIC Act, 1956. It comes under the Ministry of MSMEs.

Independence Day's Address from Red Fort

- The Red Fort is an integral part of India's Independence Day celebrations. To understand why it was chosen, it is important to know how Delhi became the seat of power in India.
- **Capital of Hindustan**: It was under the Delhi Sultanate (1206-1526) that Delhi became a major capital city from where a large part of north India was ruled.
    - Though the Mughals, under Akbar, shifted their capital to Agra for some time, they continued to be seen as the rulers of Delhi.
    - Finally, under Shah Jahan, Delhi became the Mughal capital once again with the establishment of Shahjahanabad in 1648.
    - The Mughals continued to rule from fort of Shahjahanabad- more popularly known as Red Fort- till 1857.
- **The stamping of British Imperial authority over the Red Fort:** After capturing Delhi from the rebels in 1857, the palace was converted into a British garrison and the famed Diwan-i-Aam into a hospital.
- **Co-opting Delhi's symbolic authority:** The city remained a strong symbol of authority in India with British organizing grand Delhi Durbars in *1877, 1903, and 1911*. The British finally decided to **shift their capital to Delhi from Calcutta in 1911**.
- **Reclaiming the Red Fort:** The highly public INA trials were held at the Red Fort. The trials firmly established the Red Fort as a symbol of power and resistance in the minds of the Indian public. It is in this context Nehru decided to hoist the flag over the Red Fort in 1947.

Wagh Nakh

- Maharashtra's Cultural Affairs Minister signed an **MoU with the Victoria and Albert Museum in London to bring back Chhatrapati Shivaji Maharaj's legendary wagh nakh to the state.**
- Literally meaning **'tiger claws',** the Wagh Nakh is a medieval **claw-like dagger** which was used across the Indian subcontinent.
- Its most famous use comes from the story of **Afzal Khan's killing by Shivaji**. Khan was a general of Bijapur's Adil Shahi Sultanate. **Shivaji** sensed deceit during a meeting with Afzal Khan and came prepared. Under his robes, he wore chainmail and hid a 'wagh nakh' in his sleeve.
- The wagh nakh **reached London via James Grant Duff**, an East India Company officer who served as the Satara State Company Resident.

Juna Khatiya Site

- It is an Early Harappan burial site located in Lakhpat Taluka of Kachchh district in **Gujarat.** This is the **biggest early Harappan cemetery** documented in India so far.

- The burials show diverse burial practices in the form of **inhumations and symbolic burials** with Early Harappan Sindh Type pottery.
- Pottery from the burials is of various shapes like pots, jars, basins, dishes, bowls, bottles, beakers, and lids. Another distinctive feature includes beakers and other **smaller vessels, found within larger vessels.**

Gongadi Shawls

- Gongadi, (known also as Kambal) is a **woolen blanket** woven by **Kuruma pastoralist communities** from wool of indigenous Deccani sheep found in Telangana.
- The blanket has also been used by **Indian Armed Forces** to beat harsh winters at the borders.
- One of the unique natures of Gongadi is that **it does not fade** but grows darker in time. It is said to be so strong that a fully grown bull can be lifted off the ground with it.
- The traditional gongadi is **produced organically**, without using any dyes either natural or synthetic. Sizing of the strings is done using the **paste of soaked and cooked tamarind seeds.**

Jatan: Virtual Museum Builder

- It is a **digital collection management system** for Indian museums**.** It is designed by the **Human Centers Design and Computing Group**, Pune.
- It is a **client-server application** with features such as image cropping, watermarking, unique numbering, and management of digital objects with multimedia representations.
- It can **create 3D virtual galleries** and provide public access through web, mobile or touchscreen kiosks.
- As of now, JATAN software is successfully deployed in **ten national museums across India,** as standardized by the Ministry of Culture.

Gandhi Peace Prize 2021

- It is an annual award instituted by the Government of **India** in 1995 on the occasion of **125th Birth Anniversary of Mahatma Gandhi.**
- The award is **open to all people** regardless of nationality, race, language, caste, creed, or gender. The prize can be given to institutions, individuals, and organizations. For 2021, it was conferred on **Gita Press, Gorakhpur.**
- **Gita Press** was established **in 1923** and it is one of the world's largest publishers, having published 41.7 crore books in 14 languages, including 16.21 crore Shrimad Bhagvad Gita.

Bastille Day and French Revolution

- The Bastille Day military parade, also known as the **14 July** military parade, is a **French military parade** that has been held on the morning of 14 July each year in **Paris** since 1880.
- July 14 is the anniversary of the **storming of the Bastille prison in 1789** - a crucial point in French Revolution. The day is marked as the **National Day of France**.
- Reasons for French revolution included **no representation in administration** for common people, entrenchment of **feudalism,** verge of **bankruptcy,** along with the crucial role of **intellectuals** in awakening the masses.
- The French revolution is remembered for propagating the ideals of **Liberty, Equality, and Fraternity** which are also enshrined in the **Indian constitution**.

Anubhav Mantapa

- It is said to be the **first parliament** in the history of mankind. **Prabhudeva**, a great Yogi, was the president and **Lord Basava** was the Prime Minister. It inspired **Bharat Mandapam** in New Delhi.
- The difference between present day parliament and Anubhava Mantapa was that the **members were not elected but rather nominated** by the higher authorities of the Mantapa. The necessary qualification was **spiritual attainment**.

Porpanaikottai Site

- It is a **Sangam-age** archaeological site in Pudukottai district, Tamil Nadu.
- **Over 355 antiques**, including a gold nose stud, hopscotch, spouts, pieces of glass bangles and beads, a terracotta lamp, a coin, a spindle whorl, and a rubbing stone have been found here.
- Light Detection and Ranging (LIDAR), a remote sensing method, has indicated that **a fort had existed** at this place.

Kui Language

- The **Odisha Cabinet** recently recommended a proposal for inclusion of 'Kui' language in the **8th Schedule** of the Indian Constitution.
  - 8th schedule lists the official languages of India.
- Kui is a **South-Eastern Dravidian language** spoken by the Kandha community in Odisha. It was also referred to as the **Kuinga language** during the historical period.
- Script: Kui is traditionally written using the Odia script, which is also used for the Odia language.

Ol Chiki Script

- It was **created in 1925** by Raghunath Murmu from Odisha as a way to write **Santhali language**. It was created as a way **to promote Santhali culture.**
- Santhali language is spoken mainly in **Jharkhand and West Bengal** in northern India, and also in northwestern Bangladesh, eastern Nepal, and Bhutan. Santhali is also written with the **Latin, Odia, Bengali, and Devanagari** alphabets.

Santiniketan

- It was the home of Nobel laureate Rabindranath Tagore, and it has been declared as a **UNESCO World Heritage Site**. It was a residential school and center for art based on ancient Indian traditions.
- In 1921, a 'world university' was established at Santiniketan, later recognized as **'Visva Bharati'.** The chancellor is this university is the **Prime Minister.**
- **UNESCO World Heritage:**
  - A World Heritage Site (WHS) is a landmark or area with legal protection by an international convention administered by UNESCO under the **UNESCO World Heritage Convention,** established in 1972.
  - There are 3 categories of such sites: **Cultural, Natural, and Mixed**.

Statue Of Oneness

- 'Statue of Oneness' of **Adi Shankaracharya** has been unveiled at Omkareshwar, Madhya Pradesh. Omkareshwar is the temple town located on the **Mandhata island** of Khandwa district.
- **Adi Shankaracharya**
  - He was born in Kerela's Kaladi, situated on the bank of the **Periyar River.**
  - He was a proponent of **Advaita Vedanta** that teaches **non-duality,** or the absence of separation between the subject and object.
  - He wrote commentaries on **Bhrahma Sutras, Upanshiads, and Bhagvad Gita.**
  - Shankaracharya traveled across India, engaging in philosophical debates, and **establishing 4 monastic centers (mathas)** in various parts of the country.

Kokborok Language

- It is the language spoken by the **Borok people** belonging to the **Tripura**. It is also one of the **state languages** of Tripura. The term kok means "verbal", and borok means "people" or "human".
- It is a Sino-Tibetan language and can be **traced back to 1st century AD** when the historical record of Tripuri kings started to be written down in a book called the **Rajratnakar**.

- Kokborok got the written form in the year 1897 when **Doulot Ahammad**, wrote the first Kokborok Grammar named "**Kokboroma Ang Tripura- Vyakaran Grammar".**

Rashtriya Vigyan Puraskar

- Recently, a new set of National Awards in the field of science known as "Rashtriya Vigyan Puraskar" has been initiated. It would recognize the notable and inspiring contribution made by the scientists, technologists, and innovators.
- These will be awarded in 4 categories: **Vigyan Ratna, Vigyan Shri, Vigyan Yuva-Shanti Swarup Bhatnagar, and Vigyan Team.** It will be given in **13 domains** like Physics, Chemistry, etc.
- All nominations received shall be placed before the **Rashtriya Vigyan Puraskar Committee** (RVPC) to be **headed by the Principal Scientific Adviser (PSA).**

Ramon Magasaysay Award

- It is Asia's premier prize, and the highest honor celebrates the **greatness of spirit** and **transformative leadership in Asia.**
- It is generally awarded in 6 broad categories: **Government Service, Public Service, Community Leadership, Journalism, Peace, and Emergent Leadership.**
- It is presented in formal ceremonies in **Manila, Philippines,** on **August 31st**.
- Prominent Indian winners include Vinoba Bhave in 1958, Mother Teresa in 1962, Kamaladevi Chattopadhyay in 1966, Satyajit Ray in 1967, among others.

Best Tourism Villages 2023

- These were announced by **the World Tourism Organization (UNWTO).** The accolade recognizes villages that are leading the way in nurturing rural areas and **preserving landscapes, cultural diversity, local values, and culinary traditions.**
- In India, **Dhordo in Gujarat and Madla in Madhya Pradesh** have been identified as best tourism villages. Dhordo is a giant salt marsh in the Thar desert, and popular for tourism and the annual Rann Utsav. Madla is also known as the gateway to **Panna National Park.**
- **UNWTO:** It was established in 1975 for the promotion of responsible, sustainable, and universally accessible tourism. Its membership includes 159 countries. It has a **General Assembly** and an **Executive Council.** It is **headquartered in Madrid, Spain**.

Toto Language

- It is a Sino-Tibetan language spoken by the tribal Toto people and is **written in the Bengali script**. It is spoken by barely 1,600 people living in parts of **West Bengal bordering Bhutan.**
- A prominent community member, **Dhaniram Toto** developed a script as recently as in 2015.
- Recently, **Toto Shabda Sangraha**, a dictionary has been compiled for preserving the language and for putting its vocabulary in print.

Yak Churpi

- The **Arunachal Pradesh's** "Yak Churpi" has been granted the GI tag. It is a **dairy product** made from the milk of the indigenous Arunachali yak breed. These yaks are primarily found in the **West Kameng and Tawang** districts of the state.
- Arunachali yaks are also the **only registered yak breed** in India.
- It is reared by tribal yak pastoralists known as **Brokpas** who migrate along with their yaks to higher reaches. Churpi is a naturally fermented dairy product and **rich in protein content.**
- It is often **used as a vegetable substitute** and is also incorporated into vegetable and meat curries and is commonly consumed with rice

Pandit Motiram Pandit Maniram Samaroha

- The **Department of Post, Ministry of Communications** recently released a commemorative Postal Stamp, to mark 50 years of **Pandit Jasraj's music festival – 'Pandit Motiram Pandit Maniram Sangeet Samaroha'.**
- The music festival was started by Pandit Jasraj in 1972 in the memory of his father, Sangeet Ratna Pandit Motiram and his elder brother and later his Guru, Sangeet Mahamopadhyay Pandit Maniram.
- It is the oldest festival of Hyderabad. For this unique contribution Pandit Jasraj was called **Son of Hyderabad**.
- Pandit Jasraj was an Indian classical vocalist, belonging to the **Mewati Gharana** (musical apprenticeship lineage).
- He took Indian classical music, Pushtimargiya music and Bhakti Pad of Vaishnav tradition to greater heights.

Veer Bal Diwas

- Prime Minister recently addressed the program marking **26th December** as 'Veer Bal Diwas' to mark the **martyrdom of Guru Gobind Singh's younger sons**, Sahibzada Zorawar Singh and Sahibzada Fateh Singh.
- In 1699, Guru Gobind Singh founded the Khalsa and raised an army, perceived as a threat by the Mughal empire and neighboring hill kings. Guru Gobind Singh's four sons were integral to the Khalsa, and battles ensued in the late 17th century.
- In 1704, an attack on Anandpur Sahib by Bilaspur King Bheem Chand and Handuria King Raja Hari Chand, with Mughal support, led to a prolonged siege.
- In the historic battle of Chamkaur Sahib on December 22, Sahibzada Ajit Singh and Sahibzada Jujhar Singh sacrificed their lives.
- Baba Banda Singh Bhadur later avenged the execution of the Sahibzade by attacking and capturing Sarhand.

Tansen Samaroh

- Around 1,300 tabla players who performed recently at the **International Tansen Samaroh** entered the **Guinness World Records for achieving the largest tabla ensemble**.
- Tansen Samaroh is a tribute to Indian musical legend, **Shri Ramtanu Misra**, famously known as Tansen. It is held every year in December in Gwalior, Madhya Pradesh, it is a 5-day musical extravaganza.
- It is **organized jointly by Ustad Alauddin Khan Kala Evam Sangeet Academy and Department of Culture, Madhya Pradesh.**
- Mian Tansen (born as Ramtanu Misra) was a prominent Indian classical music composer, musician and vocalist known for a large number of compositions.
- Later he became one of the **Navaratnas** (nine jewels) at the court of the Mughal Emperor Jalal ud-din Akbar. **Akbar gave him the title Mian**, an honorific, meaning learned man.
- He invented the night raga Darbari Kanhra, morning raga Mian Ki Todi, mid-day raga, Mian ki Sarang, seasonal raga Mian ki Malhar. His descendants and disciples are called Seniyas.

Punaura Dham

- The Chief Minister of Bihar recently launched a Rs 72-crore development plan for **Goddess Sita's birthplace at Punaura Dham in Sitamarhi**.
- As a part of the project, the government will build '**Sita-Vatika', 'Luv-Kush Vatilka'**, develop a 'parikrama path' and set up various convenience centres.
- Until recently, it was believed that the Janaki Sthan in Sitamarhi, which has a pond and other religious structures, was the birthplace of Sita. But a new research, based on Valmiki Ramayan and some travellers' accounts, ruled in favour of Punaura Dham.

SOCIETY

HEALTH

Digital Health

- Digital health refers to the use of technology, such as mobile devices, software applications, and other digital tools, **to improve health and healthcare delivery**.
- India's **CoWIN, UNICEF's RapidPro** and **FamilyConnect** etc. are few notable examples of digital health initiatives.

Digital Health Initiatives In India

- **Ayushman Bharat Digital Mission (ABDM):** To connect the digital health solutions of hospitals across the country.
- **CoWIN:** It provided the technological backbone to India's Covid-19 vaccination program.
- **Tele- MANAS: Tele Mental Health Assistance and Networking Across States:** It provides free tele- mental health services, including counselling, integrated medical and psychosocial interventions through video consultations.
- **Nikshay 2.0 Portal:** It has enabled the community across the country to register as Nikshay Mitra and helped them in adopting TB patients in their preferred geography.
- **Health Technology Assessment (HTA):** It provides evidence to decide the choice of technology for the best possible healthcare to address public health challenges.

NITI Aayog's State Health Index

- The index measures a weighted score incorporating 24 health indicators under three domains:
  1. **Health Outcomes:** Neonatal mortality rate, total fertility rate, sex ratio at birth, etc.
  2. **Governance and Information:** Health infrastructure available, including proportion of functional 24*7 primary healthcare centers, etc.
  3. **Key inputs and Processes:** Average occupancy of chief medical officer, days taken for fund transfer, etc.
- The Aayog publishes the index in collaboration with the **Union Health Ministry** and **World Bank.**
- The Ministry of Health and Family Welfare has linked the index to incentives under the National Health Mission. This index is an example of **both competitive and cooperative federalism.**
- Among larger states, **Kerala, Tamil Nadu, and Telangana** have secured the top three positions while **Bihar, UP, and MP** occupy the bottom three positions.
- Among smaller states, **Tripura, Sikkim, and Goa** have demonstrated best performance, while **Arunachal Pradesh, Nagaland and Manipur** occupy the bottom three positions.
- Among UTs, **Lakshadweep** has secured the top position, while **Delhi** has been placed at the bottom.

Prohibition of Electronic Cigarettes Act, 2019

- In light of e-cigarettes being easily available online and at tobacco shops despite a ban, the Union Health Ministry **has issued a public notice for stricter implementation** of the act.
- The Act defines "electronic cigarette" as an electronic device that heats a substance, with or without nicotine and flavors, to create an aerosol for inhalation. **It prohibits any person from producing, manufacturing, importing, exporting, advertising, transporting, selling, or distributing electronic cigarettes in India.**

Difference Between E-Cigarettes and Vape

- E-cigarettes are devices that look similar to traditional cigarettes. They generally consist of a **one-piece unit** that is used until it runs out and then thrown away.
- Vapes are a hugely popular device that consists of a **rechargeable battery and refillable tank.** Vape can be used again and again by refilling it with a variety of e-liquid.

IIPS and NFHS

- **International Institute for Population Sciences (IIPS)** serves as a regional Institute for **Training & Research in Population Studies** for **ESCAP region**. It was established in Mumbai in July 1956 as a joint sponsorship of Sir Dorabji Tata Trust, the Government of India, and the United Nations.
- The Institute is under the control of the **Ministry of Health and Family Welfare (MoHFW).**
- The objectives of IIPS include training in demography, undertaking scientific research on population problems, disseminating demographic information, and providing technical guidance for the National Family Health Survey (NFHS).
- The MoHFW is also the nodal ministry for NFHS.

Major Highlights of NFHS-5

- Total Fertility Rate (TFR), an average number of children per women, has declined from 2.2 to 2.0 at the national level.
- Contraceptive Prevalence Rate (CPR) has increased from 54% to 67% in the country.
- Institutional Births have increased from 79% to 89% in India.
- Stunting has reduced from 38.4% to 35.5%, wasting from 21.0% to 19.3%, and underweight prevalence is down from 35.8% to 32.1%.
    - **Stunting** is defined as low height-for-age and **Wasting** is defined as low weight-for-height.
- Women (15-49 years) whose BMI is below normal has reduced from 22.9% to 18.7%.

Ayushman Bharat- Health and Wellness Centers (AB-HWCs)

- Ayushman Bharat (AB) was launched to deliver a comprehensive range of services spanning **preventive, promotive, curative, rehabilitative and palliative care.** It has **two components**- Pradhan Mantri Jan Arogya Yojana and Health & Wellness Centers.
- Started in 2018, AB-HWCs aims to deliver Comprehensive Primary Health Care (CPHC), which is **universal and free to users**. AB-HWCs provide free essential medicines and diagnostic services, tele-consultation, and health promotion.
- The Sub Health Centers (SHC), Primary Health Centers (PHC) and Urban Primary Health Centers (UPHC) are to be transformed into Health and Wellness Centers (HWC).

Anaemia

- Questions related to anaemia would be dropped from the National Family Health Survey (NFHS-6) because of the **doubts raised over the efficacy of the method being used.**
- **What is Anaemia:** According to the **WHO**, anaemia is a condition in which the number of red blood cells or the **hemoglobin concentration within them is lower than normal.** If there are too few RBCs, it results in fatigue, weakness, dizziness, etc.
- The most common nutritional cause of anaemia is **iron deficiency.** Inherited conditions, such as sickle cell anemia or thalassemia, affect the structure or function of red blood cells, leading to chronic Anaemia.
- As per NFHS-5**: 57% of women in age group 15-49 years and 67% children between 6-59 months are anaemic.**
- Now, the assessment of Anaemia would be shifted to **Diet and Biomarkers Survey in India** (DABS-I). It was launched in 2022 to map diet, nutrition and health status and provide the correct estimate of anaemia.

Universal Immunization Program (UIP)

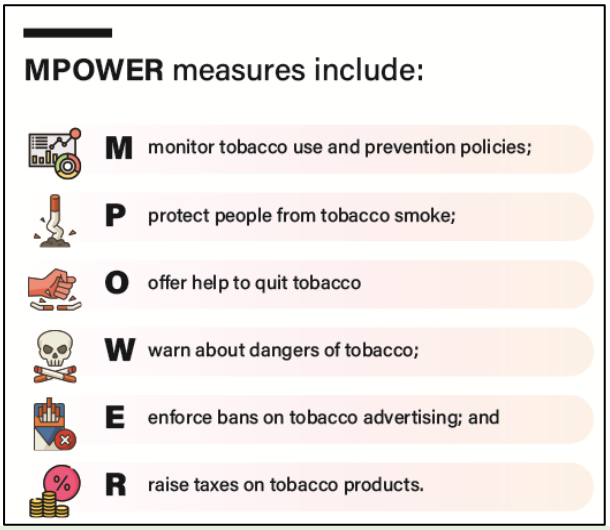
- Launched in **1985**, it is one of the largest public health programs targeting close to 2.67 crore newborns and 2.9 crore pregnant women annually. Under this, immunization is **provided free of cost** against 12 vaccine preventable diseases:
    - **Nationally against 9 diseases:** Diphtheria, Pertussis, Tetanus, Polio, Measles, Rubella, severe form of Childhood Tuberculosis, Hepatitis B, Meningitis and Pneumonia (caused by Hemophilus Influenza type B)

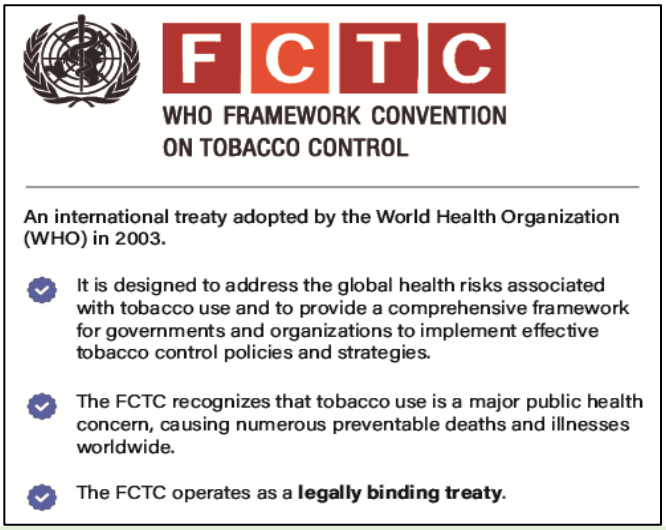
- **Sub-nationally against 3 diseases:** Rotavirus Diarrhea, Pneumococcal Pneumonia, and Japanese Encephalitis

- A child is said to be fully immunized if child receives all due vaccine as per national immunization schedule **within 1st year of child's birth.**
- Two major milestones of UIP: **Elimination of Polio in 2014** and **Maternal and Neonatal Tetanus in 2015.**
- **Mission Indradhanush***:* It was launched in **2014** to increase the full immunization coverage to children to 90%. Under this, the focus is on pockets of low immunization coverage.

WHO Report on Tobacco Control

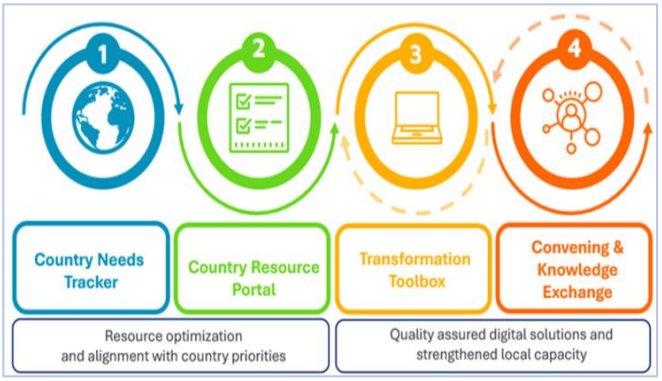
- This report tracks the **progress made by countries in tobacco control.** In 2008, **WHO** had developed the **MPOWER** measures to help countries implement the demand-reduction measures of **the WHO Framework Convention on Tobacco Control.**
- Since 2008, 5.6 billion people in the world- or 71% of the entire population- remain protected by at least one of the measures. 151 countries have implemented at least one MPOWER measure.
- Of the estimated 8.7 million tobacco-related deaths each year, 1.3 million are of non-smokers exposed to second-hand smoke.
- **India** has the **highest level of achievement** when it comes to **putting health warning labels** on tobacco products and providing tobacco dependence treatment. The cigarette packets in the country also carry **a toll-free number for a quit line.**





G20 Health Ministers' Meeting

- The consensus was reached on setting up an **R&D and manufacturing network for vaccines** and for setting up a platform for making **open-source, inter-operable digital solutions** readily available.
- **Global Initiative Digital Health:** A platform for **sharing digital goods and knowledge** was also launched at the meeting. It has 4 pillars related to Investment, Technologies, Digital Tools, and Knowledge Sharing.
- Parties have also committed to negotiate a legally binding WHO convention on health emergency **prevention, preparedness, and response.**
- The parties welcomed the conclusion of the **First Call for Proposals of the Pandemic Fund.**



Global Initiative on Digital Health (GIDH)

- **Digital health refers to** the use of technology, such as mobile devices, software applications, and other digital tools, to improve health and healthcare

delivery. Basically, it is a multidisciplinary concept that includes concepts from an intersection between technology and healthcare.

- It is aimed at consolidating the evidence and amplifying recent and past gains in global digital health while strengthening mutual accountability to enhance the impact of future investments.
- GIDH will be a **WHO Managed Network** ("Network of Networks") that will promote equitable access to digital health.

Antibiotic Resistance

- A global study has suggested that **air pollution is helping to drive a rise in antibiotic resistance.**
- By 2050, antibiotic resistance could rise by 17%, resulting in around 8.4 lakhs annual premature deaths, at current levels of air pollution. In India, **a 10% PM 2.5 increase could lead to a 2.5% rise** in antibiotic resistance.
- When bacteria are exposed to antibiotics over time, they can **develop a resistance to them**. This means that the antibiotics are no longer effective at treating infections caused by these bacteria. This phenomenon is called Antimicrobial Resistance.

Initiatives by India to Deal with Antibiotic Resistance

- **National Action Plan on Antimicrobial Resistance (2017-21):** It focused on governmental initiatives concerning hand hygiene and sanitation programs like Swachh Bharat Abhiyan, Kayakalp etc.
- **Raising Public Awareness:** Regarding healthier and improved practices in food production, particularly within the animal food industry.
- **Specific Directives on Antibiotic Usage:** Restrictions on over-the-counter access and the prohibition or regulation of antibiotic usage for livestock growth promotion.

Medical Termination of Pregnancy (MTP) Act

The Indian Supreme Court denied a woman's request to terminate her 26-week pregnancy, stating that her situation did not align with the provisions of the Medical Termination of Pregnancy Act.

The Medical Termination of Pregnancy (MTP) Act, 1971

- It was introduced to liberalize access to abortion since the restrictive criminal provision (in the section **312 and 313 of IPC)** was leading to women using unsafe and dangerous methods for termination of pregnancy.
- The Act allowed termination of pregnancy by a medical practitioner in **two stages.**
  - For **termination of pregnancy up to 12 weeks** from conception, the opinion of **one doctor** was required.
  - For pregnancies between **12 and 20 weeks** old, the opinion of **two doctors** was required.
- In the **second case**, the doctors must determine if the continuation of the pregnancy would involve a risk to the pregnant woman's life or the child would suffer physical or mental abnormalities.

The MTP (Amendment) Act, 2021

- The law allowed for termination under the opinion of **one doctor for pregnancies up to 20 weeks**.
- For pregnancies between **20 and 24 weeks**, the amended law requires the opinion of **two doctors**.
- The government has issued the new Medical Termination of Pregnancy (Amendment) Rules, 2021, which define the situations that define eligibility criteria for termination of pregnancy up to 24 weeks.
- The amended act and the MTP (Amendment) Rules, 2021, specified **seven categories of women (Survivors of sexual assault or rape or incest; minors etc.)** who would be eligible for seeking termination of pregnancy, for a period of up to 24 weeks.
- After 24 weeks, a medical board must be set up in "approved facilities", which may "allow or deny termination of pregnancy" only if there is substantial foetal abnormality.

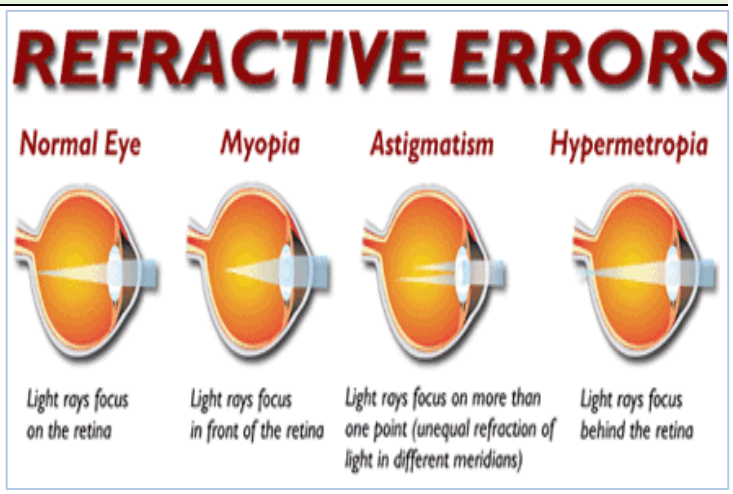
Ayushman Bharat Digital Mission

In 2022, the National Health Authority (NHA) introduced the 'Scan and Share' service to expedite outpatient department (OPD) registrations under the Ayushman Bharat Digital Mission.

Ayushman Bharat Digital Mission

- **Aim**: Launched in 2021 during the 3rd anniversary of Ayushman Bharat PM Jan Arogya Yojana (AB PM-JAY), ABDM will connect the digital health solutions of hospitals across the country with each other.
- **Facilities**: The Digital Ecosystem will also enable a host of other facilities like Digital Consultation, Consent of patients in letting medical practitioners access their records via **ABHA app**, Health register etc.
- **Implementing Agency**: NHA acts as the implementing agency of the mission.
- **Health Facility Registry (HFR)** is the core building block of ABDM that aims to serve as a single source for verified information on health facilities across the country.
- **Health ID** is a 14-digit number used for uniquely identifying persons and authentication

SPECS 2030 Initiative



- **WHO SPECS 2030** envisions a world in which everyone who needs a refractive error intervention (vision impairment) has access to quality, affordable and people-centered refractive error services.
- In recognition of large unmet need for care, coupled with the fact a highly cost-effective intervention exists (i.e. spectacles), WHO Member States endorsed the first-ever global target for refractive error at the 74th World Health Assembly (2021).
- Specifically, the global target is a 40-percentage point increase in effective coverage of refractive error by 2030.
- In India, where over 100 million people may lack access to eye care and glasses, SPECS 2030 can bring positive change.

Havana Syndrome

- It refers to a set of **mental health symptoms** (sleeplessness, headaches, neurological conditions) that are said to be experienced by US intelligence and embassy officials in various countries.
- The National Academy of Sciences has outlined the reasons for this syndrome- pulsed, directed microwaves that damage or interfere with the nervous system.
- In India, the first such case was reported in September 2021, when a US intelligence officer travelling to New Delhi with CIA director reported symptoms of Havana Syndrome.

Fixed Dose Combination (FDC)

- Union Heath Ministry has recently banned 14 FDCs citing lack of therapeutic justification. FDCs are **combinations of two or more active drugs in a single dosage form.**
- FDC formulations have unique advantages such as complementary mechanism of action, synergistic effects, better tolerability, elongated product life-cycle management, and cost savings.

- At the same time, there might be increased chances of exposing patients to unnecessary risk of adverse drug reactions.

National Medical Commission

- The NMC was constituted in 2020 through the **National Medical Commission Act, 2019**. It regulates medical education and medical professionals in India and has replaced the **Medical Council of India (MCI).**
- It has 4 autonomous boards for **Undergraduate** and **Postgraduate** Medical education; Medical **Assessment** and **Rating**; **Ethics**, and **Medical registration**.
- Recently, it has put on hold the regulations that make it mandatory for doctors to prescribe generic drugs because of concerns regarding quality.

Draft Guidelines for Schools to Prevent Suicide

- The Union Ministry of Education has released draft guidelines titled **UMMEED (Understand, Motivate, Manage, Empathize, Empower, Develop)** to prevent student suicides in schools.
- Suicide was **decriminalized in India by the Mental Healthcare Act of 2017**.

Pirola & JN.1 (Covid-19 Variants)

- The world is facing another wave of COVID-19 infections as a new variant, called "Pirola" or BA.2.86, spreads rapidly across the globe (predominantly circulating in the US & UK).
- The WHO has classified JN.1 sub-variant of Covid-19 as a "variant of interest" **distinct from its parent lineage.**
- JN.1 was first detected in the United States in September 2023. It seems to be spreading faster than other circulating Omicron subvariants like BA.5 but not as severe as previous Omicron variants.
- It contains an additional spike protein mutation (L455S) which might increase its ability to evade the immune system.

About Pirola Variant (BA.2.86) (Named after a large asteroid that hangs out near Jupiter)

- Pirola is an Omicron subvariant that causes great concern because it has been found to contain a large number of mutations.
- **Genetic Mutations:** It was designated by WHO as a “variant under monitoring” because of more than 30 mutations it carries on the critical spike protein — the protein that attaches with receptors on human cells to enter the body.
- **Transmissibility:** The disease is more common in females than males and mainly affects old age people (over 60 years of age).

Methotrexate (MTX) & Its Detection

- Ph-Cys-Au, a highly fluorescent material containing phosphorene, cystine, and gold, has been developed for detecting overdose of the toxic anti-cancer drug MTX, which can be used as a visual sensing platform.
- **Phosphorene** is a two-dimensional material composed of phosphorus atoms and it is primarily studied for its electronic and optoelectronic properties.
- **Cystine** is a non-essential amino acid (meaning the body can synthesize it). It is essential for the proper folding and stability of many proteins, including enzymes and structural proteins.
- **Gold nanoparticles** are being explored for cancer treatment and medical imaging techniques like CT scans, as they absorb X-rays and enhance tissue visibility.

Methotrexate (MTX)

- **Application:** It is commonly used in chemotherapy to treat certain types of cancers including leukemia, lymphoma, and breast cancer.
- **Administration of MTX in body:** Methotrexate can be taken orally or administered by injection, depending on the specific condition being treated.
- **Side Effects:** The MTX value of more than 10 µM in blood plasma is hazardous.

- **Precautions:** Regular monitoring of blood counts and liver function is often necessary during Methotrexate treatment & Folic acid supplementation is often prescribed alongside Methotrexate to help mitigate some of its side effects.

Pompe Disease

- Recently, India's first patient diagnosed with the Pompe disease died.
- Pompe disease, also known as **glycogen storage disease type II,** is an autosomal recessive disorder, meaning that it occurs when a person inherits two copies of an abnormal gene (one from each parent) responsible for producing the enzyme acid alpha-glucosidase (GAA).
- It is a rare inherited disorder that affects one child per million. It affects males & females equally.

How Does Pompe Disease Occur (Mutations In GAA Gene)

- Normally the GAA gene provides instructions for **producing an enzyme called acid alpha-glucosidase (also known as acid maltase)**.
- Acid alpha-glucosidase normally breaks down glycogen into a simpler sugar called glucose, which is the main energy source for most cells.
- Mutations in GAA gene prevent acid alpha-glucosidase from breaking down glycogen effectively, which allows this sugar to build up to toxic levels in lysosomes.
- This buildup damages organs and tissues throughout the body, particularly the muscles, leading to the progressive signs and symptoms of Pompe disease.
- **Treatment**: The treatment includes enzyme replacement therapy (ERT) where a synthetic form of the missing enzyme (recombinant human acid alpha-glucosidase) is administered intravenously. ERT aims to reduce the accumulation of glycogen in tissues and alleviate symptoms.

DRESS Syndrome

- Recently, the Indian Pharmacopoeia Commission (IPC) has issued a drug safety alert for doctors and patients about the use of painkiller Meftal (contains mefenamic acid) that can lead to Drug Reactions with Eosinophilia and Systemic Symptoms (DRESS) Syndrome.
- Eosinophilia refers to increased levels of a specific white blood cell.

About DRESS Syndrome

- **It is** a Potentially Serious Drug Reaction to certain medications. It affects multiple organs and systems throughout the body. It is sometimes referred to as DIHS (Drug Induced Hypersensitivity Syndrome).
- **Causes-** Certain medications, mostly antibiotics, anticonvulsants, and antivirals
- **Symptoms-** Fever, skin rash, lymphadenopathy, hematological abnormalities
- **Treatment-** Immediate discontinuation of adverse medication and supportive care with medication like corticosteroids.

Indian Pharmacopoeia Commission (IPC)

- Headquartered in Ghaziabad (UP), IPC was founded in 2009.
- The IPC is an autonomous Institution of the **Ministry of Health and Family Welfare**, Govt. of India.
- Its mandate is to set standards for all drugs that are manufactured, sold & consumed in India.
- The IPC's responsibilities include Formulations, Active pharmaceutical ingredients (API), Vaccines & Medical devices.
- It promotes rational use of generic medicines by publishing National Formulary of India.

Norovirus

- The **UK** has seen a steady rise in norovirus cases, a highly contagious **gastrointestinal illness caused by contaminated food or water, person-to-person contact, and aerosols**.

- Outbreaks usually occur in colder months and cause symptoms like vomiting, diarrhea, nausea, fever, stomach cramps, and headache.
- Treatment is not available, but maintaining hydration during the acute phase is crucial.

Frontotemporal Dementia (FTD)

- Researchers identified a protein named TAF15 present in the brains of patients suffering from frontotemporal dementia (FTD).
- FTD is an uncommon type of dementia that causes problems with behaviour and language.
- Dementia is the name for problems with mental abilities caused by gradual changes and damage to the brain.
- Frontotemporal dementia (FTD) is a group of brain disorders that primarily affect the frontal and temporal lobes of the brain, leading to progressive damage and decline in function.
- It's a relatively rare but devastating condition, typically affecting individuals between the ages of 40 and 65, although younger and older individuals can also be affected.
- The cause of FTD is unknown, but Researchers have linked certain subtypes of FTD to mutations in several genes.
- Symptoms include **Changes in personality and behavior**, **Language difficulties** (Difficulty in speaking, understanding speech, writing, finding words, naming objects), **memory problems**, and **movement problems**.
- **Treatments:** There's currently no cure for FTD. But there are treatments that can help control some of the symptoms, possibly for several years which includes Speech therapy, occupational therapy, and behavioral therapy (with emotional support) can help address functional decline and communication difficulties.

Noma Disease

The World Health Organization (WHO) has added one of the world's most underrecognized health challenges, noma, to its official list of neglected tropical diseases (NTD).

Noma Disease	Also called as - **cancrumoris or gangrenous stomatitis** Severe gangrenous disease of the mouth and face with a 90% mortality rate. Named "Noma" from Greek "nomē," meaning "to devour."
Causes	Caused by malnutrition, poor sanitation, and inadequate oral hygiene.
Symptoms	Starts with non-specific symptoms like fever, malaise, and gingival ulcers. Progresses to extensive tissue destruction, especially in the face.
Affected Age	Mainly affects children aged 2-6, prevalent in impoverished communities.
Treatment	Involves improving nutrition, promoting oral hygiene, and surgical procedures to remove necrotic tissue and reconstruct affected areas.

Neglected Tropical Diseases (NTDs)

- They are a group of infectious diseases that **predominantly affect populations in tropical and subtropical regions, particularly in low-income countries**. The term "neglected" reflects the **historical neglect in terms of research, funding, and public health efforts for these conditions.**
- The term "Neglected Tropical Diseases" encompasses a diverse group of diseases caused by bacteria, parasites, viruses, and other pathogens.
- Examples include diseases like lymphatic filariasis, onchocerciasis (river blindness), schistosomiasis, soil-transmitted helminthiasis, trachoma, and others.
- WHO's New Roadmap for 2021–2030: To prevent, control, eliminate and eradicate a set of 20 diseases, termed NTDs, by 2030

Nematocyst

- Recent research on nematocysts has identified venom peptides with potential therapeutic properties, including potential for pain relievers, anti-cancer drugs, and neurodegenerative disease treatments.

- Nematocysts are fascinating **microscopic "stingers" found in cnidarians, a group of marine invertebrates that includes jellyfish, anemones, corals, and hydras**.
- These tiny capsules act like harpoons, delivering a venomous punch to capture prey or defend against predators. The outer shell, made of chitin, contains a tightly coiled hollow thread.

Functioning of Nematocyst

- **Stimulus and Trigger:** Nematocysts respond to touch, pressure, or chemical signals, triggering a rapid discharge when potential prey or threats contact the cnidocil.
- **Rapid Discharge:** The trigger initiates the rapid inversion and forceful ejection of the coiled tubule from the nematocyst capsule.
- **Penetration and Injection:** Nematocysts can penetrate prey's skin, injecting toxins or barbs from the tubule upon contact.
- **Hunting:** Nematocysts help cnidarians immobilize prey like plankton or small fish, making them easier to grasp and consume.
- **Defense:** Nematocysts act as a powerful deterrent against predators, causing pain, paralysis, or even death in some cases to discourage attackers.

Applications of Nematocyst

Drug Development	Gene Therapy
Tissue Engineering	Biotechnology.
Toxin Research	Aquatic Environmental Monitoring
Inspiration for Robotics	

EDUCATION

National Curriculum Frameworks (NCF)

- The National Curriculum Frameworks (NCF) were released recently. NCF aims to bring about a paradigm shift in education with focus on **holistic development of children**, emphasis on skilling, vital role of teachers, learning in mother tongue, cultural rootedness.
- It's important to note that NEP 2020 and the NCF based on the education policy, are **not binding on the states.**
- The final/revised version of the NCF **mandates teaching of 3 languages** (including 2 Indian languages) in classes 9-10, and 2 languages (including 1 Indian language) in class 11-12.

National Curriculum Framework for School Education (NCFSE)

- Holding the **Class 12 board exam twice a year**- Students can appear for a board exam in subjects they have completed and feel ready for.
- So far, students from Classes 9 to 12 studied five mandatory subjects, with an option of adding one more subject. Now, **number of mandatory subjects** for Classes 9 and 10 is seven, and it's six for Classes 11 and 12.
- It mandates compulsory instruction of 3 languages up to Class 10. In classes 11 and 12, students will have to study two languages.
- It offers students the **freedom to pursue a mix of science and humanities** to reduce the rigid boundaries separating arts, commerce, and science in Classes 11 and 12 across school boards.
- **For classes 6 to 8:** 20% content would be from the local level for the Social Science curriculum, 30% content would be from the regional level, 30% would be from the national level, and 20% content would be global.

Performance Grading Index (PGI) For School Education System

- Recently, the Union Ministry of Education released a report on Performance Grading Index 2.0 for States/UTs and PGI-D (PGI for districts) for the year 2021-22.
- **PGI** was first released for the year 2017-18 and so far it has been released up to the year 2020-21.

- It assesses the performance of school education system at the State/UT level by creating an index for comprehensive analysis.
- PGI 2.0 for 2021-22 classified the States/UTs into ten grades viz., highest achievable Grade is **Daksh, then Utkarsh, Atti-Uttam, Uttam, Prachesta-1,2 and 3, Akanshi-1, 2 and 3(Lowest grade)**
- Indicators of PGI 2.0 have been aligned to policy initiatives and interventions introduced post implementation of National Education policy (NEP) 2020 for proper tracking the progress.

Categories	Domain	Indicators	Total Weight
1. Outcomes	Learning Outcomes and Quality (LO)	12	240
	Access (A)	7	80
	Infrastructure & Facilities (IF)	15	190
	Equity (E)	16	260
2.Governance Management (GM)	Governance Processes (GP)	15	130
	Teacher Education & Training (TE&T)	8	100
Total		**73**	**1000**

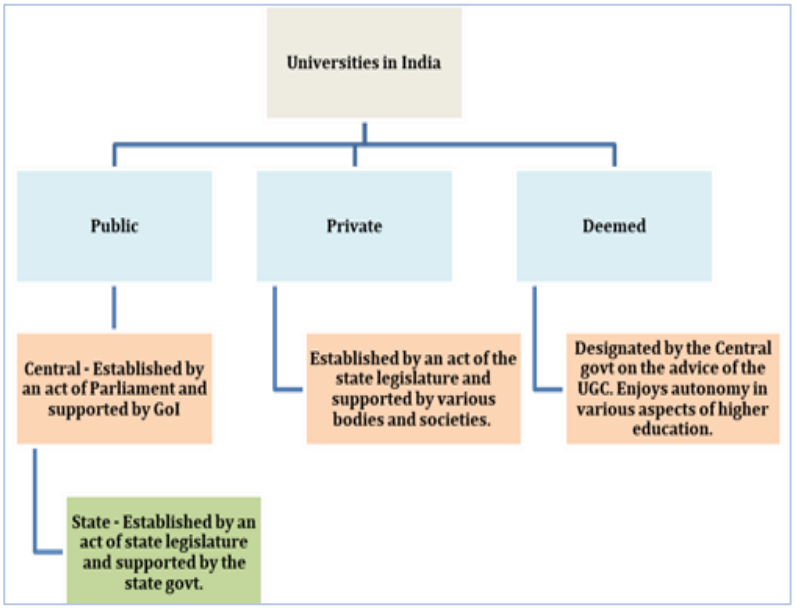
National Institutional Ranking Framework (NIRF)

- The NIRF has announced the India Rankings 2023 of Higher Educational Institutions (HEIs).
- The NIRF was launched by the **Ministry of Education** in 2015. It outlines a methodology to rank HEIs across the country. NIRF ranks best institutions **across 13 categories** like engineering, medical, management, law, dental, etc.

- **Overall rankings:** The **IIT-Madras** remained the best educational institution in overall rankings for the fifth consecutive term.
- **Best university:** The **Indian Institute of Science (IISc)**, Bengaluru ranked as the best university in the country for eight years in a row.
- **Best college: Miranda House**, Delhi is ranked the best college for the seventh consecutive year.

Deemed-to-be-University

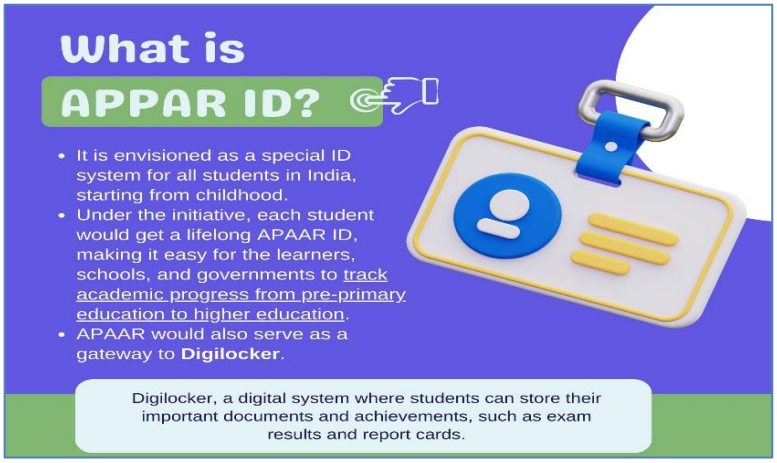
- The National Council of Educational Research and Training (NCERT) has been granted the deemed-to-be-university status by the **Ministry of Education.** With the status of a deemed university, NCERT will offer its own graduate, postgraduate and doctoral degrees.
- The NCERT is an **autonomous organization** set up in 1961 by the Government of India, under the **Societies Registration Act 1860.**
- The NCERT is an implementation **agency for bilateral cultural exchange programs** with other countries in the field of school education.
- Universities in India are **recognized by the University Grants Commission (UGC),** which draws its power from the **UGC Act, 1956.** A deemed university or deemed-to-be-university is an accreditation granted **to higher educational institutions (HEIs)** in India.



- Currently, the UGC lists around **130 institutes that have deemed university status.** According to this list, the first institute to be given deemed university status was the **Indian Institute of Science** in 1958 and Tamil Nadu has the most deemed universities (28).

Automated Permanent Academic Account Registry (APAAR)

- APAAR is part of the '**One nation, One Student ID'** initiative stemming from the NEP 2020.
- With the APAAR ID, students would be able to store all their certificates and credits, whether they come **from formal education or informal learning.**
- If the student changes schools, whether within the state or to another state, all related data in the **Academic Bank of Credits** gets transferred to the new school just by sharing the APAAR ID.



Saksham Learning Management Information System (LMIS)

SAKSHAM, which stands for **Stimulating Advanced Knowledge for Sustainable Health Management**, is a Learning Management Information System (LMIS) launched by the Union Health Ministry of India. It was developed by the National Institute of Health & Family Welfare (NIHFW)

Key Features of SAKSHAM

- **Unified platform**: Provides online training and medical education to all health professionals in India, from primary health centers in rural areas to tertiary care and corporate hospitals in metropolitan cities.
- **Inclusive capacity building**: Ensures accessible and equitable learning opportunities for all health professionals, regardless of their location or background.
- **Digital learning**: Offers a comprehensive range of online courses, modules, and resources on various health topics.
- **Flexibility**: Allows learners to access courses at their own pace and convenience.
- **Tracking and monitoring**: Provides insights into learner progress and course completion rates.
- **Accreditation**: Offers CME (Continuing Medical Education) credits for completing courses.

Accreditation of Higher Education Institutions

Radhakrishnan Committee's (set up by Ministry of education) report on accreditation of Higher Education institutions has been made public.

Education Institution and Accreditation

- Assessment is a performance evaluation of an institution and its units and is accomplished through a process based on self-study and peer review using defined criteria.
- Accreditation refers to the certification given by NAAC, which is valid for a period of five years.
- The ratings of institutions range from **A++ to C**. If an institution is graded D, it means it is not accredited. At present, the Assessment and Accreditation by NAAC is done on **a voluntary basis**.

Institutional Framework for the Higher Education Ecosystem in India

Body	Function
University Grants Commission (UGC)	• Established in 1953 and became a statutory organization by a parliament act in 1956. • Aim: Coordinates, determines and maintains the standards of teaching, examination, and research in university education.
National Medical Commission (NMC)	• Established through the National Medical Commission Act, 2019, which succeeded the Medical Council of India.

	• Aim: To improve access to quality and affordable medical education. To ensure the availability of adequate and high-quality medical professionals in all parts of the country.
All India Council for Technical Education (AICTE)	• National-level Apex Advisory Body for technical education in accordance with the provisions of the AICTE Act, 1987. • Objectives: Promotion of Quality in Technical Education, Planning and Coordinated Development of Technical Education System.
Bar Council of India (BCI)	• Statutory body to regulate and represent the Indian bar association. • It also sets standards for legal education and grants recognition to universities.
Accreditation Bodies	• National Board of Accreditation (NBA) established by AICTE. • National Assessment and Accreditation Council (NAAC) established by UGC. • National Institution Ranking Framework (NIRF) started in 2015 by Ministry Of Education

Recommendations of Dr. K. Radhakrishnan Committee

- The committee has recommended that the IITs should be brought under the ambit of NAAC. Currently, IITs follow their internal systems for periodic peer evaluation and assessment of programmes.
- **Binary Accreditation System**:
  - The NAAC is proposing a new accreditation system that would replace the *current eight-point grading system*. The new system would classify institutes as either **"Accredited" or "Not Accredited"** based on their data submissions and verification by expert teams during campus visits. A separate category, "Awaiting Accreditation," would cover institutes close to the threshold level.
  - The committee also proposes a mechanism of "crowdsourcing" to reduce the reliance on expert inspections. This would involve a carefully chosen audience, including students, faculty, staff, alumni, and official visitors, including selection committee members and student employers.
- **National Accreditation Council (NAAC**):
  - The Radhakrishnan committee proposes a single overarching agency for accrediting institutes and courses, the National Accreditation Council (NAAC), which should also include the National Institutional Ranking Framework (NIRF), and the transition to the proposed accreditation regime should occur by December 2023.
- **Accreditation of Schools:**
  - India lacks an official mandate for frequent school evaluations, but the NEP 2020 proposes an effective accrediting system for all education levels, requiring State Councils of Educational Research and Training to create a separate framework.

Anusandhan National Research Foundation (NRF) Act, 2023

- The Anusandhan National Research Foundation Bill, 2023 received the assent of the president.
- It aims to set up the Anusandhan National Research Foundation (NRF) which will be an apex body to provide high-level strategic direction of scientific research in the country as per recommendations of the NEP.
- It seeks to set up a **Rs 50,000-crore fund**, with a sizeable contribution from the private sector, to **"seed, grow and promote"** research and development (R&D) and foster a culture of research and innovation throughout India's universities, colleges, research institutions, and R&D laboratories.

It seeks to set up different funds --

- **Anusandhan National Research Foundation Fund** for the financing of activities under the Act.
- **Innovation Fund** for supporting outstanding creativity in the areas supported by the foundation.

- **Science and Engineering Research Fund** for the continuation of the projects and programmes initiated under the Science and Engineering Research Board Act, 2008.
- One or more **special-purpose funds** for any specific project or research.

Structure of NRF:

- It will have a governing board consisting of 15-25 eminent researchers and professionals headed by the **Prime Minister**, who will be the ex-officio President.
- The Education Minister and the Science And Technology Minister will be the vice presidents of the NRF.
- The **Department of Science and Technology** (DST) will be the **administrative department** of NRF,
- The proposed foundation will also have an executive council under the principal scientific adviser.

Malaviya Mission - Teachers Training Programme (MM-TTP)

The Union Ministry for Education and Skill Development & Entrepreneurship recently launched the Malaviya Mission - Teachers Training Programme by the University Grants Commission at Kaushal Bhawan, New Delhi.

About Malaviya Mission

- It aims to provide tailored training programmes for teachers in higher educational institutions (HEI).
- It will ensure continuous professional development and help in building capacities of 15 lakh teachers of HEIs through 111 Malaviya Mission centres across India in a time-boun0pd manner.
- It aims to improve the quality of teachers' training, build leadership skills in teachers and help realize the goals of NEP.
- The capacity building under the Mission will be mapped to the credit framework to ensure career progression pathways for educators.
- The Indian Knowledge System has been included in the modules of the Programme.
- Human Resource Development Centers to be revamped and known as Madan Mohan Malaviya Teachers Training Centers

Key Facts About Madan Mohan Malaviya

- He was an Indian educationist, a Freedom Fighter and a moderate leader.
- He was elected as the president of the Indian National Congress four times.
- He attended the Round Table Conference in 1931.
- He founded the **Hindu Mahasabha** in 1906.

As an Educationist

- He founded **Banaras Hindu University (BHU)** at Varanasi in 1916, which was created under B.H.U. Act, 1915.
- He was Vice Chancellor of Banaras Hindu University from 1919-1938.

Digital Infrastructure for Knowledge Sharing (DIKSHA) Platform

- The National eGovernance Division (NeGD) under the Ministry of Electronics and Information Technology (MeitY) is set to integrate Personalised Adaptive Learning (PAL) into its existing Digital Infrastructure for Knowledge Sharing (DIKSHA) platform.
- DIKSHA Platform: It is a **national platform for school education**, an initiative of **NCERT, Ministry of Education.**
- It provides e-content for schools via an online portal and a mobile application via QR code.
- It was developed based on the core principles of open architecture, open access, open licensing, choice and autonomy. It is built on **open-source technology** that is made in India and for India.

National e-Governance Division

- It was created by the **Ministry of Electronics & Information Technology** as an Independent Business Division under the Digital India Corporation.
- It has developed and is managing several National Public Digital Platforms such as **Digi Locker, UMANG**, **Rapid Assessment System, OpenForge, API Setu, Poshan Tracker, Academic Bank of Credits**, etc.

SATHEE Portal

SATHEE (Self-Assessment, Test and Help for Entrance Examination) portal has been launched by the **Department of Higher Education, Ministry of Education** in collaboration with **IIT Kanpur** to offer quality education to students preparing for **competitive examinations**.

About the SATHEE Portal (Open learning platform available to students at no cost)

- It is a portal launched to provide quality education to every student who intends to appear for competitive examinations like JEE, NEET, various State level Engineering and other Examinations.
- It makes use of an indigenously developed AI programme called **Prutor** developed by IIT-Kanpur.

Features

- The portal provides a 45-day crash course (available in 5 languages including English) to support students preparing for JEE and other engineering examinations.
- All India Mock tests are conducted every weekend, following the same format utilized by the National Testing Agency (NTA) in organizing the JEE.
- **SATHEE for Schools:** It combines both the NCERT studies and JEE learning standards into an extensive curriculum, allowing you to find content that meets both your teaching needs - helps students score well in board exams and also prepare for JEE at the same time.

Global Initiative of Academic Networks (GIAN)

- Eight years after its inception, the Ministry of Education is gearing up to restart the 4th phase of the Global Initiative of Academic Networks (GIAN).
- GIAN in Higher Education was launched in 2015. It is a program of Ministry of Education.
- **Aim:** Tapping the talent pool of scientists and entrepreneurs internationally to encourage their engagement with the institutes of Higher Education in India.
- **Nodal Agency:** IIT Kharagpur

Salient Features of GIAN

- An honorarium is paid to the foreign experts to cover their travels and other expenses.
- Short term courses are conducted by these experts/faculties in Indian Institutions.
- This programme was first launched to establish collaboration between India and the United States of America, but later, the scope of the programme was extended.
- The duration of courses differ for different courses, varying from one week to a maximum of 3 weeks.

Initiatives Taken to Promote Sports

India achieved a milestone by winning **107 medals (28 gold, 38 silver, and 41**) in the **19th Asian Games.**

Various Initiatives For Promotion Of Sports In India

Initiative	Description
Khelo India Scheme	Flagship program launched in 2016 to revive and promote sports at the grassroots level.
National Sports Talent Search Scheme (NTSSS)	Identifies and nurtures sporting talent at the **school level** by offering scholarships and training programs.
Rural Sports Programme	Encourages participation in traditional and rural sports across India by organizing competitions and providing infrastructure support.
Urban Sports Infrastructure Scheme	Aims to develop sports infrastructure in urban areas by constructing and upgrading stadiums, multipurpose halls, and other facilities.
Fit India Movement	National campaign launched in 2019 to encourage fitness and physical activity among citizens.

Target Olympic Podium scheme (TOPS)	An attempt to provide assistance to India's top athletes. The Scheme looks to add a premium to the preparations of these athletes so that they can win medals in the Olympics
National Anti-Doping Agency (NADA)	Ensures fair play and promotes ethical sports practices in India.

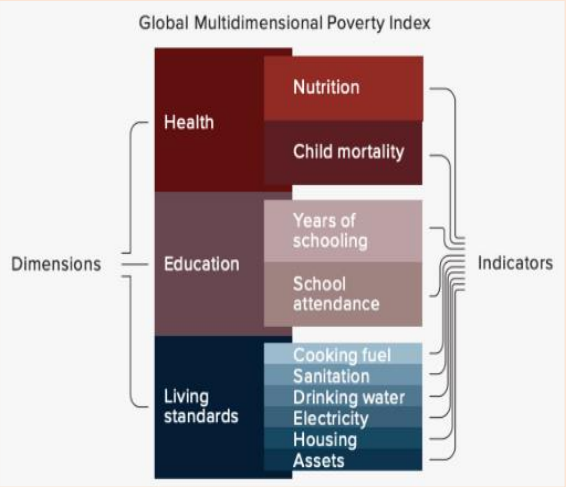
FOOD AND NUTRITION

Poshan Bhi, Padhai Bhi

- This program is under **Ministry of Women and Child Development.** The focus is on Early Childhood Care and Education (ECCE) at Anganwadis across the country, which in turn is an important component of **Mission Saksham Anganwadi and Poshan 2.0** envisaged under the NEP 2020.
  - In FY 2021-22, the government restructured the ICDS and POSHAN (Prime Minister's Overarching Scheme for Holistic Nourishment) Abhiyaan into Saksham Anganwadi and POSHAN 2.0.
- The aim is not only to make Anganwadi centers nutrition hubs but also education-imparting centers- **providing at least two hours of high-quality preschool** instruction on a daily basis.
- Under this, the government will target **children's physical and motor development, cognitive development, socio-emotional-ethical development,** etc.

Multidimensional Poverty Index 2023

- The global Multidimensional Poverty Index (MPI) was released by the **United Nations Development Program (UNDP) and the Oxford Poverty and Human Development Initiative (OPHI).**
- It measures poverty across three equally weighted dimensions: **Health**, **Education**, and **Standard of Living**, comprising 10 indicators. If a person is **deprived in at least one third** of the indicators, they are identified as **'MPI poor'**.
- According to 2023 index, 1.1 billion out of 6.1 billion people live in acute multidimensional poverty across 110 countries, maximum being in Sub-Saharan Africa and Asia.
- 25 countries**, including India**, successfully **halved their global MPI values within 15 years**, showing that rapid progress is attainable.
- In India, a total of **415 million people moved out of poverty** within 15 years from 2005-06 to 2019-21, with incidence falling from 55.1% in 2005-06 to 16.4% in 2019-20.



National Multidimensional Poverty Index

- It is published by **NITI Aayog**. It is tailored to the national priorities. There are 3 dimensions as in MPI Index but with 12 indicators- two additional being **Maternal Health** and **Bank Account** under Health and Standard of Living dimensions, respectively.
- India has achieved a reduction in its MPI value and Headcount Ratio between 2015-16 and 2019-21. About **135.5 million people exited poverty** between 2015-16 and 2019-21

Food Labels to Have QR Codes

- FSSAI has recommended the inclusion of QR code on food products **for accessibility by visually impaired individuals**.
  - FSSAI is a **statutory body** established under the **Ministry of Health & Family Welfare.** It was established in 2008 under the Food Safety and Standards Act 2006.

- The recent advisory notes that notes that ensuring **inclusive access to information is a fundamental right of citizens.** Also, the QR code inclusion **does not replace the requirement to provide mandatory information on the product label.**

Global Hunger Index

- Currently, GHI is jointly published by **Welthungerhilfe** and **Concern Worldwide**.
- India ranked **111th out of 125 countries** in GHI 2023. India's rank was 107th out of 121 countries in 2022. India has a level of hunger that is **serious**.
- The GHI captures three **dimensions** of hunger: **Insufficient availability of food**, **Shortfalls in the nutritional status of children**, and **Child mortality**.
- The index includes the following four equally **weighted indicators: Undernourishment, Child Stunting, Child Wasting, and Child Mortality.**

Protocol for Management of Malnutrition in Children

- It has been put into place by the **Ministry of Women & Child Development** in collaboration with the **Ministry of Health and Family Welfare and the Ministry of Ayush.** This is the first such protocol by the government.
- The protocol provides guidelines for management of children suffering from **severe acute malnutrition (SAM), processes needed to for a healthy weight, and comprehensive norms on dietary requirements.** The identification of malnourished children and their treatment is an integral aspect of **Mission Poshan 2.0**.
    - SAM is defined by a **very low weight for height**, by **visible severe wasting**, or by the presence of **nutritional oedema.**
    - The protocol also includes unique initiatives like the "**Buddy mother**" concept which was first used in the state of **Assam.** Under this concept, the mother of a healthy baby guides the mother of a malnourished child at an Angandwadi centre every week.

Global Report on Food Crises 2023

- It is prepared by the **Global Network Against Food Crises (GNAFC)**. This organization was founded by the **EU, FAO, and WFP** in 2016.
- It has been estimated that between 691 million and 783 million people in the world suffered from hunger in 2022. Food security means **availability, accessibility**, and **affordability** of food to all people at all times.
- In 2022, an estimated 2.4 billion people did not have access to adequate food.
- **Stunting** among children under five years of age **has declined steadily** from 204.2 million in 2000 to 148.1 million in 2022. **Child wasting** declined from 54.1 million in 2000 to 45 million in 2022.

World Food Program

- According to a new World Food Programme (WFP) report the reach of school meals in low-income countries remains four percent below pre-pandemic levels, despite a recovery overall.
- **World Food Programme** is a joint program of the **United Nations and Food and Agriculture organization (FAO)** that deals with hunger eradication and promotes food security in the world. (SDG Goal 2)
- A member of **United Nations Development Programme (UNDP),** WFP is the **world's largest humanitarian agency, established in 1961 & headquartered at Rome, Italy**
- It is operating in more than 120 countries, which provides food assistance during emergencies and works with communities to enhance nutrition and generate resilience.
- It has been functioning in India since 1963 and awarded **Nobel Peace prize in 2020**.
- **Funding**: WFP is funded by voluntary donations from governments, corporates and private donors.

United Nations Development Programme

The United Nations Development Programme (UNDP) empowers developing nations through expert advice, training, and grants. They prioritize support for the least developed countries and foster technical and investment collaborations between nations.

Executive Board: Made up of representatives from 36 countries around the world who serve on a rotating basis headed by an Administrator

Fund: Entirely by voluntary contributions from member nations.

UNDP support to United Nations Sustainable Development Group (UNSDG), working to achieve the 2030 Agenda for Sustainable Development.

Mission Vatsalya Scheme

- It was launched in 2021 by **MoWCD** to provide a roadmap for achieving **development and child protection priorities aligned with SDGs.**
- It's an umbrella scheme for child protection services in India which aims to secure a healthy and happy childhood for every child in the country.
- The Juvenile Justice (Care and Protection of Children) Act, 2015 and POCSO Act, 2012 form the basic framework for implementation of the mission. It is a **Centrally Sponsored Scheme** in partnership with State Governments and UT Administration.
- At the village level, the **Child Welfare and Protection Committee (CW&PC**) will identify children who are likely to be in challenging circumstances, such as orphans or street children. These youngsters will be helped through the Mission Vatsalya Scheme's sponsorship component.
- **The Child Welfare Committee (CWC) will suggest** and the **Sponsorship and Foster Care Approval Committee (SFCAC) will approve** the provision of sponsorship facilities.

Surrogacy (Regulation) Act, 2021

- It defines **surrogacy as a practice where a woman gives birth to a child for an intending couple** with the intention to hand it over to them after the birth. It is **permitted only for altruistic purposes or for couples who suffer from proven infertility.** It is **prohibited for commercial purposes.**
- **Status of Child:** Once the child is born, it will be deemed to be the biological child of the couple and abortion of such a foetus is allowed only with the **consent of the surrogate mother** as per the provisions of the Medical Termination of Pregnancy Act.
- **Eligibility:** The couple is deemed 'eligible' if they have been married **for five years** and it has different age limits for husband and wife. The couple **must not have any living child** (child having mental or physical disability is exempted from this). Also, a surrogate mother has to be **a close relative of the couple**, **a married woman with a child of her own.**
- The 'essential' certificate of being suffering from proven infertility of either partner is certified by a **District Medical Board**. Also, **the National Surrogacy Board (NSB) and State Surrogacy Boards (SSB)** have been constituted for enforcing standards for surrogacy clinics.
- They must also provide insurance **coverage for 16 months for the surrogate mother**, covering any postpartum complications.

Same Sex Marriage

- A five-judge Constitution Bench of the apex court headed by **Chief Justice of India ruled in a 3:2 verdict** against giving constitutional validity to same-sex marriages.
- Further, it was pronounced that **Right to marry is not a fundamental right**. Also, one's sexual orientation cannot decide the **capability or suitability of being adoptive parents.**
- It was agreed that a high-level Cabinet **committee** will look into **rights that can be conferred on non-heterosexual couples.**

Mera Yuva Bharat (MY Bharat)

- It has been established as an **autonomous body** through **cabinet resolution** that will serve as an enabling mechanism powered by technology **for youth development and youth led development. (**In the age group of 15-29 years)
- **Primary objective:** It would be a Whole of Government platform for youth development. It will offer **suitable opportunities for youngsters to engage in voluntary** work in the field of their choice. Thus, there is **no financial remuneration** involved.

- It will act as an enabler for creating a **phygital** (physical plus digital) eco-system and empower young individuals to become **catalysts for community transformation.**

Issue of Child Marriage

Over the last few days, Assam has arrested over 2,000 men in a state-wide crackdown on child marriages that have taken place in the state

Under What Law Are The Arrests Being Made In Assam?

- Men who married girls below 14 years of age would be booked under the **POCSO** (Protection of Children from Sexual Offences) **Act, 2012,** which criminalises sex between a minor and an adult. The law does not recognize a minor's consent as valid.
- Meanwhile, those marrying girls between 14 and 18 years would be booked under the **Prohibition of Child Marriage Act, 2006.**
    - In 2021, Child Marriage (Amendment) Bill, 2021 was introduced in the Lok Sabha. Currently, it is studied by the Standing Committee. The Bill seeks to amend the Prohibition of Child Marriage Act and increase the marriage age of women from existing 18 years to 21 years.

What Is The Debate On Muslim Age Of Marriage?

- Under Muslim personal laws, the marriage of a bride who has attained puberty is considered. Puberty is presumed, in the absence of evidence, on completion of the **age of 15 years**.
- However, under Child Marriage Act, the minimum legal age to get married is 18 for girls and 21 for boys.

Child Marriages in India

- In the last five years, it declined by 3.5% points to reach 23.3% in 2020-21, according to the latest National Family Health Survey-5 data.
- **West Bengal, Bihar and Tripura** top the list with more than 40% of women aged 20-24 years married below 18, according to NFHS data.

The Paths to Equal Report

The Paths to Equal: Twin Indices on Women's Empowerment and Gender Equality report was jointly released by UN Women and UNDP.

About The Report

- This report, launched in July 2023 by UN Women and the Human Development Report Office at UNDP, analyzes data from 114 countries and introduces two new indices:
- **Women's Empowerment Index (WEI):** Measures women's power and freedom to make choices in various dimensions like **health, education, inclusion, decision making, and violence against women.**
- **Global Gender Parity Index (GGPI):** Measures progress in achieving gender parity between women and men across key dimensions of human development which includes good health, Education, Financial inclusion and decision making.

UN Women

- UN Women is the United Nations entity dedicated to gender equality and the empowerment of women.
- It was created In July 2010 by the United Nations General Assembly.
- **It was created by merging the four bodies of the UN system:**
- Division for the Advancement of Women (DAW)
- International Research and Training Institute for the Advancement of Women (INSTRAW)
- Office of the Special Adviser on Gender Issues and Advancement of Women (OSAGI)
- United Nations Development Fund for Women (UNIFEM)
- It is headquartered at the United Nations in New York.

Key Findings

- Women are empowered to achieve, on average, only 60% of their full potential as measured by the Women's Empowerment Index (WEI).
- Women achieve, on average, 28% less than men across key human development dimensions as measured by the **Global Gender Parity Index (GGPI).**
- No country has achieved full gender parity or full women's empowerment.
- In India, gender parity was 'low' despite 'medium' human development.

Modern Slavery

- **Global Slavery Index** based on the 2022 estimates was released by **Walk Free Foundation, a human rights organization**. According to Global Slavery Index 2023, on any given day in 2021, as many as 50 million people were living in "modern slavery".
- **What is Modern slavery** refers to situations of exploitation that a person cannot refuse or leave because of threats, violence, coercion, deception, or abuses of power.
- It is an umbrella term and includes a whole variety of abuses such as forced labour, forced marriage, debt bondage, sexual exploitation, human trafficking, slavery-like practices, forced or servile marriage, and the sale and exploitation of children

Country wise findings

- **The worst offenders** are countries like North Korea, Eritrea Mauritania, Saudi Arabia, Turkey Tajikistan.
- **Lowest prevalence**: Switzerland, Norway, Germany, Netherlands, Sweden
- Maximum number of people living in modern slavery: India (11 million), China, North Korea, Pakistan, Russia Indonesia

The Gender Snapshot 2023

- **UN Women and UN Department of Economic and Social Affairs (DESA)** released "Progress on the Sustainable Development Goals (SDGs): The gender snapshot 2023" report.

United Nations Department of Economic and Social Affairs

- **UNDESA, or the United Nations Department of Economic and Social Affairs**, is a department of the **United Nations Secretariat** responsible for providing policy guidance, analytical support, and technical assistance to Member States in the areas of economic and social development.
- UNDESA also plays a leading role in the implementation of the 2030 Agenda for Sustainable Development.

SHRESHTA Scheme

- Union Minister of Social Justice and Empowerment Dr. Virendra Kumar launched the Scheme "**SHRESHTA"-Scheme for Residential Education for Students in High school in Targeted Areas.**
- The SHRESHTA Scheme will be beneficial for **SC students** those who could not reach for higher quality education. It provides for high quality education for meritorious but poor SC students in CBSE-affiliated reputed residential schools across the country.
- Approximately 3,000 seats are provided each year for admission in class 9th and 11th and the entire cost of the school fee and residential charges are borne by the Department.
- The students, belonging to **Scheduled Castes, studying in class 8th and 10th** in the current academic year are eligible for availing the benefits of scheme are selected through a transparent mechanism through a National Entrance Test for SHRESHTA (NETS), which is conducted by the **National Testing Agency (NTA)** for admission in class 9th and 11th.
- Students belonging to marginalized income group within the SC community, whose parental **annual income is up to Rs.2.5 Lakh are eligible**.
- Successful candidates, after following the e-counselling process, are given admission in the school of their choice anywhere in the Country for their academic persuasion.
- The Department shall bear the total cost of the school fee and hostel charges till completion of their academic up to class 12th. There after the students of the scheme may avail benefits of other schemes of the Department for their higher education.

Hakki Pikki Tribe

- Thirty-one tribals belonging to 'Hakki-Pikki' are stranded in Sudan, where violent clashes between a powerful paramilitary force and the country's armed forces are going on.

- **Hakki Pikkis** (**Hakki** in Kannada means '**bird'** and **Pikki** means '**catchers'**) are a semi-nomadic tribe, traditionally of bird catchers and hunters.
- It is one of the major tribal communities in **Karnataka**. They also reside in the Western and Southern states of India, mostly near forest areas.
- The community migrated from Northern India, mainly Gujarat and Rajasthan, and is now mainly concentrated in Shivamogga, Davanagere, and Mysuru district of Karnataka.
- They are recognized as a Scheduled Tribe in India

Occupation

- After the implementation of stricter wildlife laws, the tribe changed its occupation from hunting to selling spices, flowers, Ayurveda formulations, and herbal oils.
- They now travel globally to sell these products, especially in the African continent, where there is a demand for cheaper alternatives to Western medicine.

Language

- Despite being surrounded by Dravidian languages and living in southern India, the community speaks an **Indo-Aryan language**.
- Their mother tongue was designated as **'Vaagri'** by scholars.
- UNESCO has listed 'Vaagri' as one of the **endangered languages**.

Rituals and customs

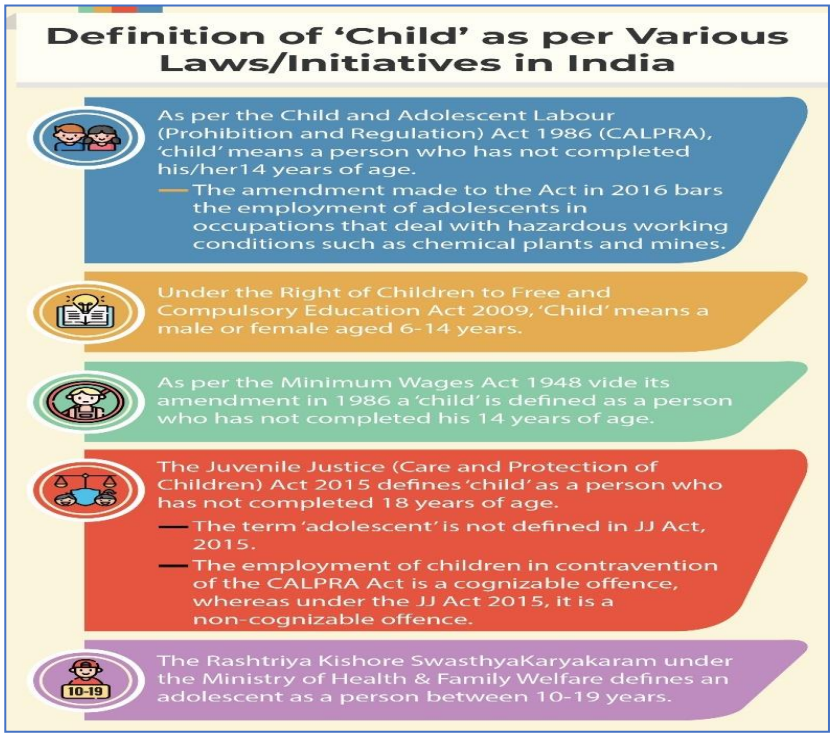
- The tribe follows Hindu traditions and celebrates Hindu festivals.
- The tribe prefers cross-cousin marriages. The society is **matriarchal**, where the groom gives dowry to the bride's family.
- The eldest son in a family is not supposed to cut his hair so that he can be identified easily.
- They are non-vegetarians.

Elimination of Child Labour

The 52nd report of the Parliamentary Standing Committee on Labour, Textiles and Skill Development has been tabled in the parliament, regarding implementation of a policy to eliminate child labour.

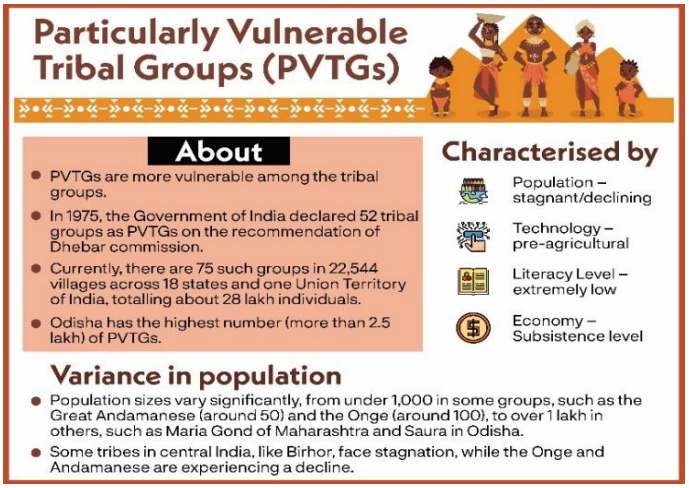
Child Labour: Meaning, Prevalence and India's Commitment to Eliminate

- According to the ILO, **child labour includes any work that deprives children of their childhood, potential and dignity, physical or mental development**.
- **Article 24** of the Constitution of India prohibits employment of children below the age of 14 years in any factory or mine or in any hazardous employment.
- The prevalence of child labour in rural areas (~14%) is close to three times higher than in urban areas (~5%). Child labour is more prevalent among boys than girls at every age.
- **The agriculture sector accounts for 70% of child labour**, followed by services (20%) and industry (10%).



PM JANMAN Scheme

- Union Cabinet approved the **Pradhan Mantri Janjati Adivasi Nyaya Maha Abhiyan (PM JANMAN).**
- The Scheme is aimed at providing **PVTG households and habitations** with:
  - basic facilities such as safe housing, clean drinking water and sanitation,
  - improved access to education, health and nutrition,
  - road and telecom connectivity, and sustainable livelihood opportunities.
- This initiative is part of the **Pradhan Mantri-PVTG Development Mission** announced in India's 2022-23 Union Budget.



MISCELLANEOUS

National Indicator Framework (NIF) for SDGS

- National Indicator Framework (NIF) Progress Report 2023 on sustainable development indicators was released by Ministry of Statistics and Programme Implementation (MoSP)
- The Interagency and Expert Group on SDG Indicators (IAEG-SDGs) developed a Global Indicator Framework (GIF) for monitoring SDG Goals and objectives.
- At the moment, the GIF has 248 indicators, 231 of which are unique.
- In order to accomplish this at National Level, the MoSPI created a National Indicator Framework (NIF) in 2018.

- NIF, like GIF, is developing in nature and currently contains 284 indicators.

What are SDGs?

- The Sustainable Development Goals (SDGs), also known as the Global Goals, are a collection of 17 interconnected objectives designed to serve as a "shared blueprint for peace and prosperity for people and the planet, now and into the future.
- At Present NIF includes **284 parameters** and these indicators align with the SDGs.

Internal Displacement

The number of internally displaced people (IDPs) around the world reached 71 million as of the end of 2022, according to the recently published Global Report on Internal Replacement 2023

Global Report on Internal Replacement 2023

- It is released by the **Norwegian Refugee Council's Internal Displacement Monitoring Centre** (IDMC).
- Internal displacement refers to people forced to move inside their own borders and the Internal Displacement Monitoring Centre's report didn't take into account those who left for different countries.

Highlights of the 2023 Report

- The number of **internally displaced people (IDPs)** around the world reached **71.1 million** as of the end of 2022, an increase of 20 per cent from the previous year.
- The **conflict in Ukraine** triggered nearly **17 million displacements**.
- **32.6 million people were displaced due to disasters**, an increase of 40 per cent from 2021 largely the result of the effects of La Niña which continued or a third consecutive year.
- Of the total disaster displacement, **98 per cent were triggered by weather-related events** like floods and storms.
- **Total IDPs** in India include **6.31 lakh** from conflict and violence while **32 thousand due to disasters.**
- **India** recorded the **fourth largest disaster displacement**, with 2.5 million displacements.
- **Pakistan** had the **highest number of disaster displacements** in the world in 2022, at 8.16 million.

Circular Migration

Circular migration, also known as repeat migration, is the temporary and usually repetitive movement of a migrant worker between home and host areas, typically for the purpose of employment. It represents an established pattern of population mobility, whether cross-country or rural-urban

Various measures taken by the government of India for the welfare of the migrants:

- **Code on Social Security**: The code provides certain benefits for inter-state migrant workers such as Insurance and provident fund.
- **One Nation-One Ration Card**: It has given households benefiting from the Public Distribution System (PDS) more choice and flexibility to choose which Fair Price Shop (FPS) they can get their rations from.
- **Draft National Policy on Migrant Workers by NITI Aayog**: NITI Aayog's draft national migrant policy takes a rights-based approach and discusses the importance of collective action to help migrants bargain for better conditions.
- **Remote voting**: The Election Commission plans to pilot a Multi-Constituency Remote Electronic Voting Machine (RVM) to facilitate the participation of domestic migrants from their remote locations for voting for their home constituencies.

Relief measures during the COVID-19

- **E-SHRAM** Portal for creating a database of migrant workers.
- **Distribution of food** under Pradhan Mantri Garib Kalyan Ann Yojna.
- **Affordable rental housing complexes** (ARHCs) scheme aimed at providing housing at an affordable rent to migrants near their workplace.
- **Garib Kalyan Rojgar Abhiyan** (GKRA) provides employment to returnee migrants affected by the COVID-19 pandemic in 116 selected districts across six states.

Census and NPR

- The first synchronous census was taken under British rule in 1881, by WC Plowden, Census Commissioner of India.
- Every 10 years, it is conducted by the **Office of the Registrar General and Census Commissioner** of India, **Ministry of Home Affairs**. The 2021 census has been postponed indefinitely and is expected to take place after general elections in 2024. It will be the **first digital census** giving citizens an **opportunity to self-enumerate.**
- Population census is listed in **Union List** (entry 69) of Seventh Schedule in Indian Constitution. It is conducted under the provisions of the **Census Act, 1948.**
- The National Population Register (NPR) is a record of **usual residents** of the country. It is **mandatory for every usual resident** of India to register in the NPR. It is also prepared by the Office of the **Registrar General of India (RGI) under the Home Ministry.**
- Its **objective** is to have a comprehensive identity database of people residing in the country. It was first collected in 2010 and then updated in 2015.

United Nations Population Fund

- **The UN Population Fund (UNFPA**) has released the **State of World Population Report, 2023**. As per the report, India is set to overtake China to become the world's most populous country by the middle of 2023.

UN Population Fund (UNFPA)

- **United Nations Population Fund (UNFPA**) is trust fund under the jurisdiction of the **United Nations Development Programme (UNDP).**
- UNFPA was formerly (1969–87) known as United Nations Fund for Population Activities.
- Established in 1969, the UNFPA is the largest international source of assistance for population programs.
- It is the leading UN organization for the implementation of the 1994 Programme of Action of the International Conference on Population and Development.
- In other words, UNFPA is the United Nations sexual and reproductive health agency.
-
- Its mission is to deliver a world where every pregnancy is wanted, every childbirth is safe and every young person's potential is fulfilled.

State of World Population Report

- **The State of World Population Report** is an annual publication released by the **United Nations Population Fund (UNFPA).**
- It provides an analysis of the world population and its various aspects such as health, education, human rights, and economic development.

	Population	15-64 years	65+	TFR	Life expectancy
India	1,428.6 mn	68%	7%	2.0	72.5 yrs
China	1,425.7 mn	69%	14%	1.2	79 yrs
World	8,045 mn	65%	10%	2.3	73.5 yrs

UNFPA's State of World Population Report 2023

Aadhar

- Aadhaar (A 12-digit numerical identification card) is the world's **largest digital ID program.** It enables access to public and private services. It also serves a **proof of identity and proof of address** for residents of India.
- The Aadhaar programme was **launched in 2009 by the UIDAI**. It serves as **proof of identity,** which is linked to the individual's biometric and demographic information.
- **UIDAI:** It is a **statutory body** established under the Aadhar (Targeted Delivery of Financial and Other Subsidies, Benefits and Services) Act, 2016. **It issues Aadhar Number (12-digit identification** number) to each individual.
- As of July 2023, 765.30 million Indians had linked Aadhaar with ration card to avail ration through Public Distribution System(PDS). Almost 100% of farmer-beneficiaries under PM Kisan Yojna are connected via Aadhaar.

Agnipath Scheme and Agniveers

- Agnipath is the scheme, under which forces (Army, Navy, and the Indian Air Force) will recruit soldiers for short-term and long-term on an 'All-India All-Class' basis for the **four-year contracts, including six months of training**. Those recruited under this scheme are called Agniveers.
- At the end of four years, up to **25% of recruits** would join the services on a regular basis, subject to merit and organizational requirements. For others, they will receive around Rs 11.71 lakh (with interest), and this will be exempt from income tax.

Comparison with a regular soldier

- Salary: For a regular soldier, it is around Rs 40000, while for that of an Agniveer is Rs 30000.
- Eligibility for Pension: A soldier employed on regular service will draw a pension post-retirement, while an Agniveer will not.
- Battle Casualty: The family of a regular soldier gets a liberalized family pension which is equal to the last pay drawn, for life. For Agniveer, the family will get only a non-contributory insurance sum.

- Gratuity: It is not available to Agniveers.

Prison Deaths in India

- In a recent report of the **Supreme Court Committee on Prison reforms**, suicide was found to be the leading cause of unnatural deaths (other than ageing or illness) among Indian prisoners.
- In 2021, a total of 2116 prisoners died in judicial custody, with around 90% of cases recorded as natural deaths. **Uttar Pradesh recorded the highest number of overall deaths.**
- Since 1993, the **National Human Rights Commission** has to be intimated **within 24 hours** of occurrence of any custodial death.
- Supreme Court, in **R.D. Upadhyay v State of Andhra Pradesh (1996) has** noted that prisoners suffer from a double handicap regarding health- they **do not enjoy the access to medical expertise** and because of their living conditions, they are **exposed to more health hazards.**
- The **Model Prison Manual of 2016** and the **Mental Healthcare Act, 2017** outline the inmates' **right to healthcare.**
- **Justice Amitava Roy Committee** had recommended measures to reduce violence amongst prisoners, speedy trials, and for prevention of suicide in prisons.

75th Anniversary of the Universal Declaration of Human Rights

- December 10, 2023 marked the 75th anniversary of the Universal Declaration of Human Rights (UDHR).
- On 10 December 1948, the UN General Assembly approved the Universal Declaration of Human Rights at a meeting in Paris.
- It was a response to the atrocities of World War II and an effort to establish a common understanding of the basic rights and freedoms to which all people are entitled.
- According to the UN, human rights are inherent to all people, regardless of their race, sex, nationality, ethnicity, language, religion, or any other. Human rights include: right to life and liberty, Freedom from slavery and torture, Freedom of opinion and expression. right to work and education, etc.
- It is not a **legally binding treaty**, but it has served as a source of inspiration for the development of international human rights law.
- The UDHR consists of a preamble & 30 articles that articulate a broad range of civil, political, economic, social, and cultural rights.
- The declaration says that "all are equal before the law" and that everyone is entitled to "a fair and public hearing by an independent and impartial tribunal."
- And it says that "everyone has the right to seek and to enjoy in other countries asylum from persecution."

CONSTITUTION

Article 370

Article 370 provided special status to J&K by permitting it to form its own constitution, flag and administrative autonomy It restricted Parliament's legislative powers as the approval of state government was required before applying laws in the state except the ones related to **defence, foreign affairs, finance and communications**.

Temporary/Permanent

- **Article 370, listed under the Temporary, Transitional and Special Provisions in Part XXI** of the constitution, could be interpreted as temporary due to the J&K Constituent Assembly's right to modify, delete, or retain it.
- However, the Supreme Court in 2018 ruled that despite the use of the term "temporary," Article 370 is not temporary. The Supreme Court's decision in **Sampat Prakash v. State of Jammu and Kashmir (1969)** affirmed that Article 370 is a permanent provision.

How It Was Scrapped?

- Using the power under **Article 356 (1) (b),** the President declared that the powers of the **Legislature of the State** shall be exercisable by or under the authority of Parliament.
- President issued a **presidential order under Article 370 (1)** of the Constitution. The order amended **Article 367** which contains guidance on how to read/ interpret some provisions. The amended Article declares **"the expression 'Constituent Assembly of the State…' in Article 370 (3)** shall be read to mean '**Legislative Assembly of the State'.**
    - **Article 370(3)** provided that the Article 370 was to be amended by the concurrence of the Constituent Assembly. However**, because of the amendment**, it can now be done away by a recommendation of the state legislature.
- **In other words, the government used the power under 370(1) to amend a provision of the Article 367 which, then, amends Article 370(3)**

Changes After Abrogation of Article 370

- Jammu & Kashmir would no longer maintain **its distinct constitution, flag, or anthem**.
- The residents of Jammu and Kashmir **would no longer possess dual citizenship**. Since the newly formed union territory of Jammu and Kashmir will be governed by the Indian Constitution, its citizens will now **enjoy the Fundamental Rights** guaranteed by the Indian constitution.
- Article 360, which allows for the declaration of a **Financial Emergency, would also be applicable.**
- All laws enacted by Parliament, including the **Right to Information Act and the Right to Education Act**, would be enforceable in Jammu and Kashmir.
- Now even **if a woman of Jammu and Kashmir marries a temporary resident, she would get the right to property**. Earlier, women were given property rights on marrying a temporary resident, but in this way women's children were deprived of property rights.
- Any citizen of the country (outside the state**) can now get a job** in Jammu and Kashmir.
- With the conduct of **elections of Panchayati Raj Institutions**, the **3-tier system of grassroot level democracy** has now been established in Jammu and Kashmir.
- Organized **stone-pelting** incidents have come down **from 1,767 in 2018 to zero in** 2023.Bandhs and hartals have become a distant memory.

SC Upholds Abrogation of Article 370

A 5-judge Constitution Bench led by the Chief Justice of India (CJI) upheld the abrogation of Article 370 through a Presidential Order in 2019 and led to the reorganization of the State of Jammu and Kashmir (J&K) into two Union Territories i.e. J&K and Ladakh and denuded it of its special privileges.

Judgement on Key Issues

1. **Whether Article 370 Was Temporary or Permanent?**

   The court held that Article 370 was always meant to be a *temporary* feature as-

   - It was intended as an interim arrangement until the Constituent Assembly of the State was formed. After the enactment of J&K Constitution and the state was adopted as a part of India, this arrangement was not necessary.
   - It was adopted because of the special circumstances in the state as it was experiencing war conditions.

2. **Legality of Abrogation of Article 370**

- **Process of Abrogation:** It was abrogated through two constitutional orders (CO)-
  - CO 272- It amended Article 367 and added a new meaning i.e., the Constituent Assembly of Jammu and Kashmir now meant Legislative Assembly of Jammu and Kashmir.
  - CO 273- It aimed at seeking Parliamentary consent (which had assumed powers of the J&K legislature) to recommend that all clauses of article 370 should cease to be operative.
- **Court's Opinion:** It held that there was no need to change the meaning of Constituent Assembly of J&K. After the Constituent Assembly of the state was dissolved, its power to make recommendations also ceased to exist and the President could have always unilaterally abrogated Article 370.

3. **Status of the Constitution of J&K**

   The court held that the Constitution of India is a complete code for constitutional governance and following its application in its entirety to the State of Jammu and Kashmir by CO 273, the Constitution of the State of Jammu and Kashmir is inoperative and is declared to have become redundant.

Uniform Civil Code

- The 22nd Law Commission of India sought the views of religious organisations and the public on the issue of a Uniform Civil Code (UCC)
- In India, **Goa** is the only state where **all religions have a common law regarding marriages, divorces, and adoption**.
- **Article 44 (DPSP)** of the Constitution lays down that the state shall endeavour to secure a UCC for citizens throughout the territory of India. DPSPs are not enforceable by court, but are supposed to inform and guide governance.

Process to Rename a State

The Constitution of India gives the Parliament power to alter the name of a state under **Article 3** of Constitution which explicitly lays down a procedure to *alter the area, boundaries, name or formation of new state.*

Proposal to Rename a State

- It can be initiated either by the state government or by the Parliament.
- For initiating the proposal in the Parliament, **prior recommendation of President is required.**
- The state legislature sends a proposal in the form of a resolution to the Central government.
- If the state government sends the proposal for changing the name to the Centre, then the Ministry of Home Affairs (MHA) takes over and gives its consent only after receiving no objection certificates (NOCs) from various departments like the Ministry of Railways, Intelligence Bureau, Department of Posts, Survey of India, Registrar General of India.
- Once the state receives a **green nod from the MHA,** the resolution is then presented to Parliament in the form of a bill.

Procedure to Rename a State

- The bill is referred by the President to the State Legislatures being affected by the bill for expressing their views on the bill within a specified time.

- The Procedure of **sending the bill to the state legislature was not a part of the original constitution** and was added only through the 5th amendment act, 1955.
- The views of the State Legislature are not enforceable against the President or the Parliament. The Parliament can dismiss the suggestions given by the state legislature if it wishes.
- After receiving the suggestions of the state legislature or at the end of the prescribed time, the bill returns to Parliament where it gets further deliberated upon.
- Finally, the bill is sent to the President for his assent. Once it receives the President's assent, the bill becomes an act, and the name of the state is changed thereafter.

Right To Silence/Right Against Self-Incrimation

- **Context:** Supreme Court has ruled that all accused have a right to silence, and investigators cannot force them to speak up or admit guilt.
- **Article 20(3)** in Part III (Fundamental Rights) of the Indian Constitution says, "No person accused of any offence shall be compelled to be a witness against himself".
- The right to be presumed innocent until proven guilty, and the right to remain silent in an interrogation essentially flow from this constitutionally guaranteed right against self-incrimination.
- This right also ensures that police cannot coerce anyone to confess to a crime, and obtain a conviction based on that confession.
- In **Nandini Satpathy v. P.L. Dani case**, SC ruled that coercing a person to answer a question within the limits of the police station may result in a violation of Article 20(3).
- In **The State of Bombay versus Kathi Kalu Oghad case**, SC ruled that obtaining photographs, fingerprints, signatures, and thumb impressions would not violate the right against self-incrimination of an accused.
    - *In **Ritesh Sinha versus State of Uttar Pradesh*** broadened the parameters of handwriting samples to include voice samples. SC held that this would not violate the right against self-incrimination.
- Right to Silence is limited only to criminal cases. It is not available if a person being interrogated under **Customs Act, 1962, or Foreign Exchange Management Act, 1999.**

Women Reservation Act (106th Constitutional Amendment Act)

- The Historic Women's Reservation Bill, 2023 (Nari Shakti Vandan Adhiniyam 2023) was passed by the Parliament in the recently concluded Special Session.
- **Provisions:** It will allow **33% seats of the Lok Sabha**, all **State Legislative Assemblies** and **Legislative Assembly of National Capital Territory of Delhi** to be reserved explicitly for women. For this purpose, the Act introduced the following articles in the Constitution:
    - **330A**: For reservation of seats for women in Lok Sabha.
    - **332A**: For reservation of seats for women in state legislative assemblies.
    - **239AA (ba):** For reservation of seats for women in legislative assembly of Delhi.
    - **334A**: Includes a sunset provision that would gradually end this affirmative action policy after 15 years.
- **Commencement of Reservation:** The bill states that its provisions will come into effect only after the delimitation exercise has been conducted based on the figures obtained from the census completed and published after the commencement of the Act.
- **Seat Rotation:** Rotation of the seats reserved will be done after each delimitation exercise.
- **In 2006, Bihar became the first State** to provide 50% reservation for women in panchayat bodies. At present, **more than 20 States have 50% reservation** for women at the panchayat level.
- **Previous Attempts:**
    - Through **81st Constitution Amendment Bill** in the Lok Sabha **in 1996**. The bill failed to get the approval of the House and lapsed with the dissolution of the Lok Sabha.

- It was introduced again by the Atal Bihari Vajpayee government **in 1998**, but it lapsed as the government fell in 1999. It was **reintroduced in 1999, 2000, 2002 and 2003**, but every time it failed to get passed.
- **The Constitution (One Hundred and Eighth Amendment) Bill, 2008 in the Rajya Sabha in 2010** was another attempt. The Rajya Sabha passed the bill but Lok Sabha didn't take it up for voting and ultimately, it **lapsed with the dissolution of the 15th** Lok Sabha.

Haryana's Private Sector Quota Strikes Down by High Court

- The Punjab and Haryana High Court quashed the Haryana State Employment of Local Candidates Act, 2020 that provided 75% reservation in private jobs to state residents.
- **Constitutional Articles sited in the judgement:**
  - **It violates Article 19(1)(e**) which guarantees the right to reside and settle in any part of the Indian territory and **Article 19(1)(g)** guaranteeing the right to practice any profession, business or trade.
  - **It infringes Article 14** (equality before the law) and **Article 15** (prohibition of discrimination on grounds of religion, race, caste, sex or place of birth).

Section 6A of Citizenship Act, 1955

Recently, the Supreme Court asked the Central government to submit details on the number of immigrants who were conferred Indian citizenship through Section 6A of the Citizenship Act, 1955.

About Section 6A of the Citizenship Act, 1971 (Introduced to give effect to the Assam Accord)

- It is a special provision for Assam which classified immigrants from Bangladesh (or East Pakistan) into Assam in three categories-
  - Those who entered before 1 January 1966 were deemed to be citizens of India.
  - Those who entered after 1 January 1966 and before 25 March 1971 were categorized as foreigners and were required to register themselves for citizenship (to be granted after ten years). Such persons were given the same rights and obligations as a citizen, except the right to vote.
  - Those who entered after 25 March 1971 were deemed illegal immigrants.

The Assam Accord

- It was a Memorandum of Settlement (MoS) signed in 1985, between the Union government (under Rajiv Gandhi) and leaders of the Assam movement that brought to an end the Assam Movement.
- **Provisions**- As per the Accord, the Indian Government agreed to secure the international border of the country against future infiltration by:
  - Erecting physical barriers like walls, barbed wire fencing and other obstacles at appropriate places.
  - Deploying a patrol by security forces on land and river routes all along the international Bangladesh-India border.

Foreigners' Tribunals (FTs)

- Foreigners' Tribunals (FTs) are quasi-judicial bodies that determine whether a person is or is not a foreigner under Foreigner's Act 1946. They were first set up in 1964 and are unique to Assam.
- Under the provisions of Foreigners Act 1946 and Foreigners (Tribunals) Order 1964, only Foreigners Tribunals are empowered to declare a person as a foreigner.
- Any person not listed in the conclusive National Register of Citizens (NRC) has the opportunity to present their case before the appellate authority, namely the Foreigners Tribunals (FT).
- In 2019, the MHA amended the Foreigners (Tribunals) Order, 1964, and empowered district magistrates in all States and UTs to set up tribunals. Previously, the Centre had sole authority to constitute tribunals.

The Gyanwapi Case

- According to popular legend, the Mughal ruler Aurangzeb built the Gyanvapi Mosque in 1669 by demolishing the ancient Vishweshwar temple in Varanasi. It is worth noting that Aurangzeb ordered Governor Abul Hassan to demolish the temple in 1669, according to Saqib Khan's book 'Yasir Alamgiri'.

- The mosque is not an ASI-protected site, and the ASI has no role in its maintenance or upkeep.

Extra Mile: The Places of Worship (Special Provisions) Act, 1991

- The act prohibits conversion of any place of worship and provides for the maintenance of the religious character of any place of worship as it existed on the 15th August 1947.
- **Key Provisions**
  - The Act defines "place of worship" as a temple, mosque, gurudwara, church, monastery, or any other place of public religious worship. It bars judicial review.
  - **Prohibition of Conversion:** The Act bars the conversion of a place of worship of any religious denomination into a place of worship of a different religious denomination or even a different segment of the same religious denomination.
  - **Maintenance of Religious Character:** The religious character of a place of worship shall continue to be the same as it existed on August 15 1947 and any suit or legal proceeding with respect to the conversion of any place of worship existing on August 15 1947 pending before any court, shall abate and no fresh suit or legal proceedings shall be instituted.
  - It **exempts the Ram Janmabhoomi-Babri Masjid case** from its ambit and to any suit, appeal or proceeding relating to it.
  - Section 5 also **exempts Ancient & historical monuments and archaeological sites & remains that are covered by the Ancient Monuments & Archaeological Sites & Remains Act, 1958**.

Permitting Puja and Rituals at Protected Monuments

A Parliamentary Committee recommended permitting puja and worship at monuments protected by the Archaeological Survey of India (ASI) that have religious significance.

Background

In 2022, Prayers were held at the ruins of the eighth-century Martand Sun Temple in Jammu and Kashmir's Anantnag. When the ASI took over the temple ruins in the 20th century for conservation, no puja or Hindu ritual was being held there.

About Martand Sun Temple

It was commissioned by the Karkota dynasty king Lalitaditya Muktapida (725 AD- 753 AD) in 8th century, and it once used to be a thriving place of worship.It was destroyed by Sikandar Shah Miri in the 14th century.

The Present ASI Rules

- ASI allows prayers at its protected sites only if they were "functioning places of worship" at the time it took charge of them. No religious rituals are allowed at non-living monuments.
- The non-living monuments are the ones where there has been no continuity of worship when it became an ASI-protected site.

About Archaeological Survey of India (ASI) (under the Ministry of Culture)

- ASI is the premier organization for archaeological research and protection of the cultural heritage of the nation founded in 1861 by **Alexander Cunningham (Father of Indian Archaeology).**
- It is responsible for maintenance of ancient monuments and archaeological sites and remains of national importance.
- It regulates all archaeological activities in the country as per the provisions of the Ancient Monuments and Archaeological Sites and Remains Act, 1958 and regulates Antiquities and Art Treasure Act, 1972.
  - The Ancient Monuments and Archaeological Sites and Remains Act, 1958 provides for the preservation of ancient and historical monuments and archaeological sites and remains of national importance.
  - Antiquities and Art Treasure Act, 1972 was enacted to regulate the internal and external dealing in antiquities in India.

New Parliament Building

India celebrated the inauguration of its new Parliament building in its 75th year of independence.

Old Parliament Building

- The capital was shifted from Calcutta to Delhi in 1911.
- **Architects:** Edwin Lutyens and Herbert Baker
- **Foundation: By HRH Prince Arthur, the Duke of Connaught** on February 12, 1921
- **Construction:** In 1919, the construction was planned and it took 6 years to complete it. **The Council House comprised- A) Legislative Assembly Chamber (Lok Sabha), B) Council of States Chamber (Rajya Sabha) and C) Chamber of Princes (Library Hall).**
- **Architecture**: The circular shape for the Parliament inspired by the circular shape of the Chausath Yogini temple at Madhya Pradesh's Morena. A few Indian elements, such as jaalis and chhatris (a domed roof atop a pavilion-like structure) were added to it.
- **Material Used:** It has **144 cream sandstone pillars** measuring 27 feet each.
- **Inauguration:** Inaugurated in **1927 by then Governor General of India Lord Irwin**.

New Building and its Features

- Its construction was announced in **2019** and the project was named as **central Vista Redevelopment Project.** The plan included the construction of **new parliament, residences of Prime Minister and Vice- President along with 10 building blocks** to accommodate all government ministries and departments.
- It was piloted by **Ministry of Housing and Urban Affairs**.
- **Built-up Area**- Built alongside the old building and has a built-up area of 65000 sq. It is designed in triangular shape.
- **Seating Capacity**- It has larger Lok Sabha Hall (based on the peacock theme) and Rajya Sabha hall (based onthe lotus theme) with a capacity of up to 888 seats and 384 seats respectively. The Lok Sabha may accommodate up to 1,272 seats for joint parliamentary sessions. Each seat will be equipped with digital systems and touch screens.
- **Constitutional Hall**- It consists of a Constitutional Hall where the journey of Indian democracy has been documented.
- **Office Space**- There will be 92 rooms for the use of the Council of Ministers as offices. There will also be 6 large committee rooms with latest audio-visual equipment.
- **Environment Friendly**- This "Platinum-rated Green Building" embodies India's commitment towards environmental sustainability. It features rainwater harvesting and water recycling systems.
- **Divyang Friendly**- It will be divyang friendly as people with disabilities will be able to move around freely.
- **Facilities for MPs**- A Central Lounge that will complement the open courtyard (with a Banyan tree) will be a place for members to interact with each other. There will also be a dining hall and library.
- **Earthquake Safe**- The building is earthquake safe.
- **Materials from across the India**- For construction, sandstone was brought from Sarmathura in Dholpur and granite from Lakha village in Jaisalmer, Rajasthan. Similarly, the wood used in the decor is from Nagpur and craftsmen from Mumbai have led the wooden architecture design. Bhadohi weavers from Uttar Pradesh have made the traditional hand-knotted carpets for the building.
- **Gandhi Statue**- The 16-foot-tall bronze statue of Mahatma Gandhi made by Padma Bhushan-awardee sculptor Ram V Sutar (Who built 'Statue of Unity') will remain on the lawn between the old and new buildings.
- **National symbols**- The building is replete with national symbols, including the national emblem — the Lion Capital of Ashoka — that weighs 9,500 kg and is 6.5 metres in height, and is visible from a distance. At the

entrance, the Ashoka chakra and the words 'Satyameva Jayate' have been carved in stone.

- **Entrances**- The building has three ceremonial entrances on three sides for the President, the Vice-President, the Lok Sabha Speaker and the Prime Minister.
- **Sengol (A golden sceptre)**- It was given to Jawaharlal Nehru on the eve of Independence to mark the transfer of power from the British. It has been placed near the Speaker's podium by the Prime Minister.
- **Galleries**- Consisting of**- A) 'Shilp'** exhibiting textile installations from across India, along with pottery items made from the mitti of all Indian states. And **B) 'Sthapatya'** exhibiting the iconic monuments of India, including those from the different states and UTs andyoga asanas.
- **Foucault pendulum-** Inside the new Parliament building, there is a Foucault pendulum that showcases the rotation of the Earth. Named after the renowned French physicist Léon Foucault, this pendulum takes precisely 49 hours, 59 minutes, and 18 seconds to complete a full rotation at the latitude of the Parliament location.

Alderman

- The Supreme Court recently reviewed a case where the Delhi government challenged the Lieutenant-Governor's appointment of Aldermen.
- **Etymology**: The word 'alderman' comes from the English words "old" and "man". Initially, it referred to elders of a clan or tribe but later evolved to denote the king's viceroys, regardless of age. By the 12th centuryCE, it began to be associated with municipal governments and used to describe officers of municipal bodies. This usage continues to the present day.
- **Delhi case**: According to the Delhi Municipal Corporation Act of 1957, the administrator (the Lieutenant Governor) has the authority to nominate **ten individuals** to serve in the corporation, each aged 25 or above.
- **Powers**: They do not have any voting rights in **mayoral elections** but play an important role in *Standing Committee elections, MCD in-house and ward committee meetings*. They are a part of a group which effectively controls the MCD's purse strings.

Special Session of Parliament

- **About Parliamentary Sessions: Article 85** of the Constitution specifies that the President must summon each House of the Parliament to meet at least once within 6 months. (borrowed from the Government of India Act 1935)
- **Who Plans the Sessions: Cabinet Committee on Parliamentary Affairs** decides the dates and duration of parliamentary sessions. Once a decision has been taken, the committee conveys its decision to the **President who then summons** the Members of Parliament to meet for the session.
- **Any Timetable: No fixed timetable, but** by convention, each calendar year consists of three sessions:
    - **Budget Session (**the longest one): It is usually from January-end to April-end. It includes a recess for Parliamentary Standing Committees to consider the budget.
    - **Monsoon Session**: It begins in July and concludes in August.
    - **Winter Session**: It is the last session of the year, usually held from November to December.
- **Special Session of Parliament:**
    - There **is no mention of special session in the Constitution** or in the rulebooks of either House of Parliament. Also, there are no specific guidelines on how or when such a session should be convened.
    - **However, Article 352** (added through the 44th constitutional amendment, 1978) which deals with the proclamation of Emergency, refers to a 'special sitting' of the House.
    - **A special** session is convened by the government for specific occasions, like commemorating parliamentary or national milestones.
- **Earlier Instances:** Special sessions have been held in the year **1947, 1962, 1972, 1977, 1991, 1992, 1997,2008, 2017 etc.**

Immunities and Privileges to MPs and MLAs

- **Related Constitutional Provisions**
  - **Article 105(2):** It provides immunity to an MP (Article 194(2) for MLA) from any proceedings in any court for anything said or any vote given by him in Parliament, or any committee and holds no person liable for any report, paper, votes or proceedings in a publication by or under the authority of either House of Parliament.
  - **Article 122(Article 212):** The validity of any proceedings in Parliament (Article 212 for State Legislature) cannot be called into question in a court on the grounds of any alleged irregularity of procedure.
- **Types of Parliamentary Privileges**
  - **Individual Privileges:** These are the privileges enjoyed by the MPs and MLAs. Some of these are:
    - No MP can be arrested 40 days before the beginning and 40 days after the end of a Parliamentary session.
    - MPs have freedom of speech in Parliament and are not liable to any proceedings in any court.
    - They are exempt from jury service during the session of Parliament.
  - **Collective Privileges:** These are enjoyed by both Houses of the Indian Parliament and State Legislature as a whole, as well as their members and officers. Some of these are:
    - Right to publish its reports, debates, and proceedings.
    - Right to exclude strangers from its proceedings.
    - Right to make rules to regulate its own procedure.
    - Right to punish members as well as outsiders for breach of its privileges.
    - Prohibited court inquiry into the House proceedings.
    - No arrest can be made without the permission of the presiding officer

No Confidence Motion

- **Article 75(3)** of the Constitution specifies that the Council of Ministers are collectively responsible to the Lok Sabha.
- For testing this collective responsibility, the **rules of Lok Sabha provide a particular mechanism – a motion of no-confidence**.
- The procedure is specified under **Rule 198 of the Lok Sabha**. The **Constitution does not mention either a Confidence or a No Confidence Motion**.

Who Can Move It

- Any Lok Sabha MP, who can garner the **support of 50 colleagues**, can, at any point of time, introduce a motion of no-confidence against the Council of Ministers.
- A no-confidence motion **can be moved only in the Lok Sabha**. It **cannot** be moved in the Rajya Sabha.
- The motion is moved by the member who submitted it, and the government will then respond to the motion.
- The opposition parties will then have the opportunity to speak on the motion.
- After the debate, the Lok Sabha will vote on the no-confidence motion.
- The motion will be passed if it is supported by a majority of the members of the House.
- **If a no-confidence motion is passed, the government must resign**.

Earlier Instances:

- There have been **27 no-confidence motions introduced in the Lok Sabha since independence**.
- The first no-confidence motion against the administration of the then Prime Minister Jawaharlal Nehru was presented in the Lok Sabha in August 1963.
- The motion obtained only 62 votes in favour and 347 votes against it.
- The last no-confidence motion was moved in 2018 against the then NDA government.

Disqualification Of Lawmakers

- **Articles 102 (1) and 191 (1):** Provides for disqualification of a Member of Parliament and a Member of the Legislative Assembly respectively on grounds like- holding office of profit, being unsound mind, not being a citizen of India etc.
- **Section 8(1) of RPA, 1951:** This includes specific offences such as promoting enmity between two groups, bribery etc.
- **Section 8(2)** of RPA, 1951: lists offences that deal with hoarding or profiteering, adulteration of food or drugs and offences under any provisions of the Dowry Prohibition Act.
- **Section 8(4) of RPA, 1951:** A lawmaker is disqualified for the period of imprisonment and a further six years if convicted and sentenced to imprisonment for two years or more.
- **Tenth Schedule of the Constitution:** Provides for the disqualification of the members on grounds of defection.

Ethics Committee in Parliament

- The genesis of formation of the Ethics Committee in Parliament can be traced to a resolution adopted at the Presiding Officers Conference held in New Delhi in October, 1996.
- Each house of the parliament has its own ethics committee.
- **Ethics Committee in Lok Sabha:**
  - It was first constituted **in 2000.**
  - **Composition:** Not more than fifteen members and nominated by the Speaker.
  - **Term:** They shall hold office for a term not exceeding one year.
- **Ethics committee in Rajya Sabha**
  - It was constituted **in 1997.**
  - **Composition:** It consists of 10 members nominated by the Chairman of Rajya Sabha.
  - **Term:** They shall hold office for a term not exceeding one year.
- **Functions**
  - To oversee the moral and ethical conduct of the Members;
  - To examine the cases referred to it with reference to ethical and other misconduct of the Members.
  - Any person or member may make a complaint relating to unethical conduct of a member to the committee.
  - In the case of the Ethics Committee only an MP can be examined for misconduct.

Money Bill

About: A Money Bill (as defined **in Article 110**) is a type of legislation that relates to the **appropriation of money** from the Consolidated Fund of India, which is the main fund of the government. It typically related to **financial matters** such as taxation, public expenditure, and public debt. It is the **Speaker of the Lok Sabha** who recognises a Bill as Money Bill.

Criteria	• The imposition, abolition, remission, alteration, or regulation of any tax. • The regulation of the borrowing of money or the giving of any guarantee by the Government of India. • The custody of the Consolidated Fund or the Contingency Fund of India, the payment of money into or the withdrawal of money from any such fund. • The appropriation of money out of the Consolidated Fund of India. • The declaring of any expenditure to be expenditure charged on the Consolidated Fund of India or the increasing of the amount of any such expenditure. • The receipt of money on account of the Consolidated Fund of India or the public account of India or the custody or issue of such money. • Any matter incidental to any of the matters specified above.

Procedure for the passage of Money Bill	• Money bills are introduced in the Lok Sabha with the President's recommendation and can only be introduced by a minister. • The bill is passed by both Houses and sent to the Rajya Sabha for consideration. The Rajya Sabha has limited powers and must return the bill within 14 days. • The Lok Sabha can accept or reject the Rajya Sabha's recommendations, and if accepted, the bill is considered to have passed in the modified form. The Lok Sabha has more powers regarding money bills. • The President can give or withhold assent to a money bill, but cannot return it for reconsideration.

Question Hour & Types of Questions in Parliament

- **Question Hour:** Generally, the first hour of a parliamentary meeting is for asking questions. But in 2014, the Rajya Sabha changed the Question Hour to start at 12 noon instead of 11 am. In this hour, Members of Parliament (MPs) ask ministers questions to hold them accountable for their work in their government departments. Apart from members, questions can be asked to private members as well.
- The **presiding officers of the both Houses** (Rajya Sabha and Lok Sabha) are the **final authority** with respect to the conduct of Question Hour.
- There is no Question Hour on Saturday, even if a sitting is fixed for that day.

Types of Questions

Starred	Unstarred	Short Notice	Private Member
• They are answered **orally** and are distinguished by an asterisk mark. • Supplementary questions can follow. • They must be submitted at least 15 days in advance. • Only 20 questions can be listed in a day. • They are printed in green colour.	• They require a written answer and are printed in the official report of the sitting of the House. • No Supplementary questions are allowed. • They must be submitted at least 15 days in advance. • They are printed in white colour.	• They relate to a matter of urgent public importance. • They can be asked with less than 10 days' notice, along with reasons for the short notice. • Supplementary questions can follow. • They are printed in a light pink colour and are taken up after a question hour.	• A question may be addressed to a private member • They are asked when the subject matter pertains to any Bill, Resolution or any matter relating to the Business of the House for which that MP is responsible. • The process followed is the same as in the case of a minister. • They are printed in yellow colour.

Government of National Capital Territory of Delhi (Amendment) Act, 2023

Parliament has passed the *Government of National Capital Territory of Delhi (Amendment) Ordinance, 2023* and created a new statutory authority – the National Capital Civil Service Authority (NCCSA).

About The Act

- It seeks to amend the **Government of National Capital Territory (NCT) of Delhi Act, 1991** and establish **National Capital Civil Service Authority (NCCSA)** which will be **headed by the Chief Minister of Delhi, with the Chief Secretary and Principal Home Secretary of Delhi being the other two members.**
- The **NCCSA will make recommendations to the LG regarding transfer, posting and vigilance matters of all Group A officers and DANICS officers** posted in Delhi. These decisions will be based on majority of votes of the members present and voting.

- The **final authority** to pass orders related to these recommendations will lie in the hands of the **Lieutenant Governor (L-G).** He can also ask for material relevant to officers before taking a decision.
- There is no specific provision in the ordinance regarding the transfer posting, discipline etc of Group B and Group C officers, which seems to indicate that the elected government of Delhi would continue to have control over these officers.
- **Article 239AA(3)(a) relates to the special provisions with respect to Delhi.**

Ordinances

- **Promulgation: Article 123** of the Constitution which deals with the Power of President to promulgate ordinances such that if at any time when at least one of the house of the Parliament is not in session, the President can promulgate an ordinance due to unavoidable circumstances that require him to take immediate action.
- **Article 213** deals with the powers of the Governor of a state to promulgate ordinances during recess of State Legislature.
- Ordinance has the same force and effect as an Act of Parliament but the government is required to bring an Ordinance before Parliament for ratification.
- It lapses-
  - At the expiration of **six weeks** from the reassembly of Parliament, if the government fails to introduce it for ratification.
  - If the President withdraws it.
  - If both the houses of the parliament pass resolutions disapproving the law.
  - Rejection of an ordinance implies the government has lost majority.
- If an Ordinance makes a law that Parliament is not competent to enact under the Constitution, it shall beconsidered void.
- The decision to bring an ordinance rest with the **Council of Ministers** as the President acts on their aid andadvice.
- The President may return the recommendation of the Cabinet for reconsideration but if it is sent back (withor without reconsideration), the President must promulgate it.
- **Validity**: An Ordinance is valid for six weeks from the date on which the next session starts. If the two Houses start their sessions on different dates, the date of the house starting later is be considered.
- **Repromulgation:** The government can repromulgate an ordinance if it lapses due to any reason.

Governors Cannot Keep Bills Pending Indefinitely

- **Context:** The Supreme Court recently ruled that Governors are not empowered to keep a Bill pending indefinitely without any action whatsoever. The court also stated that governors are entrusted with constitutional powers but cannot use them to stop the normal process of lawmaking by state legislatures.
- **Governor's Legislative Powers: Article 200** states that when a Bill passed by the state legislature is presented to the Governor for their assent, they have four options:
  - Grant assent to the Bill
  - Withhold assent to the Bills
  - Return the Bills for reconsideration; or
  - Reserve the Bill for the consideration of the President.
- **Is there any time limit within which a bill should be returned?**
  - The article states that the Governor may, as soon as possible, return Bills other than money Bills, requesting the House to reconsider it in parts or in whole. But if the State Legislature sends the bill again with/without any amendments, then the Governor is bound to give his assent to the bill.

- The court's judgment stated that the expression "as soon as possible" conveys a constitutional imperative of expedition. It also stated that keeping a bill pending for indeterminate periods is inconsistent with that expression.

- **When Can a Governor Reserve a Bill:** The Governor can reserve certain Bills for the consideration of President if
  - Against previous rulings of SC or it reduces the powers of the High Court.
  - Against the provisions of the Constitution (opposed to the Directive Principles of State Policy (DPSP)
  - Against the larger interest of the country or of grave national importance
  - Deals with the compulsory acquisition of property under Article 31A of the Constitution.

Model Prison Act

- The Ministry of Home Affairs (MHA) announced that it has finalised the preparation of the Model Prisons Act, 2023. The act will replace the current 130-year-old law i.e., Prisons Act, 1894.
- As per the provisions of the Constitution, **'prisons' and 'persons detained therein' fall under the State list.**
- Hence, the responsibility of prison management and administration solely vests with the state government, which alone is competent to make appropriate legislative provisions in this regard.

Prisons Act 1894

- **It defines prison and demarcates prisoners into 3 different categories according to the nature of their crimes.**
  - **These categories were - "criminal prisoner", "convicted criminal prisoner" and "civil prisoner".**

- **It dealt with provisions for accommodation, food, clothing, bedding segregation, and the discipline of prisoners, including solitary confinement.**
- **It also laid down provisions for the prisoners' employment, health, and visits.**
- **However, the act had *no provisions for reformation or rehabilitation*.**
- **The act *permitted whipping*, provided that the number of stripes shall not exceed thirty, albeit for only male prisoners.**

- The Ministry of Home Affairs has clarified while announcing the 2023 Act that it may serve as a guiding document for the States so that they may benefit from its adoption in their jurisdictions.

Official Secrets Act

Historical Evolution

- OSA was first enacted as **The Indian Official Secrets Act (Act XIV), 1889** to muzzle the voice of nationalist publications.
- It was amended and a more stringent version of the act came into being **in 1904** when **Lord Curzon's** was the Viceroy of India.
- A newer version was **notified in 1923 as The Indian Official Secrets Act** which extended to all the matters of secrecy and confidentiality in governance in the country.
- **Provisions:**
  - ✓ **Section 3 of the Act** talks about the secret information, defines spying/espionage and states that spying will be punishable for fourteen years if the crime has been committed in any office or establishment of the defence forces and for three years in another cases.
  - ✓ **Section 5 of the Act** talks about the Disclosure of Secret Information and states that disclosures shall be punishable with imprisonment for a term which may extend to three years, or with fine, or with both.
  - ✓ **Section 6 of the Act** talks about unauthorized use of uniforms; falsification of reports, forgery, personation, and false documents.

- **Classification: OSA does not mention any criteria for classifying a document as "secret".** The Ministry of Home Affairs issues Departmental Security Instructions based on which official documents are classified into five categories depending on the level of sensitivity of the information.

RTI vs. OSA

- **Section 22 of the RTI Act, 2005** states that it will have an overriding effect over other laws including the OSA. However, **under Sections 8 and 9 of the RTI Act**, the government can refuse information. Effectively, if the government classifies a document as **"secret"** under **OSA Clause 6**, that document can be kept outside the ambit of the RTI Act, and the government can invoke Sections 8 or 9.
- **Section 8(2) of the RTI Act** states that access to information labelled as secret under the OSA can be provided, if public interest in disclosure outweighs the harm to the protected interests.

PC & PNDT Act

- The act prohibits **sex selection** before or after conception, regulates pre-natal diagnostic techniques for detecting genetic abnormalities, metabolic disorders, chromosomal abnormalities, congenital malformations, and sex-linked disorders, and prevents misuse for female foeticide.
- It was first enacted in 1994 as Prenatal Diagnostic Techniques Act but after undergoing various amendments it finally became **Pre-Conception and Pre-natal Diagnostic Techniques (Regulationand Prevention of Misuse)** (PCPNDT) Act in 2004.

Objective	• Restricting pre-birth sex assurance and to save the girl child.
Provisions	• Pre-natal diagnostic techniques are only allowed in registered Genetic Clinics for detecting fetal abnormalities, if the woman is over 35, has experienced multiple miscarriages, or has a family history of genetic disease. • Written consent is required before an ultrasound, and the person conducting the ultrasound and others are prohibited from revealing the fetus's genders.
The Act establishes a "Central Supervisory Board" to	• The central government is advised on policy matters concerning pre-natal diagnostic and sex selection techniques, and against misuse. • The act is reviewed and monitored, and public awareness is created against pre-conception sex selection and fetus sex determination leading to female foeticide. • A code of conduct is laid down for genetic counselling centers, laboratories, and clinics. The act also requires a 3-member "appropriate authority" at the state/UT level within three months of its implementation.
Members	• An officer of or above the rank of the Joint Director of Health and Family Welfare-Chairperson • An eminent woman representing women's organization • An officer of Law Department
Functions	• To grant, suspend or cancel registration of a genetic clinic or a lab. • To enforce standards prescribed for genetic clinics and labs. • To investigate complaints of breach of the provisions of this act and take immediate action. • To seek and consider the advice of the advisory committee.
Powers	• Summon any person in possession of any information relating to violation of the provisions of this act. • Production of any document or material object. • Issuing search warrant for any place suspected to be indulging in sex pre-natal sex determination

	• Offences and Penalties: Every offence under this Act shall be cognizable, non-bailable and non-compoundable • Advertisement related to pre-natal sex determination is prohibited and punishable with imprisonment up to three years and a fine up to ten thousand rupees. • Any registered medical practitioner violating this Act can face imprisonment up to three years and a fine up to ten thousand rupees. • For subsequent convictions, imprisonment can extend to five years and a fine up to fifty thousand rupees. The medical practitioner's registration can be suspended for five years for the first offense and permanently for subsequent offenses.

Prevention of Corruption Act, 1988

- This act was aimed at making anti-corruption laws more effective by widening their coverage and strengthening the provisions.
- **Features:**
  - It is an amalgamation of the **Prevention of Corruption Act (PCA), 1947**, the **Criminal Law Amendment Act,1952**, and **Sec. 161 to 165-A of the Indian Penal Code** with certain tweaks in the original provisions.
  - It has shifted **the burden of proof from the prosecution** as mentioned in the CrPC **to the accused** who is charged with the offense.
  - It mandated the investigation to be made by an officer**, not below the rank of Deputy Superintendent of Police.**
  - It covers acts as bribe, misappropriation, obtaining a pecuniary advantage, possessing assets disproportionate to income and the like**.**
- **2018 Amendment:** The Act was amended in 2018 to bring the PCA in line with United Nations Convention against Corruption2005, which was ratified by India in 2011. For that purpose**, the amendment provided for attachment and administration of property** procured by means of an offence under the PCA and increased **the minimum imprisonment term from 6 months to 3 years.**

Rights of Persons with Disabilities Act, 2016

- **Disability in India:**
  - In India, **over 2.2 percent of the total population endures some form of severe mental or physical disability**.
  - Conceptually, since the condition of disability is rather transient than static, **there is no one universal definition of what comprises a disability or who is considered disabled**.
  - In India, the list of criteria that categorizes people as disabled was revamped in 2016 and came into effect with the **Rights of People with Disabilities Act.**

Salient Features of the Rights of Persons with Disabilities Act, 2016

- It came into force to give effect to the **United Nations Convention on the Rights of Persons with Disabilities** (UNCRPD).
- The Act has categorized person with disability into three:
  - Person with benchmark disability;
  - Person with disability;
  - People with disabilities having high support needs.
- The Act increases type of disability from 7 to 21 types and the Central Government has the power to add more to the list.
- These **21 types of disabilities** include: Blindness, Low-vision, Leprosy Cured persons, Hearing Impairment (deaf and hard of hearing), Locomotor Disability, Dwarfism, Intellectual Disability, Mental Illness, etc.

- The Act has **increased the quantum of reservation for people suffering from disabilities from 3% to 4% in government jobs and from 3% to 5% in higher education institutes**.
- Every child with benchmark disability between the **age group of 6 and 18 years shall have the right to free education**.
- A **separate National and State Fund** be created to provide financial support to the persons with disabilities.

National Policy for PwD, 2006

- The existing National Policy for Persons with Disabilities was adopted in 2006.
- **Implementing Agency:** Ministry of Social Justice & Empowerment
- The policy seeks to recognize that PwDs are valuable human resource for the country and seeks to create an environment that provides them equal opportunities, protection of their rights and full participation in society.

POSH Act

- **Context:** A government committee, led by M.C. Mary Kom, has discovered that over half of India's 30 national sports federations lack an Internal Complaints Committee, a legal requirement under the Prevention of Sexual Harassment Act, 2013.
- **Genesis of POSH Act: In 1997,** the Supreme Court acknowledged the lack of a law ensuring against sexual harassment in workplaces, establishing the **Vishakha Guidelines** to fill the statutory gap until a law could be enacted. The Court's guidelines are based on Article 15 of the Indian constitution and international conventions, including the General Recommendations of the Convention on the Elimination of All Forms of Discrimination Against Women.
- **The PoSH Bill:** The Women and Child Development Ministry introduced it in 2007 and amended it, which came into effect on December 9, 2013, after being enacted by Parliament.

Key Provisions of PoSH Act

- **Defines sexual harassment:** Unwelcome acts, including physical, verbal, and non-verbal conduct, such as requests for sexual favors, making sexually coloured remarks, and showing pornography, etc.
- **Lists down five circumstances that would constitute sexual harassment:** This includes implied or explicit promises of preferential treatment in employment, threats of detrimental treatment, threats about employment status, interference with work, creating an intimidating or hostile environment, and humiliating treatment likely to affect health or safety.
- **Defines an employee:** All women employees, whether employed regularly, temporarily, contractually, on an ad hoc or daily wage basis, as apprentices or interns, can seek redressal to sexual harassment in the workplace.

Internal Complaints Committee (ICC) and Local Committees (LC)

- **The law requires any *employer with more than 10 employees* to form an ICC, where a formal sexual harassment complaint can be filed by a woman. ICC has powers similar to those of a civil court in respect of summoning and examining any person on oath, and requiring the discovery and production of documents.**
- ***Composition of ICC*: It is required to consist of a minimum of four members (at least half of whom should be women):**
  - **A Presiding Officer who has to be a woman employed at a senior level at the workplace.**
  - **Two Members from amongst employees and who have had experience in social work or have legal knowledge.**
  - **One "External Member" from NGOs to pre-empt any undue pressure from senior levels.**
- **The MoWCD introduced (in 2017) an online platform - SHe-Box - that directs complaints to the employer or organisation's ICC.**
- **Besides, the Act mandates every district in the country to create a LC to receive complaints from women working in firms with less than 10 employees and from the informal sector, including domestic workers, etc.**

Role of ICCs and LCs:

- **These two bodies have to conduct inquiries in line with the POSH Act and comply with the "principles of natural justice" stated in the Rules of the Act.**
- **There are two ways to resolve the issue by the committee -**
  - **"Through conciliation" between the complainant and the respondent (which cannot be a financial settlement), or**
  - **Committees could initiate an inquiry, taking appropriate action based on what it finds.**

- **Expands the definition of 'workplace':** Beyond traditional offices to include all kinds of organisations across sectors, even non-traditional workplaces (for example, telecommuting) and places visited by employees for work.
- **Applicability** This includes all public and private establishments in India that engage in commercial, vocational, educational, entertainment, industrial, or financial activities, both organized and unorganized sectors, and non-governmental organizations.

Digital Personal Data Protection Act 2023

Background: In the K.**S. Puttaswamy v. Union of India case in 2017**, the Supreme Court upheld privacy as a fundamental right. Following this, the Personal Data Protection (PDP) Bill's first draft was suggested in 2018 by the Justice Srikrishna Committee. The draft was revised by the government and was introduced as PDP Bill 2019. Later the Bill was withdrawn.

Applicability	• The Bill will apply to the processing of digital personal data within India. • It will also apply to the processing of personal data outside India, if it is for offering goods or services or profiling individuals in India.
Consent	• Personal data can only be processed for lawful purposes with consent, and a notice must be given detailing the purpose and data collection. • Consent can be withdrawn at any time, and for individuals under 18, legal guardians provide consent.
Rights and Duties of Data Principal	• The data principal has the right to access processing information, request correction and erasure of personal data, and nominate another person to exercise rights in case of death or incapacity.
Transfer of Personal Data outside India	• The central government will inform countries where a data fiduciary can transfer personal data, with these transfers being subject to specific terms and conditions.
Exemptions	• Rights of the data principal and obligations of data fiduciaries (except data security) will not apply in specified cases. These include o prevention and investigation of offences, and o enforcement of legal rights or claims. • The central government may, by notification, exempt certain activities from the application of the Bill. These include o processing by government entities in the interest of the security of the state and public order, and o research, archiving, or statistical purposes.
Data Protection Board of India	• The central government will establish the Data Protection Board of India. • Key functions of the Board include o monitoring compliance and imposing penalties, o directing data fiduciaries to take necessary measures in the event of a data breach, and o hearing grievances made by affected persons.
Penalties	• The schedule to the Bill specifies penalties for various offences such as up to • Rs 200 crore for non-fulfilment of obligations for children, and • Rs 250 crore for failure to take security measures to prevent data breaches.

COFEPOSA Act 1974

- **About:** The Act provides for preventive detention for the purpose of conservation and augmentation of foreign exchange and preventing smuggling activities. It also empowers authorities to confiscate properties and assets acquired through smuggling activities or foreign exchange violations.
- **Communication:**
  - Any detention order made by the State Government or by an officer of the State Government must be forwarded to the Central Government within **ten days**.
  - Detained person should be communicated the grounds for detention within **five days or within fifteen days** from the **date of detention** in exceptional circumstances with written reasons for the delay in communication.
- **Grounds for Detention:** If a person has been detained on two or more grounds, then such order of detention should be made separately on each of such grounds.
- **Applicability:** This act is applicable to **Indian citizens as well as foreigners** who are involved in smuggling goods, including gold, narcotics, or other prohibited items, or who engage in foreign exchange violations.
- **Power of Examining the Detention Order:**
  - High Courts can examine detention orders prior to execution and a detention order cannot be challenged at pre-execution stage on the grounds of delay in execution.
  - No detention order can be held invalid only because-
- (a) the detenue is outside the limits of the territorial jurisdiction of the Government or the office making the order of detention, or
- (b) that the place of detention of such person is outside the said limits.

Digital India Act 2023

- **Context:** The Ministry of Electronics and Information Technology (MeiTY) recently announced the Digital India Act 2023. It will replace the two-decade-old Information Technology Act of 2000 (IT Act).
- **Key Provisions:**
  - It creates a specialized and dedicated **Adjudicatory Mechanism** for online civil and criminal offences which is easily accessible, delivers timely remedies, resolves cyber disputes etc.
  - It places a **strong emphasis on online safety and trust**, with a commitment to safeguarding citizen's rights in the digital realm. while remaining adaptable to shifting market dynamics and international legal principles.
  - It **recognises the growing importance of new age technologies** such as artificial intelligence (AI) and blockchain and provides guidelines for their responsible utilisation.
  - It **upholds the concept of an open internet**, striking a balance between accessibility and necessary regulations. to maintain order and protect users.
  - It **mandates stringent Know Your Customer (KYC) requirements** for wearable devices, accompanied by criminal law sanctions.
  - It contemplates a review of **the "safe harbour" principle**, which presently shields online platforms from liability related to user generated content, indicating a potential shift in online accountability standards.

Forest Rights Act (2006)

- **About:** The Act is considered a milestone because earlier acts did not recognize the symbiotic relationship of the STs with the forests and their dependence on the forest.
- **Features:**
  - The Act recognizes and vests the forest rights and occupation in forest land in forest dwelling scheduled tribes (FDSTs) and other traditional forest dwellers (OTFDs) who have been residing in such forests for generations but whose rights could not be recorded.

- It provides a framework for recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forest land.
- **Nodal Agency**: Ministry of Tribal Affairs
- **Role of Gram Sabha**: The Gram Sabha is the authority to initiate the process for determining the nature and extent of individual or community forest rights or both.

- **Rights Recognised Under The Act:**
  - **Title rights:** It gives FDST and OTFD the right to ownership to land farmed by tribals or forest dwellers subject to a maximum of 4 hectares. Also, the ownership is only for land that is actually being cultivated and no new lands will be granted.
  - **Use rights:** The rights of the dwellers extend to extracting Minor Forest Produce, grazing areas etc.
  - **Relief and development rights:** To rehabilitate in case of illegal eviction or forced displacement and to basic amenities, subject to restrictions for forest protection.
  - **Forest management rights:** It includes the right to protect, regenerate or conserve or manage any community forest resource which they have been traditionally protecting and conserving for sustainable use.

Cauvery Water Dispute & Other Major River Water Disputes

About Cauvery River (Ponni River)

- It is an inter-state basin that originates at Tala Kaveri in the Brahma Giri hills of the Western Ghats in Karnataka and passes through Tamil Nadu and Puducherry before draining into the Bay of Bengal.
- It is also known as the **Dakshina Ganga** (the Ganges of the South).
- Third largest river – after Godavari and Krishna – in southern India.
- The largest in the state of Tamil Nadu
- **Tributaries:**
  - **Left Bank Tributries:** Harangi, Hemavathi (origin in western Ghats joins the river Kaveri near Krishnarajasagar), Shimsha and Arkavathi
  - **Right Bank Tributries:** Lakshmanatirtha, Kabini (originates in Kerala and flows eastward and joins the Kaveri at Tirumakudal, Narasipur), Suvarnavathi or Honnuholé, Bhavani, Lokapavani, Noyyal, Amaravati.
  - **Dams:** Harangi and Hemavati Dams, Krishna Sagar Dam in Karnataka and Mettur Dam in Tamil Nadu

About the Inter State Water Dispute Act, 1956

- It was enacted in 1956 (amended in 2002 to include Sarkaria commission's recommendations) in accordance with the provisions under **Seventh Schedule & Article 262** of the Constitution.
- **Seventh Schedule:** Defines the legislative authority over water resources in Entry 17 (State List) and Entry 56 (Union List).
- **Article 262(1)**- It states that the parliament may by law provide for the adjudication of disputes or complaints with respect to the use, distribution and control of waters of any inter-state river and river valley.
- **Article 262(2)**- Neither the Supreme Court nor any other court can exercise its jurisdiction in respect of any such dispute or complaint referred to in clause (1).
- The **Sarkaria Commission** mandated a one-year time frame to set up the water disputes tribunal and a 3-year time frame to give a decision.
- This Act empowers the Central government to set up an **ad hoc tribunal** for the adjudication of a dispute between two or more states with respect to an inter-state river or river valley.
- The decision of the tribunal is **final and binding** on the parties to the dispute.
- Neither the Supreme Court nor any other court have any jurisdiction with respect to any water dispute referred to such a tribunal.

- The Supreme Court has jurisdiction to decide any dispute between states in connection with water supplies, if legal rights or interests are concerned.

Major Inter State River Water Disputes

Godavari	Maharashtra, Andhra Pradesh, Karnataka, Madhya Pradesh & Odisha	1969
Krishna	Maharashtra, Andhra Pradesh, Karnataka	Tribunal –I (1969) & Tribunal II (2004)
Narmada	Rajasthan, Madhya Pradesh, Gujarat and Maharashtra	1969
Ravi & Beas	Punjab, Haryana and Rajasthan	1986
Cauvery	Kerala, Karnataka, Tamil Nadu & Puduchery	1990
Vansadhara	Andhra Pradesh & Odisha	2010
Mahadayi	Goa, Karnataka and Maharashtra	2010
Mahanadi	Chhattisgarh & Odisha	2018

Odisha Readies Draft of PESA Act Rules

Context: Post 27 years of the enactment of the Panchayat (Extension to Scheduled Areas) Act, 1996, Odisha has finally introduced the draft of the Odisha Gram Panchayats Extension to Scheduled Areas (PESA) Rules, 2023.

About Panchayats Extension to Scheduled Areas (PESA) Act 1996

- The PESA Act 1996 was brought in as a response to the long-standing demands of the tribal communities in India for **greater autonomy** and control over their own affairs.
- PESA Act was enacted on 24 December 1996 to enable **tribal self-rule in fifth schedule areas.** act drew inspiration from the provisions of the 73rd and 74th amendments of the Indian constitution
- The PESA Act gives special powers to the **Gram Sabhas** in Scheduled Areas, especially for managing natural resources.
- **Major Provisions:**
    - **Gram Sabha:** The PESA Act establishes **the Gram Sabha**, a forum for the participation of the community in the development process. The Gram Sabha is responsible for the identification of development projects, the preparation of development plans, and the implementation of these plans.
    - **Village-level institutions:** The Act provides for establishing village-level institutions to carry out development activities and provide basic services to the community. These institutions include the **Gram Panchayat**, the **Gram Sabha,** and the **Panchayat Samiti.**
    - **Powers and functions:** The PESA legislation gives the Gram Sabha and the Gram Panchayat significant powers and functions in relation to the **management of natural resources, the protection of the environment**, and the regulation of economic activities.
    - **Consultation:** According to the Act requires that the **Gram Sabha be consulted before** any development projects or activities are undertaken in the Scheduled Areas.
    - **Funds:** The Act **allows transferring funds to the Gram Sabha and the Gram Panchayat** to enable them to perform their functions.
    - **Land:** The Act provides for the **protection of the land rights** of the tribal communities in the Scheduled Areas and requires that their consent be obtained before any land is acquired or transferred.
    - **Cultural and social practices:** The Act protects the cultural and social practices of the tribal communities in the **Scheduled Areas and prohibits any interference** in these practices.

'Unlawful Association' Under UAPA, 1967

- **Context:** Ministry Of Home Affairs declared the 'Jammu and Kashmir Democratic Freedom Party' as an 'Unlawful Association' under the Unlawful Activities (Prevention) Act (UAPA) 1967.

- **Unlawful Activities Prevention Act (UAPA):**
  - The UAPA was **enacted in 1967. Under the Act, offences are cognizable (arrest could be made without a warrant).**
  - It **lays down** the definitions and **rules for designating an organization as an "unlawful association"** if it is engaged in certain types of activities.
  - **'Unlawful activity' is defined** as any action taken by an individual or association – through an act, words, spoken or written, or by signs or visible representation – which is intended to, or supports a claim to, **bring about the cession of a part of the territory of India,** or the secession of a part of the territory of India from the Union, or **which incites any individual or group of individuals to bring about such cession** or secession.
  - It **covers** activities which disclaim, question, disrupt or are intended **to disrupt the sovereignty and territorial integrity of India**, and which cause or intend to cause disaffection against India.
  - In 2004, the **UAPA was amended**, and **'terrorist activities' were brought within its fold**, under which 34 outfits, including the Lashkar-e-Taiba and the Jaish-e-Mohammad, were banned.
  - Under the Act, the central g**overnment may designate an organization as a terrorist organization** if it:
    - commits or **participates in acts of terrorism**;
    - **prepares for terrorism**;
    - **promotes terrorism**;
    - is otherwise **involved in terrorism**;
  - The **2019 Amendment** gave the **Home Ministry the power to designate individuals as terrorists.**
  - The **Act extends to the whole of India.**
  - It also **applies to citizens of India who are abroad**, persons in service of the Indian government, and persons on ships and aircraft registered in India.
  - **Penalty:** Death or imprisonment for life, and shall also be liable to a fine if such act has resulted in the death of any person.

Reforming India's Criminal Laws

The government introduced three bills in the Lok Sabha to replace the existing criminal laws in India. These Bills are:

- Bharatiya Nyaya Sanhita 2023 replacing the Indian Penal Code (IPC), 1860.
- Bharatiya Nagarik Suraksha Sanhita 2023 replacing the Code of Criminal Procedure (CrPC), 1973.
- Bharatiya Sakshya Bill 2023 replacing the Indian Evidence Act, 1872.

Key Features Bharatiya Nyaya Sanhita 2023

- **Sedition:** In the BNS Bill, provision 150 under the chapter pertaining to '**offences against the State**' talks about acts endangering sovereignty unity and integrity of India.
- **Terrorism:** For the first time, word **terrorism has been defined under the BNS Bill** which was not there under the IPC.
- In the BNS Bill, the **offence of defamation carries a simple imprisonment of up to two years, or with fine, or with both or with community service**.
- **Mob Lynching: F**or the first time **capital punishment has been introduced for the offence of mob lynching.**
- Sexual exploitation of women on the pretext of marriage, job, promotions or by concealing identity will be considered a crime.
- The **new Bill omits the provision for the offence of adultery**. This is in line with the Supreme Court's ruling in 2018 in the case of **Joseph Shine v. Union of India judgement**.
- The **new Bill does not include any punishment for 'unnatural sexual offences against men'**. This is in line with the Supreme Court's unanimous reading down of Section 377 of the IPC.

- The **provision legalising marital rape has however been retained**.
- **Speedy Legal Procedure –**
- According to the proposed Bill, a chargesheet will have to be filed within 90 days, and the court can give permission for another 90 days.
- Probe will have to be completed in 180 days and sent for trial. After trial, judgment will have to be given in 30 days.

Key Features of Bharatiya Nagarik Suraksha Sanhita 2023

- **Greater use of technology:** Trials, appeal proceedings, recording of depositions including those of public servants and police officers, may be held in electronic mode. The statement of the accused too can be recorded through **video-conferencing**.
- **Communication devices:** On the directions of a court or police officer, a person is required to produce any document/ device that is likely to contain digital evidence for the purpose of an inquiry.
- **Use of handcuffs:** A police officer may be permitted to use handcuffs while arresting a person if he is a repeat offender who escaped from custody, or has committed an organised crime, terrorist act, offences against the state, etc.
- **Specific safeguards:** As per the Bill, no person can be arrested without prior permission of an officer, **not below the rank of a DSP**, in cases where the offence is punishable with less than 3 years, or if the person is above 60 years of age.
- **Mercy petitions:** After being informed by jail authorities about the disposal of the petition of a convict sentenced to death, he, or his legal heir or relative can submit a mercy petition **within 30 days to the Governor.**
    - If rejected, the person can petition the President **within 60 days.** No appeal against the order of the President shall lie in any court.
- **Sanction to prosecute:** A decision to grant or reject sanction to prosecute a public servant must be reached by the government **within 120 days** of receiving a request. If the government fails to do so, the sanction will be deemed to have been accorded.
- **No sanction** is required in cases including sexual offences, trafficking, etc.
- **Arms in procession:** While the provisions granting powers to the DM remain as they are in Section 144 of the CrPC, **the provision to prohibit carrying arms does not find a mention.**
- **Samples without arrest:** The Bill has provisions for the magistrate to order any person to give samples of his signature, handwriting, voice or finger impressions for the purpose of investigation without being arrested.
- **Detention by police:** There are provisions for police to detain or remove any person resisting, refusing or ignoring, or disregarding directions given as part of preventive action.
- **A trial in absentia:** It is prescribed in stringent anti-terror legislation such as the Unlawful Activities (Prevention) Act (UAPA) where an alternative criminal law framework applies. In such laws, **the burden of proof is reversed** - with the onus on the accused to prove himself not guilty rather than the state carrying the duty to prove guilt against the accused.

Key Features of Bharatiya Sakshya Bill 2023

- According to the bill, electronic evidence is any data created or sent by a system or device that can be kept or accessed using any method.
- It establishes precise standards for the admissibility of electronic evidence, including authenticity, integrity, and dependability which can stop digital data from being abused or manipulated.
- It acknowledges expert opinion as a type of evidence that can help establish relevant facts or circumstances for a case, much like medical opinion or handwriting analysis.

- It presents the presumption of innocence, which states that everyone accused of a crime is thought to be innocent unless and until they are proven guilty beyond a reasonable doubt, as a basic tenet of the criminal justice system.
- It lays out specific guidelines for the admissibility of DNA evidence, including permission and chain of custody, which can improve the precision and dependability of biological evidence.

Registration of Birth and Death (Amendment) Act, 2023

Key Features of the Act

- The Act gives the Registrar General of India the power to manage a national birth and death registry. While Chief Registrars maintain comparable databases at the state level, Chief Registrars (appointed by states) and Registrars (appointed by states for local areas) will be required to contribute data to this national database.
- The Act provide digital registration and electronic delivery of certificates of births and deaths.
- The Act requires certain persons to report births and deaths to the Registrar. For example, the medical officer in charge of a hospital where a baby is born must report the birth.
- The Act permits the Registrar General of India to share the birth and death database with agencies in charge of maintaining other databases, such as voter rolls, population registers, Aadhaar numbers etc.
- The Act requires the use of birth and death certificates to prove the date and place of birth for persons born on or after this Act comes into effect. The information will be used for purposes including: **admission to an educational institution, preparation of voter lists, appointment to a government post, and any other purpose** determined by the central government.
- It will be compulsory for States to register births and deaths on the Centre's Civil Registration System (CRS) portal and share data with the RGI.
- The Registrar General of India comes within the ambit of Ministry of Home Affairs.

Sedition

- Section 124A of the Indian Penal Code penalises a crime against the state. Sedition refers to any act or attempt to bring hatred or contempt towards the government established by law in India, or to incite disaffection or resistance against it.
- **Punishment under 124A:**
  - Sedition is a non-bailable offence. A person charged under this law cannot apply for government job. They have to live without their passport.
  - Upon conviction, the person can be punished with either life imprisonment and a fine, or imprisonment for up to three years and a fine, or just a fine.
- **Supreme Court on Sedition Law:** In 1962, the Supreme Court in ***'Kedarnath Singh v State of Bihar'*** upheld the constitutional validity of IPC Section 124A.
  - However, the court attempted to restrict its scope for misuse.
  - The court held that unless accompanied by an incitement or call for violence, criticism of the government cannot be labelled sedition.
- In the ***Balwant Singh vs State of Punjab*** (1995) case, SC held that merely shouting slogans, in this case Khalistan Zindabad, does not amount to sedition.
- **Recent Update:** The 22nd Law Commission has urged that the sedition law needs to be retained but certain amendments should be made for greater clarity regarding its usage. It has recommended to include the ratio of the Kedar Nath ruling in the sedition law provision.

Section 106 of Indian Evidence Act

- **About:** It deals with the burden of proof in cases where a fact is within the special knowledge of a person and states that when any fact is within the knowledge of any person, the burden of proving that fact is upon that person.

- **Examples:**
  - Imagine a situation where an opposition political party alleges widespread election fraud during a recent election and claims to have evidence of such fraud.
  - In this case, Section 106 can be applied. The burden of proving election fraud rests with the opposition party, as they are the ones making the claim. Since they allege having evidence of fraud, they have a responsibility to present that evidence to substantiate their allegations.
- It applies to **civil and criminal cases** alike and lays down an important principle of evidence.
- The burden of proof under Section 106 is not absolute, and the person who has special knowledge of the fact is only required to prove it to the extent that is reasonable in the circumstances.
- The person is not required to prove the fact beyond all doubt, but only to the extent that a reasonable person would believe it to be true.

Suspension of MPs

Recently, the Lok Sabha (LS) and Rajya Sabha (RS) suspended 141 opposition MPs for disrupting parliamentary proceedings while protesting Parliament security breach.

By Whom?

- The **Presiding Officer** i.e. the Speaker in case of LS and the Chairman in case of RS play the major role in suspending the MPs (following same process).
- To guarantee the appropriate conduct of proceedings, the Speaker/Chairman possesses the authority to compel a member to leave the House.

Process of Suspension

- **General Rule:** The presiding officers can direct an MP to withdraw from the House for any disorderly conduct (in accordance with Rules of Procedure and Conduct of Business of LS and RS).
- **To deal with more recalcitrant (uncooperative):** If it does not work and the said MP continues to disrupt the House proceedings, the presiding officer can "name" the legislator post which the House can move a motion to suspend the MP until the end of the session.
- **Introduction of 'Automatic Suspension':** LS further empowered the Speaker in 2001 to deal with "grave and disorderly conduct" under the new rule, which states that an MP "named" by the Speaker shall automatically stand suspended for a period of five days or the remaining part of the session without any need for the House to pass a motion for suspension.
  - This provision has not been incorporated in the procedures of RS. This means, unlike Lok Sabha Rajya Sabha cannot suspend its members without passing a motion for the same.

Types of Punishment for Misconduct

A person found guilty of breach of privilege or contempt of the House may be punished either by imprisonment, or by admonition (warning) or reprimand. Two other punishments may also be awarded to the members for contempt, namely, 'suspension' and 'expulsion' from the House.

Difference Between Expulsion & Disqualification

- While an expelled member (This results in the MP losing their seat in Parliament.) can contest the elections again and get re-elected as an MP in the next term, a disqualified MP can't do so.
- While the reasons for an MP's disqualification can include mental unsoundness and getting convicted in a criminal case.

Can the Courts Intervene?

Although parliamentary proceedings are protected from judicial scrutiny under Article 122 of the constitution, courts have at times intervened in the procedural functioning of legislatures.

Immunity to Parliamentary Proceedings

- Article 122 provides immunity to parliamentary proceedings from a challenge in court. It states that the validity of any proceedings in Parliament cannot be called into question on the grounds of any alleged irregularity of procedure.
- It also provides immunity to any officer or Member of Parliament in whom powers are vested by or under this Constitution for regulating procedure or the conduct of business, or for maintaining order, in Parliament from action in any court with respect to the exercise by him of those powers.

MLA Faces Disqualification After Conviction

Recently, the Tamil Nadu Higher Education Minister was convicted in a disproportionate assets case under Prevention of Corruption Act (PCA). The MLA now faced the risk of disqualification from the legislative assembly.

Disqualification of Member of Legislative Assembly (MLA)

An **MLA can be disqualified**-

- Through **Article 191 of the constitution** (Article 102 in case of Member of Parliament (MP)) for holding an office of profit, being of unsound mind or insolvent or not having valid citizenship.
- Through the **Tenth Schedule of the Constitution** i.e. under the Anti-Defection Law if the MP/MLA-
    - Voluntarily gives up his membership of a political party.
    - Disobeys the directions of his political party or votes or does not vote in the legislature contrary to the directions of his political party.
    - Joins another political party after the elections.
    - Joins any political party 6 months after becoming an MLA (in case of a nominated member).
- Under the following provisions of **Representation of The People Act (RPA), 1951-**
    - **Section** 8 of the RPA which deals with disqualification for conviction of offences such as
        - promoting enmity between two groups, bribery, and undue influence or personation at an election (Section 8(1)).
        - hoarding or profiteering, adulteration of food or drugs and for conviction and sentence of at least six months for an offence under any provisions of the Dowry Prohibition Act (Section 8(2)).
        - If sentenced to imprisonment for not less than two years (Section 8(3)). He is disqualified from the date of such conviction and shall continue to be disqualified for a further period of six years since his release.
        - A disqualification takes place only after three months from the date of conviction. Within this period of three months the convicted MLA can file an appeal against the conviction in a high court (HC) (Section 1(4)). This provision was struck down by the SC in the *Lily Thomas vs Union of India, 2013 Case*.
    - **Section 9** deals with disqualification for dismissal for corruption or disloyalty, and for entering government contracts while being a lawmaker.
    - **Section 10**: Disqualification for office under Government company.
    - **Section 11:** Removal or reduction of period of disqualification.

Can the Disqualification be Reversed?

A disqualification can be reversed if a HC grants a stay on the conviction or gives a decision in the favour of the convicted MLA. A stay on conviction is important before filing an appeal for preventing disqualification.

JUDICIARY

Forum Shopping

- The Chief Justice of India recently denied permission for forum shopping to a litigant appearing before him.
- **Forum Shopping** is when litigants or lawyers deliberately try to move their case to a particular judge or court expecting that this would turn the judgement in their favor.

- **Types:**
  - **Domestic-** When a litigant chooses between two or more courts within a country.
  - **Transnational-** When a litigant chooses between the courts of two or more countries.
- **Global Scenario**
  - The US and UK courts have criticized the practice of forum shopping as something to be avoided or prohibited.
  - Indian Judicial has condemned this practice and termed it as an abuse of law.

Arbitration & Conciliation

Arbitration and Conciliation Act, 1996

- The Act represented a significant improvement over prior arbitration laws in India, including the Arbitration Act of the 1940s, the Arbitration Act of 1937, and The Foreign Awards Act of 1961.
- This legislation covers international commercial arbitration, domestic arbitration, and the enforcement of foreign arbitral awards. It draws inspiration from the model law of the United Nations and aligns with the legal framework adopted by the United Nations Commission on International Trade Law (UNCITRAL).

Arbitration and Conciliation (Amendment) Act, 2019

This amendment aims to establish an independent body called the Arbitration Council of India (ACI) to promote arbitration, mediation, conciliation, and other alternative dispute resolution mechanisms.

Arbitration Council of India (ACI)

- According to the Constitution of India, specifically Article 51 under the Directive Principles of State Policy, India is obligated to encourage the settlement of international disputes through arbitration. The creation of ACI is a step towards fulfilling this constitutional obligation.
- ACI will be led by a chairperson, who must have served as a Judge of the Supreme Court, a Chief Justice, or a Judge of a High Court, or an eminent person appointed by the Central Government in consultation with the Chief Justice of India.
- Additionally, ACI will have two full-time members selected from distinguished arbitration practitioners and academicians.

Difference Between Arbitration and Conciliation

Conciliation	Arbitration
Conciliation is a non-adversarial process that aims to facilitate dialogue and promote a mutually acceptable resolution between parties.	Arbitration is an adversarial process where parties present their cases to arbitrators who make a binding arbitral award, advocating for a non-interventionist role by the judge to oversee prosecution and prove their case.
A conciliator is a neutral third party who assists parties in identifying issues, exploring options, and reaching a settlement without imposing a decision.	The arbitrator serves as a private judge, interpreting evidence, considering arguments, and delivering an enforceable decision.
Conciliation results in a settlement agreement between parties, which is a contract that requires voluntary compliance. If either party fails to fulfill its obligations, the other party may seek remedies through court proceedings.	Arbitral awards are legally binding decisions that can be enforced in courts, with the losing party being required to comply with the terms of the award.

National Judicial Data Grid & Portal

- **Context:** Real-time data on the filing and disposal of cases in the Supreme Court will now be available through the National Judicial Data Grid (NJDG). The NJDG-SCI (Supreme Court of India) portal would include the following data

- The current pending cases (civil and criminal)
- Cases filed and disposed in the previous month
- Number of cases pending before three-judge, five-judge, and even nine-judge Benches.

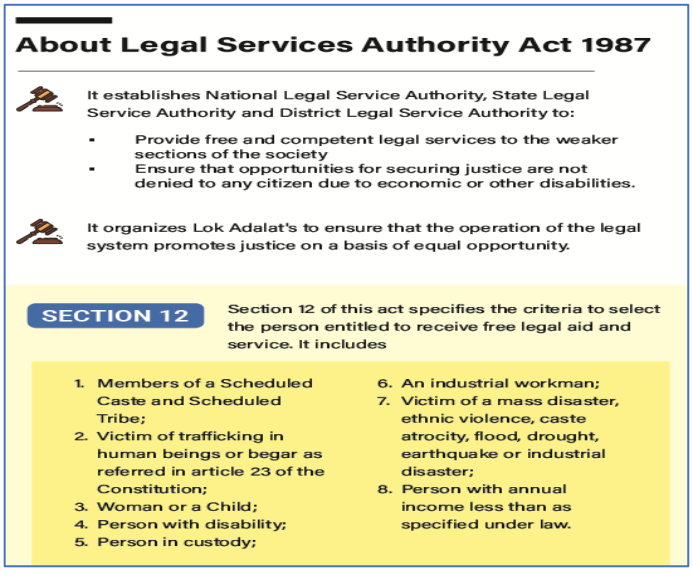
- **About:** It is a national data repository (Aligned with the National Data Sharing and Accessibility Policy (NDSAP)) created in 2015 under the e-Courts project and contains details of orders, cases (civil and criminal) and judgements of District and Subordinate Courts, High Courts and allows real-time data updation by connected District and Taluka courts. NJDG was built as part of Phase II of the e-Courts project, which is a Centrally Sponsored Scheme.
- **Developer:** The National Informatics Centre (NIC) and Computer Cell (Supreme Court Registry)
  - The NIC was established in 1976 and is under the Ministry of Electronics and Information Technology (MeitY). The NIC provides IT services, infrastructure, and consultancy to central and state governments.

e-Courts Project

- **About:** The e-Courts Mission Mode Project is a **centrally sponsored** scheme launched in **2006** and is a part of the National e-Governance Plan, monitored and funded by Department of Justice, **Ministry of Law and Justice**, for the District Courts across the country.
- **Implementation: Supreme Court** is responsible for its policy planning, strategic direction, and implementation.
- **Phase I:** Launched **in 2007.** During this phase
  - Computer Server Rooms and Judicial Service Centers were prepared for computerization of the District Courts and District court websites were launched
  - Judicial Officers and Court Staff were trained under Change Management exercises to use computers and Case Information System (CIS)
- **Phase II:** It was approved **in 2015**. During this phase
  - Uncovered Courts of Phase-I and newly established Courts were provided with new hardware systems per Court Room and LAN connectivity etc.
  - **National Judicial Data Grid** was launched for providing case details and status online of all the district and High Courts of India.
- **Phase III:** Recently approved and it proposes to
  - To usher in a regime of **maximum ease of justice** by moving towards digital, online, and paperless courts through digitization of the entire court records, including legacy records.
  - Implement a smart scheduling system to recommend **an appropriate schedule for listing cases** based on availability of judges, lawyers, witnesses; nature of the case; and caseload of the judge.

Nyaya Bandhu Program

- Nyaya Bandhu Program was launched in 2017 and is being implemented by National Legal Services Authority (NALSA). It provides legal aid in a variety of areas, including civil, criminal, and family law. The program also provides legal aid to people who are facing discrimination or who are being denied their basic rights.
- It is a mobile application which provides pro bono legal services to the ones who are unable to afford legal advice and/or cannot access legal aid.
- Pro bono is a Latin term which means "for the public good".



- Using this application, practicing lawyers will be able to register themselves and connect with registered beneficiaries, provide them services for free or at a minimal cost and present them with an opportunity to address their legal problems meaningfully.
- It also provides the feature of tracking case status.
- To utilise the scheme optimally, the Department of Justice has proposed setting up a pro bono panel of lawyers at each high court.

DISHA Scheme

- This Scheme launched for a period of five years 2021-2026 to advance the cause of access to justice. It aims to design and consolidate various initiatives to provide citizen-centric delivery of legal services.
- There are three components under DISHA at present
  - Nyaya Bandhu Programme
  - Tele-Law
  - Legal Awareness Programme

Special Leave Petition

- **About:** Under **Article 136** of the Constitution, the SC may in its discretion grant a special leave to an aggrieved party to appeal against any judgment, decree, determination, sentence or order issued in a case (civil/criminal) by any court or tribunal (except a military court or a court martial order). This petition is known as Special Petition Leave.
  - An interim or interlocutory order, decree or judgement can also be challenged, it need not be final.
- **Conditions -** It can only be exercised in the case of a substantial question of law or gross injustice.
- **Time Limit:** It must be filed within 90 days from the date of High Court (HC) judgment, or within 60 days against the order of the HC refusing to grant the certificate of fitness for appeal to the Supreme Court.

Petition	Purpose	In Constitution or Innovation?	Features
Special Leave Petition	To appeal against a decision of any lower court or tribunal	Under Article 136 of the Constitution	It is not an appeal by right but is granted at the discretion of the Supreme Court
Review Petition	For correcting errors and addressing new evidence	Under Article 137 of the Constitution, the Supreme Court has the power to review any of its judgments or orders.	A Review Petition has to be filed within 30 days of the date of judgment or order.
Curative Petition (a last resort remedy)	To seek relief when there is a perceived violation of the principles of natural justice	Evolved by the Supreme Court of India in Rupa Ashok Hurra vs. Ashok Hurra and another case (2002)	A curative petition may be filed after a review plea against the final conviction is dismissed and It must be rare rather than regular.

Writ Jurisdiction of High Courts

- **Article 32** (Right to Constitutional Remedies) and **Article 226** provide remedies for the protection of the fundamental rights of a citizen by empowering the Supreme Court (SC) and High Courts (HC) respectively to issue writs when a fundamental right of a citizen is violated.
- HCs have the right to issue writs within the territory of the concerned state and to any government, authority or person outside their territorial jurisdiction if the whole or part of the cause of action arises in their state of concern.
- HCs can issue writs not only for the enforcement of Fundamental Rights but also for non-Fundamental Rights (Legal Rights) whereas the SC can issue writs only in the case of violation of a fundamental right.

- The remedy provided under Article 226 of the Constitution is a discretionary remedy of the court and thereby cannot be claimed as a matter of right.
- In case of the enforcement of Fundamental Rights, the jurisdiction of the SC is original but not exclusive. It is concurrent with the jurisdiction of the high court under Article 226.

Type of Writ	Purpose	Issued When	Final Effect
Habeas Corpus (meaning- to have a body of)	To protect an individual's personal liberty	a person is unlawfully detained	lead to the release of the detainee if detention is found to be illegal
Mandamus (meaning- we command)	To compel a public authority or official to perform a public duty.	a public official fails to perform a public duty	Ensures that governmental actions are in accordance with legal obligations
Quo Warranto (Meaning- by what authority?)	To inquire into the legality of a person holding a public office.	a person is holding office but is not entitled to hold that office	Determines if the person is qualified to hold that position
Prohibition	To prevent a lower court, tribunal, or authority from exceeding its jurisdiction.	a lower court acts outside the scope of its legal authority	Halts the proceedings of a lower court acting unlawfully
Certiorari (Meaning- to be certified" or "to be informed)	To **quash** the orders, decisions, or judgments of lower courts, tribunals, or quasi-judicial bodies.	a decision is tainted by illegality, bias, or lacks jurisdiction	Allows for a review of lower court decisions and their annulment if unlawful

All India Judicial Services

Addressing the Supreme Court Constitution Day celebration (November 26), President called for an "All-India Judicial Service" to recruit judges to help make the judiciary diverse.

About the All-India Judicial Services

- **Article 312** of the Constitution provides for the establishment of All India Judicial Service (AIJS) along the lines of central civil services.
- Under AIJS, the judges of lower judiciary will be recruited centrally and then assigned to states just as the Union Public Service Commission (UPSC) conducts the central recruitment process and assigns successful candidates to cadres (Like the present All-India Services such as IAS and IPS).
- The AIJS will not include any post inferior to that of a District Judge.
  - A District Judge (defined in Article 236) can include a city civil court judge, additional district judge, joint district judge, assistant district judge, chief judge of a small cause court, chief presidency magistrate, additional chief presidency magistrate, sessions judge, additional sessions judge, and assistant sessions judge.

Process

- The 42nd Constitutional Amendment in 1976 amended Article 312(1) of the Constitution and empowered the Parliament to make laws for the creation of one or more All-India Services.
- Accordingly, under Article 312(1) of the Constitution, if a resolution supported by at least two-thirds of its members present and voting is passed by the Rajya Sabha demanding to create a service in "national interest," then the Parliament may create AJIS (common to the Union and the States) by simple majority amending Article 233 and Article 234 and regulate the recruitment and service conditions of persons appointed to any such service.
  - Article 233 deals with the Appointment of District Judges in States.

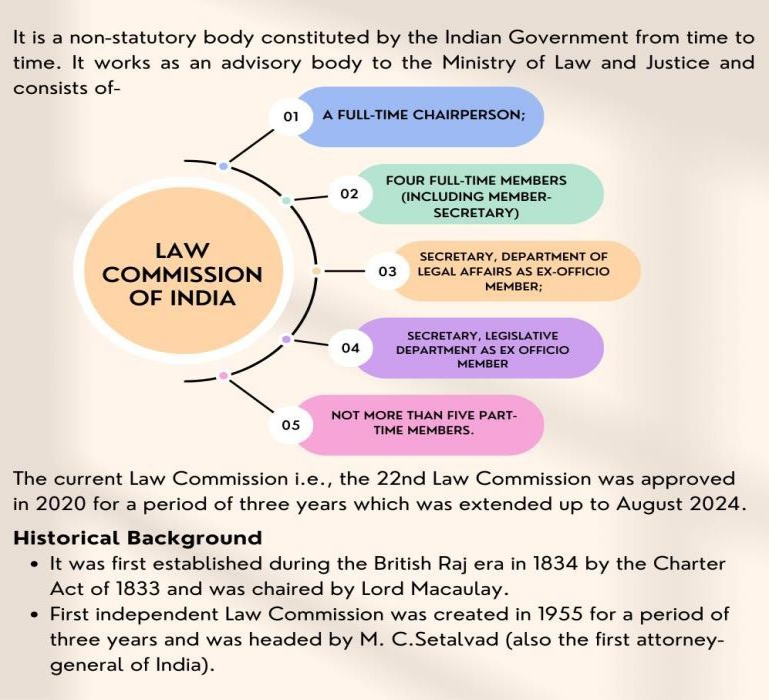
- Article 234 (For Subordinate Judicial Officers) deals with the appointment of persons other than district judges to the judicial services.

- Amendment of the Constitution under Article 368 is not required.

INSTITUTIONS AND BODIES

Law Commission of India

- **Objectives:**
  - To reform laws for maximizing justice in society and promoting good governance under the rule of law.
  - To carry out research in the field of law.
- **Functions:**
  - The review aims to repeal obsolete laws, examine socio-economic legislation affecting the poor, and ensure the judicial administration is responsive to current demands.
  - It also examines existing laws in light of state policy directives and suggests improvements and reforms. The review also focuses on promoting gender equality and proposing amendments.



  - The review also aims to simplify central acts and remove anomalies. The review also examines the impact of globalization on food security and unemployment, and recommends measures to protect the interests of marginalized groups.

Central Bureau of Investigation (CBI)

- **Central Bureau of Investigation (CBI)** is the premier non-statutory investigative agency of India established in 1963 on the recommendations of theSanthanam Committee on Prevention of Corruption. It derives its powers from the **Delhi Special Police Establishment.**
  - It provides assistance to the **Central Vigilance Commission (CVC) and Lokpal**.
  - It is also the nodal police agency in India which coordinates investigations on behalf of Interpol Member countries at international level.
- **Control**: It operates under the jurisdiction of the **Ministry of Personnel, Public Grievances and Pensions** but for investigating offences under the Prevention of Corruption Act, it vests superintendence to the CVC.
- **Functions**: Initially, it was set up to investigate corruption in government departments and public sector undertakings. However, over the years, its jurisdiction has expanded to cover a wide range of cases, including economic offences, cybercrimes, organized crimes, and special crimes.
- **Director**:
  - He is responsible for the administration of CBI and is appointed by the Centre on the recommendation of a **three-member Appointment Committee**
  - It comprises of the **Prime Minister as the chairperson, the Leader of Opposition (LoP) in the Lok Sabha and the Chief Justice of India, or a Supreme Court judge nominated by him**.
  - If there is no recognized LoP, then the leader of the single largest party is included.

- The **Supreme Court in 2019** mandated that no officer with less than six months' tenure remaining can be considered for the post of CBI chief and that the Director will remain in office for **not less than 2 years** and can be transferred only with the consent of the appointing committee.
- **General Consent: Section 6** of this act makes it mandatory for the CBI to take prior approval from the concerned stategovernment before proceeding with any investigation in that state. This consent can be either "**case-specific" or "general**" and is given by the states to help the CBI conduct seamless investigation of corruption cases.
- When a state gives **a general consent** to the CBI for probing a case, the agency is not required to seekfresh permission every time it enters that state in connection with investigation or for every case.
- In contrast, if the CBI does not have the general consent of a state government, it is required to apply for **consent on a case-by-case basis** and cannot act before the consent is given.

Supreme Audit Institution (SAI)

- **Context:** Supreme Audit Institution **(SAI)-20 Summit concluded in Goa under India's G20 Presidency**. It focused on collaborating on sharing of best practices, capacity building and development of appropriate auditing guidelines and actionable tool kits for auditing national priorities.
- **Two Priority Areas**
  - **Blue Economy:** focuses on conserving and using oceans, seas, and marine resources for sustainable development.
  - **Responsible Artificial Intelligence:** enables the detection of fraud, automates redundant auditing, and identifies high-risk transactions.

About Supreme Audit Institution (SAI)

- They are **independent national-level public oversight bodies** which audit government revenues and expenditures.
- They provide an assurance that the resources are being used as prescribed by scrutinizing public financial management and submitting a report on the same.
- They derive their mandate from the constitution or a legislation.
- **Comptroller and Auditor General** of India is **India's SAI.**

Functions:

- To undertake financial audits of accounting procedures, financial statements of an organization and compliance audits reviewing the legality of transactions made by the audited body.
- Conducting performance audits to scrutinize 3E's (efficiency, effectiveness or economy) of government undertakings.

International Organization of Supreme Audit Institutions (INTOSAI)

- INTOSAI operates as an umbrella organization for the external government audit community. INTOSAI is an autonomous, independent and non-political organization.
- Nearly every SAI from an UN-member country is a member of the INTOSAI.
- INTOSAI has a number of bodies and organs, including committees and working groups which examine specific issues of relevance to SAIs, such as professional standards, environmental audits, and capacity building.
- INTOSAI serves as a forum for SAIs worldwide to exchange experiences and work collectively to improve public sector accountability and transparency.

National Commission for Scheduled Castes (NCSC)

- NCSC is a constitutional body under the jurisdiction of **Ministry of Social Justice and Empowerment** established to provide safeguards against the exploitation of Scheduled Castes and Anglo-Indian communities to promoteand protect their social, educational, economic and cultural interests.
- **Article 338 contains provisions for NCSC**. (Article 338A for NCST and Article 338B for NCBC).

- **By 89th Amendment Act, 2003,** Article 338 was amended (introduced **Article 338A**), and the erstwhile National Commission for SC and ST was replaced by two separate Commissions **(NCSC & NCST)** from 2004.
- The **102nd Constitution Amendment Act, 2018** provides **constitutional status** (introduced Article 338B) to the National Commission for Backward Classes (NCBC).
- The first Commission for Scheduled Castes and Scheduled Tribes was set up in August 1978.
- It functions from its headquarter in Delhi and **consists of a Chairman, Vice-Chairman and 3 other members.**
- The Central and State Governments are required to consult NCSC on all policy matters affecting the SCs.
- **Duties and Functions:**
    - The commission investigates and monitors safeguards provided for scheduled castes under the constitution, investigates complaints about deprivation of rights, and participates in socio-economic development planning.
    - It evaluates progress and presents **reports to the President** annually or as needed.

  The commission recommends measures for effective implementation of safeguards and other measures for the protection, welfare, and socio-economic development of scheduled castes.
    - It also discharges other functions related to the protection, welfare, and development of scheduled castes as specified by the President or any law or rule made by parliament.
    - Similar functions are required for Ango-Indian Communities.
- **Powers:**
    - The NCSC has the authority to regulate its own procedure and has all the **powers of a civil court** when investigating matters or complaints.
    - It can summon and enforce witnesses, require document discovery and production, receive evidence on affidavits, request public records, issue summonses for witness examination, and investigate other matters determined by the President.

Digital Publisher Content Grievances Council

Context: The Digital Publisher Content Grievances Council (DPCGC) recently recommended punitive action on an OTT platform, invoking the Information Technology Rules (2021).

About the Digital Publisher Content Grievances Council (DPCGC)

- It is an independent **self-regulatory body** for Online Curated Content (OCC) providers.
- It was set up **under the aegis of Internet and Mobile Association of India** (IAMAI).
- DPCGC has been **recognised and registered by the Ministry of Information & Broadcasting** as Level II Self-Regulatory Body for publishers of OCC providers, under Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021.
- The **DPCGC has an Online Curated Content Publishers (OCCP) Council** composed of publishers of OCC as members and **an independent Grievance Redressal Board** [GRB] consisting of a chairperson and six members.
- The GRB will be **chaired by a retired Supreme Court/High Court judge**, and the members will comprise eminent persons from the media and entertainment industry and experts from various fields, including child rights, minority rights, and media law.

Functions of GRB:

- It will oversee and ensure the alignment and adherence to the Code of Ethics by the OCCP Council members.
- Provide guidance to entities on the Code of Ethics.
- Address grievances that have not been resolved by the publisher within 15 days.
- Hear grievances/appeals filed by complainants.
- DPCGC, through the GRB aims to usher in a redressal mechanism which will ensure a balance between addressing viewer complaints and showcasing content in free-speech environment without ad-hoc interventions.

Enforcement Directorate (ED)

- The Enforcement Directorate was established in the year 1956 as an 'Enforcement Unit' under the Department of Economic Affairs. Later, in 1957, this Unit was renamed as 'Enforcement Directorate'.
- **Administrative control:** Presently, it is under the administrative control of the **Department of Revenue** (under the Ministry of Finance) for operational purposes.
- **Functions**
  - ED is responsible for enforcement of the **Foreign Exchange Management Act, 1999 (FEMA)**, and certain provisions under the **PMLA.**
  - ED has the power to attach the asset of the culprits found guilty of the violation of FEMA.
  - It has also been empowered to undertake, search, seizure, arrest, prosecution action, and survey, etc. against the offences committed under PMLA.
- **Appointment of Director of ED**
  - The ED Director is appointed by the central government on the recommendation of a committee:
    - Chaired by the Central Vigilance Commissioner and
    - Members comprising of Vigilance Commissioners, Home Secretary, Secretary DOPT and Revenue Secretary.

Commission for Scientific and Technical Terminology (CSTT)

- The Commission for Scientific and Technical Terminology (CSTT) is aiming to create technical and scientific terminology in **10 Indian languages** underrepresented in the learning landscape.
- The **CSTT will bring out what it calls fundamental (basic)dictionaries with 5,000 words per language**, in three to four months. These will be in digital, searchable format, and free of cost.
- The immediate focus is to cover 15 disciplines –journalism, publicadministration, chemistry,botany, zoology, psychology,physics, economics, etc.
- These will **enable textbook formulation at the middle- and senior-school as well as university levels**.
- **National Education Policy 2020 has espoused the use of regional languages as a medium of education** in both school and college

Achievements of CSTT

- Till date, CSTT has standardized the terminology of about eight lakhs technical terms in different subjects and in different languages.
- Besides this, CSTT has **published large number of Definitional Dictionaries**, Glossaries, Text-Books, Reference Materials and Monographs, Quarterly Journals.
  - '**Vigyan Garima Sindhu**' and '**Gyan Garima Sindhu**' are two prominent quarterly journals published by the CSTT.

Eight Schedule of The Constitution

- The Eighth Schedule to the Constitution lists the official languages of India.
- **Part XVII** of the constitution deals with the official languages in **Articles 343 to 351**.
- Although there are hundreds of languages spoken across the country, the eighth schedule recognises a total of **22 languages as the official languages**. These 22 languages are – Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Malayalam, Manipuri, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu, Bodo, Santhali, Maithili and Dogri.
  - Of these languages, **14 were initially included in the Constitution**.
  - Sindhi language was added in 1967.
  - Thereafter three more languages viz., Konkani, Manipuri and Nepali were included in 1992.
  - Subsequently Bodo, Dogri, Maithili and Santhali were added in 2004.
- There is **no fixed criteria** for any language to be considered for inclusion in the 8th Schedule.

Solicitor General (SG) of India

- The Solicitor General of India **assists the Attorney-General of India** in fulfilling his duties along with the additional Solicitor General (ASG) and is the second highest law officer in the country.
- The **constitution doesn't contain any mention** about this post and only defines the role and responsibilities of the Attorney General of India under Article 76.
- Rules regulating the remuneration, duties and other terms and conditions of the Solicitor-General for India along with Attorney General and Additional Solicitor-General are defined under **Law Officer (Conditions of Service) Rules, 1987**.
- **Terms of Office**: The Solicitor General remains in the office for **a period of three years** and is **eligible for re-appointment** for a further term not exceeding three years. His **appointment can be terminated by three months' notice** in writing by either side at any time during his tenure.
- **Duties: To provide legal advice and perform duties assigned by the government.**
  - They represent the government in Supreme Court or High Court cases, including suits, writ petitions, appeals, and other proceedings.
  - They also represent the government in any reference made by the President to the Supreme Court under **Article 143** of the constitution, which deals with the President's power to consult the Supreme Court on matters of public importance.
  - They also discharge other functions conferred by the constitution or any other law in force.
- **Restrictions:**
  - The SGI is prohibited from holding court briefs for any party except the Government of India, a State, a University, or other government entities.
  - They cannot advise against the Government or a Public Sector Undertaking, defend an accused person in a criminal prosecution without the Government's permission, accept appointment to office in a company or corporation without the Government's permission.
  - They cannot advise any Ministry or Department of Government without orders from the Ministry of Law and Justice.

Cabinet Committees

- Cabinet committees are **extra-constitutional** in nature. They are not mentioned in the Constitution. However, these are established under the Rules of Business.
- Cabinet committees are **set up by the Prime Minister** according to the exigencies of the time and requirements of the situation. Hence, their number, nomenclature, and composition vary from time to time.
- They not only **sort out issues and formulate proposals** for the consideration of the Cabinet but also make decisions. However, the Cabinet can review their decisions.

- They are an organizational device to **reduce the enormous workload of the Cabinet.** They also facilitate in-depth examination of policy issues and effective coordination. They are based on the principles of division of labour and effective delegation.
- **Classification:** There is a total of **eight cabinet committees** which are as listed below:
  - Appointments Committee of the Cabinet.
  - Cabinet Committee on Economic Affairs.
  - Cabinet Committee on Political Affairs.
  - Cabinet Committee on Investment and Growth.
  - Cabinet Committee on Security.
  - Cabinet Committee on Parliamentary Affairs.
  - Cabinet Committee on Employment & Skill Development.
  - Cabinet Committee on Accommodation.
- **Composition:** The composition of cabinet committees in India can range from **three to eight members**, which typically consist of only Cabinet Ministers.
  - Non-cabinet ministers and senior ministers may be appointed as members of the committee, including those not responsible for the subjects discussed.
  - The **Prime Minister typically chairs** the committee, but other Cabinet ministers like the Home Minister or Finance Minister may also assume the role, and if the Prime Minister is a committee member, they are the head.
  - The Prime Minister leads all committees, except the Cabinet Committee on Accommodation and on Parliamentary Affairs, in the current scenario.
  - The Cabinet Committee on Accommodation is headed by the Home Minister, while the Cabinet Committee on Parliamentary Affairs is headed by the Defence Minister.

Central Consumer Protection Authority (CCPA)

The CCPA is probing around 20 IAS coaching institutes and has slapped a fine of Rs.1 lakh on four of them for making misleading claims in their advertisements and for unfair trade practices.

Central Consumer Protection Authority (CCPA)

- It is a statutory body established **in 2020** under the provisions of **Consumer Protection Act, 2019**. It functions under the **Ministry of Consumer Affairs, Food and Public Distribution.**
- **Objective:** to regulate matters relating to violation of consumer rights and to promote, protect and enforce the rights of consumers as a class.
- **Composition:** It consists of **a Chief Commissioner** as head, and **two other commissioners** as members. They are appointed by the central government.
- **Powers & functions:**
  - **Conduct investigations** into violation of consumer rights and institute complaints *either Suo motu or on a complaint received or on the directions from the central government*.
  - Order **recall of unsafe goods** and services.
  - Order **discontinuation of unfair trade practices** and misleading advertisements and impose **penalties of up to Rs. 10 lakhs**.
  - File complaints or intervene in any proceedings **before district or state or the national commission** in respect of any allegation of violation of consumer rights or unfair trade practices.
  - **Recommend adoption** of international covenants and best international practices on consumer rights.
  - Undertake and promote **awareness & research** in the field of consumer rights.
  - **Encourage non-governmental organizations (NGOs)** and other institutions working in the field of consumer rights to co-operate and work with consumer protection agencies.

- Mandate the use of unique and universal goods identifiers in such goods, as may be necessary, to prevent unfair trade practices and to protect consumers' interest.
- It has an **investigation wing** headed by a director general (appointed by the central government).

Central Information Commission

- **About:** It is a statutory body constituted under **section 12 of the Right to Information (RTI) Act, 2005** for ensuring smoother and greater access to information envisaged under the RTI Act to Indian citizens through a citizen centric approach. **It is not a constitutional body.**
- **Objective:**
  - To receive and inquire into citizen complaints under Section 18 of the RTI Act.
  - To receive and decide upon the second appeals from any citizen under Section 19 of the RTI Act.
  - To exercise the powers conferred on CIC under the RTI Act, 2005.
  - To perform the duty of "Monitoring and Reporting" under Section 25 of the RTI Act.
- **Appointment:**
  - The Commission consists of a **Chief Information Commissioner and not more than ten Information Commissioners** appointed by the **President** on the recommendation of a committee consisting of:
    - The Prime Minister (Chairperson)
    - Leader of Opposition (LoP) in the Lok Sabha
    - A Union Cabinet Minister nominated by the Prime Minister.
- **Eligibility:**
  - Chief & Members of CIC and SIC should be persons of eminence in public life with wide Term of Office and Re-appointment
  - The members should not be a Member of Parliament (MP) or Member of the Legislature of any State or Union Territory or hold any other office of profit or connected with any political party or carrying on any business or pursuing any profession.
- **Removal:** The **President** can remove the members of the CIC (Governor in the case of SIC) if a member has been:
  - Adjudged insolvent.
  - Convicted of an offence involving moral turpitude.
  - Engages in paid employment outside his office.
  - Declared unfit to continue in office due to infirmity of mind or body.
  - Acquired such financial or other interest that can affect his functioning as a chief information commissioner or information commissioner.
  - The President/Governor can also remove the members on the ground of proved misbehaviour or incapacity. Such cases must be referred to the Supreme Court (SC) for an enquiry and if the SC upholds the cause of removal and advises so, then the President (for CIC) /Governor (for SIC) can remove him. The member can be suspended or prohibited from office during SC enquiry.
- **Term of Office and Re-appointment:**
  - Members of the commission would serve the term as prescribed by the central government or until they reach 65 years old.
  - CIC and SIC chiefs aren't eligible for reappointment.
- **Powers and Functions:**
  - The Central Information Commission (CIC) receives and investigates complaints under the RTI Act 2005, adjudicates second appeals, and imposes penalties for non-performance.
  - It has access to public records, has Suo-moto power to order inquiries, and has the powers of a civil court.

- The decision of the Commission on an appeal is binding and not subject to further appeal in a court of law. It also presents an Annual Report to the Union Government.

Central Board of Film Certification

- **Context:** Recently, both the houses passed the Cinematography (Amendment) Bill, 2023.
- **About CBFC:** CBFC is a statutory body which Works in accordance with the provisions of the Cinematograph Act, 1952, and Cinematograph (Certification) Rules, 1983. It was established in 1951. And headquartered in Mumbai, Maharashtra. It functions within the ambit of Ministry of Information and Broadcasting.
- It has 9 regional offices in cities like Delhi, Kolkata, Chennai, Bangalore, Hyderabad, New Delhi, Thiruvanantpuram, Cuttack and Guwahati.
- **Mandate:** It is the censorship and classification body to regulate the public exhibition of films to ensure healthy entertainment and education to the public.
- **Governance:** The Board consists of a chairperson and 25 other non-official members (all of whom are appointed by Government of India). Prasoon Joshi is the present chairperson.

National Human Rights Commission

- The NHRC (a statutory body) was established in 1993 for protecting and promoting human rights under the Protection of Human Rights Act (PHRA), 1993.
- It was amended by the **Protection of Human Rights (Amendment) Act, 2006**. The Act also provides for the establishment of State Human Rights Commission.
- **Functions:**
  - **Inquire:** Suo motu or on a petition presented to it by a victim or any person on his behalf or on a direction or order of any court into a complaint of- human rights violation or negligence in the prevention of such violation by a public servant;
  - **Intervention:** In any proceeding involving any allegation of human rights violation pending before a court with the approval of such court;
  - **Visit:** any jail or other institution to evaluate the living conditions of inmates and provide recommendations to the government.
  - **Review:** the safeguards provided by the Constitution or law for human rights protection and recommends effective implementation, while also identifying and addressing factors that hinder their enjoyment.
  - **Study:** treaties and other international instruments on human rights and make recommendations for their effective implementation.
  - **Promote:** Research in the field of human rights and awareness about the safeguards available for the protection of these rights through publications, the media, seminars and other available means.
  - **Spread**: Human rights literacy among various sections of society.
  - **Encourage:** Efforts of NGOs and institutions working in the field of human rights.
- **Composition of the Commission:**
  - Chairperson: Former Chief Justice of India or a Judge of the Supreme Court
  - 5 Members:
    - One Member who is or has been a Judge of the Supreme Court.
    - One Member who is or has been the Chief Justice of a High Court.
    - Three Members (at least one should be a woman) to be appointed from amongst people having knowledge of, or practical experience in, matters relating to human rights.
  - Deemed Members:
    - Chairpersons/Chief Commissioner of - National Commission (NC) for Backward Classes, NC for Minorities, NC for Scheduled Castes, NC for Scheduled Tribes, NC for Protection of Child Rights, NC for Women and Chief Commissioner for Persons with Disabilities

- **Appointment:** The **President** appoints the chairperson and all the members for a period of 3 years or 70 years of age (whichever is earlier) on the recommendations of a committee consisting of- Prime Minister, Lok Sabha Speaker, Minister of Home Affairs, Leaders of the Opposition from the Lok Sabha and the Rajya Sabha and Deputy Chairman of Rajya Sabha.

Digital Advertisement Policy

The Union government unveiled a Digital Advertisement Policy allowing its advertising wing, the Central Bureau of Communication (CBC), to undertake advertisement campaigns on social media, OTT platforms and other digital media.

Central Bureau of Communication (CBC)

- The CBC was set up in 2017 under the Ministry of Information and Broadcasting by integrating the erstwhile Directorate of Advertising and Visual Publicity (DAVP), Directorate of Field Publicity (DFP), and Song & Drama Division (S&DD).
- It provides 360 degrees communication solutions to Ministries, Departments, Public Sector Undertakings (PSUs), and autonomous bodies.
- It is engaged in the process of educating people, both rural & urban, about the Government's policies & programmes through different vehicles of communication viz., Print Media advertising, Audio Visual Campaigns, dissemination via Exhibitions, Outdoor Campaigns & Digital Media etc.

Advertising Standards Council of India

- The Advertising Standards Council of India was established in 1985, Mumbai.
- It is self-regulatory voluntary organization of the advertising industry in India, that seeks to ensure that advertisements conform to its Code for Self-Regulation.
- It is mandatory for television networks to follow the advertising code laid down by ASCI.

ELECTIONS

Chief Election Commissioner and Other Election Commissioners (Appointment, Conditions of Service and Term of Office) Act, 2023

About: It repeals the Election Commission (Conditions of Service of Election Commissioners and Transaction of Business) Act, 1991 and seeks to regulate the appointment, conditions of service and term of office of the Chief Election Commissioner and other Election Commissioners.

Key Provisions of the Act

- **Appointment:** The CEC and other ECs will be appointed by the President.
- **Qualifications:** For being elected for the post of CEC or ECs, a person should be:
  - of integrity; who have knowledge of and experience in management and conducting elections.
  - holding or have held a post equivalent to the rank of Secretary to the Government of India
  - Earlier, there was no rule prescribing the qualifications for appointment to the posts.
- **Search Committee:** Headed by the Cabinet Secretary and including two members not below the rank of Secretary having knowledge and experience in matters relating to elections.
- **Selection Committee:** To recommend names of the persons to be appointed as the CEC and ECs, to the President. It will consist of:
  - Prime Minister as the Chairperson;
  - Leader of Opposition in the House of the People as a Member;
  - Union Cabinet Minister to be nominated by the Prime Minister as a Member.
  - Any vacancy or defect in the constitution of the Selection Committee won't make the appointment of CEC and ECs invalid.

- **Terms of Office:** It remains unchanged i.e., the CEC and other ECs shall hold office for a term of **six years** from the date of appointment or till attaining the age of **65 years**, whichever is earlier. They **won't be eligible for re-appointment.**
- If an Election Commissioner is appointed as Chief Election Commissioner, his term of office shall not be more than six years in aggregate as the Election Commissioner and the Chief Election Commissioner.
- **Salary and allowances:** The Act provides that salary, allowance, and service conditions of the CEC and other ECs will be the same as that of the Cabinet Secretary.
  - The 1991 Act provided that the salary of the ECs will be equal to that of a Supreme Court judge.
- **Resignation and Removal:** The CEC and other ECs may, at any time, resign from his office by writing to the President. Their removal will be according to Article 324(5) of the Constitution which states that-
  - The removal of CEC will be like that of a Judge of the Supreme Court and other EC, or a Regional Commissioner shall be removed from office only on the recommendation of the CEC.
- **Conduct of Business**: All business of the Election Commission is to be conducted unanimously and in case of any difference of opinion between the CEC and the other ECs on any matter, majority decision shall prevail.

Electoral Bonds

A five-judge constitution bench of the Supreme Court (SC) led by the Chief Justice of India (CJI) reserved its verdict while hearing a batch of petitions challenging the constitutional validity of Centre's Electoral Bonds Scheme, 2018

Electoral Bonds Scheme, 2018

- Launched in 2018, this scheme provides for an **Electoral Bond (EB) which is a bearer instrument like a promissory note** that can be used by an Indian citizen or an Indian company to make donations to political parties of their choice.
- They are **payable to the bearer free of interest** and demand and can be purchased digitally (NEFT/RTGS) or through demand draft or cheques.
- It was **introduced via the Finance Act of 2016 and 2017** by **amending Representation of the People Act, 1951, (RPA)**, the **Companies Act, 2013**, the **Income Tax Act, 1961**, and the **Foreign Contributions Regulation Act, 2010 (FCRA).**
- All payment for the issuance of the Electoral Bonds will be accepted **in Indian Rupees only** (Electoral Bonds cannot be purchased through foreign currency).
- One **cannot get a loan on Electoral Bonds** nor pledge Electoral Bonds against purchase of gold & securities. Electoral Bonds are not listed on any Stock Exchange.
- Once the Electoral Bond is purchased **it cannot be cancelled and no amount will be refunded** to the Purchaser.
- **Process:**
  - EBs can be purchased for any value, in multiples of **Rs 1,000, Rs 10,000, Rs 1,00,000, Rs 10,00,000 and Rs 1,00,00,000** (**There is no maximum limit for Donation**) from the specified branches of the State Bank of India (SBI) through accounts complying with KYC norms.
  - **SBI is the only bank authorized** to sell these bonds via designated SBI Branches.
  - The **name and other information of the donor are not mentioned** on the bond and therefore they are said to be anonymous. But **KYC norms will be applicable** regardless of whether the applicant is an SBI account holder or a non-SBI account holder.
  - Electoral Bonds **can be purchased either Singly or Jointly** with other Individuals but **not more than three Applicants** per Application Form. No name(s) will be printed on the Bond.
  - There is **no cap on the number of bonds** that can be purchased by an individual or a company.
  - EBs **can be purchased for the first 10 days of the beginning month of every quarter** (January, April, July, and October each year)

- **Eligibility to Receive Funds Through EBs:**
  - Political parties registered under **Section 29A of RPA, 1951**, **securing at least 1% of votes** polled in the last election to House of the People or a Legislative Assembly are eligible to receive donations through EBs.

ENCORE Software

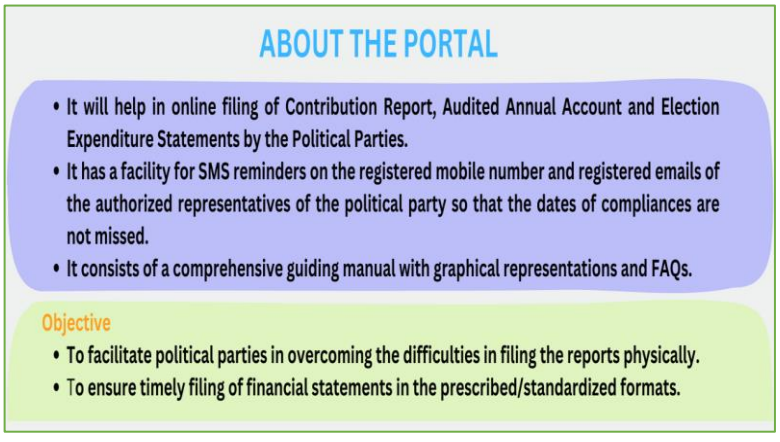
- **About:** ENCORE (Enabling Communications on Real-time Environment) is an in-house software designed by the Election Commission of India for candidate and election management.
- **Objective:** To provide a seamless facility for Returning Officers (ROs) to process candidate nomination, affidavit, Voter turnout, counting, results and data management.

ICT Innovations of Election Commission of India (ECI)

- **Voter Portal:** To provide the facility of searching names in the electoral roll.
- **Tollfree Number 1950:** Through this one can talk to election-related issues in more than 22 languages.
- **SVEEP Portal:** It is called the Systematic Voters' Education and Electoral Participation program. It provides for voter education, spreading voter awareness and promoting voter literacy in India.
- **EVM Management System (EMS):** The EMS is designed to manage inventory of EVM units i.e. tracking of units from manufacturer to state, state to state, and district to district.
- **ERONET:** Electoral exercises like improvement of health of electoral roll, new voter registration and updating of records are done by using this App.
- **cVIGIL app:** It stands for **Citizen Vigilance**. It gives an opportunity to report election code violations directly by citizens. The app enables a geotagging feature.
- **Booth App:** This App facilitates faster identification of voters using quick search of the electors based on serial number/EPIC number/name.
- **Voter Turnout App:** This provides approximate voter turnout percentage of each assembly constituency/ Parliamentary constituency to the larger public.
- **Results ECI portal:** To ensure fast and authentic results of the elections. It connects the counting centres across India in a secured manner.
- **Election Expenditure App:** For monitoring of election expenses on a regular basis during the campaign period.
- **Index card:** This card is an important module of ENCORE. Every detail of the election is reconciled with the physical record, validated and verified by the Returning Officers and Chief Electoral Officer of the State.

New Web Portal For Political Parties to File Financial Account Details

- Political parties are required to submit their financial account details to the Election Commission/Chief Electoral Officers of States/Union Territories, as per the Representation of People's Act, 1951 & transparency guidelines issued by the Commission, from time to time.
- **Article 324:** It empowers the Election Commission to monitor, direct and control the elections.
- **Section 29A of the Representation of the People Act, 1951-** It deals with the registration of associations and bodies as political parties with the Election Commission.
- **Section 13A of the Income-tax Act-** It contains special provisions relating to incomes of political parties and states that income from house property or income from other sources or any income by way of voluntary contributions received from any person shall not be included in the total income of such political party provided that all the records are maintained, and accounts are audited.



Comparing Representation of People Act, 1950 and Representation of People Act, 1951

RPA,1950	RPA,1951
• Provides rules related to the preparation for elections. • Provides for actual allocation of seats in Lok Sabha, Rajya Sabha, Legislative Assembly and Legislative Councils. • Provides for reservation of seats in the Parliament for SC/STs. • Lays down ***voter qualifications***. • Lays down procedures for the preparation of electoral rolls and the manner of filling seats. • Provides the procedure for **delimitation of constituencies.**	• Makes provisions for the actual conduct of elections. • Provides administrative machinery for conducting elections. • Deals with the registration of political parties. • Specifies the qualifications and disqualifications for membership of the houses. • Provisions to **curb corrupt practices and other electoral offences.** • Procedures for settling doubts and disputes arising out of elections. • Provides rules for political parties for accepting donations.

Association of World Election Bodies (A-WEB)

- Recently, the Chief Election Commissioner along with three members from the Election Commission of India (ECI) attended the 11th meeting of the executive board of the Association of World Election Bodies (A-WEB) at Cartagena, Columbia.
- **About:** Founded in 2013, it is World's largest international organization in the field of election management comprising of 121 Election Management Bodies (EMBs) from 111 countries.
- **Vision:** To foster efficiency and effectiveness in conducting free, fair, transparent and participative elections worldwide.
- **Composition:** It is composed of the General Assembly, the Executive Board, the Oversight & Audit Committee and the Secretariat in Seoul (Republic of Korea).
- A-WEB Centre has been established in New Delhi for documentation and research, sharing the best practices and training and capacity building of officials of A-WEB members.

GOVERNANCE

PM CARES Fund

PM CARES Fund was created in **2020** for **combating, containment and relief efforts against the coronavirus outbreak and similar pandemic like situations** in the future and is registered as apublic charitable trust under the Registration Act, 1908. This fund is used at the discretion of the PM and does not form a part of the Government of India's accounts.

PM CARES Fund	
Objectives	• To provide assistance and relief to the affected in the event of any calamity, disaster, public health emergency or any other emergency of any kind that may be either natural or man-made. • Creation as well as upgradation of any pharmaceutical facilities. • Funding research. • Creation or upgradation of any necessary infrastructure, healthcare support or any other kind of support.
Composition	• Ex-officio Chairman- Prime Minister • Ex-officio Trustees- Minister of Defence, Minister of Home Affairs and Minister of Finance.

	• Trustees- 3 trustees to be nominated to the Board of Trustees by the Prime Minister.
Contributions	• The fund consists entirely of voluntary contributions from individuals/organizations (including companies, other charitable institutions, associations, etc.) and does not get any budgetary support. • Individuals and organizations based in foreign countries can contribute too.
Exemptions	• Donations to PM CARES Fund are eligible for 80G benefits for 100% exemption under the Income Tax Act, 1961. • Donations to be counted as Corporate Social Responsibility (CSR) expenditure under the Companies Act, 2013. • Foreign donations are exempt under FCRA.

Prime Minister's National Relief Fund (PMNRF)

- PMNRF was established in 1948 with public contributions to assist displaced persons from Pakistan. The resources of the PMNRF are now utilized primarily to render immediate relief to families of those killed in natural calamities like floods, cyclones and earthquakes, etc.
- The fund consists entirely of public contributions and does not get any budgetary support. The corpus of the fund is invested in various forms with scheduled commercial banks and other agencies.
- PMNRF accepts only voluntary donations by individuals and institutions.

National Disaster Response Fund

- With the implementation of the Disaster Management Act in 2005, the National Calamity Contingency Fund (NCCF) underwent a name change and became known as the National Disaster Response Fund (NDRF).
- , the NDRF is now allocated to the "Public Account" of the Government of India andclassified under the category of "reserve funds not bearing interest."
- Currently, a **National Calamity Contingent Duty (NCCD)** is levied to finance the NDRF and additional budgetary support is provided as and when necessary.
- Comptroller and Auditor General (CAG) audits the accounts of NDRF.

Unique Land Parcel Identification Number (ULPIN)

- Digital India Land Records Modernization Program (DILRMP) is being implemented by **the Department of Land Resources (Under Ministry of Rural development)** through State / UT Governments to acceleratedigitization of land records.
- Under this programme, Unique Land Parcel Identification Number **(ULPIN) or Bhu Aadhaar** ("the Aadhaar Number for land") will be assigned to a land parcel.

About Unique Land Parcel Identification Number (ULPIN)

- Also known as **the Bhu Aadhaar, it is a 14-digit (Alpha–Numeric Unique ID**) identification number accorded to a land parcel and is a single, authoritative Source of Truth for information on any parcel of land or property to provide Integrated Land Services to thecitizens as well as all stakeholders.
- Earlier different states used different methods for assigning unique IDs to land parcels fordigitizing the land records. ULPIN was introduced with the aim of having one registration system across the country.
- **Implemented by:** Department of Land Resources

Digital India Land Records Modernization Program (DILRMP)

- This program was launched in 2008 by combining two Centrally Sponsored Scheme of Department of Land Resources viz.:
  - Computerization of Land Records (CLR)
  - Strengthening of Revenue Administration and Updating of Land Records (SRA&ULR).
- This program (Central sector scheme) has been extended to 2023-24, to complete its original targets as well as expand its ambit with a slew of new schemes.
- The program has introduced various new measures such as the National Generic Document Registration System (NGDRS), ULPIN, Transliteration of Record of Rights, the connection between revenue court and land records, and the integration of consent-based Aadhar numbers with land records.
  - NGDRS: It is aimed at providing one Nation one software for registration of documents & properties to 'empower citizens'.
- DILRMP's next phase will include linkage of land record databases with banks.
- This will improve the provision of services to the citizens of the country and serve as valuable inputs for schemes in other sectors such as Agriculture, Finance, Disaster Management, and more.

(DoLR) along with the Ministry of Electronics and InformationTechnology (MeitY), Department of Science and Technology (DST) and the National Remote Sensing Centre (NRSC).

National Training Conclave- 'Mission Karmyogi'- DAKSHTA

National Training Conclave

- Prime Minister recently inaugurated the **first-ever National Training Conclave** at the International Exhibition and Convention Centre in **New Delhi** to **strengthen the training infrastructure for civil servants** across India.
- It is a part of the National Programme for Civil Services Capacity Building (NPCSCB) - 'Mission Karmayogi'
- **Objective:**
  - To foster collaboration among civil services training institutes and bolster the training infrastructure for civil servants across the country.
  - To provide a platform for networking, knowledge exchange, identifying challenges and key areas of collaboration.
- **Hosted by**: Capacity Building Commission.

Mission Karmyogi

- It is the National Programme for Civil Services Capacity Building (NPCSCP) launched in **2020** to reform Indian Bureaucracy and prepare civil servants for the future through a *Competency Framework for Civil Services* that will cover around 4.6 million central employees.
- **Objective:** To build a future-ready civil service with the right attitude, skills and knowledge, aligned to the vision of New Indian by making them more creative, constructive, imaginative, proactive, innovative, progressive, professional, energetic, transparent, and technology-enabled.

Features:

- Change in the Mindset- Government officials should consider themselves *karmayogis* instead of considering themselves *karmacharis*.
- Change in the Workplace- From assigning individual responsibility for performance, to diagnosing the constraints in a civil servant's performance using Means, Motives and Opportunity (MMO) framework
- Moving the public HR management system- from being rule-based to role-based

Institutional Framework:

- **Prime Minister's Human Resource Council (PMHRC):** It is the apex body for driving and providing strategic direction to civil service reforms and capacity building. It is headed by the PM and consisting of Union Ministers and CMs along with Eminent public HR practitioners, Thinkers, Public service functionaries etc.
- **Cabinet Secretary Coordination Unit:** Chaired by the Cabinet Secretary, it has representation from the Central and State bureaucracy to monitor the implementation of NPCSCB, align stakeholders and provide mechanism for overseeing capacity building plans.
- **Capacity Building Commission:** Conceived as an independent body, this three-member commission with full executive powers has been setup for functional supervision of training institutions and facilitating preparation of annual capacity building plans.
- **Karmyogi Bharat- Special Purpose Vehicle (SPV)**: It is an autonomous company setup under Section 8 of the Companies Act, 2013 to own and operate all the digital assets created for NPCSCB on behalf of the Government of India.
- **Programme Management Unit (PMU):** It will provide Program Management and Support services to the Department.

DAKSHTA

- Development of Attitude, Knowledge, Skill for Holistic Transformation in Administration) For Young Professionals.
- **About:** It is a collection of 18 courses launched on the **iGOT Karmayogi platform** to build functional, domain

andbehavioral competencies in the learners by acquainting them with subjects crucial for discharging their duties, and responsibilities effectively.

Parivar Pehchan Patra

- Parivar Pehchan Patra Scheme was introduced by **Haryana Government** in the year 2020 to identify each family in Haryana and keep their basic data, provided with the consent of the family, in a **digital format**.
- **PPP ID:** It is a unique **eight-digit Identity number** that is issued to each family residing in Haryana as a single unit. All the residing families are required to enroll (obligatory) in this scheme to avail yourself of 'paperless' and 'faceless' various government services and social security schemes.

PPP	Aadhaar
It goes beyond the basic identity details and contains the **socio-economic data** of the families.	It only contains the *unique identity information* such as fingerprint, IRIS scan, face ID, address details, contact details etc.
It verifies *each field of information* during registration through specific procedures.	It only *verifies the identity* of the person during registration.

Appointment of DGP

- **Context:** Punjab assembly passed Punjab Police Amendment Bill, 2023. The bill amends the procedure to select Director General of Police (DGP) and guides the path for the state to appoint him/her.
- **Procedure of DGPs Appointment:** The Director General of Police (DGP) is a three-star rank and the highest-ranking police officer in States. The DGP is the head of the state police force. He/she is appointed as per the guidelines of the Supreme Court's judgment on police reforms in **Prakash Singh vs Union of India (2006)**.
    - DGP of the State shall be selected by the State Government from amongst the three senior most officers of the department who have been recommended by UPSC.
    - Once selected for the job, he should have a **minimum tenure of at least 2 years irrespective of his date of superannuation.**
    - The DGP can be removed by the State government in consultation with the State Security Commission consequent upon any action taken against him under the All-India Services (Discipline and Appeal) Rules or following his conviction in a court of law in a criminal offence or in a case of corruption, or if he is otherwise incapacitated from discharging his duties".
- **2018 Guidelines**
    - The court ruled that no state government can appoint their favorite police officer as the acting DGP, a concept not considered in the 2006 police reforms judgement.
    - To prevent this, states were directed to submit proposals to the UPSC at least three months before the DGP's retirement date, and ensure continuity of the appointed officer.

Panchayat Development Index

- **Panchayat Development Index** is a computation score for grading panchayats across the country based on the development work carried by them towards the achievement of LSDGs (Localization of Sustainable Development Goals).
- The LSDGs consists of following **9 themes.**

1. Poverty Free and Enhanced Livelihoods in Village
2. Healthy Village
3. Child-Friendly Village
4. Clean and Green Village
5. Water Sufficient Village
6. Village with Self-Sufficient Infrastructure
7. Socially Just and Socially Secured Village
8. Village with Good Governance
9. Women Friendly Village

- **Prepared By: A committee constituted by the Ministry of Panchayati Raj** consisting of members from different ministries and departments of Union and State governments.
- **Objective:** To assess the ground realities of development in Panchayats and the efforts made by the local Governments in implementing various development programmes, realizing the developmental targets and achieving the SDGs.
- **Mechanism:** PDI provides rankings for panchayats at different levels, including district, block, and village. The panchayats will be ranked in following categories based on their scores

Highlights:

- Data from four districts (In Maharashtra) namely-Pune, Sangli, Satara and Solapur were compiled on pilot basis.
- 70% of the panchayats from these areas are in Grade C and 27% are in Grade B;
- The pilot study showed how no attention has been paid to themes like **'being women friendly' or 'identifying the kind of development required'.**

Grade	Score
Grade A+	> 90%
Grade A	75% to 90%
Grade B	60% to 75%
Grade C	40% to 60%
Grade D	< 40%

Bihar Caste Survey and Caste Census for India

History of Caste Based Survey in India:

- First introduced under the British colonial administration in 1881 and continued till the 1931 census.
- From 1951 to 2011, each Census conducted in post-independence India has included information on Scheduled Castes and Scheduled Tribes, but not on other caste groups.
- Prior to this period, caste data was available in every Census until 1931. In 1941, although caste-based data was collected, it was not made publicly available.

Census vs. Survey

- **Census comes within** the legislative power of the Parliament as only the Centre is empowered to conduct a census under the Census Act, 1948. (Article 246- Parliament's power to exclusively legislate on any of the matters enumerated in List I in the Seventh Schedule)
- **However, Entry 45 in the Concurrent Lis**t shares similarities **with Entry 94 in the Union List**, as both empower the collection of statistics to verify information aimed at achieving the economic and social planning objectives outlined in Entry 20 of the Concurrent List.
- **The Supreme Court** allowed the state government to go ahead in August after the state submitted **it was a "survey"** and assured that no one's data would be divulged.

Census vs. SECC

Census	Socio-Economic Caste Census (SECC)
• It is the official count of the population living in the country along with their basis details like age, gender, job, income etc. to help the government implement better policies, access resources, map social change, and conduct delimitation exercises. • It is conducted by the Office of the Registrar General and Census Commissioner of India, Ministry of Home Affairs. • Its data is confidential under the Census Act 1948.	• It is a study of the socio-economic status of rural and urban households and allows ranking of households based on predefined parameters. • In Rural Area, it is conducted by the Department of Rural Development (DoRD) and in Urban areas is under the administrative jurisdiction of the Ministry of Housing and Urban Affairs (MoHUA) • Its data is open to use by the government departments for extending benefits to the population. • The SECC data excluding caste data was finalised and published by the two ministries in 2016. However, due to inaccuracies, the raw data was never disclosed.

Guardian Minister

- The Guardian Minister **is a cabinet-level minister** appointed by a state government to oversee the development of a specific district within the state.
- The position is **typically held by a senior politician** from the ruling party who acts as a liaison between the state government and the district administration, ensuring that the district receives the necessary resources and support to meet its development goals.
- A minister may serve as the **guardian minister for multiple districts.**
- The post of Guardian Ministers was introduced to bring to attention the implementation of government policies, reforms, and public welfare schemes in assigned districts.

Roles & Responsibilities

- He **oversees the execution** of various state government schemes and programs in the district and ensures smooth functioning of district administration.
- He **is the ex-officio chairman of District Planning Development Committee (DPDC**) responsible for the implementation of developmental and infrastructure schemes in each district.
- He is **the final decision-making authority on matters related to the expenditure** of DPDC funds. Therefore, the post becomes important for political parties as it gives them control of the development funds allocated for the district.

Intelligent Grievance Monitoring System (IGMS) 2.0 & CPGRAMS

- Recently, the IGMS 2.0 of the Department of Administrative Reforms and Public Grievances (DARPG) was launched.
- **About IGMS 2.0 (Implemented by IIT Kanpur)**
  - It is a public grievance portal and a major upgradation of Centralized Public Grievance Redress and Monitoring System (CPGRAMS) portal using Artificial Intelligence/Machine Learning in terms of its capabilities.
- **Objectives:**
  - To Provide instant tabular analysis of Grievances Filed & Disposed, State-wise & District-wise Grievances Filed & Ministry-wise data.
  - To Help the officials identify the root cause of the grievance.
- **Key Features:**
  - It will help the DARPG in creating the draft letter for selected scheme/ministry and expedite the grievance redressal process by the concerned ministry/department.
  - It has been enabled with **Artificial intelligence (AI) capacity.**

CPGRAMS: Centralized Public Grievance Redress and Monitoring System

- It is an online platform available to the citizens 24x7 to lodge their grievances to the public authorities on any subject related to service delivery and a single portal connected to all the Ministries/Departments of Government of India and States.
- CPGRAMS maintains a centralized database of grievances, making it easier for authorities to track and monitor the status of complaints. This ensures a systematic and transparent approach to grievance resolution.
- Each Ministry & States have role-based access to this system.

DARPG: Department of Administrative Reforms and Public Grievances

- DARPG comes under the Ministry of Personnel, Public Grievances and Pensions.
- It endeavours to document and disseminate successful good governance practices by way of audio-visual media and publications.
- It also undertakes activities in the field of international exchange and cooperation to promote public service reforms.

- DARPG has launched The CPGRAMS to provide the facility to lodge a grievance online from any geographical location.

Grievance Redressal Assessment and Index (GRAI)

- Recently, the Union Minister of Public Grievances, and Pensions, launched the GRAI 2022.
- It was conceptualised and designed by **the DARPG**, Govt. of India.
- **Objective:** To present an organisation-wise comparative picture and provide valuable insights about strengths and areas of improvement regarding the grievance redressal mechanism.
- Eighty-nine Central Ministries and Departments were assessed and ranked based on a comprehensive index in the dimensions of (1) Efficiency, (2) Feedback, (3) Domain and (4) Organisational Commitment and corresponding 12 indicators.
- To compute the index, data between January and December 2022 was used from the **Centralised Public Grievance Redressal and Management System (CPGRAMS).**

Key Facts

- It is an online platform available to the **citizens 24x7 to lodge their grievances** to the public authorities on any subject related to service delivery.
- It is a single **portal connected** to all the **Ministries/Departments** of the Government of India and States.
- It is also accessible to the citizens through a standalone mobile application.

Ladakh Autonomous Hill Development Council (LAHDC)

- **Creation:** Two councils- LAHDC, Leh (in 1995) and LAHDC, Kargil (in 2003) were created under the **Ladakh Autonomous Hill Development Councils Act, 1997.**
    - The autonomous hill council work with village panchayats to take decisions on economic development, healthcare, education, land use, taxation, and local governance which are further reviewed at the block headquarters in the presence of the chief executive councillor and executive councillors.
- **Composition**
    - Both the councils comprise of 30 councilors each (26 councilors elected and four nominated).
    - A Chairperson is elected from among the members who also serves as Chief Executive Councilor for the council and holds the rank and powers of a cabinet minister.
    - It also consists of four Executive Councilors who possess the rank and status of Deputy Minister.
    - The Deputy Commissioner of the district is designated as the Chief Executive Officer, LAHDC and holds control over the overall district administration, execution of works and maintaining Law and Order.
- **Powers:** The role involves developing development plans, budgeting for districts, implementing movement schemes, promoting language and culture, public health, education, local road transport, small-scale industries, non-conventional energy, and tourism, and collecting taxes and fees within their jurisdiction..

Aadhaar-enabled Payment Services (AePS)

- **AePS** is a type of payment system that is based on the Unique Identification Number and allows Aadhaar card holders to seamlessly make financial transactions through Aadhaar-based authentication.
- It is a **bank led model** which allows online interoperable financial transaction at PoS (Point of Sale) & Micro ATM through the Business Correspondent (BC)/Bank Mitra of any bank using the Aadhaar authentication.
- The model removes the need for OTPs, bank account details, and other financial details. It allows fund transfers using only the bank name, Aadhaar number, and fingerprint captured during Aadhaar enrolment.
- Neither Unique Identification Authority of India (UIDAI) nor National Payments Corporation of India (NCPI) mentions clearly whether AePS is enabled by default.
- Cashless India, a website managed and run by MeitY, says the service does not require any activation, with the only requirement being that the user's bank account should be linked with their Aadhaar number.

Action Taken Report (ATR) Module Launched for Auditing Panchayat Accounts

- The Ministry of Panchayati Raj (MoPR) launched the Action Taken Report (ATR) module for auditing all the Panchayat Accounts.
- **About ATR Module:** This module provides status of action taken on audit observations (addressed or unresolved issues) so that the audit report be displayed in public domain.
- **Implemented By:** Ministry of Panchayati Raj (MoPR).
- **Background:** According to the Operational guidelines issued by 15 Finance Commission (FC), states must ensure that all tiers of Panchayats, constituting 100% of rural local bodies, have audited accounts for the 2021-22 period through the AuditOnline platform.
    - AuditOnline was introduced in 2019 as an open-source application to facilitate internal & external audit of Government department / Panchayati Raj Institutions.
    - To achieve accountability and to enhance the online audit process, ATR has been launched.
- **Objective:** To provide a more structured approach to the audit process, ensuring clarity on the actions taken in response to audit findings.

SHREYAS Scheme

- It is an umbrella scheme under the **Ministry of Social Justice and Empowerment.**
- SHREYAS is a programme basket comprising the initiatives of three Central Ministries, namely the **Ministry of Education**, **Ministry of Skill Development & Entrepreneurship** (MoSD&E) and the **Ministry of Labour & Employment (MoLE)** namely the National Apprenticeship Promotion Scheme (NAPS), the National Career Service (NCS) etc.
- It will place two ongoing Central Sector schemes for Other Backward Classes (OBC) and others namely – **(i) National Fellowship for OBC** and (ii**) Dr. Ambedkar Central Sector Scheme** of Interest Subsidy on Educational Loans for Overseas Studies for OBCs and Economically Backward Classes (EBCs).
- **Objective:** Empowering OBC & EBC students educationally by awarding them fellowship (financial assistance) for obtaining quality higher education and interest subsidy on educational loan for overseas studies.
- **Components:**
    - **National Fellowship for OBC: To** provide financial assistance to the OBC students through 1000 Junior Research Fellowships. These 1000 slots will be over and above the OBC Students selected under the normal reservation policy of the Government. It is implemented by Ministry of Social Justice & Empowerment through the designated Central Nodal Agency.
    - **Dr. Ambedkar Scheme of Interest Subsidy on Educational Loans for Overseas Studies for OBCs & EBCs:** To provide an interest subsidy to OBC and EBC students on a moratorium period for Education Loans for Masters, M.Phil. and Ph.D. degrees overseas. The maximum loan will be Rs 20 Lakhs. It is implemented by Canera Bank.

AAINA Dashboard

- The Ministry of Housing and Urban Affairs (MoHUA) recently launched the 'AAINA Dashboard for Cities' portal for comparing similarly placed Urban Local Bodies (ULBs) and promoting peer learning amongst ULBs.
- **Objective:**
    - **Information**: To provide information on status and progress of the ULBs based on 5 thematic areas.
    - **Inspiration by Healthy Competition**: To help the ULBs to monitor their performance & learn by comparing it with others.
- **Information Collection on Five Thematic Areas:**
    - Political and Administrative
    - Finance
    - Planning
    - Citizen Centric Governance
    - Delivery of Basic Services.

Digital Public Infrastructure and India Stack

- Digital public infrastructure (DPI) refers to blocks or **platforms such as digital identification, payment infrastructure and data exchange solutions** that help countries deliver essential services to their people, empowering citizens and improving lives by enabling digital inclusion.
- India, through **India Stack** (India Stack is the moniker for a set of open APIs and digital public goods), became the first country to develop all three foundational DPIs:
  1. **Digital Identity** (Aadhar);
  2. Real-Time Fast Payment (UPI)
  3. **Platform to safely share personal data without compromising privacy** (Account Aggregator built onthe Data Empowerment Protection Architecture or DEPA). DEPA is a joint public-private effort for an improved data governance approach.
- It creates a digital framework that allows users to share their data on their own terms through athird-party entity, Consent Mangers.
- Other components of Indian DPI include:
  - **DigiYatra -** Biometric Enabled Seamless Travel (BEST) experience based on a Facial Recognition System (FRS).
  - **DigiLocke**r - a platform used for storing document and verifying credentials.
  - **Open Network for Digital Commerce (ONDC)** - An alternative e-commerce platform promoting open networks for exchange of goods and services.

Aspirational Block Programme

- The Aspirational Blocks Programme is on the lines of the Aspirational District Programme that was launched in 2018 and covers 112 districts across the country.
- This new programme is aimed at improving performance of blocks lagging on various development parameters.
- This will enable holistic development in those areas that require added assistance.
- The programme will cover **500 districts across 31 states** and Union Territories initially.
- Over half of these blocks are in 6 states—Uttar Pradesh (68 blocks), Bihar (61), Madhya Pradesh (42), Jharkhand (34), Odisha (29) and West Bengal (29).

What is Aspirational Districts Programme?

- It was launched in 2018 and aims to transform districts that have shown relatively lesser progress in key social areas.
- 3C Strategy: The broad contours of the programme
  - Convergence (of Central & State Schemes)
  - Collaboration (of Central, State level 'Prabhari' Officers & District Collectors)
  - Competition (among districts driven by a Mass Movement)
- **Parameters for Ranking:** The ranking is based on the incremental progress made across 49 Key Performance Indicators (KPIs) under 5 broad socio-economic themes

1. Health & Nutrition (30%)
2. Education (30%)
3. Agriculture & Water Resources (20%)
4. Financial Inclusion & Skill Development (10%)
5. Infrastructure (10%)

Sarna Code

- Tribal communities of five states, including Jharkhand, Odisha, and Assam, demanded that the Central Government recognize their religion as 'Sarna' and ensure their enumeration under this category during the upcoming census.
- **About Sarna Religion:**

- Followers of the Sarna faith are **nature worshippers.**
- The **holy grail** of the Sarna faith **is "Jal (water), Jungle (forest), Zameen (land)."**
- Its followers **pray to the trees and hills** while believing in **protecting the forest areas.**
- Believers of the Sarna faith **do not practice idol worship**, **nor do they** adhere to the **concept of the Varna system**, **heaven-hell**, etc.
- They are concentrated mainly in the **tribal belt states of Odisha, Jharkhand, Bihar, West Bengal, and Assam.**
- Several surveys and reports have indicated that **over 50 lakh tribal people** in the entire country **put their religion as 'Sarna'** in the 2011 census, although it was not a code.

Freedom on The Net 2023 Report

- **Context: A report, 'Freedom on the Net 2023: The Repressive Power of Artificial Intelligence'** red flagged the increasing use of AI by governments for censorship and spread of disinformation.
- **Published by Freedom House**, a non-profit organization based in Washington, D.C., established in 1941 and best known for political advocacy surrounding issues of democracy, political freedom, and human rights, this report represents the **13th edition of an annual study on human rights online**.
- It evaluates Internet freedom in 70 countries, encompassing a significant portion of the world's Internet users.
- **Key Points:**
  - India's internet freedom score improved by 2 points, placing it 51st in the global ranking.
  - Indian government's Net Neutrality Rules, adopted in July 2018, are considered among the world's strongest

Viksit Bharat Sankalp Yatra, and The Kashi Tamil Sangamam

PM Modi on a two-day visit to Varanasi addressed a Viksit Bharat Sankalp Yatra event. He is also scheduled to inaugurate the second edition of the Kashi Tamil Sangamam during this visit.

Viksit Bharat Sankalp Yatra

- It is a government initiative being undertaken across the country, to raise awareness and track the implementation of flagship central schemes. These include programmes like Ayushman Bharat, Ujjwala, PM Surkasha Bima, PM SVANidhi, etc.
- **Aims**
  - Reach out to the vulnerable who are eligible under various schemes but have not availed benefit so far;
  - Dissemination of information and generating awareness about schemes;
  - Interaction with beneficiaries of govt schemes through their personal stories/ experience sharing; and

Kashi-Tamil Sangamam

- Kashi-Tamil Sangamam is an initiative by Government of India as a part of "Azadi ka Amrit Mahotsav" and to uphold the Spirit of "Ek Bharat Shreshta Bharat".
- The objective of the programme is to celebrate, reaffirm and rediscover the age-old links between Tamil Nadu and Kashi - two of the country's ancient seats of learning.
- IIT Madras and BHU are the two implementing agencies for the programme. The **first edition of the Sangamam was held in 2022**. This year, it was held from 17th-31st December.

Railway Officers To Be Trained In Disaster Management

- The Ministry of Railways has made training in disaster management **mandatory** for railway officers.
- The National Academy of Indian Railways **(NAIR), Vadodara**, and the Indian Railway Institute of Disaster Management **(IRIDM), Bengaluru**, would work together in imparting the training programme.
  - NAIR is a training institute for Indian Railways (IR) officers. It was established in 1930 as the Railway Staff College and moved to its current location in Vadodara, Gujarat in 1952.

- IRIDM is a national institute that offers disaster management courses and training. IRIDM envisioned in High Level Committee (HLC) on Disaster Management in Indian Railways, was Commissioned in 2019.

Commissioner of Railway Safety (CRS) Headquarters: Lucknow, Uttar Pradesh.

- CRS is a statutory body. It is headed by the Chief Commissioner of Railway Safety.
- It deals with matters related to safety of rail travel and operations, as laid down in the Railways Act, 1989. Investigating serious train accidents is one of the key responsibilities of the CRS. The commission also makes recommendations to the government.
- The CRS does not report to the Ministry of Railways of the Railway Board. It is under the **administrative control of Ministry of Civil Aviation (MoCA).**

Road Crash Deaths In India Continue To Rise – WHO

- As per the **WHO's Global Status Report on Road Safety 2023**, annual number of road traffic deaths has dropped by 5% to 1.19 million per year. India, however, registered a 15% increase in fatalities.
- The WHO Global Status Report On Road Safety 2023 is the fifth in a series measuring progress in reducing road traffic deaths. This report was produced with support from **Bloomberg Philanthropies**.
- This report covers progress between 2010 and 2021 and sets a baseline for efforts to the United Nations Decade of Action 2021—2030 target to halve road traffic deaths by 2030.
- The United Nations General Assembly proclaimed the **Decade of Action for Road Safety 2021-2030** in September 2020. The goal is to reduce road traffic deaths and injuries by 2030.
- In India, the number of deaths reported due to road crashes in 2018 was 1,50,785 and it rose to 1,53,792 in 2021. The number was 1.3 lakh in 2010.

Gram Manchitra

The Ministry of Panchayati Raj recently launched a Geographic Information System (GIS) application "Gram Manchitra" (grammanchitra.gov.in) to encourage the Spatial Planning by the Gram Panchayat.

Objective	Description
Facilitate and Support	Enable Gram Panchayats in planning at their level using geo-spatial technology via a unified Geo Spatial platform. This aids visualization of developmental works across sectors and provides a decision support system for Gram Panchayat Development Plan (GPDP).
m-ActionSoft	Launch a mobile-based solution, m-ActionSoft, to capture photos with Geo-Tags for works with assets as outputs. The geo-tagged assets will be accessible on Gram Manchitra, enhancing the visualization of various developmental works in Gram Panchayats.
Geo-tagging of Assets	Implement geo-tagging in three stages: (i) before starting work, (ii) during work, and (iii) upon completion. This establishes a comprehensive repository of information on works and assets related to natural resource management, water harvesting, drought proofing, sanitation, agriculture, check dams, and irrigation channels.
Planning Tools	Utilize GIS technology on the Gram Manchitra application to assist Gram Panchayat officials in developing realistic and achievable development plans. Provide decision support tools for identifying potential project sites, asset tracking, estimating project costs, and assessing project impact.

Cyber Surakshit Bharat Initiative

The National e-Governance Division (NeGD) division of **Ministry of Electronics and Information Technology (MeitY)** recently organized the 40th Chief Information Security Officers (CISOs) Deep-Dive training programme under the Cyber Surakshit Bharat Initiative.

About National e-Governance Division (NeGD)

- Established in 2009 by the MeitY, the NeGD is an Independent Business Division under the Digital India Corporation {erstwhile Media Lab Asia} and has been playing a pivotal role in-
    - supporting MeitY in Programme Management & implementation of e-Governance Projects;
    - providing technical and advisory support to Ministries/ Departments, both at Central and State levels along with other Government organizations.
- It has developed and is managing several National Public Digital Platforms such as DigiLocker, UMANG, API Setu, Poshan Tracker, Academic Bank of Credits, National Academic Depositories, National AI Portal, India Stack Global, etc.

Cyber Surakshit Bharat Initiative

- It is a first Public-Private Partnership (PPP Model) of its kind **launched by MeitY** in cooperation with NeGD and various industry partners like Microsoft, Intel etc. to fortify India's cyber security system with regard to the Government's vision of a Digital India.
- This initiative includes National Informatics Centre (NIC), Computer Emergency Response Team-India (CERT-In), and Centre for Development of Advanced Computing (CDAC) are knowledge partners from the Government side.

Objective- To spread awareness about cybercrime and build the capacities of Chief Information Security Officers (CISOs) and frontline IT officials across all government departments.

NCRB 2022 Report on Crime in India

The National Crime Records Bureau (NCRB) recently released its annual report titled 'Crime in India' for the year 2022 which provides a big picture of broad trends in crime registration as it includes data ranging from crimes against women to economic and financial crimes.

About NCRB

Established in 1986, NCRB functions under the Ministry of Home Affairs (headquartered in New Delhi) as a clearing house of information on crime and criminals (operating at National and International levels).

Objectives	Functions
• To provide training facilities to Crime Records bureau personnel. • Cater to the data processing and training needs for computerization of Central Police Organizations. • To function as the National storehouse of fingerprint (FP) records of convicted persons (including foreigners) and help trace interstate criminals.	• To store, coordinate and disseminate information on inter-state and international criminals among States, national investigating agencies, courts and prosecutors. • To collect and process crime statistics at the National level. • To receive from and supply data to penal and correctional agencies for remand, parole, premature release etc. • To coordinate, guide and assist the State Crime Records Bureau.

Achievements

- It monitored, coordinated and implemented the Crime and Criminal Tracking Network & Systems (CCTNS) project in 2009.
- In 2017, it launched the National Digital Police Portal which allows police officers to look for a criminal or suspect on the CCTNS database and gives citizens with services such as online complaint filing etc.
- NCRB with the National Informatics Centre (NIC) implements Inter-Operable Criminal Justice System (ICJS) to enable seamless transfer of data & information.

Reports Published

Crime in India	Prisons Statistics India
Reports on Missing Women and children in India.	Accidental Deaths and Suicides

Washington Declaration

In April 2023, South Korean President Yoon Suk Yeol arrived in the U.S. to commemorate the 70th anniversary of U.S.-South Korea bilateral relations. The highlight of the visit was the signing of the "**Washington Declaration**" as a nuclear deterrence strategy.

Key Highlights of The Washington Declaration

As per the agreement:

- an American nuclear ballistic submarine would be deployed in the Korean peninsula;
- a nuclear consultative group would be formed to formulate principles of **joint response tactics;**
- South Korea would receive Intel from the U.S. regarding nuclear advancements; and
- U.S. will strengthen South Korea's nuclear deterrence capabilities through joint military training programs and an annual intergovernmental simulation.

Conflict Between North and South Korea

- After WW II, USA and USSR were to decide what should be done with their enemy's (Japan's) imperial possessions.
- In August 1945, **Korean peninsula was divided in half along the 38th parallel**. The Russians occupied the area north of the line and the United States occupied the area to its south.
- In 1950, North Korea invaded South Korea, starting the **three-year Korean War**. As a result, American troops had entered the war on South Korea's behalf.
- Finally, in July 1953, the Korean War came to an end by signing of the **armistice agreement in 1953**.
- Since the signing of the armistice agreement, North and South Korea have been divided by a 4km wide demilitarised zone stretching 250 km.

India To Train ASEAN Women in United Nations Peacekeeping Operation

To further expand the India-ASEAN ties, the Raksha Mantri had announced initiatives for Women in UN Peace Keeping Operations. These proposals were made at the inaugural India-ASEAN Defence Ministers' Meeting held in **November 2022** at **Siem Reap, Cambodia**. In all 20 peacekeepers, two from each member-states, would be trained.

UN Peacekeeping

- UN peacekeepers provide security and the political and peacebuilding support to help countries make the difficult, early transition from conflict to peace.
- There are **three basic principles** that continue to set UN peacekeeping operations apart as a tool for maintaining international peace and security -- **Consent of the parties, Impartiality and Non-use of force except in self-defence and defence of the mandate**.
- **Role of Security Council**: The United Nations Charter gives the United Nations Security Council the responsibility to maintain international peace. The Security Council authorize peacekeeping operations through Chapter VII authorizations.

- **Financing**: As all UN Member States share the costs of peacekeeping, the General Assembly apportions these expenses based on a special scale of assessments, taking into account the relative economic wealth of Member States, with the permanent members of the Security Council required to pay a larger share.
- UN peacekeepers are often referred to as **Blue Berets or Blue Helmets** because of their light blue berets or helmets
- Present status: There are currently 12 UN peacekeeping operations deployed.
- For its services, UN Peacekeeping has also received the Nobel Peace Prize in 1988.

India-European Free Trade Association (EFTA) Trade Pact

India and the four-nation bloc EFTA recently discussed ways to resume negotiations for a free trade agreement with a view to strengthening economic ties between the two regions

About European Free Trade Association (EFTA)

- It is an intergovernmental organization established **in 1960** by the **Stockholm Convention.**
- **Objective**: Promotes free trade and economic integration between its members within Europe and globally.
- **EFTA currently has 4 member countries**: Iceland, Liechtenstein, Norway and Switzerland.
- The EFTA countries have developed one of the largest networks of Free Trade Agreements (FTAs). These FTAs span over 60 countries and territories, including the European Union (EU).
- In contrast to the **EU, EFTA is not a customs union**. This means that the individual EFTA States are free to set their own customs tariffs and arrange other foreign trade measures vis-à-vis the non-EFTA States.

Governance Structure: EFTA's highest governing body is the EFTA Council. It generally meets 8 times a year at the ambassadorial level and twice a year at the ministerial level.

- **The headquarters** of the EFTA Secretariat is located in Geneva.
- **EFTA Surveillance Authority (ESA**): It monitors compliance with European Economic Area (EEA) rules in Iceland, Liechtenstein and Norway.
- **EFTA Court**: It is based in Luxembourg and has the competence and authority to settle internal and external disputes regarding the implementation, application or interpretation of the EEA agreement.

Israel-Palestine Conflict

Recently, the United Nations General Assembly (UNGA) passed a resolution that asked the **International Court of Justice (ICJ)** to render its opinion on the legal consequences of Israel's prolonged occupation of Palestinian land.

International Court of Justice (ICJ)

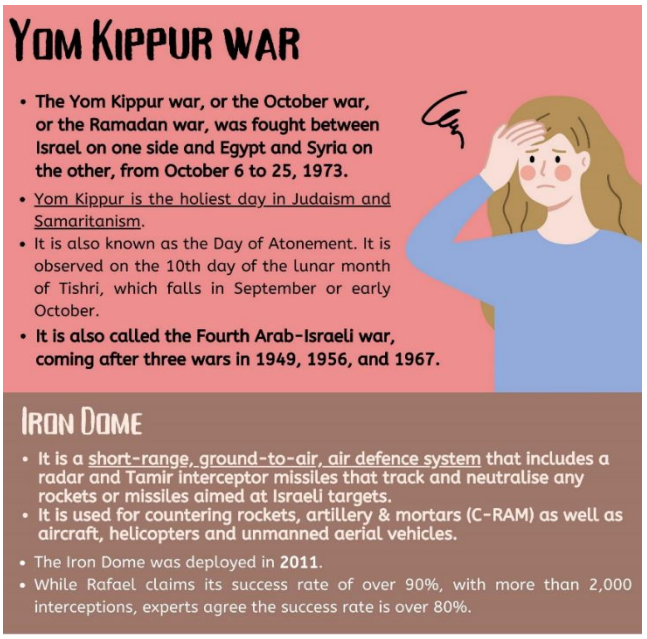
- **The ICJ is the principal judicial organ of the United Nations (UN).**
- **I**t was established in June 1945 by the Charter of the United Nations and began work in April 1946.
- The seat of the Court is at the **Peace Palace in The Hague** (Netherlands).
  - It is the **only** one of the six principal organs of the UN that is not located in New York City.
- **English and French** are the ICJ's official languages.
- **Role**: To settle, in accordance with international law, legal disputes submitted to it by States and to give advisory opinions on legal questions referred to it by authorized UN organs and specialized agencies.

Members and Jurisdiction of ICJ

- All members of the UN are automatically parties to the ICJ statute. However, this does not automatically give the ICJ jurisdiction over disputes involving them.
  - The **ICJ gets jurisdiction only if both parties consent to it**.
- The judgment of the **ICJ is final and technically binding** on the parties to a case.
  - There is no provision of appeal. It can at the most, be subject to interpretation or, upon the discovery of a new fact, revision.
- The ICJ has no way to ensure compliance of its orders, and its authority is derived from the willingness of countries to abide by them.

Israel - Palestine Conflict

- The Israeli-Palestinian conflict dates back to the end of the nineteenth century.
- In 1947, the United Nations adopted Resolution 181, known as the **Partition Plan**, which sought to divide the **British Mandate of Palestine into Arab and Jewish states.**
    - Palestine was a part of Ottoman empire, later became part of British empire.
- On May 14, 1948, the State of Israel was created, **sparking the first Arab-Israeli War**.
- The war ended in 1949 with Israel's victory, but many Palestinians were displaced and the territory was **divided into 3 parts**: **the State of Israel, the West Bank (of the Jordan River), and the Gaza Strip.**
- In another war in 1967 (also known as **six-day war**), Israel occupied East Jerusalem and the West Bank, as well as most of the Syrian Golan Heights, Gaza and the Egyptian Sinai Peninsula.



NATO PLUS

A US Congressional Committee recently recommended strengthening NATO Plus by including India in the five-member grouping.

About NATO Plus

It is a grouping of the North Atlantic Treaty Organization (NATO) and five countries, including Australia, New Zealand, Japan, Israel, and South Korea.

What is North Atlantic Treaty Organization (NATO)?

- It is a transatlantic alliance of **31 like-minded** North American and European countries.
- It was established by the **North Atlantic Treaty** (also called the **Washington Treaty**) on April 4, 1949.
- **Aim**: To protect peace and to guarantee the territorial integrity, political independence and security of the member states.
- **Article Five of the treaty**: If an armed attack occurs against one of the member states, it should be considered an attack against all members, and other members shall assist the attacked member, with armed forces if necessary.
- **Headquarters**: Brussels, Belgium.

Innovative Finance Facility for Climate in Asia and The Pacific (IF-CAP)

- ADB Announces Innovative finance initiative for climate in Asia and Pacific (IF-CAP)
- **Goal**: Accelerate climate action in Asia and Pacific.
- **Multi-donor financing partnership**: IF-CAP aims to scale up finance for climate action in Asia-Pacific.
- **Initial partners**: Denmark, Japan, Korea, Sweden, UK, and USA.
- **Landmark program**: First of its kind for a multilateral development bank.

World Bank President

Indian origin Ajay Banga was confirmed as the next President of World Bank.

About World Bank Group

- The WB is an international financial institution that provides loans and grants to the governments of low and middle-income/developing countries for the purpose of pursuing capital projects.
- It was established along with the IMF at the **1944 Bretton Woods Conference**.

- The WB is the collective name for the International Bank for Reconstruction and Development (IBRD) and International Development Association (IDA), two of five international organisations owned by the WB Group.

The WB Group, which is the parent organisation of the WB, includes -

1. **IBRD**: It provides loans, credits and grants.
2. **IDA**: It provides low or no-interest loans to low-income countries.
3. **International Finance Corporation (IFC):** It provides investment, advice and asset management to private companies and governments.
4. **Multilateral Guarantee Agency (MIGA**): It insures lenders and investors against political risk such as war.
5. **International Centre for the Settlement of Investment Disputes (ICSID):** It settles investment-disputes between investors and countries.

What is the Leadership of the WB?

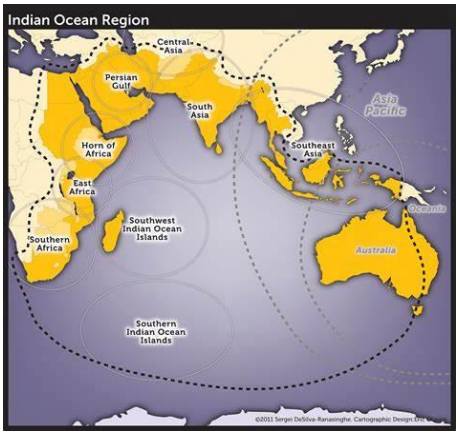
- The President of the WB, who is the President of the entire WB Group, is responsible for chairing meetings of the boards of directors and for overall management of the Bank.
- **Traditionally**, the President of the Bank has always been a U.S. citizen nominated by the US, the largest shareholder in the bank.
- The nominee is **subject to confirmation** by the Board Of Executive Directors to serve a five-year, renewable term.
- The Boards of Directors consist of the WB Group President and 25 Executive Directors. The President is the presiding officer and ordinarily has no vote except to break a tie.
- The executive directors as individuals cannot exercise any power or commit or represent the Bank unless the boards specifically authorised them to do so.

International Organization for Migration (IOM)

- Amy Pope has been elected next Director General of the International Organization for Migration
- **Established in 1951**, IOM is the leading intergovernmental organization in the field of migration and works closely with governmental, intergovernmental and non-governmental partners.
- **History**: It was born in 1951 out of the chaos and displacement of Western Europe following the 2nd World War.
- **Status**: IOM was granted **Permanent Observer status to the UN** General Assembly in 1992, and a cooperation agreement between IOM and the UN was signed in 1996.
- **Members**: With 175 member states **(including India)** and 8 states holding observer status and offices in over 100 countries, IOM is dedicated to promoting humane and orderly migration for the benefit of all. **India is a member of IOM.**

6th Indian Ocean Conference (IOC)

The 6th edition of the Indian Ocean Conference (IOC) is being held by India Foundation in association with the Ministry of Foreign Affairs, Bangladesh and S. Rajaratnam School of International Studies.



What is Indian Ocean Region (IOR)?

- IOR is a geographical region that encompasses the Indian Ocean and its surrounding areas, including the littoral states and islands.
- The region spans from the African coast in the west to the Australian coast in the east, and from the Arabian Peninsula and the Persian Gulf in the north to the southern coast of Sri Lanka and Australia in the south.
- The Indian Ocean is the world's third-largest ocean, covering an area of approximately 70.6 million square kilometres.

- It is home to several important sea lanes of communication, including the Strait of Malacca, the Suez Canal, and the Bab-el-Mandeb strait, which connect Asia, Europe, and Africa.

'Silkworm Eating' Strategy

- The PLAN Type 054 frigate Ma'anshan recorded operating near Taiwan in Aug' 2022 by ROCN destroyer Ma Kong.
- The Chinese equivalent to the **Western notion of "salami-slicing**" tactics is the idea of "**silkworm eating"**
- The essence of this strategy lies in achieving success through slow and steady progress, metaphorically likened to the way a silkworm eats a mulberry leaf. Instead of resorting to forceful annexation,

Visit of PM Modi To Egypt

PM Modi began his **maiden state visit to Egypt** by holding discussions with the "**India Unit**" in the Egyptian Cabinet.

Key Highlights of The Visit

- The India Unit is headed by the Prime Minister of Egypt Mustafa Madbouly, and comprises a number of Ministers and senior officials.
- This was the **first bilateral visit by an Indian Prime Minister to the country in 26 years**.
- Egyptian President Abdel Fattah El-Sisi conferred Modi with '**Order of the Nile'** award, the country's highest state honour.
- PM Modi visited the historic 11th-century **Al-Hakim Mosque in Cairo** which was restored with the help of **India's Dawoodi Bohra community**.
    - The Dawoodi Bohra Muslims are a sect of followers of Islam who adhere to the **Fatimi Ismaili Tayyibi school of thought.**
    - They are known to have originated from Egypt and later shifted to Yemen, before establishing a presence in India in the 11th century.
- **PM visits Heliopolis War Cemetery in Cairo** to pay respects to Indian soldiers who laid down their lives during World War I.

Modi's State Visit to USA

PM Modi was on an Official State Visit to USA. This was his **first state visit to the country**.

Key Outcomes of The Bilateral Talks Between Indian PM And President Of USA

- **Jet Engine Tech Transfer:** There was an announcement of a mega deal between the General Electric Aerospace and the Hindustan Aeronautics Limited for the manufacture under license in India of **GE's F414 engine**.
    - This engine will be manufactured for the indigenous Light Combat Aircraft (LCA) Tejas Mk2.
- Inaugural session of an innovation platform called India-United States Defence Acceleration Ecosystem **(INDUS-X):** Under it, Indian and American startups will now be able to co-develop and co-produce advanced technologies, including in areas of space artificial intelligence.
- **India-US Cancer Dialogue** will be launched in November 2023 and the US-India health dialogue in October 2023 in Washington DC.
- The two sides will collaborate to bring together start-ups, private equity and venture capital firms to build linkages between the two countries' innovation ecosystems.
    - **iCET** is a framework for India & US to collaborate on critical and emerging technologies.

What is a State visit?

- State visits are the highest-ranked category of foreign visits to the US, where the head of a state visits the US on the formal invitation of the US President.
- Invitation for a state visit signifies that the US considers the guest nation an important friend and ally.
- A state dinner is a crucial part of such a visit.
    - The state dinner is held at the White House, the residence of the US President.
- The other key events that mark a state visit include:
    - a 21-gun salute White House arrival ceremony and
    - an invitation to stay at the Blair House (the US President's guesthouse across Pennsylvania Avenue).

- **Setting up of a Global Challenges Institute** to strengthen research on sustainable energy, agriculture, health and pandemic preparedness.
- **Reiterated their stance on building resilient global semiconductor supply chains**
    - In a signal that highlights the two countries' growing distance from China, India also supported the US's **'Rip and Replace'** pilot project.
        - This project mandates that American companies tear out telecom equipment made by the Chinese companies Huawei and ZTE.
        - This move has already been implemented by New Delhi as part of its 5G launch.
    - Both sides also welcomed the signing of an agreement between the **Bharat 6G Alliance** and **Next G Alliance**, as a first step towards deepening public-private cooperation between vendors and operators.
        - The **Bharat 6G alliance**, a public-private sector initiative, was formed after the PM said India would launch the next-generation high speed network by 2030. It has all the three telcos – Jio, Airtel and Vi – as members along with companies like Tech Mahindra
- **Other Outcomes of The Visit**
    - Announcement regarding New Delhi joining the **Artemis Accords**.
    - Both the leaders applauded the conclusion of a second **Master Ship Repair Agreement**.

About Artemis Accord

- Artemis, named after the Greek Moon goddess, represents a comprehensive agreement drawn up by the US to bring together nations that share a common vision for civil space exploration.
- It serves as a framework for cooperation and collaboration in space exploration, building upon the foundation of the **Outer Space Treaty of 1967**.
- The Artemis Accords were jointly launched by the United States Department of State and NASA on October 13, 2020, with seven partner countries, such as Canada, Italy, Japan, Luxembourg, UAE, and the UK.

The principles of the Artemis Accords include

- The Artemis programme includes plans for a base on the lunar surface, multiple spacecraft to ferry humans and cargo, an orbiting space station, and a constellation of satellites to help with navigation and communication. The first Artemis crewed mission to the moon's surface is likely in 2026.
- NASA is also keen to emphasise that the Artemis programme will take the **first woman**, and the **"first person of colour",** to the moon.

UN Adopts High Seas Treaty

The United Nations has **adopted** the **first-ever international treaty** to govern the high seas and protect remote ecosystems vital to humanity. The treaty will take effect once it is **ratified by 60 countries.**

What Are High Seas?

- The high seas are the **parts of the ocean that are not included in the exclusive economic zones (EEZ), territorial sea or internal waters of a State.**
    - Water beyond **200 nautical miles** from the coast of a country is known as high sea.
- High seas are the areas of the ocean for which no one nation has sole responsibility for management.

UN High Seas Treaty

- Agreed under the UNCLOS, this treaty is commonly known as the **agreement on biodiversity beyond national jurisdictions (BBNJ)**.
- This treaty is the first international law to offer some protection to the nearly two-thirds of the ocean that is beyond national control.
- **This treaty will be legally binding in nature**.

Key Provisions of The UN High Seas Treaty

- **Demarcation of Marine Protected Areas (MPAs)**

- MPAs are where ocean systems, including biodiversity, are under stress, either due to human activities or climate change.
  - These can be called the national parks or wildlife reserves of the oceans.
- Activities in these areas will be highly regulated, and conservation efforts similar to what happens in forest or wildlife zones, will be undertaken.

- **Sustainable use of marine genetic resources and equitable sharing of benefits arising from them**
  - The treaty seeks to ensure that any benefits arising out of such efforts, including monetary gains, are free from strong intellectual property rights controls, and are equitably shared amongst all.
  - The knowledge generated from such expeditions are also supposed to **remain openly accessible to all.**
- **Initiation of the practice of environmental impact assessments for all major activities in the oceans**
  - Under the new treaty, commercial or other activities that can have significant impact on the marine ecosystem would require an environmental impact assessment to be done.
- **Creation of New body**
  - The treaty will create a new body to manage conservation of ocean life and establish marine protected areas in the high seas.

Wagner Group

- Yevgeny Prigozhin, the chief of Russia's Wagner Private Military Company, died in a plane crash.
- The Wagner Group first surfaced during Russia's annexation of Crimea in 2014.
- Essentially a network of contractors that supply soldiers for hire, the group isn't registered anywhere and its source of funding remains unknown.
- The organisation's owner and head was Yevgeny Prigozhin.
- Apart from Ukraine, Wagner Group is reportedly also active in West Asia and several countries in Africa.
- According to media reports, it provides its services to different governments often in exchange for access to gold and diamond mines.

India Gifts Missile Corvette INS Kirpan to Vietnam

India gifted the indigenously-built in-service **missile corvette INS Kirpan** to Vietnam to enhance that country's naval capabilities.

- INS Kirpan is the **third indigenously built Khukri class** missile corvette.
- However, the gifting of a corvette to Vietnam marks the **first instance of India gifting a warship** to a Chinese neighbour with a coastline on the South China Sea.

Sanctions Committee of UNSC

- Each sanctions regime is administered by a sanctions committee that consists of all 15 members of the Security Council. 15 members include **– 5 permanent member and 10 non-permanent** members of UNSC.
- These sanctions committees ensure the implementation of the sanctions and can decide by consensus to adopt targeted sanctions against specific individuals, enterprises or entities. E.g.- UNSC Al-Qaeda and ISIL Sanctions Committee or 1267 sanctions committee is one of such committee.

Functions of UNSC Sanctions Committee

- Once an entity or an individual is included in the list it gets designated as the "Global Terrorist".
- The member states are required to:
  1. freeze funds and financial assets of that individual/entity,
  2. enforce a travel ban, and
  3. cut off access to arms and related materials.

Procedures Followed by The UNSC Sanctions Committee

Decision by Consensus: This requirement effectively gives a veto to all 15 members of the committee (10 non-permanent + 5 permanent).

Member can place a hold on the decision

- A committee member can place a "hold" on the decision should they require more time and information to consider the matter at hand.
- As per the guidelines, a **hold can last for as long as 6 months** at a time, but **can be extended further under "extraordinary circumstances**".
- Apart from this vague condition, there is no restriction on repeatedly invoking a hold.
- Committee meetings take place in **closed sessions**, with no publication of the agenda, proceedings and voting records of the committee.

What is UNSC Al-Qaeda and ISIL Sanctions Committee?

- The ISIL (Da'esh) and Al Qaida sanctions committee is also known as the 1267 sanctions committee.
- It is one of the most important UN subsidiary bodies working to combat terrorism, particularly in relation to ISIL (Da'esh), Al-Qaida and associated individuals, groups, undertakings and entities.
- This committee oversees the implementation of sanctions pursuant to UNSC resolutions 1267 (1999), 1989 (2011) and 2253 (2015).

India-UN SDG Cooperation Framework

Recently, NITI Aayog and the United Nations in India signed the Government of India - United Nations Sustainable Development Cooperation Framework 2023-2027.

About GoI-UNSDC Framework

- It represents the UN development system's collective offer to the Government of India, in line with the national vision for development, for the achievement of the **Sustainable Development Goals, promoting gender equality, youth empowerment and human rights.**
- It is built on four strategic pillars derived from the 2030 Agenda – **People, Prosperity, Planet and Participation.**
- The four interlinked pillars have **six outcome areas f**ocusing on Health and Well Being; Nutrition and Food Security; Quality Education; Economic Growth and Decent Work; Environment, Climate, WASH and Resilience; and Empowering People, Communities, and Institutions.
- **The implementation and monitoring:** It will be co-led by the Government of India and the United Nations, India through a Joint Steering Committee.

Universal Postal Union (UPU)

- The Union Cabinet has approved the ratification of amendments to the Constitution of the Universal Postal Union (UPU) as contained in the Eleventh Additional Protocol to the Constitution signed during the 27th Congress of the Universal Postal Union held at **Abidjan (Cote d'Ivoire**) from 9-27 August, 2021.
- The approval enables the Department of Posts, Government of India to have the "Instrument of Ratification" signed by the Hon'ble President of India and have the same deposited with the Director General of the International Bureau of the Universal Postal Union.
- This would fulfil the obligations arising from Article 25 and 30 of the UPU Constitution which provides for ratification of amendments to Constitution adopted by a Congress as soon as possible by member countries.
- The **Universal Postal Union (UPU**) established by **the Treaty of Bern** of 1874, is a specialized agency of the United Nations (UN) that coordinates postal policies among member nations, in addition to the worldwide postal system. The UPU's **headquarters** are located in **Bern, Switzerland**

Asia Pacific Plant Protection Commission (APPPC)

The Asia Pacific Plant Protection Commission unanimously elected India as chair of the Standing Committee on Integrated Pest Management (IPM) for the biennium 2023-24 during the 32nd Session held in Bangkok.

About Asia Pacific Plant Protection Commission:

- **Objectives:** The commission coordinates and supports plant protection activities of its Members in Asia and the Pacific, with emphasis on developing regional standards for phytosanitary measures (RSPMs) etc.

- It was established in 1956 as a regional body approved by the Food and Agriculture Organization (FAO) of the United Nations.
- **Member Countries:** The commission consists of **25 member countries, including India.**
- **Structure of the organization:**
  - The Commission consists of representatives of all member countries and elects amongst them a **Chairperson** who serves for a **period of two years**.
  - The Director-General of the **Food and Agriculture Organization** appoints and **provides the secretariat** that coordinates, organizes and follows up the work of the Commission.
  - The Commission, according to its provisions convenes at **least once every two years** and opens for participation to all member countries.

Indus Water Treaty (IWT)

India recently made a proposal to Pakistan to hold a meeting to discuss the potential renegotiation of the Indus Waters Treaty.

Indus Water Treaty (IWT)

- The Treaty is a water-distribution treaty between India and Pakistan, brokered by the World Bank.
- According to this treaty**, three rivers: Ravi, Sutlej and Beas were given to India** and the other three: **Sindh, Jhelum and Chenab were given to Pakistan.**
- **Rights & obligations under this treaty**
  - India is under obligation to let the waters of the western rivers flow, except for certain consumptive use.
  - The treaty allocates Pakistan approx. 80% of the entire water of the six-river Indus system and reserved for India just remaining 19.48% of the total waters.
  - India can construct storage facilities on western rivers of up to 3.6-million-acre feet, which it has not done so far.
  - The IWT permits run of the river projects and require India to provide Pakistan with prior notification, including design information, of any new project.

What are the Dispute Redressal Mechanisms Under the Indus Water Treaty?

- **Article IX** of the Treaty is a dispute resolution mechanism - **graded at three levels** to resolve a difference or a dispute related to projects on the Indus waters.
- **First level**
  - Either party has to inform the other side if they are planning projects on the Indus River with all the information that is required or asked for by the other party.
  - This process is done at the level of the **Permanent Indus Commission** (PIC), created to implement and manage the goals of the IWT.
  - If PIC is unable to solve the question in contention, the question becomes difference and goes to second level.
- **Second level**
  - The second level is the World Bank appointing a neutral expert to resolve the differences.
  - If a neutral expert cannot resolve the issue, the difference becomes a dispute and goes to third level.
- **Third level**
  - At this level, the matter goes to a Court of Arbitration (CoA) whose chair is appointed by the World Bank.

Group of Global Crisis Response Group (GCRG)

India recently joined the Champions Group of the Global Crisis Response Group (GCRG).

About Global Crisis Response Group (GCRG)

- The GCRG was **set up by the UN Secretary-General in March 2022.**
- **Purpose**: The **32-member Group ensures high-level political leadership** to get ahead of the immense inter-connected **challenges of food security, energy, and financing** and **implement a coordinated global response** to the ongoing crises.
- It is **overseen by the Champions Group** comprising **representatives of Bangladesh, Barbados, Denmark, Germany, Indonesia, and Senegal.**
- The **UN Deputy-Secretary-General leads the Steering Committee** of the GCRG.
- GCRG Task Team:
  - Within the Group, **three work streams on Food, Energy and Finance will collate data and generate analysis, policy recommendations and solutions** to support decision-making and advocacy for consideration of the Steering Committee.
  - These **workstreams will remain flexible and responsive** to opportunities that seek to resolve immediate crises and the vulnerabilities of people and countries.

Black Sea Grain Deal

The last ship carrying grain from Ukraine, under an UN-brokered deal that guarantees its safe passage, left the port of Odesa. This deal is set to expire on July 17, and Russia has still not agreed to extend it.

Geographical Location of Black Sea

- The Black Sea lies between the continents of Asia and Europe.
- It is bound to the west by the Balkan Peninsula in South-eastern Europe, to the east by the Caucasus, north by East European Plains, and south by Anatolia of Western Asia.
- It is bordered by Ukraine to the north, Russia to the northeast, Georgia to the east, Turkey to the south, and Bulgaria and Romania to the west.

What is Black Sea Grain Deal?

- In July 2022, Russia and Ukraine signed a deal to reopen grains exports from Ukrainian Black Sea ports. The agreement is also known as the Black Sea Initiative.
- Under the initiative, cargo ships would be allowed to travel from and to **three Ukrainian ports** of Odesa, Chornomorsk and Pivdennyi (Yuzhny), after inspection that they weren't carrying arms.
- A control centre was established in Istanbul, staffed by U.N., Turkish, Russian and Ukrainian officials, to run and coordinate the process.
- The deal has been extended twice, and is due to expire on July 17.

Clean Energy Ministerial (CEM) and Mission Innovation (MI)

India hosted the 4th Clean Energy Ministerial (CEM14) and 8th Mission Innovation (M I-8) meeting. The theme for CEM-14 / MI-8 was "Advancing Clean Energy Together"

Feature	CEM	MI
Year Established	2009	2015 (Phase 1), 2021 (Phase 2)

Objective	Promote and accelerate clean energy technology, share best practices, transition to clean energy economy	Accelerate clean energy innovation, mobilize funding, advance R&D, achieve Net Zero goals
Governance Structure	High-level global forum based on common interests	Ministerial-level forum with 23 countries and EU
Focus	Leadership platform, convening, action, acceleration	Research, development, and demonstration (RD&D) of clean energy
Key Activities	Annual Ministerial meeting, initiatives, campaigns	Annual Ministerial meeting, clean energy innovation missions
Membership	29 members: 28 governments + EU	23 countries + EU
Key Achievements	Global Lighting Challenge (UJALA program)	Doubling government funding for clean energy RD&D
Timeline	Ongoing	Phase 1: 2015-2020

European Sky Shield Initiative (ESSI)

- Austria and Switzerland have become the latest nations to join the **European Sky Shield Initiative** (ESSI), bringing the total number of participants to 19.
- This ambitious project aims to **create a unified air and missile defence** system for Europe, bolstering NATO's capabilities in this critical area.
- Spearheaded by Germany in the wake of Russia's invasion of Ukraine, ESSI encourages European nations to work together in acquiring air defense equipment and missiles. This collaborative approach promises to strengthen the continent's collective defense and enhance its security posture.
- **Other countries already participating in ESSI** include **Belgium, Bulgaria, the Czech Republic, Norway, Slovakia, and the United Kingdom**. This growing coalition reflects the shared commitment among European nations to enhance their air and missile defense capabilities and ensure a more secure future.

PM Modi's Visit to Greece

Following his visit to South Africa to attend 15th BRICS summit, PM Modi paid an official visit to Greece. This was the first visit by an Indian Prime Minister to Greece in 40 years where he was **conferred with the Grand Cross of the Order of Honour**

About Grand Cross of the Order of Honour:

- It is the **second-highest** civilian honour in Greece.
- It is conferred to "eminent personalities who, by reason of their distinguished position, have contributed to enhancing the stature of Greece".
- The Order of Honour was **established in 1975.**
- The head of the goddess Athena is depicted on the front side of the Star with the inscription "ONLY THE RIGHTEOUS SHOULD BE HONOURED".

North Sea

- U.K. Prime Minister recently backed plans for new fossil fuel drilling off Britain's coast.
- The North Sea Transition Authority (NTSA), which is responsible for regulating oil, gas and carbon storage industries, is planning to conduct its 33rd offshore oil and gas licensing round.

About North Sea

- Geographically, the North Sea lies between England and Scotland on its west, the Netherlands, Belgium, and France on its south, and Norway, Denmark, and Germany on its East.
- **It is an epeiric sea** (an inland sea either completely surrounded by dry land or connected to an ocean by a river, strait or arm of the sea) on the European continental shelf.
  - **It connects to the Atlantic Ocean** through the English Channel in the south and the Norwegian Sea in the north.

BUSINESS 20 (B20) Summit Held in New Delhi

Why In News?

Manipur Chief Minister **N Biren Singh** inaugurated a conference on 'Opportunities for Multilateral Business Partnerships in ICT, Tourism, Healthcare and Handloom' in Imphal. This was the first of the four sessions of **B20** scheduled in Northeast India.

What is B20 Conference?

- The Business 20 (B20) is an event which is part of the **G20 Summit**. It is the voice of the G20 business community.
- More specifically, its main purpose consists in **developing recommendations and issuing relevant commitments from the business leaders and business organizations to deal with nowadays issues**.
- The **first B20 Conference took place in South Korea in 2010**.

Working of B20

- The B20 has no standing secretariat. The **leadership rotates every year together with the G20 Presidency**.
- The B20 delivers concrete actionable policy recommendations on priorities established by each rotation presidency to spur economic growth and development.
- Its working proceeding is based on Task Forces (TFs) and Action Councils (ACs) entrusted with developing consensus-based policy proposals to the G20 and to international organizations and institutions.

The Spirit of Camp David

- US President Joe Biden convened the inaugural joint summit at Camp David, a presidential retreat in Maryland, welcoming Japanese Prime Minister Fumio Kishida and South Korean President Yoon Suk Yeol.
- During the summit, the leaders committed to **strengthening both military and economic alliances while collectively condemning China for its perceived aggressive conduct.**
- Camp David holds historical significance as a venue where American Presidents historically engage with foreign dignitaries. Notably, in 1978, former President Jimmy Carter hosted a pivotal 13-day gathering at this retreat, accommodating the leaders of Israel and Egypt, Prime Minister Menachem Begin and President Anwar Sadat, respectively.

Philippines Removes 'Floating Barrier' Installed by China.

- The Philippines has removed a floating barrier installed by China to block Philippine fishing boats entering a contested area in the South China Sea.
- Manila says China violated its fishing rights with the 300m (1,000ft) barrier in the Scarborough Shoal.

- The Philippines describes the shoal as an integral part of the Philippine national territory.
  - Scarborough Shoal is within the 200-nautical-mile (370km) EEZ of the Philippines as defined by international maritime law.
  - It was affirmed by a ruling of The Hague's International Court of Arbitration.
- China claims more than 90% of the South China Sea and seized the shoal in 2012.
  - Beijing claims the area as part of its territory and refers to Scarborough Shoal as Huangyan Island.

South China Sea Dispute

- The South China Sea is a marginal sea that is part of the Pacific Ocean, encompassing an area from the Karimata and Malacca Straits to the Strait of Taiwan.
- South China dispute is a dispute over territory and sovereignty over ocean areas in south China sea. This also includes the two islands namely – **The Parcels and the Spratlys**. China often invokes the so called **nine-dash line** to justify its apparent historic rights over most of the South China Sea.
- Parts of this sea is also claimed by **Taiwan, Malaysia, Philippines, Brunei and Vietnam**.
- China has ignored a 2016 international tribunal decision that declared China's assertion as without basis.
  - In 2016, Permanent Court of Arbitration (PCA) awarded a verdict refuting Chinese claim over South China Sea.

Permanent Court of Arbitration (PCA)

- Established in 1899 to facilitate arbitration and other forms of dispute resolution between states.
- The PCA has a three-part organizational structure consisting of an **Administrative Council** that oversees its policies and budgets, **a panel of independent potential arbitrators** known as the Members of the Court, and its **Secretariat**, known as the International Bureau, headed by the Secretary-General.
- The PCA has a Financial Assistance Fund which aims at helping developing countries meet part of the costs involved in international arbitration or other means of dispute settlement offered by the PCA

Indonesia Offers Golden Visa to Attract Foreign Investors

- In a move to woo foreign individuals and corporate investors, Indonesia has introduced a golden visa scheme.
- **A golden visa** is an immigration program that allows wealthy individuals to obtain a residence permit or citizenship in a foreign country.
- Under this new visa scheme, foreign investors can receive a resident permit of between 5-10 years, depending upon the value of their investment.
- To be **eligible** for 5-year visa, an individual needs to set up a company worth $2.5 million.
- If one wants a 10-year visa, an investment of $5 million would be required.
- **Corporate investors** are required to invest $25 million to get five-year visas for directors and commissioners. They need to invest double, or $50 million, to gain a 10-year visa.

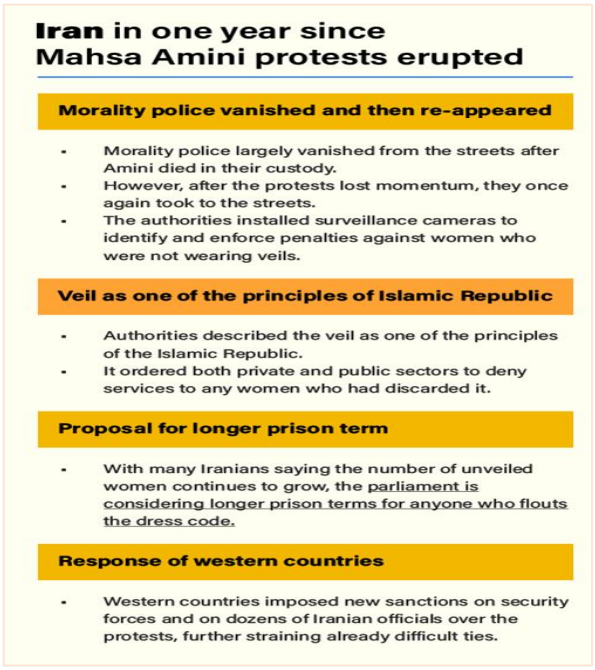
Abraham Accords

- On 18 October, 2021, the foreign ministers of the United States, India, Israel, and UAE met virtually to enhance cooperation and partnerships between these states on the back of the Abraham Accords, signed in 2020, normalizing relations between Israel and a grouping of Arab states led by the UAE.
- The Abraham Accords are a joint statement between **Israel, the UAE, and the USA**, reached in August 2020.
- Subsequently, the term was used to refer collectively to agreements between Israel and the United Arab Emirates (the Israel–United Arab Emirates normalization agreement) and Bahrain, respectively (the Bahrain–Israel normalization agreement).
- The statement marked the first public normalization of relations between an Arab country and Israel since that of Jordan in 1994.
- The agreement with the **UAE** was officially titled the **Abraham Accords Peace Agreement: Treaty of Peace, Diplomatic Relations and Full Normalization** Between the United Arab Emirates and the State of Israel.

- The agreement between **Bahrain and Israel** was officially titled **the Abraham Accords: Declaration of Peace, Cooperation, and Constructive Diplomatic and Friendly Relations**, and was announced by the United States on September 11, 2020.
- The accords are named after Abraham to emphasize the shared origin of belief between Judaism and Islam, both of which are Abrahamic religions that strictly espouse the monotheistic worship of the God of Abraham.

Iran's Morality Police

Iran's rulers have intensified a clampdown on dissent one year since the death in police custody of Mahsa Amini. The death of Mahsa Amini had sparked protests that spiraled into some of the worst political turmoil since the 1979 Islamic Revolution.



Background

- Iran's so-called **morality police** arrested 22-year-old Jina **Mahsa Amini** in Tehran for allegedly **violating Iran's mandatory Islamic dress code.**
- They then took her to a police station, where she slipped into a coma. Three days later, she died in hospital.

Morality Police of Iran

- **Gasht-e-Ershad,** which translates as guidance patrols, is widely known as the morality police.
- It is a unit of Iran's police force established under former hardline president Mahmoud Ahmadinejad.
- It is supervised by **Supreme Leader Ayatollah Ali Khamenei**. However, the elected government has a say in their activities through the Interior Ministry.
- Both men and women officials are part of the morality police.
- **Functions**
  - 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.
  - The morality police were tasked with enforcement at salons.

United Nations Commission on International Trade Law (UNCITRAL)

The Economic Survey 2021-22 calls for a "standardized framework for cross-border insolvency" to facilitate debt recovery for lenders of insolvent companies across international borders.

More In News

- Currently, the IBC does not automatically recognize foreign insolvency proceedings, creating uncertainty for creditors, debtors, and other stakeholders. This hinders the ability of lenders to recover debts from insolvent companies with international assets and liabilities.
- The survey recommends adopting the **United Nations Commission on International Trade Law (UNCITRAL) Model Law on Cross-Border** Insolvency with certain modifications to bring foreign assets under the insolvency process.

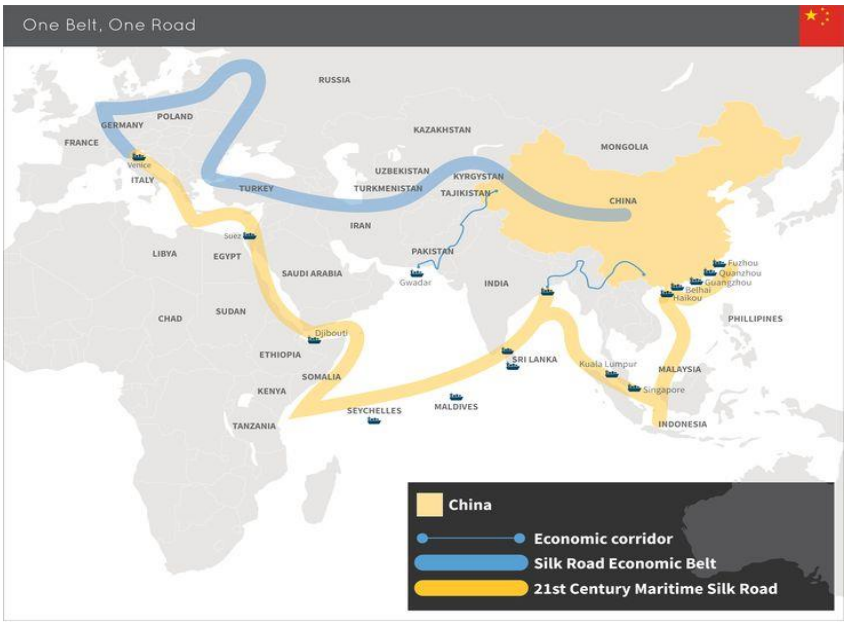
About UNCITRAL

- This legislative framework serves as a blueprint for countries to customize and adopt, allowing for adjustments to fit their unique legal environments and circumstances.
- Adopted by 49 countries, including Singapore, UK, US and South Africa.

- UNCITRAL grants foreign professionals and creditors the right to directly access domestic courts and participate in or initiate domestic insolvency proceedings
- It facilitates the recognition of foreign insolvency proceedings and empowers courts to grant appropriate relief based on their assessment.

Italy to Come Out of BRI

In a private meeting during the G20 summit 2023, Italian PM Giorgia Meloni reportedly conveyed Italy's plans to withdraw from the Belt and Road Initiative to Chinese Premier. Italy is the only G7 country to sign up for the BRI, which it did in 2019.



China's Belt and Road Initiative (BRI)

- China's Belt and Road Initiative (also known as One Belt, One Road (OBOR)) envisages the construction of a maze of road, rail and port projects through a number of countries.
- It aims to strengthen Beijing's economic leadership through a vast program of infrastructure building throughout China's neighbouring regions.
- This initiative is called "21st century silk road," and is made up of belt of overland corridors (also known as silk road economic belt) maritime shipping lanes

BRI and India

- India does not support the BRI, and has declined to join the project. The major reason for this is that the BRI passes through Indian territory illegally held by Pakistan (PoK).
- The arm of the BRI project, known as China-Pakistan Economic Corridor (CPEC), runs from **Kashgar** in China's Xinjiang Uighur Autonomous Region to **Gwadar port in southwestern Baluchistan in Pakistan**.

Shutting Down of Afghan Embassy in India

Recently, a statement carrying the seal of the Ministry of Foreign Affairs of the Islamic Republic of Afghanistan announced the closure of the Embassy of Afghanistan in Delhi.

Key Highlights

In its official communication, the Afghan Embassy blamed multiple factors including lack of cooperation from the Government of India and a lack of resources to operate any further.

- Furthermore, the embassy has urged the Indian government to fly the flag of the Islamic Republic of Afghanistan over embassy premises.
- It has also asked New Delhi to hand over the mission to a legitimate govt of Afghanistan sometime in future.
- The Taliban govt. in Afghanistan is not recognised by India as de facto rulers.
- With the displacement of the Islamic Republic of Afghanistan, the embassy of Afghanistan in New Delhi had begun to work as a stateless mission.
- It should be noted that despite the closure of the embassy in Delhi, India and Afghanistan are continuing engagement with each other in a curious way.
- India has been maintaining a "technical team" in Kabul where the staff provides visas to Afghan traders and travellers to India.

India-Palestine and UNRWA

United Nations Secretary-General Antonio Guterres recently announced that the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) is "on the verge of financial collapse."

United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA)

- It is a **UN agency that supports the relief and human development of Palestinian refugees.**
- It was **established in 1949** when nearly three-quarters of a million Palestinians became refugees **in the aftermath of the 1948 Arab- Israeli war.**
- **Mandate**: To **support Palestinian refugees and their patrilineal descendants who fled** or were expelled **from their homes during the 1948 Palestine War** and 1967 Six-Day War.
- UNRWA was **originally designed as a temporary agency**, though its **mandate has been continuously renewed every three years** by the General Assembly.
- **Services provided:** Its **services encompass education, health care, relief and social services, camp infrastructure and improvement, microfinance and emergency assistance**, including in times of armed conflict.
- **Fields of operations:** It provides services in its **five fields of operations: Jordan, Lebanon, Syria, Gaza Strip and West Bank, including East of Jerusalem.**
- UNRWA is unique in that **it delivers services directly to its beneficiaries.**
- **Funding**: It is **funded almost entirely by voluntary contributions** from UN Member States. It **also receives some funding from the Regular Budget of the United Nations**.
- It **reports only to the UN General Assembly**.
- **Headquarters**: It was **originally headquartered in Beirut, Lebanon**, but was moved to Vienna, Austria, in 1978. **In 1996 the General Assembly moved the agency to the Gaza Strip** to demonstrate the Assembly's commitment to the Arab-Israeli peace process.
- **Its chief officer, the commissioner-general—the only leader of a UN agency to report directly to the General Assembly—is appointed by the UN secretary-general** with the approval of an Advisory Commission.

Operation Ajay

Days after the Israel-Hamas war broke, India reiterated its call for the creation of a sovereign Palestinian state. These statements came as India is sending a chartered flight to bring back Indian nationals under Operation Ajay.

- Operation Ajay is **not technically an evacuation operation**. It is an operation to repatriate its citizens from Israel.
- Special chartered flights will bring back the Indians. Indian Navy ships will be deployed if the need arises.

Presidential Election in Maldives

Front runner and Opposition candidate **Mohamed Muizzu** was elected President of the Maldives. He defeated the India-friendly incumbent, Ibrahim Mohamed Solih, in a closely fought contest.

Possible Change in Foreign Policy of Maldives

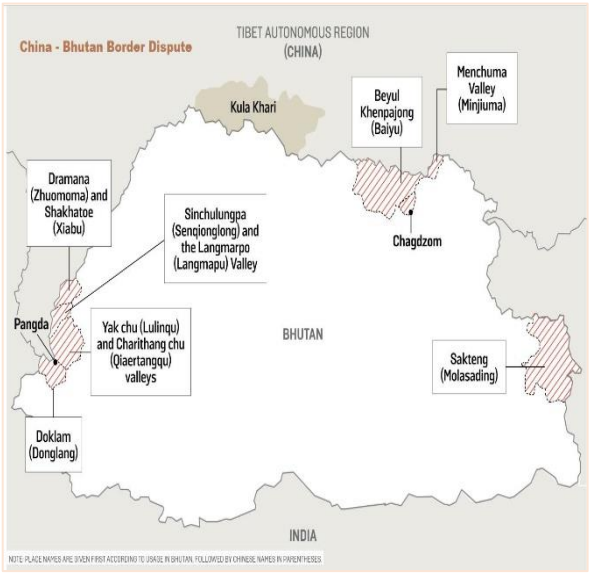
- Muizzu's victory may signal a shift in the Maldives' foreign policy.
- He is supported by former President Abdulla Yameen, who had a pro-China stance and wanted India out of the country.
    - Abdulla Yameen had launched **'India out'** campaign.
    - **India's recent projects in Maldives include**:
        - Addu development project,
        - The Greater Male connectivity project.

China-Bhutan Boundary Talks

- China and Bhutan held their 25th round of boundary talks in Beijing. The Boundary talks were held after a gap of **seven years** and indicate significant progress that has been made.

- Both the countries signed a Cooperation Agreement on the Responsibilities and Functions of the Joint Technical Team (JTT) on the Delimitation and Demarcation of the Bhutan-China Boundary.
- This advances their **3-Step Roadmap initiated in 2021** for border resolution, building on the positive momentum since their last talks in 2016.

3-Step Roadmap



- Bhutan and China do not have diplomatic ties, as Bhutan has avoided diplomatic relations with all the United Nations Security Council permanent members.
- The 3-Step Roadmap involves agreeing to the border on the table; then visiting the sites on the ground; and then formally demarcating the boundary.

China - Bhutan Border Dispute

- Bhutan shares a 477 km-long border with China, which claims certain territories from Bhutan:
  - **In the north**– Pasamlung and Jakarlung valleys; and
  - **In the west** - Doklam, Dramana, and Shakhatoe, Yak Chu and Charithang Chu, and Sinchulungpa and Langmarpo valleys.
  - These places are pasture-rich and strategically located in the Bhutan-India-China trijunction, lying **precariously close to India's Siliguri Corridor.**
- In 2020, China made new claims on Bhutan's East in the Sakteng sanctuary.
  - This eastern sector of Bhutan has a large Bhutanese population, traditional Dzongs (Medieval Fortresses) and two Bhutanese districts since time immemorial.

USS Dwight D Eisenhower

- US Defence Secretary announced that the nuclear-powered USS Dwight D. Eisenhower Carrier Strike Group (CSG) has been directed to move to the Eastern Mediterranean. This place is right next to the ongoing conflict between Israel and the militant organization Hamas.
- USS Eisenhower has been described as the Navy's finest 5-star aircraft carrier.
- The Eisenhower CSG joined the USS Gerald R. Ford Carrier Strike Group, which arrived earlier in the region.
- USS Gerard R. Ford is the US Navy's newest and most advanced aircraft carrier yet.
- The presence of carriers can reiterate American support for its longtime ally Israel in the region.
- There are indications that if the Iran-backed group Hezbollah decides to join the conflict on a full-scale level, it could draw other regional powers in.

UN Approved a Kenya-Led Security Mission to Troubled Haiti

The UNSC has approved international intervention in the form of a foreign security mission, led by Kenya, to restore security, and control spiralling violence in Haiti.

Where is Haiti?

- Haiti occupies the western third of the island of Hispaniola, situated between Cuba and Puerto Rico, which it shares with the Dominican Republic.
- The Atlantic Ocean borders Haiti's northern shores, while the Caribbean Sea is to the west and south.

Violence in Haiti

- Haiti has experienced a surge in violence over the past year as armed groups took control of large parts of the country, including the **capital Port-au-Prince**.

- The country plunged into a crisis when a group of **gangs called G9 and Family** seized control of the entry of the main fuel port Varreux in the capital.
- They were protesting the PM's decision to cut fuel subsidies.
- To make matters worse, there was a shortage of bottled water in the backdrop of a new outbreak of cholera.

Qatar Court Sentenced 8 Indian Navy Veterans To Death

Eight former personnel of the Indian Navy, who were detained in Doha in 2022, have been sentenced to death by a Qatari court. The death sentence has been remitted to life imprisonment.

Who Are These Indians And What Were They Doing In Qatar?

- The eight former Navy personnel were working at **Al Dahra Global Technologies and Consultancy Services, a defence services provider company.**
- Most of the arrested men had been working at Dahra for four to six years at the time of their arrests.
- Commander Purnendu Tiwari (retd), who was Managing Director of the company, received the Pravasi Bhartiya Samman in 2019 for his services in furthering the bilateral relationship between India and Qatar.
- The company is owned by an Omani national, Khamis al-Ajmi, a retired squadron leader of the Royal Oman Air Force.
- The company's old website, which no longer exists, said it provided training, logistics and maintenance services to the **Qatari Emiri Naval Force (QENF).**

Sri Lanka Offers Free Visas to Indians To Revive Tourism

- Sri Lanka has waived **visa fee** for Indians and tourists from six other countries, as part of its efforts to boost tourist arrivals.
- The Sri Lankan foreign ministry announced that Indians will get free visas to the nation as part of a pilot programme which will extend till March 31, 2024.
- This scheme is also extended to citizens from six other countries – Russia, China, Thailand, Malaysia, Indonesia and Japan.
- This step was taken to generate a target of five million arrivals by 2026.

Canada Visa Services Now Available Only in Delhi

- Canada has stopped visa and consular services at its Chandigarh, Mumbai, and Bengaluru consulates. These services will now be available only at the Canadian High Commission in New Delhi.
- India insists that its actions are consistent with the tenets set forth in Article 11.1 of the Vienna Convention on Diplomatic Relations

1961 Vienna Convention on Diplomatic Relations

- The Vienna Convention on Diplomatic Relations is an international treaty signed by 61 countries in 1961.
- It puts forth a framework for diplomatic interactions between independent nations and aims to ensure the 'development of friendly relations among nations.
- At present **193 countries** are party to the document.

What is Article 11.1 about?

- Article 11.1 of the convention says that if there is no clear agreement on how big a mission should be, the country hosting the mission can ask that the mission size stays within what they consider reasonable and usual.
- This decision will depend on the situation in the hosting country and the mission's specific needs.

India-Japan Chip Supply Chain Partnership

A Memorandum of Cooperation (MoC) has been signed between the Ministry of Electronics and Information Technology of India and the Ministry of Economy, Trade, and Industry of Japan.

India Semiconductor Mission (ISM)

- Launched in 2021 with a budget of Rs. 76,000 crores.

- Part of a comprehensive program to develop a sustainable semiconductor and display ecosystem in India.
- Provides financial support to companies investing in semiconductors, display manufacturing, and design.
- Led by global experts in the semiconductor and display industry.
- The India Semiconductor Mission (ISM) is the nodal agency for the schemes approved under the Semicon India Program.

SEMICONDUCTOR

A semiconductor is a material that has electrical conductivity between that of a conductor and an insulator

Types: Semiconductors can be pure elements, like silicon or germanium, or compounds, like gallium arsenide.

Properties: Resistivity: Semiconductors' resistivity falls as their temperature rises.

Conductance: Semiconductors' conducting ability can be increased by chemical treatment.

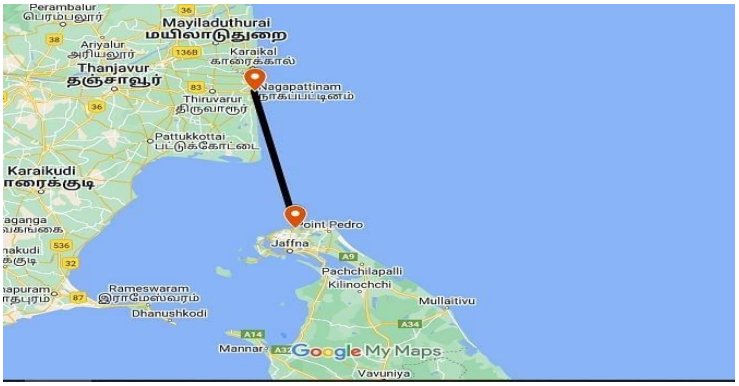
Application: Semiconductors are the foundation of modern electronics, used in transistors, integrated circuits (ICs), and other components. These components are found in a vast array of devices, including computers, smartphones, televisions, medical equipment, and much more.

India Sri Lanka Ferry Services Restarted

An age-old sea route between India and Sri Lanka has been rejuvenated with the inauguration of a passenger ferry service - a High Speed Craft, named 'Cheriyapani', from Nagapattinam (TN) to Kankesanthurai in Jaffna, Northern Sri Lanka.

Maritime Linkage Between India and Sri Lanka

- The Indo-Ceylon Express or Boat Mail - a train - ran between Chennai and Colombo via the Thoothukudi port from the early 1900s up until 1982.
- Passengers from Chennai would get onto the train and then transfer to a coal-powered steam ferry in Dhanushkodi, which would take them to Talaimannar in roughly two hours.
- Attempts were also made to establish services from Rameswaram to Talaimannar and Karaikal to Kankesanthurai. Various challenges kept these proposals from materialising.



Laws Governing the Conflicts

Conflict between Israel and Palestinian falls under a complex international system of justice that has emerged since World War II.

Laws Governing the Conflict

- **1949 Geneva Conventions**
  - Internationally accepted rules of armed conflict emerged out of the 1949 Geneva Conventions.
  - These rules have been **ratified by all UN member states** and supplemented by rulings at international war crimes tribunals.
  - A siege can be considered a war crime if it targets civilians, or if found to be disproportionate.
  - Attacks on military objectives have to be proportional under international law.
    - This means they must not lead to excessive loss of civilian life or damage to civilian objects in relation to the direct and concrete military advantage expected.
- **International Humanitarian Law**
  - A series of treaties governs the treatment of civilians, soldiers and prisoners of war in a system collectively known as the **Law of Armed Conflict** or **International Humanitarian Law**.

- It applies to government forces and organised armed groups, including Hamas militants.

- **International Criminal Court (ICC) in The Hague**
  - If alleged Palestinian perpetrators of atrocities in Israel and all alleged perpetrators of crimes on the occupied Palestinian territories are not brought to justice at home, the ICC can charge them.
  - It is the only global court that can hold them accountable.
    - The ICC's founding **Rome Statute** gives it legal authority to investigate alleged crimes on the territory of its members **or by their nationals**, when domestic authorities are "unwilling or unable" to do so.
  - **The ICC recognises Palestine as a member state**, while **Israel rejects the court's jurisdiction** and does not formally engage with it.

Acts That Violate War Crime Law

- Experts cited as possible war crimes:
  - the deliberate targeting of civilians, indiscriminate rocket attacks, and the taking of civilians as hostages by Palestinian armed groups,
- The taking of hostages, murder and torture are explicitly banned under the Geneva Conventions.
- Also, Israel's response could also be subject to a war crimes investigation.
  - Israel drew criticism from UN officials and human rights groups by announcing a tightened blockade to prevent food &fuel from reaching the Gaza Strip, home to 2.3 million people.

White Phosphorus Munitions

Two humanitarian organizations have accused the Israel Defense Forces (IDF) of using white phosphorus munitions in Gaza and Lebanon.

White Phosphorus

- White phosphorus is a **pyrophoric that ignites when exposed to oxygen**, producing thick, light smoke as well as intense **815-degree Celsius heat**.
- Under the Globally Harmonized System of Classification and Labeling of Chemicals, white phosphorus falls under "**Pyrophoric solids, category 1**".
  - This category includes chemicals that catch fire spontaneously when exposed to air.
- White phosphorus emits a distinct garlic-like odour.
- **Military uses of white phosphorus**
  - Upon exposure, white phosphorus can cause severe burns, often down to the bone.
  - Particles of white phosphorus that remain lodged the body can reignite if in contact with air.
  - Inhaling white phosphorus particles or smoke can cause respiratory damage and harm to internal organs.

Legal Status of White Phosphorus Munitions

- **Use is regulated:** White phosphorus munitions are not under a blanket ban, though their use is regulated under the International Humanitarian Laws.
- **Not considered a chemical weapon**
  - It is not considered a chemical weapon because its operational utility is primarily due to heat and smoke, rather than toxicity.
  - Thus, its use is governed by the **Convention on Conventional Weapons (CCW), specifically Protocol III**, which deals with incendiary weapons.
    - Palestine and Lebanon have joined Protocol III, while Israel has not ratified the protocol.
    - **Incendiary weapons** are weapons that use fire and heat to set fire to objects or cause burn or respiratory injury to people.
- **Protocol III of CCW regulates the use of incendiary weapons**
  - Protocol III prohibits the use of airdropped incendiary weapons in concentrations of civilians.
  - However, it has two significant loopholes.

- First, it **restricts some** but not all use of ground-launched incendiary weapons where there are concentrations of civilians.
- Second, the protocol's definition of incendiary weapons covers weapons that are primarily designed to set fire to and burn people. **It excludes multipurpose munitions** such as those containing white phosphorus, which are considered to be primarily "smoking" agents.

UNGA Adopts Gaza Resolution

The United Nations General Assembly has passed a resolution calling for an immediate humanitarian truce between Israel and Hamas and demanding aid access to Gaza. A total of 120 countries voted in favour of the resolution, 14 countries voted against including Israel and the United States, while **45 others, including India, abstained**.

United Nations General Assembly (UNGA)

- It was **established in 1945** under the Charter of the United Nations and is **headquartered** in **New York City**.
- It is one of the six principal organs of the UN and serves as the main policy-making organ of the Organization.
- It provides a unique forum for multilateral discussion of the full spectrum of international issues covered by the Charter of the United Nations.
- Each of the 193 Member States of the United Nations has **an equal vote.**
- **Some of the important achievements of UNGA**
  - Millennium Declaration, adopted in 2000
  - The 2005 World Summit Outcome Document
  - 17 SDGs formulated in September 2015

India, UN Launch Capacity Building Initiative

- The UN General Assembly held its **78th annual gathering**. EAM S Jaishankar led the Indian delegation at the assembly.
- During the 78th UNGA, the "**India-UN Capacity Building Initiative"** was announced at the event **India-UN for the Global South-Delivering for Development.**
- As part of this initiative, the UN India team and the Bill & Melinda Gates Foundation will partner together.

Special Sessions of UNGA

- The United Nations Charter (Chapter IV, article 20) provides for the General Assembly to meet in special sessions as occasion may require.
- Special sessions are **convened by the Secretary-General** at the request of the Security Council or of a majority of the Members of the United Nations.

Emergency Special Sessions of UNGA

- An emergency special session of the UN is an unscheduled meeting of the United Nations General Assembly to make urgent recommendations on a particular issue.
- If the General Assembly is not in the session, the UN Charter allows it to meet in emergency special session within twenty-four hours of the request therefor.
- The procedure to call an emergency special session are laid out in the Rules of Procedure of the General Assembly.
  - Emergency special session is called if requested by the Security Council on the **vote of any seven members, or by a majority of the Members of the UN.**
- So far, only 11 such emergency session of the General Assembly has been held since 1950.

Implications of resolutions passed by the special emergency sessions

- These resolutions are **not legally-binding**. These are symbolic of the world opinion on the crisis and carry political weight as they represent the will of the entire UN membership

India UAE Sign RUPAY Domestic Card Scheme (DCS) Agreement

- NPCI International Payments Limited (NIPL) and Al Etihad Payments (AEP) have formed a strategic partnership to implement a Domestic Card Scheme (DCS) in the UAE.
- This initiative aims to significantly enhance digital payments and e-commerce activity within the UAE.
- **Entities**:
  - NIPL is a wholly owned subsidiary of the National Payments Corporation of India (NPCI).
  - AEP is an indirect subsidiary of the Central Bank of UAE (CBUAE).

RuPay Card: RuPay is an indigenous card payment network which has debit, credit and prepaid facilities. These are issued via banking sector including public sector, private and small banks.

Vienna Convention

The Indian government lodged a strong protest with the United Kingdom regarding the incident of vandalism at the Indian High Commission in London. It reminded the Deputy High Commissioner of the UK's fundamental responsibilities under the Vienna Convention to ensure the security of diplomatic missions and personnel.

About Vienna Convention on Diplomatic Relations 1961

- **Comprehensive framework**: Establishes a complete set of rules for initiating, maintaining, and ending diplomatic relations between sovereign states based on mutual consent.
- **Global application**: Nearly universally adopted by nations worldwide, with only Palau and South Sudan remaining outside its scope.
- **Diplomatic immunity**: Ensures safe and unimpeded execution of diplomatic duties by granting privileges and immunities to diplomatic missions and personnel, protecting them from coercion or harassment by the host country.

Key Provisions of the Vienna Convention on Diplomatic Relations:

- **Inviolability of Mission Premises (Article 22):**
  - Diplomatic missions cannot be entered by law enforcement of the host country without the consent of the head of the mission.
  - The host country has a special duty to protect the premises from intrusion, damage, disturbance, or infringement of dignity.
- **Inviolability of Mission Archives and Documents (Article 24):**
  - Mission archives and documents are inviolable, even outside mission premises.
  - The host country cannot seize, inspect, or use them in legal proceedings.
- **Free Communication (Article 27):**
  - Diplomatic missions have the right to free and unrestricted communication with their sending States by all appropriate means.
  - Diplomatic bags carrying communications cannot be opened or detained.
- **Diplomatic Immunity (Articles 29 & 31):**
  - The person of diplomats is inviolable and they cannot be arrested or detained.
  - Diplomats enjoy immunity from civil and criminal jurisdiction of the host country, with specific exceptions.
- **Tax Exemptions (Articles 34 & 36**):
  - Diplomats are exempt from taxes on income and most personal items.
  - Diplomatic missions are exempt from customs duties on imports for official use.
- **Limited Immunity for Nationals and Permanent Residents (Article 38):**
  - Nationals and permanent residents of the host country employed by diplomatic missions enjoy limited immunity, only for official acts.

India, Australia 2+2 Talks

- Defence Minister Rajnath Singh engaged in bilateral talks with Australian Deputy Prime Minister and Defence Minister Richard Marles in New Delhi.
- The 2+2 dialogue is a format of meeting of the **foreign and defence ministers** of India and its allies on strategic and security issues.
- **2+2 talks between India and allies**
  - India has 2+2 dialogues with five key strategic partners: the **US (started in 2018), Australia (started in 2021), Japan (Started in 2019), Russia (started in 2021) and the UK** (started in 2023)
  - Besides Russia, other three countries are also India's partners in the Quad.

India, US Work On Pact For Quick Return Of Stolen Antiquities

India is close to signing an agreement - the **Cultural Property Agreement (CPA) -** with the United States under which the process for the return of stolen antiquities will be hugely simplified.

- **What is antiquity?**
  - The **Antiquities and Art Treasures Act (AATA) 1972** defines antiquity as any coin, sculpture, painting, epigraph or other work of art or craftsmanship that has been in existence for not less than 100 years.
    - **For manuscript, record or other document** which is of scientific, historical, literary or aesthetic value, this duration is not less than 75 years.
  - **The UNESCO 1970 Convention** defines cultural property as the one designated by countries having importance for archaeology, prehistory, history, literature, art or science.
- **Evolution of law after independence:**
  - All the **Union, State and Concurrent Lists** of the 7th Schedule of the Indian Constitution deal with the country's heritage.
  - **The Ancient Monuments and Archaeological Sites and Remains Act** was enacted in 1958 and a few incidents of theft of antiquities prompted the government to enact the **AATA 1972.**
- **Salient provisions of the AATA 1972:**
  - **No person** (other than the central government) **can export any antiquity or art treasure.**
  - **No person can carry on the business of selling** any antiquity except in accordance with the terms and conditions of a licence granted by the ASI.
  - Every person who owns, controls or is in possession of any antiquity shall register such antiquity and obtain a certificate.
- **How are Artefacts of Indian Origin Repatriated?**
- Presently, once an artefact of Indian origin is located in a foreign country, **its provenance has to be established** through documents such as FIRs and pictorial evidence.
- **The objects are then verified by the Archaeological Survey of India (ASI)** - the custodian of all antiquities - in the host country before they can be brought back home.
- **A team of experts from the ASI visits the country** and verifies the objects on the basis of their knowledge, iconography and wear-and-tear marks. **There is no time limit for this process**.

Background of the Cultural Property Agreement (CPA):

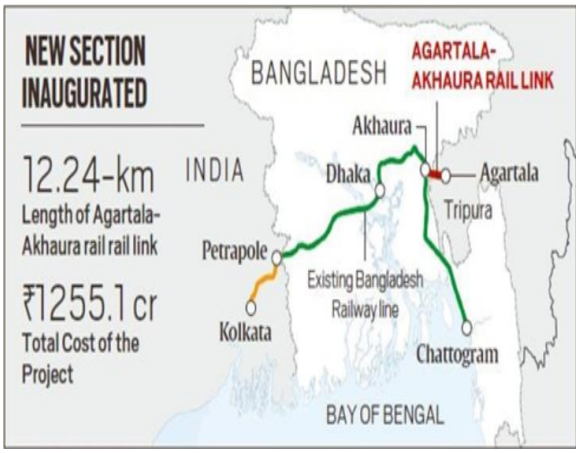
- Over the last few years, **India has placed a renewed emphasis on repatriation of its heritage**, with the Indian PM raising the issue with various world leaders and multilateral agencies during his foreign visits.
- According to government data, **over 400 antiquities have been brought back to India since 2014.**
- Once a country makes a request for an agreement, **the request is considered by the White House-appointed Cultural Property Advisory Committee**, which makes a recommendation to the Department of State.
  - The next step for India is to have its request considered before this Committee.

Cultural Property Agreement (CPA):

- **The agreement imposes import restrictions** that stop looted and stolen cultural property from entering the US while encouraging the legal sharing of such objects for scientific, cultural, and educational purposes.
- **How do the import restrictions work?**
  - As per the agreement, **the US will intercept smuggled goods** at the border and return them expeditiously.
  - When objects are seized and forfeited under import restrictions, there is a simplified process for returning objects to the partner country.
  - The partner country does not have to prove the item is theirs. Rather, the US automatically offers it to them for return

Akhaura-Agartala Rail Link

Prime Minister Narendra Modi and Bangladesh's Prime Minister Sheikh Hasina virtually inaugurated a rail link connecting Northeast India with Bangladesh



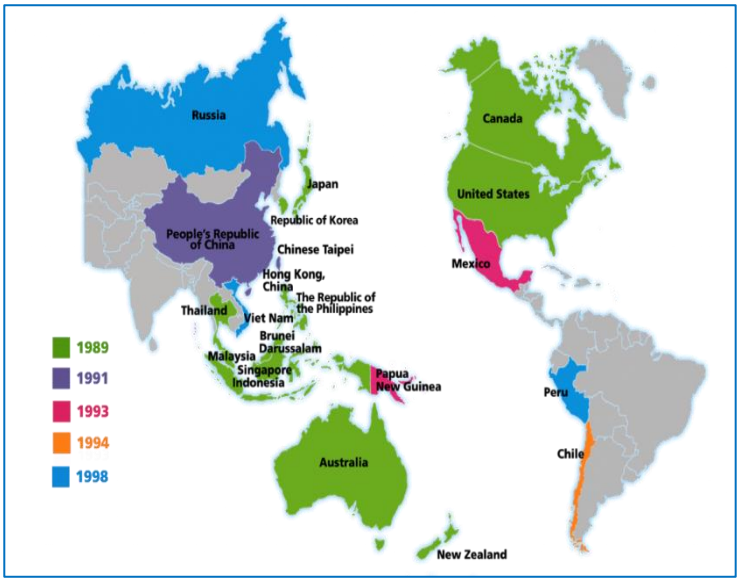
- Akhaura–Agartala line is a railway line between India and Bangladesh.
- It links Bangladesh's Akhaura, through an international immigration station at Nischintapur, to the outskirts of Agartala, capital of Tripura.
- The length of the rail link is 12.24 km with a 6.78 km Dual Gauge rail line in Bangladesh and 5.46 km in Tripura.
- This railway link is part of the 16 transit routes that have been declared allowing cargo transportation from Chattogram or Mongla port, in Bangladesh, to Indian states.
- **Funding Pattern**:
  - The project is wholly funded by the Government of India.
  - The **Ministry for Development of North East Region** (DoNER) funded the work on the Indian side while **Ministry of External Affairs** funded the expense for Bangladesh's side.

US-China Summit

The Asia-Pacific Economic Cooperation (APEC) grouping met in San Francisco in the United States.

About Asia-Pacific Economic Cooperation (APEC)

- The Asia-Pacific Economic Cooperation is a regional economic forum and was **formed in 1989**.
- **Aim of the grouping** - "leverage the growing interdependence of the Asia-Pacific and create greater prosperity for the people of the region through regional economic integration".
- The focus of APEC has been on trade and economic issues and hence, it terms the countries as "**economies**".
- It has been operating on the basis of **non-binding commitments** with decisions taken through commitments and consensus undertaken on a voluntary basis.
- **Member Countries**:
  - Currently, APEC has 21 members.
  - The criterion for membership, however, is that each member must be an



independent economic entity, rather than a sovereign state.

- The grouping's current members are Australia, Brunei, Hong Kong, New Zealand, Papua New Guinea, Philippines, Indonesia, China, Japan, South Korea, Russia, Canada, United States, Mexico, Peru, Chile, Malaysia, Vietnam, Singapore, Thailand and Taiwan.
- India is not a member of this grouping.

India, Oman Adopt Vision Document to Expand Ties

- The Sultanate of Oman is a **strategic partner** of India and an important interlocutor at Gulf Cooperation Council (GCC), Arab League and Indian Ocean Rim Association (IORA) fora.
- Diplomatic relations were established in 1955 and the relationship was upgraded to **Strategic partnership in 2008.**
- The Indian Navy has berthing rights in Oman and has used the ports to conduct anti-piracy operations in the Gulf of Aden.
- In August 2022, a 13-day joint military exercise **Al Najah IV** was held in Rajasthan.

French President to Be Chief Guest This Republic Day

French President Emmanuel Macron will visit India as Chief Guest for the 75th Republic Day celebrations. This will be the sixth time a French leader will be the Chief Guest at the R-Day celebrations.

India-France Bilateral Relations

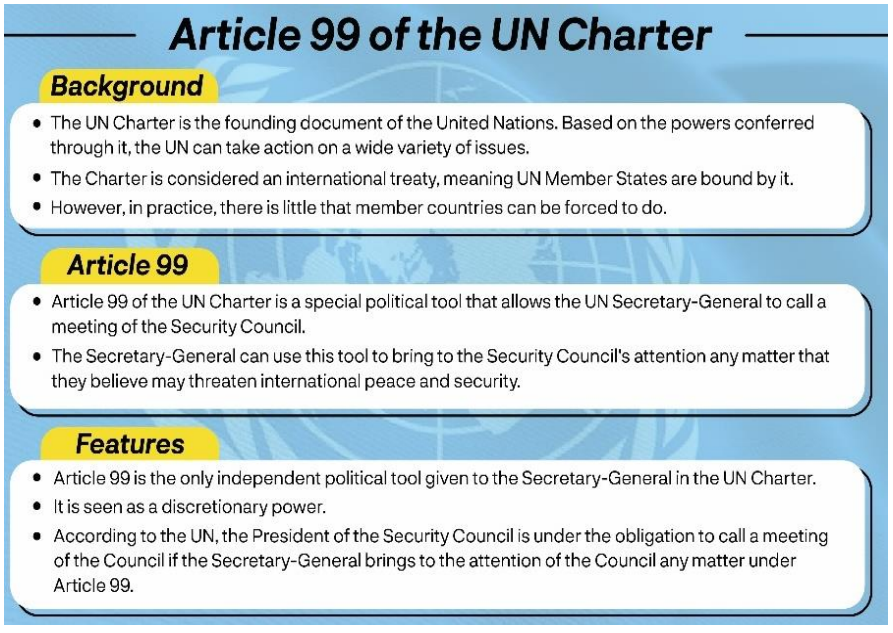
- **Since the establishment of diplomatic ties in 1948**, India and France have enjoyed 75 years of close and friendly relations.
- **In 1998**, India and France elevated their diplomatic relationship to **Strategic Partnership** which completed 25 years in January 2023.
- **Defence Cooperation:** The Agreement on Defence Cooperation signed in 2006 and renewed for another 10 years in 2016 gives the framework for all defence cooperation activities between India and France.
- **Civil Nuclear Cooperation:** An agreement on civil nuclear cooperation was signed between India and France in **2008**.

Significance of India Inviting French President for the 75th Republic Day Celebrations

- In New Delhi, the choice of guest has been guided by a set of imperatives: strategic and diplomatic, blending business, global geo-politics and bilateral engagement.
- This year, both are celebrating the 25th anniversary of the India-France Strategic Partnership.
- The Indian PM was the Guest of Honour at the Bastille Day Parade held on 14 July 2023 in Paris. President Macron visited India for the G-20 Summit on 8-9 September 2023.
- In 2022, the Indian PM had made a stopover in Paris, on his way back from Denmark, to meet President Macron, thus becoming the first world leader to meet the French President after he won his second term.
- Thus, India's invitation to France signals and reinforces the depth of the bilateral relationship.

Article 99 of the UN Charter

- UN Secretary-General Antonio Guterres used a rarely used power to warn the Security Council of a humanitarian catastrophe in Gaza. He urged the members to demand an immediate humanitarian cease-fire.
- He **invoked Article 99 of the UN Charter**, a diplomatic tool that allows the UN head to raise issues that may threaten international peace and security.



Past Uses of Article 99

- The provision has been rarely invoked. It's only been invoked four times in the past — in the Congo (1960), East Pakistan (1971), Iran (1979) and Lebanon (1989).
- The article was initially designed as a preventative tool, a bit like a warning system. Its use was meant to deter conflicts from escalating.

Power of Article 99 to End The Conflict

- Article 99 gives power to the Secretary-General to call a meeting of the Security Council on the important issue which may threaten international peace and security.
- However, it does not give the Secretary-General any powers to force the Security Council to adopt a resolution. Hence, he can force a discussion, he can bring the parties together and encourage them to reach some kind of compromise.
- But because of the veto, the only way the Security Council can adopt a substantive resolution on the issue is for each of the five permanent members to choose not to veto it.
    - To be adopted, a resolution needs **at least nine votes in favour and no vetoes by the five permanent members**. China, Russia, the US, the UK and France – hold this veto power.

U.S. Launches Multinational Push To Safeguard Red Sea Commerce

- In the light of recent ship hijacking incidents led by Yemeni Houthi Rebels, the U.S. Defense Secretary had announced the creation of a **multinational operation** to safeguard commerce in the **Red Sea**.
- India is not a part of this operation.

Red Sea

- Red Sea is narrow strip of water extending south-eastward from **Suez, Egypt, to the Bab el-Mandeb Strait.**
- Bab-el-Mandeb Strait connects the Mediterranean Sea to the Gulf of Aden via the Red Sea and the Suez Canal.
- The Red Sea separates the coasts of Egypt, Sudan, and Eritrea from those of Saudi Arabia and Yemen.
- This route is vital for 30 per cent of global container traffic.

Regional Overview of Food Security & Nutrition

- The Food and Agriculture Organisation (FAO) of the United Nations launched the **Asia Pacific Regional Overview of Food Security and Nutrition 2023: Statistics and Trends.**
- The report is a glimpse on the progress in meeting Sustainable Development Goals (SDGs) and World Health Assembly (WHA) global nutrition targets.

Key Findings

- The prevalence of undernourishment in the Asia and the Pacific region decreased to 8.4 percent in 2022 from 8.8 percent of the previous year.

- With **370.7 million undernourished** people, the Asia Pacific region represents **half of the world's undernourished people**.
- **Women** across the subregions, except for Eastern Asia, tend to be **more food insecure than men**.
- **Stunting** among children under 5 years of age, with a prevalence of **23.4 percent,** continues to be a public health problem in the region despite the declining trend from 2000.

Indonesia's Marapi Volcano Eruption

- The recent eruption Mt. Marapi (Indonesia) was the deadliest since 1979.
- **Mt. Marapi** is a volcanic mountain peak located near the Centre of the island of Java, Indonesia.
- It is located on Sumatra, the westernmost and third largest of Indonesia's 18,000 islands. It stands 2,891m high.
- Mount Marapi, which means "**Mountain of Fire**", is among the most active of Indonesia's 127 volcanoes and is also popular among hikers.
- The Indonesian archipelago sits on the so-called Pacific Ring of Fire, where the **meeting of continental plates causes high volcanic and seismic activity**.

India, Russia Sign Pacts On Future Units Of Kudankulam Plant

- India and Russia signed agreements related to the construction of the future power-generating units of the Kudankulam nuclear power plant.
- The Kudankulam nuclear power plant is being built in **Tamil Nadu** with the technical assistance of Russia. The construction began in March **2002.**
- Since February 2016, the first power unit of the Kudankulam NPP has been steadily operating at its design capacity of 1,000 MW. The plant is expected to start operating at full capacity in 2027.

Indo-Pacific Economic Framework (IPEF)

- India is learnt to have asked for better market access in order to be a part of the **trade pillar** of the **IPEF** (Indo-Pacific Economic Framework). **India has an observer status on the trade pillar negotiations**.
- **Members:** The IPEF has 14 partner countries including Australia, Brunei, Fiji, India, Indonesia, Japan, Republic of Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand, Vietnam and the US.

Origin

- US President Biden first spoke about the IPEF at the October 2021 East Asia Summit.
- At this summit, he said that United States will explore with partners the development of IPEF.
- This framework will define our shared objectives around:
  - trade facilitation, standards for the digital economy and technology, supply chain resiliency, decarbonization and clean energy, infrastructure, worker standards, and other areas of shared interest.
- The IPEF *will not include market access commitments such as lowering tariff barriers*, as the agreement is more of an administrative arrangement.

About

- Launched in Tokyo, in May 2023, IPEF aims to strengthen economic engagement among the member countries to advance growth, peace and prosperity in the region.
- According to an insight paper on IPEF put out by the US Congressional Research Service, the IPEF is not a traditional trade agreement.
- Rather, it would include different modules (four pillars) covering various aspects.

Four Pillars of IPEF

- Pillar I - fair and resilient trade,
- Pillar II - supply chain resilience,
- Pillar III - infrastructure and decarbonization
- Pillar IV - tax and anticorruption.
  - Countries would have to sign up to all of the components within a module (pillar), but do not have to participate in all modules.

- **India and IPEF:** In September 2022, India joined three pillars of the IPEF. These are: supply chain, decarbonisation and infrastructure, and tax and anticorruption pillars. **However, it had decided to remain out of the trade pillar.**

United Nations Forum on Forests

- The 18th session of the **United Nations Forum on Forests (UNFF18),** held in New York.
- United Nations Forum on Forests (UNFF) is a high-level intergovernmental policy forum established in **2000** by the **UN Economic and Social Council (ECOSOC).**
- It has **universal membership** and is composed of all Member States of the United Nations.

UN Economic and Social Council (ECOSOC)

The UN Charter established ECOSOC in 1945 as one of the six main organs of the United Nations.

Members:

- The Council consists of 54 Members States, which are elected yearly by the General Assembly for overlapping three-year terms.
- Seats on the Council are allotted based on geographical representation with 14 allocated to African states, 11 to Asian states, six to eastern European states, 10 to Latin American and Caribbean states and 13 to western European and other states.

Mandate:

- It is the central platform for fostering debate and innovative thinking, forging consensus on ways forward, and coordinating efforts to achieve internationally agreed goals.
- It is also responsible for the follow-up to major UN conferences and summits.

- The UNFF collaborates closely with other international processes and conventions, such as the **Convention on Biological Diversity (CBD), United Nations Framework Convention on Climate Change (UNFCCC), and the Sustainable Development Goals (SDGs).**
- The UNFF operates through a **two-year cycle**, known as the **Multi-Year Programme of Work (MYPOW)**.
- Hence, The UN Strategic Plan for Forest (2017 – 2030) has adopted a set of ***six Global Forest Goals and 26 associated targets to be reached by 2030.***

Global Forest Goals

- The UN Strategic Plan for Forest (2017 – 2030) has adopted a set of six Global Forest Goals and 26 associated targets to be reached by 2030.
- **Goal 1** - Reverse the loss of forest cover worldwide through sustainable forest management, including protection, restoration, afforestation and reforestation
- **Goal 2** - Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest-dependent people
- **Goal 3** - Increase significantly the area of protected forests worldwide and other areas of sustainably managed forests
- **Goal 4** - Mobilize significantly increased, new and additional financial resources from all sources for the implementation of sustainable forest management and strengthen scientific and technical cooperation and partnerships
- **Goal 5** - Promote governance frameworks to implement sustainable forest management, including through the United Nations Forest instrument, and enhance the contribution of forests to the 2030 Agenda for Sustainable Development
- **Goal 6** - Enhance cooperation, coordination, coherence and synergies on forest-related issues at all levels, including within the United Nations system and across member organizations of the Collaborative Partnership on Forests

World Meteorological Organization

The WMO released two reports titled **Global Annual to Decadal Climate Update 2023-2027** and **State of Global Climate 2022.** The WMO has approved a new greenhouse gas (GHG) monitoring initiative **Global Greenhouse Gas Watch (G3W).**

About Global Greenhouse Gas Watch (G3W)

- It aims to establish internationally coordinated monitoring of greenhouse gas fluxes (**top-down**) to support the provision of the UNFCCC parties and other stakeholders.
- It will bring all space-based and surface-based observing systems, as well as modelling and data assimilation capabilities, under one roof.
- The system will provide sustained delivery of **monthly global estimates of net GHG fluxes into and out of the atmosphere at a 100 by 100 km resolution.**

About WMO (Headquartered in Geneva, Switzerland & India is a member)

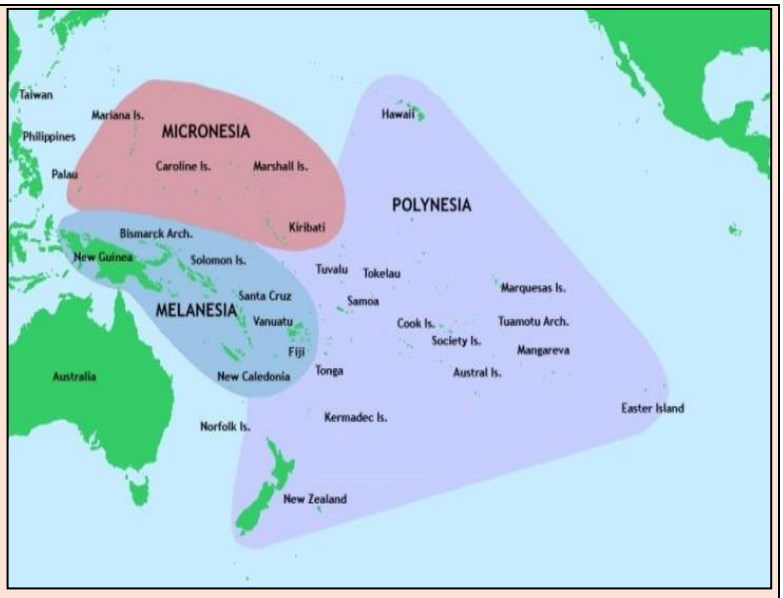
- It is an intergovernmental organization with a membership of 193 Member States and Territories.
- It originated from the International Meteorological Organization (IMO), which was established after the 1873 Vienna International Meteorological Congress.

Third Forum for India Pacific Islands Cooperation (FIPIC) Summit

- Recently, PM Modi paid his maiden visit to **Papua New Guinea** where he co-hosted the **3rd FIPIC** summit.
- Forum for India-Pacific Islands cooperation (FIPIC) is a **multinational grouping** for cooperation between **India and 14 Pacific Islands nations.**

- It include **14 islands named**- Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia, Nauru, Niue, Samoa, Solomon Islands, Palau, Papua New Guinea, Tonga, Tuvalu and Vanuatu.
- All Head of state/head of government of the above countries **met in Suva, Fiji in November 2014** for the **first time** where the annual summit was conceptualised.
- The FIPIC initiative marks a serious effort to **expand India's engagement in the Pacific region.**

About Pacific Island Nations



- Islands of the Pacific Ocean are commonly named as Pacific Island Nations.
- As shown in the map, Pacific Island Nations consist of **three major groups of islands named as Polynesia, Micronesia and Melanesia**.
  - North of the Equator and east of the Philippines are the islands of **Micronesia**.
  - The great arc of islands located north and east of Australia and south of the Equator is called **Melanesia**.
  - In the eastern Pacific, largely enclosed within a huge triangle formed by the Hawaiian Islands to the north, New Zealand to the southwest, and Easter Island (Rapa Nui) far to the east, are the islands **of Polynesia**.

Quad Summit 2023

PM of Australia, PM of India, PM of Japan, and President of the United State met for the **third in-person Quad Leaders' Summit**.

Key Highlights of Quad Summit 2023

- **Statements Released**
  - The leaders issued a **joint vision statement** titled '**Enduring Partners for Indo-Pacific**'.
  - The **Quad International Standards Cooperation Network** and the **Quad Principles on Critical and Emerging Technology Standards** were released.
- **India to host next Quad summit:** PM Modi announced that the next Quad leaders' meeting would be held in India in 2024.
- The Quad leaders announced they would **now pursue a broader "Quad Health Security Partnership"** rather than the earlier Quad Vaccine Partnership for COVID-19 vaccines.
- **Maritime domain:** They noted progress on the **Indo-Pacific Partnership for Maritime Domain Awareness** (IPMDA) to help curb illicit maritime activities, illegal fishing, and humanitarian disasters.
- **Quad Investors Network (QUIN)**
  - The leaders welcomed the ***launch of the private sector-led Quad Investors Network (QUIN)***.
  - QUIN aims to facilitate investments in strategic technologies, including clean energy, semiconductors, critical minerals, and quantum.

I2U2

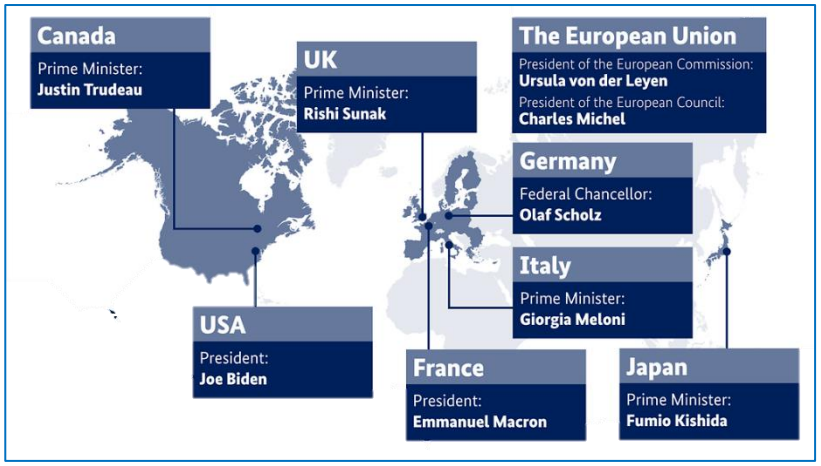
- I2U2 is a diplomatic group of the **India, Israel, the UAE and the United States**.
  - US Secretary of State Antony Blinken has used the I2-U2 moniker for the four-member grouping.

- The grouping was launched in October 2021 when the first virtual meeting of the foreign ministers of India, Israel, the US and the UAE took place.
- The new grouping is described as an international forum for economic cooperation.
- This grouping is already being termed as a **New Quad' or the 'Middle-Eastern Quad**'.

G7 Hiroshima Summit 2023

The Leaders of the Group of Seven (G7) met in Hiroshima for **49th annual Summit**.

G7 Hiroshima Leaders' Communiqué



- **On Ukraine:** Condemned in the strongest possible terms the war of aggression by Russia against Ukraine.
- **On Disarmament and Non-proliferation:** The summit also released the **G7 Leaders' Hiroshima Vision on Nuclear Disarmament**.
- **On Debt Sustainability**
  - Supported the G20's effort to improve the implementation of the Common Framework for Debt Treatments beyond the **Debt Service Suspension Initiative (DSSI).**
    - DSSI means that bilateral official creditors are, during a limited period, suspending debt service payments from the poorest countries that request the suspension.
  - It welcomed the **development of Climate Resilient Debt Clauses (CRDC)** to enhance the safety net for borrowers facing the impacts of climate change.

Arab League

Arab League foreign ministers voted to readmit Syria into the organisation, after a suspension that lasted over a decade.

Arab League

- The Arab League is an intergovernmental organization (IGO), a voluntary association of independent African and Middle East countries whose peoples are mainly Arabic speaking.
- It was formed in 1945 to promote cooperation and coordination among Arab countries.
- It is headquartered at Cairo, Egypt.
- **Member States:** The Arab League currently has 22 member states including Egypt, Iraq, Jordan, Lebanon, Saudi Arabia, Syria, Yemen, and the Palestinian Authority.
- The League also has several observer countries, including Brazil, Eritrea, **India,** and Venezuela.

6th Indian Ocean Conference

- The 6th edition of the Indian Ocean Conference (IOC) was held by India Foundation in association with the Ministry of Foreign Affairs, Bangladesh and S. Rajaratnam School of International Studies.
- The two-day Indian Ocean Conference — with the theme "**Peace Prosperity and Partnership for a Resilient Future"** — was organised in **Dhaka**.

Business Climate Rankings

The World Bank has unveiled new methodology and improved safeguards, called "**Business Ready**", for assessing the business climate in up to 180 countries. A pilot edition of the new replacement annual series called "**Business Ready**" will be published in the spring of 2024. It will cover an initial group of 54 economies in Asia, Latin America, Europe, the Middle East and Sub-Saharan Africa.

About Ease of Doing Business Rankings

- The ease of doing business index was an index created by the World Bank Group, following the release of World Development Report 2002.
- The 10 parameters on which rankings were based –
  - Starting a Business, Dealing with Construction permits, Electricity availability, Property registration, Credit availability, protecting minority Investors, Paying Taxes, Trading across borders, Contracts enforcement, and Resolving Insolvency.
- It ranks countries on the basis of **Distance to Frontier (DTF) score** that highlights the gap of an economy with respect to the global best practice.
  - For example, a score of 75 means an economy was 25 percentage points away from the frontier constructed from the best performances across all economies and across time.
- The **World Bank** discontinued the practice of issuing 'Doing Business report' following an investigation reported "data irregularities" in its 2018 and 2020 editions.

WHO Launches Global Network to Detect Infectious Disease Threat

- The World Health Organization has launched a **global network** known as **International Pathogen Surveillance Network (IPSN)**.
- IPSN is a global network of pathogen genomic actors which is **hosted by the WHO Hub for Pandemic and Epidemic Intelligence**.
- Its aim is **to accelerate progress on the deployment of pathogen genomics and improve public health decision-making**.
- It will support ongoing disease surveillance and will help detect and fully characterize new disease threats before they become epidemics or pandemics.
- **Areas of Work**
  - Set of communities of practice that enable exchange between partners, working on pathogen genomics.
  - A Country **Scale-Up Accelerator (CSUA**) to accelerate and amplify the efforts of IPSN members to rapidly increase country capacity for pathogen genomic surveillance;
  - Funding to improve equity and to power IPSN projects

76th World Health Assembly

- Prime Minister Narendra Modi virtually addressed the **76th World Health Assembly in Geneva**.
- The World Health Assembly is the **decision-making body** of World Health Organization (WHO).
- It is attended by delegations from all WHO Member States and focuses on a specific health agenda prepared by the Executive Board.
- The Health Assembly is held annually in **Geneva, Switzerland**.

CAG Chief re-elected as External Auditor of WHO for 2024-27

- Girish Chandra Murmu, the Comptroller and Auditor General of India (CAG), has been re-elected as the External Auditor of the World Health Organization (WHO) for a four-year term from 2024 to 2027.
- The CAG is already holding this position in the WHO since 2019 for a four-year term from 2019 to 2023.
- The re-election was held at the 76th World Health Assembly in Geneva.
- Besides the WHO, the CAG of India is currently the External Auditor of:

- International Labor Organization (2024-2027)
- the Food and Agriculture Organization (2020-2025),
- International Atomic Energy Agency (2022-2027),
- Organization for Prohibition of Chemical Weapons (2021-2023);
- The CAG is a **Member of the United Nations Panel of External Auditors**.

Global Agency Affiliated to UN Rights Body Defers NHRC Accreditation

- For the second time in a row, the **Global Alliance for National Human Rights Institutions (GANHRI)** has deferred re-accreditation of the National Human Rights Commission (NHRC) of India for a year.
- Without the accreditation, **NHRC will be not be able to represent India at the UN Human Rights Council**.
- GANHRI is an organisation affiliated to the **UN High Commissioner for Human Rights**. It brings together and supports *national human rights institutions* to promote and protect human rights.

Accreditation By The GANHRI

- In a unique peer-review-based accreditation process, GANHRI ensures individual NHRIs' compliance with internationally recognised standards – the **Paris Principles** – to ensure their independence, pluralism and accountability.
  - The **Paris Principles set out internationally agreed minimum standards that NHRIs must meet to be considered credible**.
  - The six principles require a country's human rights agency to be independent from the government in its structure, composition, decision-making and method of operation.
  - The principles were adopted by the UN General Assembly in **1993**.
- NHRIs that are assessed as complying with the Paris Principles are accredited with '**A status**', while those that partially comply are accredited with '**B status**'.
- India's NHRC got 'A' status of accreditation for the first time in 1999, which it retained in 2006, 2011, and in 2017 after it was deferred for a year.

UNESCO

The United States has announced its plans to rejoin the UNESCO, after a decade-long dispute sparked by the inclusion of Palestine as a member.

About United Nations Educational, Scientific and Cultural Organization

- **UNESCO is** a member of the **United Nations Sustainable Development Group (UNSDG).**
- It has **193 Members and 11 Associate Members** (As of April 2023) and is governed by the General Conference and the Executive Board.
- It **was founded on 16 November 1945.**

Structure:

- **General Conference**: Supreme governing body, meets every two years and sets program priorities, elects Executive Board.
- **Executive Board**: Implements General Conference decisions, oversees programs, meets four times a year.
- **Secretariat**: Headed by Director-General, provides administrative and technical support, implements programs.
- **Field Offices**: Serve as regional hubs, support program implementation in specific countries.
- **National Commissions**: Links between UNESCO and member states, promote UNESCO's goals at the national level.

Members: 195 member states as of 2023.

Headquarter- Paris

Mandate:

- Promote peace and sustainable development through education, science, culture, and communication.

- Ensure quality education for all- The **Incheon Declaration** serves as the blueprint for realizing the global education goals set forth in the Education 2030 agenda.
- Advance scientific research and knowledge sharing via initiatives **like International geoscience and global geopark programme**
- Protect cultural heritage and promote cultural diversity.
- Build bridges between cultures and promote dialogue- Creative cities network launched by UNESCO in 2004.

Key Reports By UNESCO

- Global Education Monitoring Report
- The United Nations World Water Development Report
- World Trends in Freedom of Expression and Media Development
- Global Ocean Science Report

Funding:

- UNESCO's work is funded through voluntary contributions from member states and other sources.
- It partners with governments, NGOs, and private sector organizations to implement its programs.

Shanghai Cooperation Organisation

Under **India's first-ever Chairmanship**, the 23rd Summit of the SCO Council of Heads of State was held in the virtual format. India has taken over the chairmanship of the SCO from Uzbekistan after the SCO Summit in Samarkand in September 2022.

Key Highlights of The Summit

- **Summit statement:** The New Delhi Declaration was issued at the end of the leaders' summit which mainly talked about a "**multi-polar" and "democratic order**".
  - The **theme** of India's chair-ship of SCO- **SECURE** is derived from the acronym coined by PM Modi at 2018 SCO Qingdao Summit. It stands for S: Security, E: Economic development, C: Connectivity, U: Unity, R: Respect for sovereignty and territorial integrity, E: Environmental protection.
  - India also did not sign off on the **SCO Economic Development Strategy for 2030 and paragraph supporting Chinese BRI (Belt and Road initiative)**, which had Beijing's imprint.
    - India was the only member which did not sign the strategy document. It sensed a strong Chinese influence within the economic blueprint and hence, chose not to endorse it.
  - **On terrorism**, the New Delhi Declaration used language similar to that of the Samarkand Declaration.
- **Entry of Iran:** During the summit, Iran formally became a member of the SCO.

Shanghai Cooperation Organisation

- SCO is a **permanent intergovernmental international organisation**, created in June 2001 in Shanghai (China).
- Founding members included Kazakhstan, China, Kyrgyzstan, Russia, Tajikistan.
- In 2001, the Shanghai Five inducted Uzbekistan into the group and named it the SCO outlining its principles in a charter that **promoted what was called the Shanghai spirit of cooperation**.
- SCO represents **approximately 42% of the world's population, 22% of its land area and 20% of its GDP**.
- **Official working languages**: Chinese, Russian
- **SCO Secretariat**: Beijing, China

Members, Observers and dialogue partners

- **8 member states–** China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, Uzbekistan, India, Pakistan.
  - **Iran to be the newest member (9th) of the SCO in 2023** under the chairmanship of India.
- **4 Observer members –** Afghanistan, Belarus, **Iran**, Mongolia

- **9 Dialogue Partners –** Azerbaijan, Armenia, Egypt, Cambodia, Qatar, Nepal, Saudi Arabia, Turkey, and Sri Lanka.

India's Association With SCO

- India joined the SCO in 2005 as an observer country and became a **full member of the group at the Astana Summit in 2017**.
- During its presidency, India created **five new pillars and focus areas of cooperation in SCO** -- Startups and Innovation, Traditional Medicine, Digital Inclusion, Youth Empowerment and Shared Buddhist Heritage.
- Two new mechanisms in SCO -- Special Working Group on Startups & Innovation and Experts Working Group on Traditional Medicine -- were also created at India's initiative.
- **Kashi/ Varanasi** was celebrated as the **1st SCO Tourist and Cultural Capital of SCO 2022-23**.

African Union (AU)

- African Union has formally become **part of G20 under presidency of India**.
- The AU is an intergovernmental organization consisting of the 55 member states that make up the countries of the African Continent.
- Basically, it is a continental union with a wide range of goals aimed at strengthening its member states both individually and collectively.
- It was officially launched in 2002 as a successor to the Organisation of African Unity (OAU, 1963-1999).
- The **AU's headquarters are in Addis Ababa, Ethiopia**.

NATO Summit 2023

The 2023 NATO summit took place in **July 2023, in Vilnius**, the capital of **Lithuania.**

Key Outcomes of NATO Summit 2023

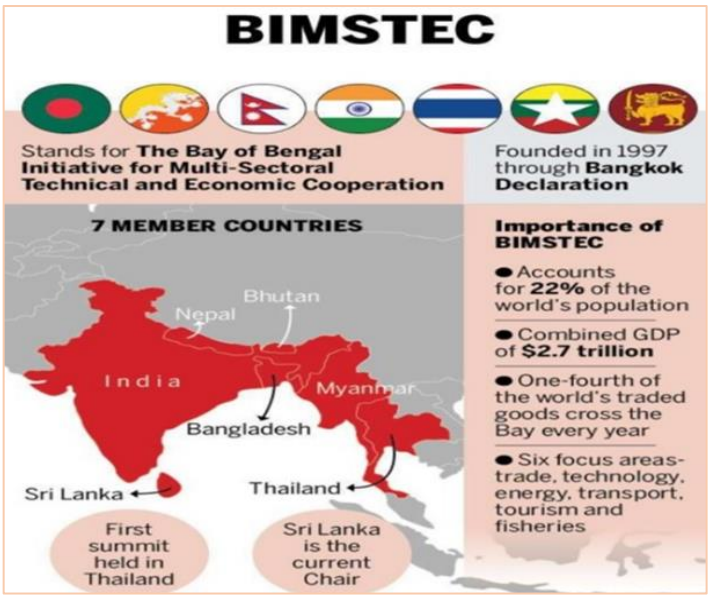
- NATO leaders launched a new forum for deepening ties with Ukraine, known as the **NATO-Ukraine Council.**
- This council is intended to serve as a **permanent body** where the alliance's 31 members and Ukraine can hold consultations and call for meetings in emergency situations.
- Recently, Turkey withdrew its objections to Sweden joining the alliance. This paves ways for Sweden to join the alliance as the **new entries must be approved by all existing members**.

- In March 2023, Tukey withdrew its objection to Finland and later, in April 2023, **Finland became the 31st member of grouping.**

Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation

- The **first-ever Foreign Ministers' meeting** of the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) was held in Bangkok, Thailand.
- **Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)** is an economic bloc that came into being in **June 1997** through the **Bangkok Declaration.**
- BIMSTEC was initially formed with four member states- **Bangladesh, India, Sri Lanka and Thailand** in June, 1997.

- Myanmar joined in December 1997 during a special Ministerial Meeting in Bangkok
- Nepal became an observer state in 1998 and became full-time member of the bloc along with Bhutan in February 2004.
- **Secretariat**: Dhaka, Bangladesh



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

- U.K. government signed the accession protocol for the CPTPP in New Zealand. It makes the UK the first new member and first European nation to join the bloc since it was created in 2018.
- **CPTPP** is a landmark pact agreed upon in 2018 that cuts trade barriers among 11 countries.
    - Basically, it is a Free Trade Agreement (FTA) between these 11 countries.
- These countries are - **Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam.**
- It was initially known as the Trans-Pacific Partnership (TPP) but was renamed after the United States withdrew from the agreement in January 2017.

European Parliament (EP)

- European Parliament is the **directly elected legislative body** of the European Union (EU).
- It is one of the EU's main institutions and **represents the citizens of the EU member states**.
- The Parliament, along with the Council of the European Union, is responsible for making laws, adopting budgets, and overseeing the EU's policies and programs.
- The Parliament is **headquartered** in Strasbourg, France, but its **work is conducted in three locations: Strasbourg, Brussels (Belgium), and Luxembourg.**
- **Composition**
    - The European Parliament consists of Members of the European Parliament (MEPs) who are elected by EU citizens every five years.
    - The number of MEPs for each country is roughly proportionate to its population, but this is by degressive proportionality:
        - No country can have fewer than 6 or more than 96 MEPs
        - Total number cannot exceed 705 (704 plus the President).

International Seabed Authority (ISA)

- ISA is an autonomous international organization established under the 1982 United Nations Convention on the Law of the Sea (UNCLOS).
- ISA **came into existence upon** the entry into force of the **1982 United Nations Convention on the Law of the Sea (UNCLOS)**, which codified international law regarding territorial waters, sea lanes, and ocean resources.
    - It became fully operational as an autonomous international organization in June 1996.
- **Headquarter** - Kingston, Jamaica.
- **Functions**
    - The ISA is responsible for granting licenses and regulating activities related to the exploration and exploitation of mineral resources in the international seabed.

- Its ensures that these activities are carried out in a manner that protects the marine environment and promotes the equitable and efficient utilization of resources.

Deep Sea Mining

- Deep sea mining involves removing mineral deposits and metals from the ocean's seabed.
- There are three types of such mining:
  - taking deposit-rich **polymetallic nodules** off the ocean floor,
  - mining massive seafloor **sulphide deposits** and
  - stripping cobalt crusts from rock.
- These nodules, deposits and crusts contain materials, such as **nickel, rare earths, cobalt and more.**

Regulation of Deep-Sea mining: Current Status

- The high seas and the international ocean floor are governed by the **United Nations Convention on the Law of the Seas**.
- Water beyond 200 nautical miles from the coast of a country is known as high sea.
- It is considered to apply to states regardless of whether or not they have signed or ratified it.
- Under the treaty, the seabed and its mineral resources are considered the common heritage of mankind.

Mekong-Ganga Cooperation (MGC)

- External Affairs Minister **S. Jaishankar** co-chaired the 12th Mekong-Ganga Cooperation (MGC) meeting in Bangkok along with his Laos counterpart.
- **Mekong-Ganga Cooperation (MGC)** was launched in 2000 at **Vientiane, Lao PDR.**
- Both the Ganga and the Mekong are civilizational rivers, and the MGC initiative aims to facilitate closer contacts among the people inhabiting these two major river basins.
- The MGC meetings are co-chaired alternatively every year between India and one of the 5 Mekong countries.
- **Members: India and five ASEAN countries — Cambodia, Lao PDR, Myanmar, Thailand, and Vietnam.**

15th BRICS Summit 2023

The 15th BRICS summit was held at the Sandton Convention Centre in Johannesburg, **South Africa**. A major outcome of the BRICS Summit was the decision of the BRICS leaders to expand its membership to include six new members.

Key Highlights of 15th BRICS Summit

- **Outcome Document:** At the end of summit, member countries adopted **Johannesburg II Declaration**.
- **Expansion of BRICS:**
  - The 15th BRICS Summit invited **six countries to join the alliance**. These countries are - **Iran, the United Arab Emirates, Saudi Arabia, Argentina, Egypt, and Ethiopia.**
  - Their membership will begin in January 2024.
  - This is significant as this move can strengthen BRICS' claim of **being a 'voice of the Global South'.**

BRICS

- BRICS brings together 5 major emerging economies - Brazil, Russia, India, China and South Africa.
- Before expansion, BRICS as a platform represented **42% of the world population, 30% of the world's territory, 23% of global GDP, and around 18% of world trade**.

Timeline of BRICS

- **2001 -** British economist Jim O'Neill of Goldman Sachs coined the term 'BRIC'.

- He coined the term to highlight the potential of these four economies from an investors' interest perspective.
- **2006** - An informal meeting of the grouping was held in 2006 among Russia, India, and China on the sidelines of the G8 Outreach Summit in Russia.
- **2009 –** First BRIC's summit was held in Russia.
- **2010 –** South Africa became the member and BRIC became BRICS.
- **2015 –** New Development Bank, also known as BRICS Bank, was launched.

First WHO Traditional Medicine Global Summit

A year after the WHO Global Centre for Traditional Medicine was set up in India, the country is hosting the **first global summit** with an aim to help identify areas of collaboration in traditional medicine. The main outcome of this global summit came in the form of **Gandhinagar Declaration.**

Key Highlights of The Summit

- The summit decided to create a **dedicated platform for 'traditional medicine' under the G20 framework**. This platform will aim to foster international collaboration, share best practices, and seamlessly integrate traditional medicine into the heart of mainstream healthcare system.
- **Increased Role of WHO Centre:** The WHO centre will study not only traditional medicine from India but also collaborate with research institutes abroad to study and generate evidence about their traditional medical practices.

About Traditional Medicines

- Traditional medicine, as defined by the WHO, is the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures.
- Some traditional medicine systems are supported by huge volumes of literature and records of the theoretical concepts and practical skills.
- The most widely used traditional medicine systems today include those of China, India, and Africa.

India & Traditional Medicine

- Ayurveda, Unani, Siddha and Folk (tribal) medicines are the major systems of indigenous medicines.

Steps Taken by India to Promote AYUSH

- **National AYUSH Mission:** Department of AYUSH, Ministry of Health and Family Welfare had launched National AYUSH Mission (NAM) during 12th Plan. The basic objective of NAM is to promote
  - AYUSH medical systems through cost effective AYUSH services, strengthening of educational systems,
  - facilitate the enforcement of quality control of Ayurveda, Siddha and Unani & Homoeopathy (ASU &H) drugs

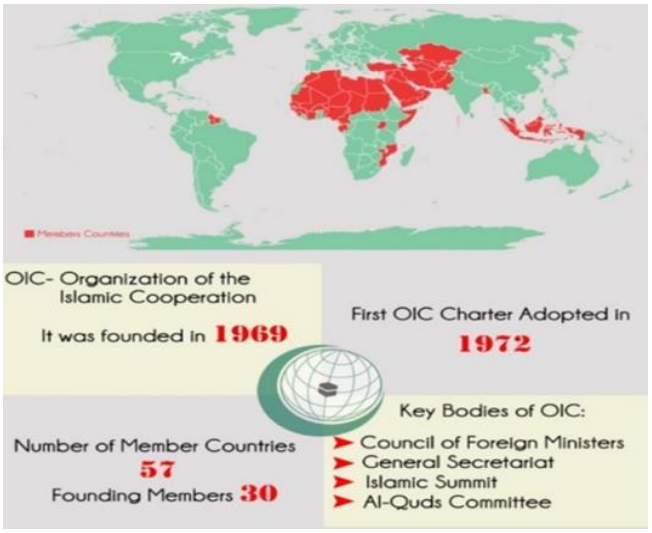
Jeddah Peace Summit on Russia-Ukraine War

- Saudi Arabia hosted Ukraine, the U.S., some European countries and major developing countries **including India and Brazil** for peace talks on the Russia-Ukraine war.

- **India's Stand at the Meeting:** Emphasised that a solution acceptable to all relevant stakeholders is needed to end the war.
- **Ukrainian President Zelenskyy** had proposed **10-point peace plan** during last year's G-20 summit.
- China also came up with a **12-point-plan** for the political settlement of the Ukraine crisis.
- In June 2023, **leaders of 7 African countries**, led by South African President Cyril Ramaphosa, visited Russia and Ukraine.

Organisation of Islamic Cooperation (OIC)

- OIC (formerly known as Organization of the Islamic Conference) is the second largest inter-governmental organization after the United Nations.
- It has **membership of 57 states** spread over four continents., **India is not a member**
- It has a **permanent secretariat in Jeddah, Saudi Arabia**.

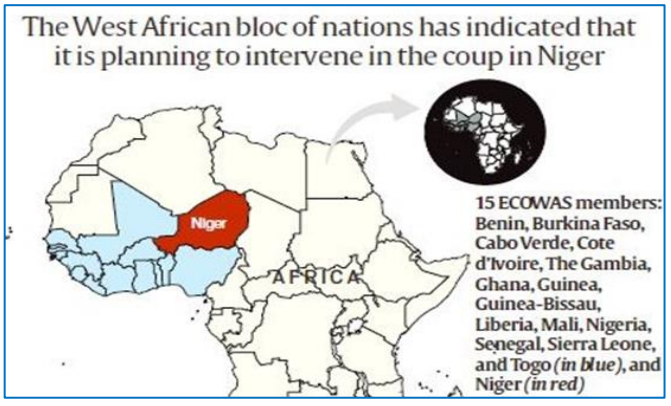


Origin of OIC

- The Organization was established upon a decision of the historical summit which took place in Rabat, Kingdom of Morocco in September 1969.
- This summit was a result of criminal arson of Al-Aqsa Mosque in occupied Jerusalem.

Economic Community of West African States (ECOWAS)

In a recent coup, soldiers in the West African nation of Niger installed Gen. Abdourahmane Tchiani as head of state. Regional bloc Economic Community of West African States (ECOWAS) has been playing an active role.



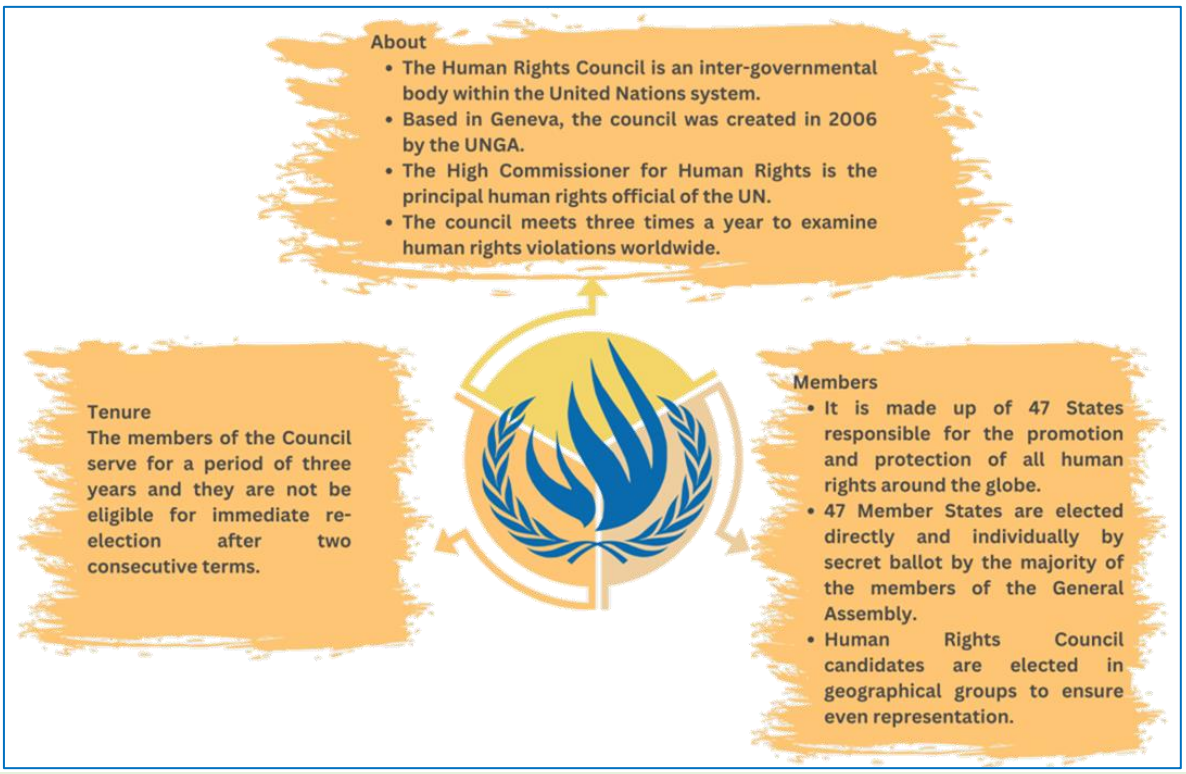
What is ECOWAS?

- Also known as CEDEAO (in French), ECOWAS (**HQ - Abuja, Nigeria**) is the **regional group** established in **1975** through the **Lagos Treaty** - with a mandate of promoting **economic integration** among its members.
- **The vision of ECOWAS** is the creation of a "**borderless region**" that is well-integrated and governed in accordance with the principles of **democracy, rule of law and good governance.**
- **The new vision** of ECOWAS is to move from an ECOWAS of States to an "**ECOWAS of the People: Peace and Prosperity to All**" by 2050.
- Following coups in recent years in some of the biggest countries in the bloc - namely **Mali, Guinea and Burkina Faso** - it suspended the three members and refused to recognise their new governments.

United Nations Human Rights Council

- The UN Human Rights Council voted to condemn recent Quran burning incidents, but many countries declined to back the resolution, fearing it encroached on free speech.
- The resolution was introduced by Pakistan on behalf of the 57-nation Organisation of Islamic Cooperation (OIC).

United Nations Human Rights Council (UNHRC)



G-20 Nations Arrive at Consensus on Issues of Cultural Heritage

After the meeting of G-20 Culture Ministers in Varanasi, the Outcome Document titled **'Kashi Culture Pathway'** was unanimously agreed to by all G-20 members.

Highlights of the Outcome Document 'Kashi Culture Pathway'

It highlights the need to address -

- The destruction of cultural heritage in situations of conflict,
- The curbing of illicit trafficking of artifacts,
- The restitution of cultural property and
- The need to protect living heritage, especially of indigenous people.

Culture Under India's G20 Presidency

- India firmly believes in the philosophy of **Vasudhaiva Kutumbakam** - the earth is one family, and all individuals are collectively responsible towards each other and their shared future.
- The G20 Culture Working Group stands among the **13 thematic Working Groups** set up by the Indian Presidency to frame the G20 process in 2023.
- **Four culture-related priorities set forth by the Indian Presidency are -**

1. Protection and Restitution of Cultural Property
2. Harnessing Living Heritage for a Sustainable Future
3. Promotion of *Cultural and Creative Industries and the Creative Economy*
4. Leveraging Digital Technologies for the Protection and the Promotion of Culture

- The working group met 4 times across the working process in **Khajuraho, Bhubaneshwar, Hampi and Varanasi**, leading up to a G20 culture ministerial meeting.

India- Saudi Arabia Strategic Partnership Council (SPC) Meeting

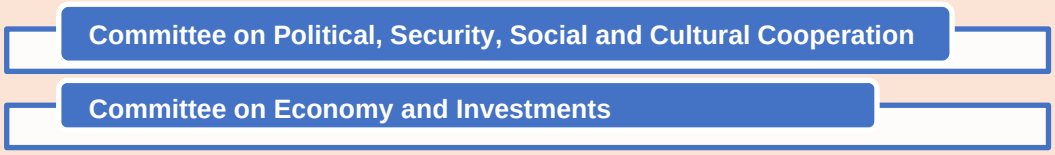
Saudi Arabia's Crown Prince Mohammed Bin Salman Al Saud and PM Modi co-chaired the **first summit-level meeting** of the India-Saudi Arabia SPC.

India-Saudi Arabia "Strategic Partnership Council (SPC)

- The pact to establish the SPC was **signed** during PM Modi's visit to Saudi Arabia **in October 2019.**
- The Council essentially aimed to establish a high-level council to steer the Indo-Saudi relationship.

Pillars

- The SPC has two main pillars:



- Both sub-committees have four functional levels of engagements:

G20: New Delhi Declaration

- After the meeting of G-20 leader's summit, the outcome document was unanimously agreed to by all G-20 members.
- One of the important elements is on how **future pandemics can impact** the economy, which also brings out the gaps in the existing pandemic response mechanism, including institutional and funding arrangements.
- **On education**, it talks about enhancing teachers' capacity, improved curricula, content in local language, and access to digital resources.
- **Green Development Pact for a Sustainable Future:** One important element is the mention of the need to build reliable, diverse, responsible, and sustainable value chains of critical minerals, semiconductors, and related technologies.
- **Reforming Multilateral Institutions for the 21st Century**
  - Reform of the UN Security Council was agreed to for the **first time** in the G20; and
  - They also called for **managing debt vulnerabilities** of low and middle-income countries and the start of exchange of tax-relevant information on crypto assets by 2027.
- **Technological Transformation & Digital Public Infrastructure**
  - The G20 leaders agreed on a **G20 framework for digital public infrastructure** and **Global Digital Public Infrastructure Repository (GDPIR)**.
  - It also talks about a **comprehensive toolkit** which is aimed at improving cyber education and cyber awareness for the protection and empowerment of children and youth.
  - Gathered consensus around creating a global **regulatory framework for crypto-assets**.
- **Gender Equality and Empowering all Women and Girls**
  - Under India's G20 Presidency, a decision to create a **full-fledged working group on women's empowerment** has been made. The group will prioritise gender equality, women's empowerment, leadership, and bring convergence across sectors at all levels.
- **Creating a More Inclusive World:** India's G20 Presidency has paved the way for the **African Union's permanent membership in the G20**.

G20 Nations

- G-20, was a group of finance ministers and central bank governors from 19 individual countries and European Union. It was established in 1999.
- G20 was elevated to a forum of Heads of State/Government in 2008 to effectively respond to the global financial crisis of 2008.

- G-20 is a forum, not a legislative body, its agreements and decisions have no legal impact, but they do influence countries' policies and global cooperation.
- G20 members represent around 85% of global GDP, over 75% of global trade, and two-thirds of the world's population.

Structuring of G20

- The G20 works in three major tracks **— two of them are official and one is unofficial.**
- The official tracks are the **Finance Track and the Sherpa Track**. The unofficial track includes engagement groups or civil society groups.
- **Finance Track**
  - The Finance Track is headed by the finance ministers and central bank governors, who usually meet four times a year.
    - Two meetings are usually held on the sidelines of the World Bank and IMF meetings.
- **Sherpa Track:** It consists of representatives of heads of state (Sherpa)
- **Engagement Groups**
  - The unofficial track comprises engagement or civil groups. These groups often draft recommendations to the G20 Leaders that contribute to the policy-making process.
  - The engagement groups are as follows: Business20, Civil20, Labour20, Parliament20, Science20, SAI20, Startup20, Think20, Urban20, Women20, and Youth20.

International Lawyer's Conference

For the first time the International Lawyer's Conference was organized in **India (New Delhi)** for the year 2023 and was attended by distinguished judges, legal professionals, and leaders of the global legal fraternity.

International Lawyer's Conference

About	It is a platform to provide introspective discourse and constructive dialogue on multiple issues concerning the Bar, the Bench, and the legal profession.
Convener	The Bar Council of India in collaboration with the Law Society of England and Wales, the Bar Council of England and Wales and the Commonwealth Lawyers Association.
Theme for 2023	'Emerging Challenges in Justice Delivery System' It focused on subjects like emerging legal trends, challenges in cross-border litigation, legal technology, environmental law etc.
Objective	To serve as a platform for meaningful dialogue & exchange of ideas on various legal topics of national and international importance and strengthen international cooperation on legal issues.

20th ASEAN-India Summit

PM attended the 20th ASEAN-India Summit that was **hosted by Indonesia** (at Jakarta) as current Chair of ASEAN. This current ASEAN-India Summit was the first Summit since the elevation of India-ASEAN relations to a **Comprehensive Strategic Partnership** in 2022.

Key Outcome of the 20th ASEAN-India Summit

- **PM Modi announced a decision to establish an Indian Embassy in Timor Leste**
- Two Joint Statements were adopted regarding: Maritime Cooperation, Food Security and Nutrition

Key Highlights of The Speech Delivered by PM Modi At 20th ASEAN-India Summit

- **Highlighted the importance of ASEAN:** PM reaffirmed ASEAN centrality in the Indo-Pacific.
  - ASEAN is the central pillar of India's Act East Policy.
  - He highlighted the synergies between India's Indo-Pacific Ocean's Initiative (IPOI) and ASEAN's Outlook on the Indo-Pacific (AOIP).
- **Presented a 12-point proposal for strengthening India – ASEAN cooperation**.

43rd ASEAN Summit 2023

- ASEAN Summit 2023 was held at Jakarta, Indonesia.
- The theme of this year's ASEAN Summit is **'ASEAN Matters: Epicentrum of Growth.**'
- The participating leaders decided that Myanmar won't be allowed to lead the ASEAN in 2026.
  - This move is considered as the latest blow to efforts by its ruling generals to gain international recognition after violently seizing power in 2021.
- The Philippines agreed to take over the regional bloc's chairmanship in 2026.

Indo-Pacific Armies Chiefs' Conference (IPACC)

- The 13th IPACC was held at the Manekshaw Centre in New Delhi.
- This biennial event was co-hosted by **Indian Army and the US Army Pacific**. It served as a unifying platform for army chiefs from 30 Indo-Pacific nations.
- Theme: "**Together for Peace: Sustaining Peace and Stability in the Indo-Pacific Region**".

Climate Ambition Summit (CAS)

- The **United Nations Climate Ambition Summit (CAS)** was held in **UN Headquarters, New York**. (The summit was announced in December 2022 by UN Secretary-General)
- The United Nations CAS is designed to showcase **"first mover and doer**" leaders from government, business, finance, local authorities, and civil society who have presented concrete action rather than mere promises, to expedite the global economy's decarbonization efforts and ensure climate justice.
- It was held to accelerate climate action in the run up to the 28th Conference of Parties (COP28) to the United Nations Framework Convention on Climate Change.
- **China, the US and India**, who collectively account for about 42% of global greenhouse gas emissions and are the top three emitters in that order were **all absent from the CAS**.
- **Participants**: A total of **34 states and 7 institutions** had speaking slots. This included:
  - **Countries**: Major players like the European Union, Germany, France, Canada, India, and its neighbouring countries like Sri Lanka, Nepal, and Pakistan, along with emerging economies like South Africa and Brazil.
  - **Institutions**: UN agencies and other organizations involved in climate change action.
- **Criteria for participation:**
  - **Ambitious Emissions Reduction:**

- **Updated pre-2030 NDCs:** Setting goals for reducing emissions before 2030, more than initial pledges.
- **Net-zero targets:** Presenting plans and timelines for achieving net-zero emissions by 2050 or sooner.
- **Energy transition plans:** Outlining strategies for shifting away from fossil fuels and towards renewable energy sources.
- **Fossil Fuel Phase-Out:**
- **No new coal, oil, and gas projects:** Committing to not approve or finance new fossil fuel infrastructure.
- **Fossil fuel phase-out plans:** Detailing strategies for progressively reducing usage of existing coal, oil, and gas power plants.
- **Ambitious renewable energy targets:** Setting ambitious goals for increasing renewable energy generation capacity and consumption.
- **Climate Finance and Adaptation:**
- **Green Climate Fund pledge:** Committing to contributing financially to the Green Climate Fund, which supports developing countries in their climate action efforts.

18th East Asia Summit (EAS)

- Prime Minister Modi attended the 18th East Asia Summit (EAS) in Jakarta.
- East Asia Summit (EAS) It is a forum for leaders of countries in the Indo-Pacific region to discuss political, security, and economic challenges.
- The EAS was established in 2005 by the ASEAN and is held annually.
- The **EAS** was launched in Kuala Lumpur, **Malaysia in 2005.**
- **Members**
  - The EAS was originally attended by 16 countries from East Asia, Southeast Asia, South Asia, and Oceania.
  - In 2011, membership expanded to 18 countries, including Russia and the United States.
    - **Ten member states of the ASEAN**
    - Along with **Australia, China, Japan, India, New Zealand, the Republic of Korea, Russia and United States.**
  - EAS is the **only leaders-led forum that brings together US, China, Russia, India, RoK, and Australia.**

To become a member of the EAS, countries must:

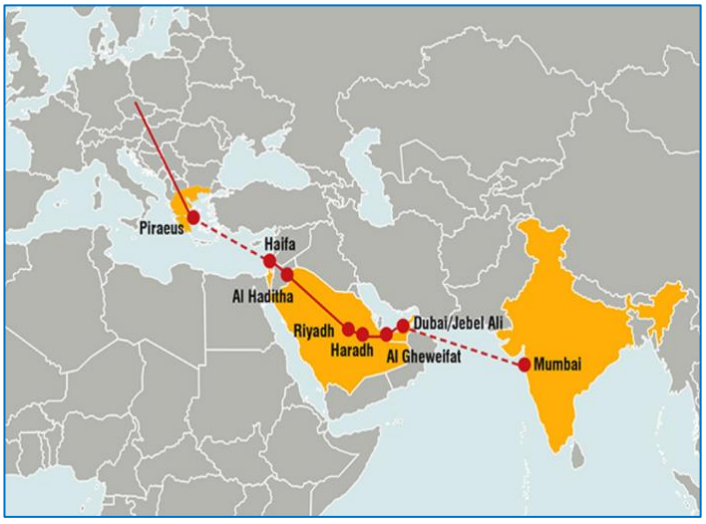
- Sign the ASEAN *Treaty of Amity and Cooperation (TAC)*
- Be a formal dialogue partner of ASEAN
- Have substantive cooperative relations with ASEAN

Six priority areas of regional cooperation within the framework of the EAS

- Environment and Energy,
- Education,
- Finance,
- Global Health Issues and Pandemic Diseases,
- Natural Disaster Management, and
- ASEAN Connectivity

India-Middle East- Europe Economic Corridor (IMEC)

Recently, the PM of India announced the launch of the India-Middle East-Europe mega economic corridor.



About India-Middle East-Europe Economic Corridor

- The project includes **India, the UAE, Saudi Arabia, the European Union, France, Italy, Germany and the US**.
- The IMEC comprises an Eastern Corridor connecting India to the Gulf region and a Northern Corridor connecting the Gulf region to Europe.

- It will include **a railway and ship-rail transit network** and road transport routes.
- In the coming times, it will be a major medium of economic integration between India, West Asia and Europe.
- The rail and shipping corridor is part of the **Partnership for Global Infrastructure Investment (PGII)**

Key Facts About The Partnership For Global Infrastructure Investment

- It is a collaborative effort by **G7 nations** to fund infrastructure projects in developing nations.
- It is a developmental initiative aimed at narrowing the infrastructure gap in developing countries as well as help towards accelerating progress on SDGs globally.
- The infrastructure plan was first announced in June 2021 during the G7 Summit in the UK.
- Collectively it aims to mobilise nearly $**600 billion** from the **G7 by 2027** to invest in critical infrastructure that improves lives and delivers real gains for all of our people."

Global Maritime India Summit 2023 & Blue Economy

The Prime Minister inaugurated the third edition of Global Maritime India Summit 2023 in Mumbai. The first summit was held in 2016 in Mumbai while the Second Maritime Summit was held virtually in 2021.

About the Global Maritime India Summit

- It is the biggest Maritime Event in the country and witnessed the participation of Ministers from across the globe representing countries from Europe, Africa, South America, and Asia (including central Asia, Middle East and BIMSTEC region).
- During the programme, the Prime Minister unveiled **'Amrit Kaal Vision 2047'**, the long-term blueprint for the Indian maritime blue economy.
- The blueprint outlines strategic initiatives aimed at enhancing port facilities, promoting sustainable practices, and facilitating international collaboration.
- He laid the foundation stone of **Tuna Tekra** all-weather deep draft terminal, to be built at a cost of more than Rs 4,500 crores at Deendayal Port Authority in Gujarat.
- The terminal, which is likely to emerge as an international trade hub, will handle next-gen vessels exceeding 18,000 twenty-foot equivalent units (TEUs) and will act as a gateway for Indian trade via **India-Middle East-Europe Economic Corridor (IMEEC).**

Blue Economy

- The World Bank defines the blue economy as the **sustainable use of ocean resources** to benefit economies, livelihoods and ocean ecosystem health.
- Activities under blue economy include **maritime shipping, fishing and aquaculture, coastal tourism, renewable energy, water desalination, undersea cabling, seabed extractive industries and deep-sea mining, marine genetic resources, and biotechnology**.
- The blue economy is estimated to be worth more than **US$1.5 trillion per year globally** and the OECD expects it to double in size by 2030.

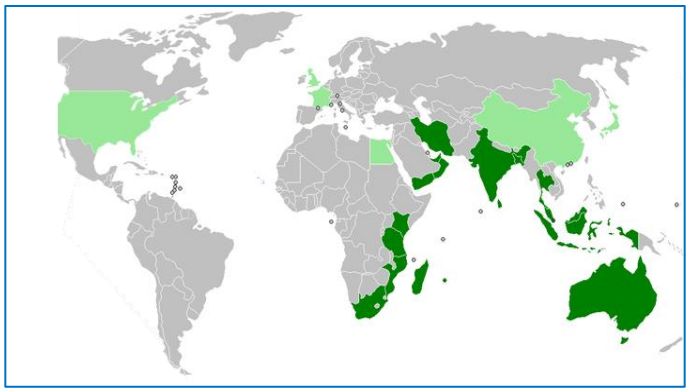
L.69 GROUPING

- The L.69 Group includes 32 developing countries from diverse regions like Africa, Latin America, the Caribbean, Asia, and the Pacific.
- Their aim is to **push for reforms within the UN Security Council**. They advocate for an expanded membership in both permanent and non-permanent categories to better represent the current global landscape.
- The group, named after the **document "L.69"** which was introduced in 2007-08 and members **include countries like St. Lucia, Brazil, Nigeria, India**, and others.

23rd Council of Ministers' Meeting of The Indian Ocean Rim Association

External Affairs Minister Dr. S. Jaishankar attended the 23rd Council of Ministers' meeting of the Indian Ocean Rim Association, hosted by Sri Lanka, focusing on strengthening regional architecture and reinforcing Indian Ocean identity.

Key Highlights



- **Sri Lanka took over as Chair and India as Vice Chair of the IORA** for the term 2023-25.
    - India assumed the Vice-Chair role of IORA for 2023-25, leading to Chair ship in 2025-27.
- **New Dialogue Partner: Saudi Arabia** became the 11th Dialogue Partner of the Association.

About IORA

- IORA is an inter-governmental organisation which was established in March 1997. It was formerly known as the **Indian Ocean Rim Initiative (IORI)** and the **Indian Ocean Rim Association for Regional Cooperation (IOR-ARC).**
- The IORA Secretariat is based in Mauritius. It became an observer to the UN General Assembly and the African Union in 2015.
- **Members** – It has 23 Member States and 11 Dialogue Partners.
- China as well as US are dialogue partners in the IORA.

International Criminal Court (ICC)

- The New York Times recently reported that the Pentagon — United States Ministry of Defence — is blocking any evidence-sharing with the International Criminal Court (ICC) to punish Russia for the alleged atrocities in Ukraine.
- **International Criminal Court (ICC)** is the **only** permanent international criminal tribunal.
- **Background**: It was created by the 1998 **Rome Statute** of the International Criminal Court (its founding and governing document), and began functioning on 1 July 2002 when the Statute came into force.
- **Mandate**: It investigates and, where warranted, tries individuals charged with the gravest crimes of concern to the international community: genocide, war crimes, crimes against humanity, and the crime of aggression.
- **HQ**: Hague, Netherlands.
- **Members**: 123 nations are States Parties to the Rome Statute and recognize the ICC's authority; the **notable exceptions being the US, China, Russia, and India.**
- **Funding**: The Court is funded by contributions from the States Parties and by voluntary contributions from Governments, international organizations, individuals, corporations, and other entities.

Composition

- **Judges**: The court has **eighteen judges**, each from a different member country, elected to non-renewable nine-year terms.
- **The Presidency**: Consists of three judges (the President and two Vice-Presidents) elected from among the judges. It represents the Court to the outside world and helps with the organization of the work of the judges.
- **Judicial Divisions**: 18 judges in 3 divisions, the Pre-Trial Division, the Trial Division, and the Appeals Division.
- **Office of the Prosecutor (OTP)**: OTP is responsible for receiving referrals and any substantiated information on crimes within the jurisdiction of the Court. OTP examines these referrals and information, conducts investigations, and conducts prosecutions before the Court.
- **Registry**: The core function of the Registry is to provide administrative and operational support to the Chambers and the Office of the Prosecutor.

Jurisdiction of ICC

- Unlike the International Court of Justice, which hears disputes between states, the ICC handles prosecutions of individuals.

- **The ICC is only competent to hear a case if**: the country where the offence was committed is a party to the Rome Statute; or the perpetrator's country of origin is a party to the Rome Statute
- The ICC may only exercise its jurisdiction if the national court is unable or unwilling to do so.
- The ICC only has jurisdiction over offences committed after the Statute's entry into force on 1 July 2002.

Relation with UN

- While not a United Nations organization, the Court has a cooperation agreement with the United Nations.
- When a situation is not within the Court's jurisdiction, the United Nations Security Council can refer the situation to the ICC, granting it jurisdiction.

Comprehensive Nuclear Test Ban Treaty (CTBT)

Russia's parliament passed a law to withdraw ratification of the Comprehensive Nuclear Test Ban Treaty (CTBT).

About Comprehensive Nuclear Test Ban Treaty (CTBT)

- The Treaty **prohibits any nuclear weapon test explosion or any other nuclear explosion anywhere in the world**.
- **Headquartered in Vienna**, it was opened for signature in September 1996 and has been signed by 187 nations and ratified by 178.
- The treaty cannot formally enter into force until it is ratified by 44 specific nations (listed in Annex 2).
    - These states had nuclear facilities at the time the Treaty was adopted.
    - Eight of which have yet to do so: **India**, **China**, **Pakistan**, **North Korea**, **Israel**, **Iran**, **Egypt**, and the **United States**.
    - In order to verify compliance with its provisions, the treaty establishes a global network of monitoring facilities and allows for on-site inspections of suspicious events.

India's Stand on CTBT

- India has not signed the treaty because it feels that the treaty is discriminatory.
- CTBT does **not** link itself to the **total nuclear disarmament** in the time bound manner. CTBT is also silent on the issue of transfer of nuclear warheads.
- CTBTs' verification system does not provide a genuinely impartial international mechanisms but verification system of the countries like USA would decide whether a party to CTBT is adopting restraints or not. India considers it as a subjugation of sovereignty.

Five Eyes Intelligence Alliance (FVEY)

The recent allegations by Canadian Prime Minister Justin Trudeau linking the killing of Hardeep Singh Nijjar on Canadian soil to the Indian government have put the spotlight on the intelligence-sharing alliance 'Five Eyes' (or FVEY)

About Five Eyes' Intelligence Alliance:

- It is a **multilateral intelligence-sharing network** shared by over 20 different agencies of five English-speaking countries — Australia, Canada, New Zealand, the United Kingdom and the United States.
- **Origin:** The partnership dates back to World War II, when the United Kingdom and the United States resolved to share intelligence after successfully breaking German and Japanese codes.
- The pact originated as the Britain-USA (BRUSA) agreement, which later evolved into the UK-USA (UKUSA) agreement, with Canada joining in 1949 and New Zealand and Australia joining in 1956.
- It is both surveillance-based and signals intelligence (SIGINT).
- Intelligence documents shared between the members countries are classified as 'Secret—AUS/CAN/NZ/UK/US Eyes Only,' which gave the group its title 'Five Eyes.'

141st Session of International Olympic Committee (IOC)

PM Modi inaugurated the 141st Session of the International Olympic Committee (IOC) in **Mumbai.** India conducted the IOC session for the first time in 40 years. The country hosted its previous IOC session in New Delhi in **1983.**

International Olympic Committee (IOC)	
Mission	To organize and oversee the Olympic Games and promote Olympism worldwide.
Founded	June 23, 1894
Headquarters	Lausanne, Switzerland
President	Thomas Bach (since 2013)
Members	102 National Olympic Committees (NOCs) and 28 International Sports Federations (IFs)
Governance	IOC Session (highest decision-making body), Executive Board, Commissions, Working Groups
Funding	Primarily from television rights, sponsorships, and merchandising
Activities	• Organizing the Olympic Games (Summer and Winter) • Developing and enforcing the Olympic Charter • Promoting Olympic values • Supporting athletes and NOCs • Fighting doping • Promoting sustainability and youth sports

- There is no fixed timeframe for electing the hosts. The IOC looks at multiple factors before choosing host nations:
  - Candidate city's funding strategy, the ability to deliver the Games, transport infrastructure, accommodation capacity,
  - Alignment of venues with local development plans, socio-economic and geo-political factors, and public support.
- **All IOC Session decisions are final.**

United Nations Convention Against Transnational Organised Crimes (UNTOC)

Recently, the union Minister of State for Home Affairs participated in the two-day UN Convention against Transnational Organised Crime Ministerial Conference **at Palermo in Italy.**

United Nations Convention against Transnational Organised Crime

- It is a multinational treaty against transnational organized crime that was **established by the United Nations in 2000.**
- **It** is a **global and legally binding instrument which was enforced in 2003.**
- It is often known as the **Palermo Convention.**
- The UNTOC has a total of **147 signatories and 190 parties** to the convention.
- The Convention is further supplemented by three Protocols which are **Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children; The Protocol against the Smuggling of Migrants by Land, Sea and Air; and The Protocol against the Illicit Manufacturing of and Trafficking in Firearms, their Parts and Components and Ammunition.**
- India signed the UN Convention against Transnational Organized Crime (UNTOC) and its three Protocols on December 12, 2002 and ratified it in 2011.
- **The Central Bureau of Investigation (CBI)** is the nodal agency for all dealings with UNTOC.

Inter-Parliamentary Forum (IPU)

The Vice President of India recently interacted with the President of the Inter-Parliamentary Union on the sidelines of the G20 Parliamentary Speakers' Summit (P20).

Inter-Parliamentary Union (IPU)

- IPU is the international organization of Parliaments. It was **established in 1889 in Paris** to promote representative democracy and world peace.
- It was the first multilateral political organization in the world, encouraging cooperation and dialogue between all nations.

- **Members:** 179 countries are members of the IPU. 13 regional parliamentary assemblies are associate members. **India is a member**.
- **Slogan**: "For democracy. For everyone"
- Today, the IPU comprises 179 member parliaments and 13 associate members.
- **Headquarter**: Geneva
- **Funding**: The IPU is financed primarily by its members out of public funds.
- **Structure**: **IPU Assembly**: It is the principal statutory body that expresses the views of the IPU on political issues.
- **Governing Council:** It is the plenary policymaking body of the IPU. It is composed of three representatives from each member parliament.
- The President of the IPU is ex-officio President of the Governing Council.
- The Council establishes the annual programme and budget of the IPU.
- **Executive Committees:** In accordance with the IPU statutes, this 17-member body oversees the administration of the IPU and provides advice to the Governing Council. The 15 members of the Executive Committee are elected by the Council for a **four-year term**.
- The President of the IPU is an ex officio member and President of the Committee.
- **Standing Committees**: There are three Standing Committees set up by the IPU Governing Council to assist the Assembly in its work.
- **Meeting of Women Parliamentarians**: It is a separate organ of the IPU, which meets on the occasion of the first round of Statutory Meetings of the IPU and reports on its work to the Governing Council. The meeting can be attended by the parliamentarians of both sexes.
- The agenda of the meeting includes **one but not more than two substantive items** for debate, which may relate to the competence of the Assembly.

United Nation Economic and Social Commission for Asia and the Pacific

- **The Economic and Social Commission for Asia and the Pacific (ESCAP)** is the most inclusive intergovernmental platform in the Asia-Pacific region.
- The Commission promotes cooperation among its 53 member States and 9 associate members in pursuit of **solutions to sustainable development challenges**. ESCAP is one of the five regional commissions of the United Nations.
- ESCAP pursues this objective by carrying out work, in close cooperation with other United Nations entities and intergovernmental organizations in the region, in the following areas: Macroeconomic policy and development, Trade and investment, Transport, Social development, Environment and sustainable development, Information and communications technology and disaster risk reduction, Statistics, Sub-regional activities for development, and Energy
- The commission also provides a forum for its member states to promote regional cooperation and collective action in pursuit of the **2030 Agenda for Sustainable Development.**

Treaty of Conventional Armed Forces in Europe (CFE)

Russia formally withdrew from the Treaty of Conventional Armed Forces in Europe (CFE) recently.

About the Treaty of Conventional Armed Forces in Europe (CFE)

- Concluded in the post-Cold War era, the Conventional Forces in Europe (CFE) Treaty, negotiated during the final years of the Cold War, **aimed to regulate military equipment deployment between NATO and former Warsaw Pact countries**.

- **Twenty-two member states of the two military alliances**, NATO and the Warsaw Pact came together in Paris on November 19, 1990, to sign the agreement.
- It finally **entered into force on November 9, 1992**. The Warsaw Pact by this time had disintegrated, and its treaty obligations were consequently passed to the pact's successor states.
- Moreover, the scope of the treaty was soon widened to cover troop numbers. The 1992 follow-up agreement known as the CFE-1A arranged limits on the level of military personnel.
- Acknowledging the changing geopolitical landscape, the CFE Treaty was adapted at the Istanbul summit of the **Organization for Security and Co-operation in Europe (OSCE**) on November 19, 1999, resulting in the **Adapted CFE Treaty.**
- **Russia suspended its participation in the treaty in 2007 and halted active participation in 2015.**

Warsaw Pact

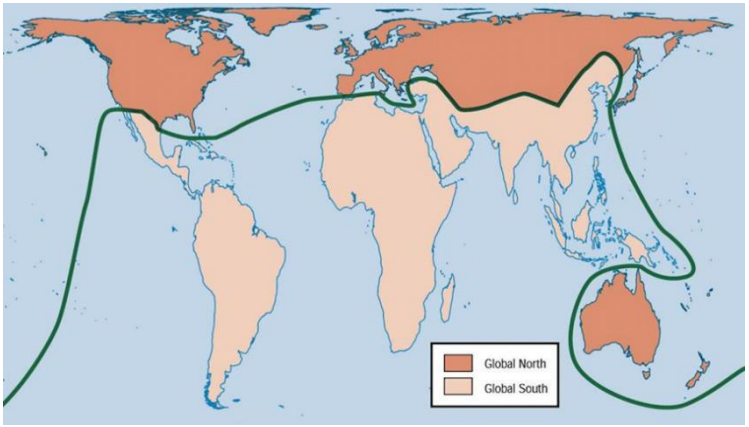
- The Warsaw Treaty Organisation (**Warsaw Pact**) was a **political and military alliance** established on May 14, 1955, between the **Soviet Union and several Eastern European countries**.
- The Soviet Union formed this alliance as a counterbalance to the NATO, a collective security alliance concluded between the United States, Canada and Western European nations in 1949.
- The **original signatories** to the Warsaw Treaty Organization were the **Soviet Union, Albania, Poland, Czechoslovakia, Hungary, Bulgaria, Romania, and the German Democratic Republic**.
- The Warsaw Pact, despite its pledges of collective defense and non-interference, was ultimately controlled by the Soviet Union, despite its supposed collective decision-making structure.
- It was **officially disbanded in March and July of 1991** following the dissolution of the Soviet Union

Second Voice of Global South Summit

The second Voice of Global South summit took place in virtual mode. The theme of the inaugural leaders' session was 'Together, for Everyone's Growth, with Everyone's Trust' and that of the concluding leaders' session was 'Global South: Together for One Future'**.**

What Constitutes The Global South: Not A Geographical Line

- Despite how it sounds, it is not really a geographical term.
- Many countries included in the Global South are in the northern hemisphere, such as India, China and all of those in the northern half of Africa.
- **Brandt Line as the border**
  - Many people refer to the Brandt Line as the border.
  - It starts in the north of Mexico, goes across the top of Africa and the Middle East, makes a loop around India and China, and then goes down to include most of East Asia. **It doesn't include Japan, Australia, or New Zealand.**



Key Highlights Of The Summit

- **Inauguration of DAKSHIN:** PM Modi inaugurated a global center for excellence for the Global South countries called DAKSHIN.
- **Proposal to launch a satellite:** During the G20 Summit, India proposed to launch a satellite for monitoring weather and climate monitoring for Global South.
- **PM coined 5 'Cs' for the Global South:** Consultation, Cooperation, Communication, Creativity & Capacity Building.

Two India Cities in UNESCO's Creative Cities Network

Recently, **Kozhikode in Kerala and Gwalior in Madhya Pradesh** have been added to the prestigious creative cities list of UNESCO for **contributions in the fields of literature and music, respectively.**

UNESCO's Creative Cities Network

- The UNESCO Creative Cities Network (UCCN) was created in 2004.
- **Almost 300 cities** around the world currently make up this network.
- UNESCO designates the creative cities in **seven fields**: **craft, folk art, media arts, film design, gastronomy, literature, and music.**
- Every year, UNESCO seeks applications from various cities across the globe to put them under its UCCN project.
- The applications in India are routed through the **Ministry of Culture.**

Other Indian cities which are added to this network

- **Srinagar and Jaipur**: in the field of crafts and folk arts
- **Mumbai**: Film category
- **Chennai and Varanasi:** Music category
- **Hyderabad**: Gastronomy category.

WHO's South East Asia Region Head

The WHO South-East Asia Region recently committed to further accelerate efforts to end tuberculosis by 2030, with member countries adopting the Gandhinagar Declaration.

Gandhinagar Declaration

- The Declaration calls for establishing **high-level multisectoral commission** reporting to the highest political level in each country for synergy of efforts among various stakeholders and to monitor progress towards ending TB and other priority diseases.
- It calls upon all partners to enhance their support to end TB and priority diseases in the Region as per the **UN Sustainable Development Goals target 3.3** - End the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases.

World Health Organisation

The World Health Organization (WHO), established in **1948**, is a **specialized agency of the United Nations** that connects nations, partners and people to promote health, keep the world safe and serve the vulnerable – so everyone, everywhere can attain the highest level of health.

Governance Structure and Functioning

- **Membership**: WHO currently has 194 member states.
- **World Health Assembly (WHA)**: The highest decision-making body of WHO and comprises representatives from all member States.
- **Secretariat**: Responsible for carrying out the policies and programs approved by the WHA.
- **Director-General**: Director-General heads the WHA and is supported by a senior management team.
- **Regional Offices**: WHO also has six regional offices: Africa, the Americas, Southeast Asia, Europe, Eastern Mediterranean, and Western Pacific.
- **Meetings**: The WHA meets annually to set policies, approve the budget and elect the Director-General.
- **Funding mechanism**: WHO gets its funding from two main sources:
    - **Assessed contributions**: These are the dues countries pay in order to be a member of the Organization.

- **Voluntary contributions**: It is from Member States (in addition to their assessed contribution) or from other partners like United Nations organizations, intergovernmental organizations, philanthropic foundations, the private sector etc.

GPAI Summit 2023

The Global Partnership on Artificial Intelligence (GPAI) has unanimously adopted the **New Delhi declaration**. The declaration underscored the need to mitigate risks arising from the development and deployment of AI systems, and promote equitable access to critical resources for AI innovation.

New Delhi Declaration

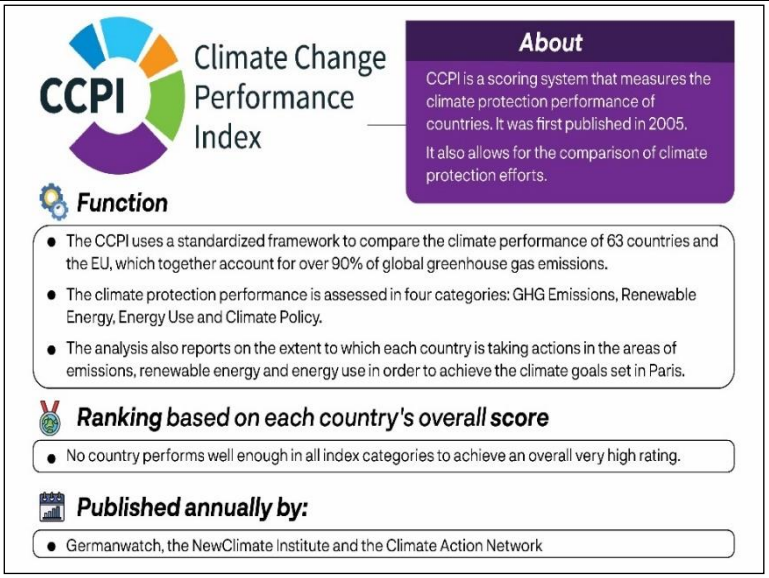
- **It promises to position GPAI** at the front and centre of shaping the future of AI in terms of both innovation and creating *collaborative AI* between partner nations to create applications in healthcare, agriculture, etc.
- All GPAI members had also agreed that the **group would lead global conversations on shaping** the future of AI governance as well as keeping it safe and trusted.

Global Partnership on Artificial Intelligence (GPAI)

- It is **an international initiative** established to guide the responsible development and use of AI in a manner that respects human rights and the shared democratic values of its members.
- **The partnership was first proposed** by Canada and France at the 2018 44th G7 summit, and officially launched in (June) **2020**.
- Started with 15-member countries, today GPAI has grown into an alliance of 29-member countries.
  - It includes countries like **India**, United State, UK, France, Japan, Canada, etc.
  - **China**, a major tech superpower, is not part of the multilateral grouping.
- GPAI is hosted by the Organisation for Economic Co-operation and Development (**OECD**).

India Climate Action Rated Fourth Strongest

Climate Change Performance Index (CCPI) 2024 was released on the side-lines of the ongoing COP28 at Dubai. India ranked 7th in this year's CCPI, up one spot from the previous one.



Key Highlights of The Report

- It should be noted that none of the countries have been able to achieve a very high rating over the last few years. Hence, **the first three ranks are left vacant**.
- Denmark retained the top spot (*ranked fourth*) with a score of 75.59 per cent.
- India followed closely with 70.25 per cent (4th best performer)
- **India on track to meet a benchmark of well below 2°C,** report highlighted that in the per capita GHG category, the country is on track to meet a benchmark of well below 2°C.
- India's growing energy needs are still being met by its heavy reliance on coal, along with oil and gas.

India Re-elected to IMO Council

India was re-elected to the International Maritime Organisation (**IMO**) **Council** at elections held at its Assembly in London for the 2024-25 biennium.

International Maritime Organisation (IMO)

- IMO is a **specialized agency of the UN** which is responsible for measures to improve the safety and security of international shipping and to prevent pollution from ships.

- **The Organization consists of an Assembly, a Council and five main Committees:** Maritime Safety Committee; Marine Environment Protection Committee; Legal Committee; Technical Cooperation Committee and Facilitation Committee and a number of Sub-Committees support the work of the main technical committees.
- **Function:** It has an integral role in meeting the targets set out in **UN SDG 14**: Conserve and sustainably use the oceans, seas and marine resources for sustainable development. It is also involved in legal matters, including liability and compensation issues and the facilitation of international maritime traffic.
- **HQ:** London, United Kingdom
- **Assembly:** This is the highest Governing Body of the Organization. It consists of all Member States and it meets once every two years in regular sessions but may also meet in an extraordinary session if necessary. arrangements of the Organization. The Assembly also elects the Council.
- **IMO Council:** The council is the executive organ of IMO and is responsible, under the assembly, for supervising the work of the organization. It has 40 members elected for a period of two years.

India-led Global River Cities Alliance Launched at COP28

- The National Mission for Clean Ganga (NMCG) has launched the **Global River Cities Alliance (GRCA)** at the COP 28 in Dubai. NMCG implements the government's flagship Namami Gange programme.
- It has been **inspired by India's River Cities Alliance (RCA).**
    - RCA was launched in 2021 to foster the sustainable development of river cities. Since its inception, RCA has expanded to include 143-member cities in India, including the city of Aarhus, Denmark.
- **Aim:** To coordinate global efforts toward river conservation and sustainable water management.
- **Members:** India, Denmark, Cambodia, Japan, Bhutan, Australia, Netherlands, Egypt, and Ghana.
- **Secretariat of the GRCA: National Mission for Clean Ganga**, under the Jal Shakti Ministry and Housing and Urban Affairs Ministry's **National Institute for Urban Affairs (NIUA**).

6th NSA-level Meeting of CSC

The 6th NSA-level meeting of Colombo Security Conclave (CSC) was held in Mauritius. It was attended by National Security Advisers of India, Mauritius and Sri Lanka, as well as delegates from the Seychelles and Bangladesh.

Colombo Security Conclave (CSC)

- CSC was formed in 2011 as a *trilateral maritime security grouping* of India, Sri Lanka & Maldives.
- **Five pillars of CSC**
    - Maritime security and safety
    - Countering terrorism and radicalisation
    - Trafficking and transnational crime
    - Cyber-security and protecting critical infrastructure
    - Humanitarian assistance and disaster relief
- **Secretariat:** A permanent Secretariat was established in Colombo.
- **Members:** current members include – India, Sri Lanka, the Maldives and Mauritius.

The State of Food and Agriculture 2023

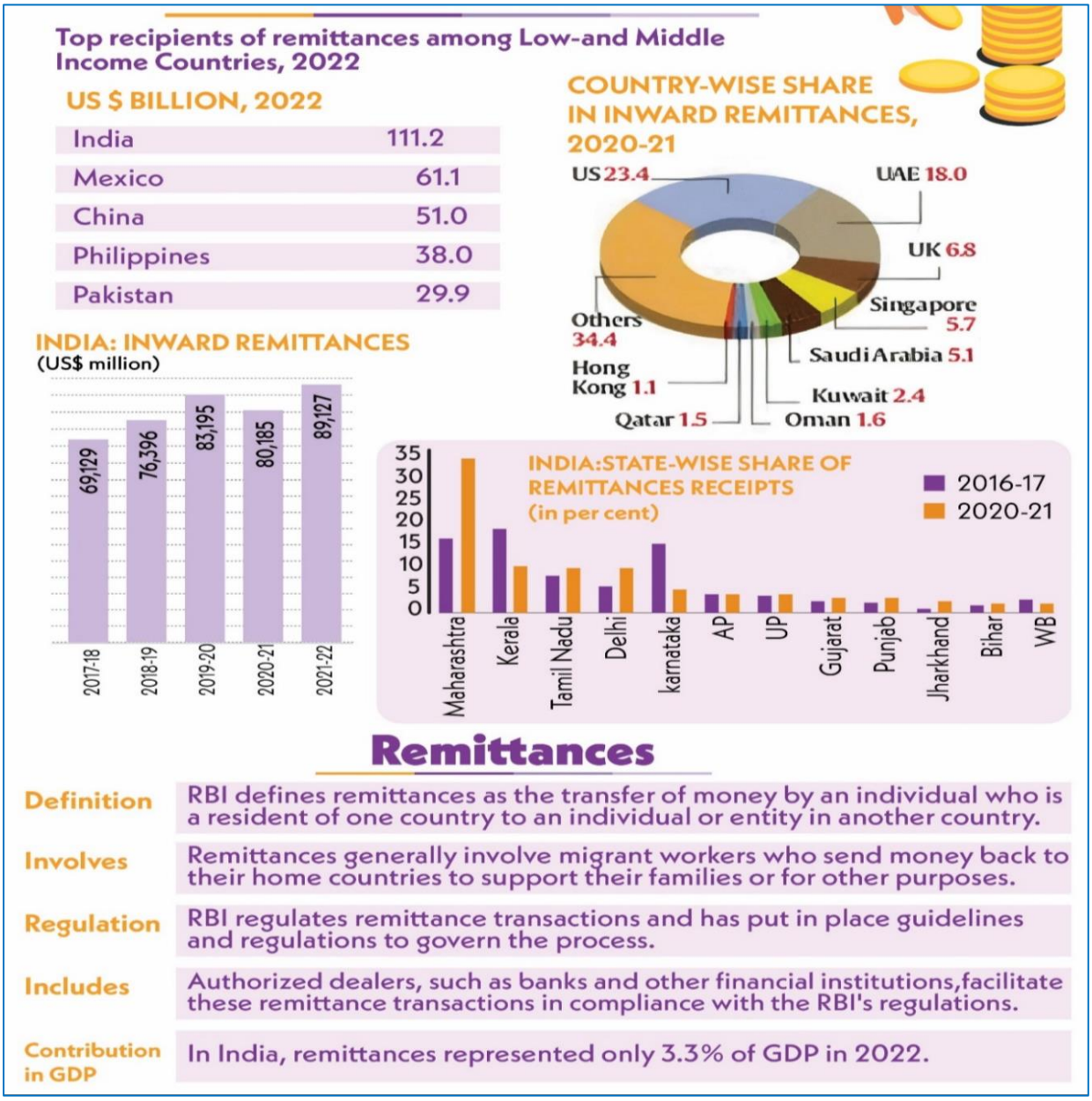
- The State of Food and Agriculture 2023 - a report from the UN Food and Agriculture Organisation (FAO), has revealed the massive hidden costs of the global agrifood systems.
- The report highlights massive hidden costs of the global agrifood systems, exceeding an astounding $10 trillion.
- **The report blames unsustainable business-as-usual activities** and practices for these escalating costs, pointing to a need to transform agrifood systems.
- One way to do so is **to shift to multi-cropping systems** that have the potential to protect farmers' well-being, improve nutritional outcomes for the communities, and positively impact ecological health.

ECONOMY

MONEY AND BANKING

Remittances in India

According to the **World Bank's** latest **Migration and Development Brief**, India is expected to post a **growth** of just 0.2% in remittance inflows in 2023.



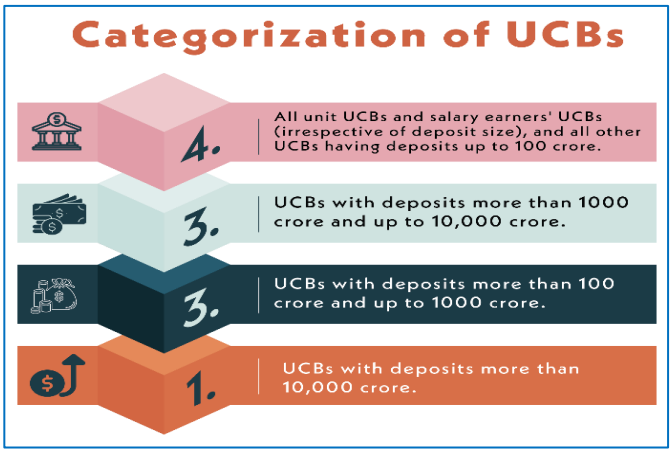
Urban Co-Operative Banks

The Reserve Bank of India (RBI) has notified measures to strengthen Urban Co-operative Banks.

New Measures

- **New Branches:** UCBs can now open up to 10% (max 5 branches) of the previous year's total branches without RBI approval, aiming to streamline the process and boost growth opportunities.
- **FSWM Criteria:** UCBs seeking branch expansion must get board-approved policies in line with Financially Sound and Well Managed (FSWM) norms. While, select UCBs fulfilling criteria are termed as FSWM; the traditional approval route continues.

- **One-Time Settlements:** Cooperative banks can offer technical write-offs and settlements with borrowers through board-approved policies, aligning them with commercial banks.
- **PSL Target Extension:** The RBI extends the timeline for UCBs to achieve Priority Sector Lending (PSL) targets by two years, now up to March 31, 2026.
- **Coordination with RBI:** The RBI will designate a nodal officer for closer coordination and focused interaction, addressing a long-standing demand from the cooperative sector.



Urban Co-Operative Banks	
Definition	Though not formally defined, **Urban Co-operative Banks (UCBs) refer to primary cooperative banks in urban and semi-urban areas.**
Regulation	• In 2020, the government amended The Banking Regulation Act, 1949, placing cooperative banks directly under RBI supervision. • The RBI can now supersede UCB boards with state government consultation. • A four-tier categorization was introduced for regulatory enhancement
Minimum Net Worth (MNW)	Tier 1 UCBs in a single district require a minimum net worth of ₹2 crore.
	For all other UCBs (Tiers 1, 2, and 3), the minimum net worth is ₹5 crore.
Capital to Risk Weighted Assets Ratio (CRAR)	Tier 1 UCBs must maintain a minimum CRAR of 9% of Risk Weighted Assets (RWAs) ongoing.
	Tier 2 to 4 UCBs must maintain a minimum CRAR of 12% of RWAs ongoing.
Priority Sector Lending (PSL) Targets	75% of UCB advances must comprise Priority Sector Lending (PSL), including loans to MSMEs, export credit, housing, education, agriculture, among others.

Sovereign Gold Bond

- The Union Government, in consultation with RBI, has decided to issue Sovereign Gold Bonds (SGBs) this year.
- **SGB scheme was launched by the Ministry of Finance in 2015** to provide people an alternative to physical gold investment and reduce the physical demand of gold and discourage high imports. The bonds are issued by the RBI on behalf of the Government.
- **Channels:** SGBs are sold through **Scheduled Commercial banks** (except Small Finance Banks and Payment Banks), **Stock Holding Corporation of India Limited** (SHCIL), **Clearing Corporation of India Limited** (CCIL), designated **post offices**, and **recognised stock exchanges** like the Bombay Stock Exchange.
- **Eligibility:** Eligible investors include **resident individuals, Hindu Undivided Family (HUF), trusts, universities and charitable institutions.**

Features of SGB

- **Security Against Physical Gold Holdings:** The bonds are secured against the physical gold holdings of the government and are denominated in grams of gold.
- **Tenor and Redemption:** The tenor of the bond **is 8 years**, and early encashment or redemption is allowed after the fifth year from the date of issue.
- **Tradability and Transferability:** The bond is tradable on exchanges if held in demat form and can be transferred to any other eligible investor.
- **Fixed Interest and Taxation:** Bonds offer a fixed interest rate of 2.5% per annum on the initial investment. Interest on the bonds is taxable, but capital gains tax (CGT) on redemption has been exempted. CGT is applicable to gains from the sale of capital assets.

- **Collateral for Loans:** Bonds can be used as collateral for loans from banks, financial institutions, and Non-Banking Financial Companies (NBFCs).
- Minimum investment in the bond is one gram, with an annual maximum subscription limit of 4 kg for individuals, 4 kg for HUFs, and 20 kg for trusts and similar entities per fiscal year.

Benefits:

- **Market Value Assurance:** Investors are assured of the market value of gold at the time of maturity and receive periodical interest.
- **No Making Charges or Purity Concerns:** SGB eliminates issues like making charges and concerns about purity associated with gold in jewellery form.
- **Risk-Free and Convenient:** SGB, a type of "paper gold," is held in the RBI's books or demat form, providing investors with safety and convenience.

Greenwashing TechSprint

- The Reserve Bank of India has opened an application window for India-based firms and innovators to participate in the **Global Financial Innovation Network's first Greenwashing TechSprint.**
- The TechSprint, **hosted on the Financial Conduct Authority's digital sandbox**, will involve 13 international regulators and firms to address GFIN's priority on environmental, social, and governance (ESG) and sustainable finance.
- The goal of the Greenwashing TechSprint is **to develop a tool to help regulators and the market effectively tackle greenwashing risks in financial services.**

Greenwashing

- Environmental whitewashing is the manipulation of a company's products to create false impressions or misleading information about their environmental impact. It is a form of whitewashing, where false information is used to conceal wrongdoings or unpleasant situations.
- This tactic is often used to capitalize on the growing demand for environmentally friendly products, which are perceived as more natural, healthier, and less wasteful.

Global Financial Innovation Network (GFIN)

- The Global Financial Innovation Network (GFIN) is a **collaboration of over 70 regulatory agencies and related organizations from around the world.**
- It was formed in 2019 with the aim of supporting responsible financial innovation and facilitating cross-border experimentation of new ideas in financial services.

Commemorative Coins

- In celebration of the inauguration of the **new Parliament building, a commemorative coin with a denomination of Rs 75** has been released.
- The **first commemorative coin,** released in **1964,** honoured **Jawaharlal Nehru** following his passing.
- The **Coinage Act of 2011** empowers the central government to design and mint coins of different denominations, with the RBI primarily handling the distribution of coins supplied by the central government.
- **All coins are minted at the four government-owned mints located in Mumbai, Hyderabad, Kolkata, and Noida.**

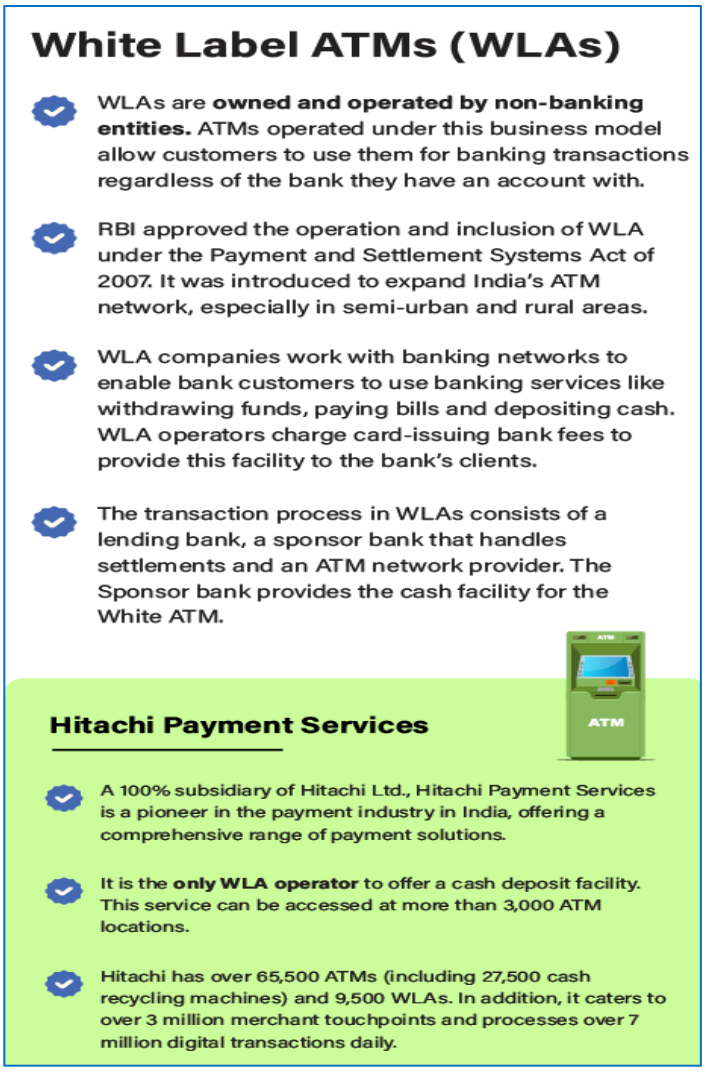
India's First UPI ATM

- Hitachi Payment Services has introduced India's first UPI-ATM, a secure, card-less cash withdrawal system, in partnership with the National Payments Corporation of India.
- The **UPI-only White Label ATMs will enhance customer security by eliminating the need for physical cards** and drive financial inclusion in areas with limited traditional banking infrastructure.

- **Built on Android OS**, the ATM offers potential for transitioning from legacy architecture to evolving technology.
- The integration of UPI convenience and security into traditional ATMs will revolutionize banking services by eliminating fraud risk and enhancing customer experience.
  - **Skimming** occurs when **devices illegally installed on ATMs, point-of-sale (POS) terminals, or fuel pumps capture data or record cardholders' PINs.**
  - Criminals use the data to create fake debit or credit cards and then steal from victims' accounts.

Operation of UPI ATM

- Cardless cash withdrawals currently rely on mobile numbers and OTPs, whereas **UPI-ATM runs via QR-based UPI cash withdrawals.**
- Users need a UPI application on their smartphones to conduct transactions.
- A QR code will be displayed, allowing them to receive cash by scanning the code, entering their pin, and scanning it again.
- Transactions can be done up to Rs. 10,000, subject to UPI daily and issuer bank limits.



Incremental Cash Reserve Ratio

The Reserve Bank of India (RBI) has announced a phased discontinuation of the incremental cash reserve ratio, allowing banks to release the funds maintained under it in stages.

Cash Reserve Ratio (CRR)

- CRR is the **percentage of total deposits that banks must maintain as liquid cash with the RBI** to ensure they never run out of cash to meet depositors' payment demands.
- CRR **applies to scheduled commercial banks**, while the regional rural banks and NBFCs are excluded.
- CRR is calculated as a percentage of **Net Demand and Time Liabilities (NDTL).**
- It **acts as a safety net**, preventing banks from using this amount for lending or investment purposes.
- **Currently, the CRR is fixed at 4.50%.**

Incremental Cash Reserve Ratio (I- CCR)

- The I-CRR is **an additional cash balance which the RBI can ask banks to maintain over and above the CRR - for a specific period.**
- In August 2023, after announcing the monetary policy, the RBI Governor said that banks will have to maintain **an I-CRR of 10%** on the increase in their NDTL between May 19, 2023, and July 28, 2023.

Need for I- CCR

- The RBI had announced the **I-CRR as a temporary measure to absorb excess liquidity** from the banking system which can **harm price and financial stability**, necessitating continuous monitoring of surplus liquidity levels.
- The surge in surplus liquidity was attributed to the return of Rs 2,000 banknotes, RBI's surplus transfer to the government, increased government spending, and capital inflows.

Why is I-CRR Discontinued

- The banking system's **liquidity experienced a deficit for the first time in the current fiscal** on August 21, following the RBI's I-CRR mandate.
- The tight liquidity was attributed to GST outflows and the central bank selling dollars to counter rupee's fall.
- The I-CRR was a temporary measure and thus, the RBI has decided to discontinue it in a phased manner.

Lightweight Payment System

- The **Reserve Bank of India (RBI) has introduced the concept of a lightweight payment and settlements system,** dubbed as **a digital payment "bunker."**
- This system is designed for **operation with minimal staff, offering the flexibility to function from any location,** especially during emergencies like natural disasters or war.
- The infrastructure of this system will **remain independent of existing payment technologies such as UPI, NEFT, and RTGS.**
- The central bank has **not provided a specific timeline** for the official launch of this innovative payment system.

Need For the System

- **Operational Minimalism:** The lightweight system, as outlined in RBI's Annual Report, operates on minimalistic hardware and software, activated on a need basis.
- **Near Zero Downtime:** Ensures near-zero downtime, facilitating uninterrupted functioning of essential payment services during emergencies.
- **Critical Transaction Processing:** The system is expected to process critical transactions vital for maintaining economic stability, including government, market-related, and interbank transactions.
- **Record-Keeping:** Maintains transaction records for reconciliation and audit purposes, ensuring transparency.
- **Resilient Infrastructure:** Acts as a bunker equivalent, enhancing public confidence in digital payments even during extreme conditions.

Difference from UPI

The RBI states that conventional payments systems like RTGS, NEFT, and UPI are designed to handle large transactions and maintain availability. However, catastrophic events like natural calamities and war can temporarily disrupt these systems, making it crucial to be prepared for such extreme and volatile situations.

National Bank for Financing Infrastructure & Development (NaBFID)

- The National Bank for Financing Infrastructure & Development (NaBFID) was set up in 2021, by an Act of the Parliament.
- It is a specialized **Development Finance Institution** aimed at supporting the country's infrastructure sector.
- **NaBFID's Objective:**
  - Addressing the gaps in long-term finance for infrastructure development,
  - Strengthening the development of bonds and derivatives markets in India
  - Sustainably boosting the country's economy.

Development Finance Institution (DFI)

- DFIs are organizations owned by the government or public institutions to provide funds for infrastructure and large-scale projects, where it often becomes unviable for large banks to lend.
- They provide two types of funds- Medium (1-5 years) and Large (< 5 years).
- DFIs do not accept deposits from people but they raise funds by borrowing from governments, insurance companies, pension funds, and sovereign funds.
- It also provides a guarantee to banks on behalf of companies and subscriptions to shares, debentures etc.
- They also provide technical assistance like project report, viability study and consultancy services.

- It is **regulated and supervised by RBI** as an All-India Financial Institution (AIFI). Apart from NaBFID there are **four more AIFIs** in the country: Exim Bank, NABARD, SIDBI, and NHB.
- The NaBFID plans to disburse ₹60,000 crore by the end of this fiscal, having already lent ₹8,000 crore in the first quarter. It also plans to sanction ₹1 lakh crore loans to greenfield and brownfield infrastructure assets.

Deposit Insurance for PPIs

A committee reviewing Customer Service Standards in RBI Regulated Entities has recommended the extension of Deposit Insurance and Credit Guarantee Corporation (DICGC) cover to Prepaid Payment Instrument (PPI) holders, which is currently only available to bank deposits.

Prepaid Payment Instrument (PPI)

- PPIs are **financial instruments that enable the purchase of goods and services, conduct financial services, and enable remittance facilities against the money stored in them.** They can be issued as **cards or wallets**, including online wallets and preloaded gift cards.
- There are two types of PPIs**: small PPIs and full-KYC PPIs.**
- PPIs can be loaded/reloaded by cash, debit to a bank account, or credit and debit cards.
- As of March 31, 2023, the total number of PPIs was 16,185.26 lakh, with 1,3384.68 lakh wallets and 2800.58 lakh cards. In FY2023, the total volume transacted through PPIs was 74,667.44 lakh.

Issuance of PPI Instruments

- PPIs **can be issued by banks and non-banks after obtaining approval from the RBI.**
- As of November, 2022, over 58 banks including Airtel Payments Bank, Axis Bank, Bank of Baroda, Jio Payments Bank, Kotak Mahindra Bank, Standard Chartered Bank, UCO Bank and Union Bank have been permitted to issue and operate prepaid payment instruments.
- There are 33 non-bank PPI issuers as of May, 2023. Some of the non-bank PPI issuers are Amazon Pay (India), Bajaj Finance, Delhi Metro Rail Corporation Ltd, Manappuram Finance Ltd, Ola Financial Services, Razorpay Technologies and Sodexo SVC India Pvt.

Deposit Insurance

- Deposit insurance **offers protection to the deposits of bank customers in case a bank becomes insolvent.** A bank becomes insolvent when its total liabilities exceed its total assets, usually as a result of poor investing or lending decisions.
- So, an insolvent bank may not be able to repay all the money that it owes its depositors. In such cases, the government steps in to compensate depositors, usually up to a certain threshold amount.

Related Term: A **bank run** is a situation in which a large number of worried depositors demand their money from a bank at the same time.

Deposit Insurance and Credit Guarantee Corporation

- It is a **statutory body** established under the Deposit Insurance and Credit Guarantee Corporation Act, of 1961.
- It is a **wholly-owned subsidiary** of the **Reserve Bank of India** (RBI).
- It provides deposit insurance that works as a **protection cover for bank deposit** holders when the bank fails to pay its depositors.
- The agency insures all kinds of deposit accounts of a bank, such as savings, current, recurring, and fixed deposits **up to a limit of Rs. 5 lakh per account holder** per bank.
- In case an individual's deposit amount exceeds Rs.5 lakh in a single bank, only Rs. 5 lakh, including the principal and interest, will be paid by DICGC if the bank becomes bankrupt.

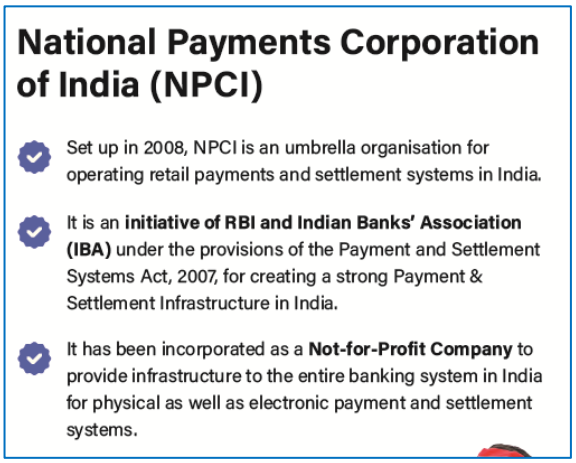
DICGC Coverage

The DICGC insures **all deposits such as savings, fixed, current, recurring, etc.** except the following:

- Deposits of foreign Governments
- Deposits of Central/State Governments
- Inter-bank deposits
- Deposits of State Land Development Banks with the State co-operative bank
- Any amount due on account of and deposit received outside India
- Any amount, specifically exempted by the corporation with the previous approval of RBI

Bharat Bill Payment System (BBPS)

- BBPS is an integrated bill payment system that connects billers and users, offering a "Anytime Anywhere" service across India.
- It provides a reliable and safe platform for transactions, cataloging various utility providers under one platform. It serves as a central reference for customers making various payments, including utility bills, loan repayments, and FasTag recharges. It ensures certainty, reliability, and safety in transactions.
- **Different Payment Channels:** Bharat BillPay transactions can be initiated through various payment channels like internet, mobile, mobile-banking, bank branches, agents, and business correspondents, and provide instant payment confirmation via SMS or receipt.
- **Stakeholders**: BBPS was **conceptualised by RBI** in 2013 and is a **product of the National Payments Council of India (NPCI).**
- **Components**: There are two key components in the BBPS system,
  - **Bharat Bill Payment Central Unit (BBPCU):** The BBPCU is NPCI, which lays downs the operating procedures and standards for BBPS.
  - **Bharat Bill Payment Operating Units (BBPOUs):** BBPOUs adhere to the rules set by BBPCU. They are the banking and non-banking entities that handle the payments load.
  - **Then, there are billers (utility providers) and agents**, either as institutions or individuals, who provide services primarily on the collection side, to BBPOUs.



BBPS Extended To UK

India is expanding its Bharat Bill Payment System (BBPS) to enable cross-border bill payments in the UK for non-resident Indians (NRIs). The facility is **currently available to NRIs living in Oman, Kuwait, Bahrain, and UAE.**

Credit Card Spend Excluded From LRS

The Finance Ministry has announced that **payments made using international debit or credit cards up to Rs 7 lakh per financial year will not be included in the Liberalised Remittance Scheme** limits and will not attract any Tax Collected at Source (TCS). This follows the decision to include international credit card spending under the scheme.

Background

- The Centre had amended rules under the Foreign Exchange Management Act (FEMA), bringing international credit card spends outside India under the Liberalised Remittance Scheme (LRS).
- As a consequence, the spending by international credit cards were to attract a higher rate of TCS at 20 per cent effective July 1. **The Finance Ministry has now revoked the amendments.**
- This change was due to a rise in overseas travel spending, with Indians spending $12.51 billion on overseas travel between April-February 2022-23, a 104% increase compared to the same period last year.
- The Finance Ministry cited instances where LRS payments are disproportionately high compared to disclosed incomes, as the usage of international credit cards was not covered under the LRS.
- The change was brought due to Covid-linked travel restrictions. The Finance Ministry's decision to revoke the amendments is expected to improve the LRS system in India.

Liberalised Remittance Scheme (LRS)

- The **LRS of the RBI allows resident individuals, including minors, to remit a certain amount of money** during a financial year to another country for investment and expenditure.

- The Scheme is **not available to corporates, partnership firms, Hindu Undivided Family (HUF), Trusts** etc.
- Under LRS, resident individuals **may remit up to $2,50,000 per financial year** without prior approval from RBI.

OUTWARD REMITTANCES UNDER THE LRS FOR RESIDENT INDIVIDUALS

	Apr-Feb 2022-23	Apr-Feb 2021-22	YoY change (%)
Overseas travel	12.51 ($bn)	6.13 ($bn)	104.1
Total outward remittances*	24.18 ($bn)	19.61 ($bn)	23.3

Total includes remittances for deposits, property purchases, gifts and medical treatment, among others;

Source: RBI

Tax Collected at Source

- Tax collected at source (TCS) is the tax collected by the seller from the buyer on sale so that it can be deposited with the tax authorities.
- **Section 206C of the Income Tax Act** governs the goods on which the seller has to collect tax from the buyers.
- Such persons must have the Tax Collection Account Number to be able to collect TCS.
- Tax collection at source is exempt in the following cases:
  a) When the eligible goods are used for personal consumption
  b) The purchaser buys the goods for manufacturing, processing or production and not for the purpose of trading of those goods.

Sovereign Credit Ratings

Global credit rating agency Fitch has downgraded **US Sovereign rating** to AA+ from AAA. The US had been holding the AAA rating at the agency since 1994.

Sovereign Credit Ratings

- **A sovereign credit rating is an evaluation of a country's creditworthiness, assessing its ability to meet financial obligations and repay debts.** This assessment is typically conducted by credit rating agencies, which assign a rating based on various economic and financial indicators.
- **Risk Assessment:** Investors use sovereign credit ratings to gauge the level of risk associated with investing in a particular country. **Higher-rated countries are generally considered lower risk, making their debt more attractive to investors**, while lower-rated countries may face higher borrowing costs.
- **Factors Considered:**
  - These factors may include the **country's debt service ratio (the proportion of its income used to repay debt),** growth in the domestic money supply, **import ratio**, and the **variance of export revenue**.
  - **Political stability** and governance may also play a significant role.
- Developing countries rely on a good sovereign credit rating to **access international bond markets and attract foreign direct investment (FDI).** A higher credit rating makes borrowing more cost-effective and enhances investor confidence, signalling a country's financial stability and lower risk of default.
- **Credit Rating Agencies:** Countries usually seek ratings from major credit rating agencies such as **Standard & Poor's, Moody's, and Fitch Ratings**.

Public Tech Platform for Frictionless Credit

- The RBI has launched a pilot project called the "Public Tech Platform for Frictionless Credit", **aimed at facilitating access to credit or loans.**
- The platform, **developed by the Reserve Bank Innovation Hub (RBIH),** is an **end-to-end digital platform with an open architecture, API, and standards.**

- It aims to **provide digital information to lenders**, allowing them to expedite access to credit or loans in a **'plug and play' model.**

Self-Regulating Organisation for Fintech

RBI has asked fintech entities to form a Self-Regulatory Organisation (SRO). Those entities who are interested in being recognised as SROs will have to apply to the RBI. Once the regulator finds an entity suitable, it will issue a letter of recognition.

Self-Regulatory Organization

- A SRO is **a non-governmental entity dedicated to establishing and enforcing rules and standards within a specific industry.**
- Operating with a focus on **safeguarding customer interests and promoting ethics, equality, and professionalism**, SROs actively collaborate with industry stakeholders in the formulation of regulations.

SROs' Key Characteristics

- **Legitimacy of Regulations:** Regulations, standards, and dispute resolution mechanisms gain legitimacy through mutual agreement among members and the perceived efficiency of self-regulation administration.

Fintech

It is a shortened combination of financial technology. It is used to describe new technology that seeks to improve and automate the delivery and use of financial services.

It is composed of specialized software and algorithms that are used on computers and smartphones.

At its core, fintech is utilized to help companies, business owners, and consumers better manage their financial operations, processes, and lives.

- **Complementing Legal Framework:** SRO regulations supplement existing laws, providing an additional layer of industry-specific guidelines.
- **Communication Channel with RBI:** Recognized SROs serve as a two-way communication channel between their members and the Reserve Bank of India (RBI) through a less formal setup.
- **Training and Awareness:** Actively involved in imparting training to members' staff and conducting awareness programs to enhance industry knowledge.
- **Uniform Grievance Redressal:** Establishment of a uniform grievance redressal mechanism ensures fair and consistent resolution for both members and stakeholders.

Project Mariana

- Project Mariana, a **CBDC initiative by the BIS and central banks of France, Singapore, and Switzerland**, recently concluded.
- It tested **cross-border trading and settlement of wholesale central bank digital currencies (wCBDCs) using Decentralized Finance (DeFi) technology on a public blockchain**.
    - The settlement of interbank transfers and related wholesale transactions in central bank reserves is referred to as **wholesale CBDC.**
- The project, a collaboration between BIS Innovation Hub centers, Banque de France, Monetary Authority of Singapore, and Swiss National Bank, validated the trading and settlement of hypothetical euro, Singapore dollar, and Swiss franc wCBDCs.
- The project, currently in the experimental phase, requires further exploration and collaboration.

Bima Trinity

The Insurance Regulatory and Development Authority of India (IRDAI) chief recently announced plans to introduce a comprehensive program in collaboration with general and life insurance firms, termed "Bima Trinity."

1. **Bima Sugam:** This component involves the creation of a platform to integrate insurers and distributors onto a single platform.
2. **Bima Vistar:** It presents a **bundled risk cover** encompassing life, health, property, and casualties or accidents. It offers defined benefits for each risk, facilitating faster payouts without the customary need for surveyors.

3. **Bima Vahaks (Carriers):** Bima Vahaks introduces a women-centric workforce in each Gram Sabha, aiming to engage with the women heads of households. The purpose is to **persuade them about the advantages of a composite insurance product, emphasizing the benefits of the program.**

Linguistic Inclusion in Financial Domain

- The **Reserve Bank Innovation Hub (RBIH) and Digital India Bhashini Division (DIBD)** have collaborated to break down language barriers in the domain of financial services.
- The primary objective is to extend the reach of digital financial services to users in their native tongues, ultimately striving for seamless banking experiences for all.
- **BHASHINI**, with its capabilities in language translation and voice processing, will play a pivotal role in achieving these goals.
- Utilizing voice as a medium, BHASHINI can promote financial inclusivity, economic empowerment, and enhance financial literacy. Offering financial services in the mother tongue of users will help boost their confidence in digital financial solutions.

Digital India Bhashini Division (DBID)

- It is a **Division under Digital India Corporation**, section 8 Company under Ministry of Electronics and Information Technology.
- The vision of Bhashini is to utilise natural language technologies to enable a diverse ecosystem of contributors, partnering entities and citizens to overcome language barriers, thereby ensuring digital inclusion and digital empowerment.

Reserve Bank Innovation Hub (RBIH)

- RBIH – a **wholly-owned subsidiary of the Reserve Bank of India (RBI)** – is an organisation that works to enable frictionless finance for a billion Indians.
- RBIH acts as an enabler and facilitator in the ecosystem, bringing together members from financial, technological, and academic institutions to promote and accelerate innovation across the financial sector.

Bima Sugam

The **Insurance Regulatory and Development Authority of India (IRDAI)** is set to launch Bima Sugam, an electronic marketplace for insurance policy buying and selling.

Bima Sugam

- Bima Sugam is an online platform that offers customers various insurance schemes from various companies. It meets all life, health, and general insurance requirements, including motor and travel.
- Bima Sugam also facilitates paperless claim settlement, including health coverage and death claims, based on policy numbers.

Insurance Related Terms

- **Insurance penetration** is defined as the **percentage of premium** underwritten in a given year **to Gross Domestic Product.**
- **Insurance density** is calculated as the **ratio of premium** underwritten in a given year **to the total population** (per capita premium)
- **Expense Ratio** is the **percentage of insurance premiums used to pay for an insurer's expenses** including overheads, marketing, commission, expenses, costs etc.

- **Ownership of this platform: Life Insurance and General insurance companies will own a 47.5 per cent** stake each, while brokers and agent bodies will own 2.5 per cent each.
- **Timeline for the launch:** IRDAI has set the implementation in June 2024.

Benefits of Bima Sugam

- **Single Window for Insurance Management:** Centralized platform for policyholders to seamlessly handle all aspects of insurance coverage, from purchase to service and settlement.

- **Empowering Consumers:** Bima Sugam consolidates numerous insurance schemes, offering customers a single platform to easily identify the best-suited options and understand the nuances of different schemes.
- **Benefits for Companies and Intermediaries:** Enables insurance companies to access real-time, validated data from various touchpoints; simplifies the selling of policies and provision of services by serving as an interface for intermediaries and agents, reducing paperwork.
- **Universalizing and Democratizing Insurance: Integrated with India Stack**, it enhances accessibility, allowing governments, businesses, startups, etc., to leverage digital infrastructure for seamless service delivery, promoting universal and democratic access to insurance.

Insurance Regulatory and Development Authority of India (IRDAI)	
Establishment	**Insurance Regulatory and Development Authority Act 1999**
Role	Supervises and regulates the insurance sector in India
Objective	To **protect the interests of policyholders**, to **regulate**, promote and ensure orderly growth of the **insurance industry in India**.
Nodal Ministry	Ministry of Finance
Head Office	Hyderabad
Composition	IRDAI is a **10-member body- a chairperson, five full-time members**, and four part-time members **appointed by the Government of India**.
Functions	• Fair **regulation of the insurance industry** while ensuring the financial soundness of the applicable laws and regulations • **Registering** and regulating **insurance companies**; • **Protecting policyholders' interests;** • **Licensing** and establishing norms **for insurance intermediaries**; • **Regulating and overseeing premium rates and terms** of non-life insurance covers; • **Specifying financial reporting norms** of insurance companies; • **Regulating investment of policyholders'** funds by insurance companies; • Ensuring the **maintenance of solvency margin by insurance companies**; • **Ensuring insurance coverage in rural areas** and of vulnerable sections of society

Social Bonds

- **NABARD has successfully issued its first rupee-denominated AAA rated social bonds**, totaling ₹1040.50 crore. These bonds, privately placed with eligible institutional investors, were subsequently listed on the Bombay Stock Exchange (BSE). With a face value of **₹1 lakh each**, these bonds have a **five-year tenure**.
- Social bonds, also known as social impact bonds, serve as a funding mechanism for **projects with socially beneficial implications**. Essentially, **bond holders provide capital to the issuer, who, in turn, utilizes the funds for projects aimed at societal well-being.**

The **Pimpri-Chinchwad Municipal Corporation (PCMC) and the United Nations Development Programme (UNDP)** India collaboratively introduced **India's first Social Impact Bond (SIB).**

Sustainability Bond Framework

- NABARD has also announced a Sustainability Bond Framework, which **seeks to finance and refinance new or existing eligible green and social projects.**
- The key criteria to make a project eligible to get financing from these bonds include contribution to the environment to mitigate climate change effects, conservation of natural resources and biodiversity, and prevention and control of pollution.
- Projects that promise energy efficiency, including green buildings, energy storage, and smart grids, would also be eligible to get funding through the new type of bonds that NABARD is rolling out.

Bond Yield Surge

- In a recent move, the RBI opted for an Open Market Operation (OMO) sale of government securities (G-Sec), leading to a notable upswing in bond yields, reaching their highest level in the fiscal year 2023-24.
- **Open Market Operations (OMO)**: RBI employs OMOs to bring about durable adjustments to the rupee liquidity conditions prevailing in the market.

Bond Yield Dynamics

- **Yield Calculation**: A bond's yield represents the annual return an investor anticipates over its maturity period. It includes both interest payments and principal repayment relative to the bond's price.
- **Inversely Related**: The bond yield holds an inverse relationship with its price. As market interest rates climb, bond prices decline. Conversely, a decrease in interest rates or market yields results in a rise in bond prices.

Card-on-File Tokenisation (CoFT)

The RBI recently proposed the introduction of CoFT, a novel approach aimed at enhancing the security of digital transactions.

Card-on-File Tokenisation (CoFT)

- A Card-on-File Tokenisation is a transaction where cardholders grant merchants authorization to securely store their payment details.
- Subsequently, merchants utilize this stored information to bill the cardholder's account for future transactions.
- This approach streamlines the checkout process for consumers who opt for the convenience of hassle-free and secure payment methods.

Tokenisation

- Tokenisation involves substituting actual credit and debit card details with a distinct code known as the "token." This token is unique to a specific combination of the card, token requestor, and device.
- **Uniqueness:** The token generated is exclusive to the combination of the card, the token requestor (entity facilitating the customer's tokenisation request), and the merchant. The token requestor and merchant may or may not be the same entity.
- **Security Advantage:** CoFT provides enhanced security during card transactions as it ensures that the merchant does not receive the actual card details during transaction processing. This significantly reduces the risk of sensitive information exposure.

Prompt Corrective Action (PCA)

The Reserve Bank of India (RBI) has announced the extension of **Prompt Corrective Action (PCA) supervisory norms to government-owned Non-Banking Financial Companies (NBFCs)**, effective from October 1, 2024.

About PCA Framework

- The PCA framework, initiated on December 14, 2021, **aims to facilitate timely supervisory intervention and requires entities under scrutiny to implement remedial measures promptly, restoring their financial health.**
- **Objective:** To maintain sound financial health of commercial banks
- **Parameters:** Under it, RBI has **specified trigger points** in terms of three parameters:
  - Capital to risk weighted assets ratio (CRAR)
  - Net non-performing assets (NPA)
  - Return on Assets (RoA)
- **Actions:** If a bank hits the trigger point (like CRAR of 9%, 6%, 3%), then RBI initiates certain structured/mandatory and discretionary actions in respect of that bank.
- **Layer Classification:**
  - ***Base Layer:*** Comprises Non-deposit-taking NBFCs with an asset size below ₹1000.
  - ***Other Layers:*** Include Middle Layer, Upper Layer, and Top Layer.

- **Notable Government NBFCs**: Prominent government NBFCs affected by this extension include PFC, REC, IRFC, and IFCI.

Decentralised Autonomous Organisations

- **Decentralised Autonomous Organisations (DAOs)** are a revolutionary innovation in blockchain technology and governance. DAOs are self-sustaining, community-driven entities governed by smart contracts on blockchain networks.
- These digital entities **operate without centralised control** and are governed by consensus among members, often using cryptocurrencies for decision-making and resource allocation.
- **Smart contracts** execute predefined rules without intermediaries, ensuring trust through code rather than traditional authorities.
- **Token holders**, who can propose and vote on decisions related to the organization's goals and resources, ensure no single entity holds undue influence.

Applications

- Decentralized applications (DAOs) are gaining traction in various industries, including **decentralised finance, art, supply chain management, and online community governance.**
- Platforms like Compound and MakerDAO offer lending and borrowing services, allowing users to participate in the global financial ecosystem without relying on traditional banks.
- Artists are tokenizing their creations, while DAOs ensure transparency and traceability in global supply chains.
- DAOstack facilitates decentralized governance structures for internet communities, demonstrating their potential to reshape industries across various sectors.

Overnight Index Swap

- Recently, Indian overnight index swap (OIS) rates rose to their highest levels in 10 months due to offshore payments and triggering of stop losses.
- **OIS** is a **derivative instrument where returns under a fixed-rate asset are swapped** against a predetermined published index of a daily overnight reference rate for an agreed period of time.
- The primary purpose of an OIS is **to manage interest rate risk**, particularly the risk associated with **fluctuations in the overnight lending rate.**
- An overnight index swap rate is **calculated each day.**
- This rate is based on the **average interest rate institutions** with loans based on the overnight rate have **paid for that day.**

Working of OIS

- These are instruments that **allow financial institutions to swap the interest rates** they are paying without having to refinance or change the terms of their existing loans.
- Typically, when two financial institutions **create an overnight index swap**, one of the institutions is swapping an overnight (floating) interest rate, and the other institution is swapping a fixed short-term interest rate.
- To get the swap rolling, both firms would agree to continue servicing their loans, but at the end of a specified time period, **whoever ends up paying less interest will make up the difference to the other firm.**

What Is A Derivative

It refers to **a type of financial contract** whose value is dependent on an underlying asset, group of assets, or benchmark. Common derivatives include futures contracts, forwards, options, and swaps.

Gresham's Law

- Gresham's Law, a fundamental monetary principle, articulates that "**bad money drives out good**." This principle unveils a phenomenon where, **in a scenario of dual circulating currencies, the lower-value currency takes precedence in transactions, while the higher-value currency is hoarded.**

- To illustrate, consider the presence of two forms of commodity money, both legally recognized with similar face values. In this scenario, the higher-value commodity gradually retreats from circulation, as people opt to transact with the lower-value alternative.
- Gresham's Law extends its influence into currency markets. In historical contexts featuring precious metals as coin materials, the law influenced the evolving value of coins and their intrinsic contents. This dynamic is particularly evident when a government fixes the exchange rate between two currencies, diverging from the market exchange rate.
- It applies to **paper as well as commodity currencies** and other goods.

India Post Payments Bank (IPPB) Aims for Universal Banking Transformation

The Managing Director and CEO of India Post Payments Bank (IPPB) recently expressed the institution's aspiration to evolve into a universal bank.

Indian Post Payments Bank (IPPB)

- **Establishment and Ownership:** IPPB operates under the **Department of Posts, Ministry of Communication, with 100% equity owned by the Government of India.**
- **Inception:** Launched on September 1, 2018, IPPB has a vision to establish the most accessible, affordable, and trusted bank for the common man in India.
- **Mandate:** IPPB's mandate is to **eliminate barriers for the unbanked and under-banked**, leveraging a vast network of 160,000 post offices and 400,000 postal employees, with a significant presence in rural areas.
- **Headquarters:** New Delhi.
- **Functions:**
  - IPPB accepts deposits up to Rs 2 lakh, beyond which accounts are automatically converted into post office savings accounts.
  - Products and services are accessible through various channels, including counter services, micro ATMs, mobile banking apps, messages, and interactive voice response.

Payments Bank

- **Definition:** Payments banks operate on a smaller scale without engaging in credit risk, aiming to extend payment and financial services to small businesses, low-income households, and migrant labor in a secure, technology-driven environment.
- **Regulation and Legislation:**
  - Governed by legislations such as the Banking Regulation Act, 1949; RBI Act, 1934; and Foreign Exchange Management Act, 1999.
  - Minimum paid-up capital requirement is Rs. 100 crore.
- **Permissible Activities: Acceptance of deposits up to Rs. 2,00,000**, **investment in secure G-Secs, and provision of remittance services, mobile payments, transfers**, purchases, and other banking services.
- **Restrictions: Cannot issue loans and credit cards,** accept time deposits or NRI deposits, or establish subsidiaries for non-banking financial activities.

Universal Bank: A universal bank includes retail banking, wholesale banking, and investment banking services under one roof. It operates simultaneously in these three sectors, allowing for synergies and comprehensive service offerings.

RBI's Financial Inclusion (FI) Index Reflects Sustained Growth

- The Financial Inclusion (FI) Index released by the Reserve Bank of India (RBI) indicates consistent growth across all segments.
- **Growth Trends:** The FI Index for March 2023 stands at 60.1%, showcasing a notable progression from 56.4% in March 2022 and 43.4% during its pilot phase in March 2017.

- **Comprehensive Coverage:** The index comprehensively assesses the extent of Financial Inclusion throughout the country, encompassing details from banking, investments, insurance, postal services, and the pension sector.
- **Scoring Mechanism:** The index, ranging from 0 (complete financial exclusion) to 100 (complete financial inclusion), is constructed without a specific 'base year.' It tracks 97 indicators, categorized into three sub-indices: Access (35% weightage), Usage (45%), and Equality (20%).

RBI's Norms for All India Financial Institutions (AIFIs) Based on Basel III Framework

In a significant move, the RBI has unveiled updated norms for All India Financial Institutions (AIFIs), aligning them with the Basel III capital framework. These fresh regulations are slated to come into effect in April 2024.

About Basel III Capital Framework Overview

- The Basel III framework, conceived in 2009 as an international regulatory accord, aims to mitigate risks in the banking sector. It mandates banks to uphold specific reserve capital levels and leverage ratios.
- The framework was developed by the Basel Committee on Banking Supervision in **response to the financial crisis of 2007–2009.**
- **These norms** mandate banks to maintain a minimum Capital to Risk-weighted Assets Ratio **(CRAR) of 8%.**
- The **RBI**, aligning with global standards, mandates banks to maintain a higher minimum **CAR of 9%.**

AIFIs under RBI Regulation

- AIFIs, acting as **crucial financial regulatory bodies, play a pivotal role in resource allocation and providing long-term financing for specific sectors**.
- The RBI oversees and regulates five prominent AIFIs: NaBFID, Exim Bank, NABARD, SIDBI, and NHB.
- The directive, exercised under **Section 45L of the RBI Act, 1934**, mandates AIFIs to **achieve a minimum Capital Adequacy Ratio (CAR) of 9% by April 2024** (with an extension until July 2024 for the National Housing Bank).

Transition from London Interbank Offered Rate (LIBOR)

The Reserve Bank of India (RBI) has instructed banks and other regulated entities to transition from the London Interbank Offered Rate (LIBOR) and Mumbai Interbank Forward Outright Rate (MIFOR) to a widely accepted Alternative Reference Rate, such as the **Secured Overnight Financing Rate (SOFR).**

London Interbank Offered Rate (LIBOR)

- LIBOR is a **benchmark interest rate at which major global banks lend to one another** in the **international interbank market for short-term loans**.
- It acts as a **benchmark for short-term interest rates.**
- It is an **indicator of the health of the financial system** and provides an idea of the trajectory of impending policy rates of central banks.
- LIBOR is **also the basis for consumer loans in countries around the world**, so it impacts consumers just as much as it does financial institutions.

ALTERNATIVES TO LIBOR

Jurisdiction	Administrator	Alternative Reference Rate Name	Description
United States of America	Federal Reserve Bank of New York	Secured Overnight Financing Rate (SOFR)	Secured rate that covers multiple overnight repo market segments
United Kingdom	Bank of England	Sterling Overnight Index Average (SONIA)	Unsecured rate that covers overnight wholesale deposit transactions
Switzerland	SIX Exchange	Swiss Average Rate Overnight (SARON)	Secured rate that reflects interest paid on interbank overnight repo rate
Japan	Bank of Japan	Tokyo Overnight Average Rate (TONAR)	Unsecured rate that captures overnight call rate market
Euro area	European Central Bank	Euro short-term rate (€STR)	Unsecured rate that captures overnight wholesale deposit transactions

How Is LIBOR Calculated

- **The Intercontinental Exchange (ICE) calculates the LIBOR** rate for five currencies with seven different maturities, including the **Swiss franc, euro, pound sterling, Japanese yen, and US dollar.**
- The ICE benchmark administration consists of 11 to 18 banks contributing for each currency, with only those with a significant role in the London market eligible for membership.

- The rates received are arranged in descending order, and the top and bottom quartiles are excluded to remove outliers. The arithmetic mean of the remaining data is then computed to get the LIBOR rate.
- The process is repeated for each of the five currencies and seven maturities, producing 35 reference rates. The most commonly quoted rate is the three-month U.S. dollar rate.

MIFOR

- Mumbai Interbank Forward Outright Rate (MIFOR) is the rate that Indian banks use as a benchmark for setting prices on forward-rate agreements and derivatives.
- MIFOR is a mix of the London Interbank Offered Rate and a forward premium derived from Indian forex markets.
- MIFOR is currently published by Financial Benchmarks India Pvt Ltd (FBIL).

RBI Surplus

The Reserve Bank of India (RBI) plans to transfer a surplus of ₹87,416 crore to the Union government for 2022-23, marking an 188% increase from the previous year.

What is RBI Surplus?

- The RBI's surplus, as per **Section 47 of the RBI Act, 1934**, represents the **excess of income over expenditure.** This income is derived from various sources, including **interest on securities**, **net interest from liquidity operations**, and **interest from deposits held with foreign banks**.
- To generate this surplus, the central bank deducts its expenditure, primarily for currency note printing and operational maintenance.
- **Typically, this surplus is transferred to the government as a dividend**, as mandated by Section 47.
- Furthermore, **Section 48 of the RBI Act, 1934, exempts the Bank from income-tax and super-tax on its income, profits, or gains.**

Contingency Fund

- RBI also allocates funds to a **contingency fund (CF)** in certain years. The CF serves to address unexpected contingencies, *such as rapid depreciation in the value of held securities or risks from unforeseen events like demonetization.*
- While the CF decreases the surplus and the dividend to the government, it plays a crucial role in fortifying the RBI's financial position.
- Together with other reserves like the asset development fund and currency and gold revaluation reserve, these funds constitute an integral part of the RBI's balance sheet.

Transfer to Government

- Previously, a significant portion of the surplus generated by the RBI was allocated to its Contingency Fund (CF) and Asset Development Fund (ADF).
- However, following the recommendations of the **Malegam Committee in 2013** and subsequent revisions under the **Economic Capital Framework (2014-15) by the Bimal Jalan committee**, there was an increase in the transfer of surplus to the government.

Antardrishti Dashboard

- Recently, the Reserve Bank of India Governor launched a financial inclusion dashboard named 'Antardrishti'.
- **Antardrishti dashboard** provides the necessary knowledge to evaluate and **track the development of financial inclusion** by recording relevant data.
- It will also make it possible to assess the degree of financial exclusion at a **local level across the nation** so that such places may be addressed.

RBI's Hoard of Gold reaches 800 Tonnes

- The Reserve Bank of India (RBI) and other central banks have been increasing their gold holdings since 2010, a significant shift from the 1990s and early 2000s when they were net sellers.

- India has consistently ranked among the top 10 official gold buyers from 1999 to the end of 2021, with its gold reserves reaching 794.64 metric tonnes in fiscal 2023. This is an increase of nearly 5 per cent over fiscal 2022, when it held 760.42 metric tonnes of gold.

Reasons for the Surge in Gold Holdings

- **Balancing Foreign Exchange Reserves:** Gold serves as a tool for managing risk associated with currency holdings, contributing to stability during economic uncertainties.
- **Hedging against Fiat Currencies:** With its intrinsic value, gold provides a hedge against the erosion of currency value caused by inflation.
- **Diversifying Portfolios:** Central banks diversify their portfolios with gold, a move designed to protect against volatility. Gold prices typically exhibit an inverse correlation with the U.S. dollar.

India's Gold Market- Statistics

- As per the **World Gold Council** report (released in January 2023), **India is the second largest gold jewellery consumer in the world.**
- In 2021, India bought 611 tonnes of gold jewellery, second only to China (673 tonnes).
- The report further highlighted that gold jewellery exports in India have grown from US $7.6 billion in 2015 to US $12.4 billion in 2019.
- This report also highlighted that **rural India is the largest consumer of gold jewellery** occupying 55-58 per cent of the market share, and the middle class is the primary gold consumer in India.

Expected Credit Loss (ECL)-based Loan Loss Provisioning Framework

Banks have requested the RBI for one more years' time to implement the system of Expected Credit Loss (ECL) for provisioning of loans.

What is Loan-loss Provision

- The Reserve Bank of India (RBI) defines a loan loss provision as an **expense that banks set aside for defaulted loans.** This cash reserve is used when borrowers are unlikely to repay their loans.
- Banks can use their loan loss reserves to cover losses incurred from defaulted loans, instead of taking a loss in their cash flows. For instance, if a bank has $100,000 in loans and a $10,000 loan loss provision, the bank would deduct $500 from the provision to cover the $500 loss from the defaulted loan. The level of loan loss provision is determined to protect the bank's safety and soundness.
- **Present approach:** India's banks are now required to make loan loss provisions using the **incurred loss model**, which **assumes all loans will be repaid until a loss or trigger event is identified**, after which the impaired loan or portfolio is written down to a lower value.

Expected Credit Loss (ECL)

- RBI has proposed a framework introducing an Expected Credit Loss (ECL)-based approach for loan provisioning in case of defaults.
- This approach requires banks to estimate credit losses based on forward-looking assessments and classify assets into three stages: Stage 1 for low-risk assets, Stage 2 for those with increased credit risk, and Stage 3 for impaired assets.

Benefits of the EL-based Approach

- Enhances banking system resilience in line with global standards.
- Expected to result in excess provisions compared to the shortfall observed in the incurred loss approach.

'Project WAVE'

- **Indian Bank** has launched a set of innovative services as part of its digital transformation project known as **'Project WAVE' (World of Advance Virtual Experience).**
- Developed in **partnership with National E-Governance Services Ltd.,** this initiative aims to enhance customer experiences through cutting-edge solutions.

- One notable addition to the services is the **introduction of an electronic bank guarantee (e-BG)** feature, streamlining and modernizing the conventional paper-based processes.

Centralised Information Management System

- The Centralised Information Management System (CIMS) is a **cloud-based system developed by the Reserve Bank of India (RBI) to improve the efficiency of its regulatory reporting system.**
- CIMS is a **data warehouse that helps with data flow management**. It allows banks and other regulated entities to submit regulatory reports electronically.
- CIMS will initially focus on reporting by **scheduled commercial banks**, and will later expand to urban cooperative banks and non-banking financial companies.
- **CIMS is intended to strengthen regulatory supervision, monitoring, and enforcement.**

Mahila Samman Saving Certificate' Scheme

The government has recently granted permission for all Public Sector Banks and eligible Private Sector Banks to implement and activate the Mahila Samman Savings Certificate (MSSC), 2023.

Mahila Samman Saving Certificate' Scheme

- The scheme **offers deposit facility up to Rs 2 lakh in the name of women or girls for a tenor of 2 years.**
- It **offers fixed interest rate of 7.5 per cent.**
- There are **no tax benefits**, but **partial withdrawal is allowed** in this scheme.
- This is a **one-time scheme** announced in Budget 2023 and will **remain available** for a two-year period i.e. **up to March 2025**.
- **Benefit**: It will encourage more women to **adopt formal financial saving instruments**.

Related Scheme: Sukanya Samriddhi Yojana

- It is a government-backed **small deposit scheme for a girl child**. A Sukanya Samriddhi Account can be opened any time after the birth of a girl child till she turns 10.
- The account will remain operative for 21 years from the date of its opening or till the marriage of the girl after she turns 18.
- To meet the requirement of the child's higher education expenses, partial withdrawal of 50 per cent of the balance is allowed after she turns 18.

Global Regulatory Framework for Activities Involving Crypto-Assets

The Financial Stability Board (FSB) has recently finalized a **Global Regulatory Framework for Activities Involving Crypto-Assets.** This framework, shaped by insights gained from experiences in crypto-asset markets, aims to enhance the comprehensiveness and international consistency of regulatory and supervisory approaches.

Key Principles

- The key principles underpinning this framework include the concept of 'same activity, same risk, same regulation,' ensuring that **crypto-asset activities and stablecoins are subject to consistent and comprehensive regulation.**
- The framework comprises two high-level recommendations focusing on the regulation, supervision, and oversight of both crypto-asset activities and markets, as well as global stablecoin arrangements (GSCs).
- It's noteworthy that **Central Bank Digital Currencies (CBDCs) fall outside the purview of these recommendations.**

About Crypto-assets and Stablecoins

- **Crypto-assets:** These are private-sector digital assets relying primarily on cryptography, distributed ledger, or similar technology. Various segments of crypto-asset markets include unbacked crypto-assets (e.g., Bitcoin), stablecoins, and decentralized finance (DeFi).
- **Stablecoin:** A type of **cryptocurrency whose value is pegged to the price of another asset, providing stability** compared to more volatile crypto-assets.

Financial Stability Board (FSB)	
Establishment	Established in April 2009 after the G20 Summit in London. Successor to the Financial Stability Forum.
Mandate	Coordinate international efforts of national financial authorities. Develop and promote effective regulatory and supervisory policies. Strengthen financial systems and increase stability in global markets.
Headquarters	Basel, Switzerland.
Membership	Includes all G20 major economies. 68 member institutions, comprising central banks, ministries of finance, supervisory and regulatory authorities from 25 jurisdictions. Also includes 10 international organizations and six Regional Consultative Groups (RCGs).
Framework	The Plenary: Sole decision-making body. Steering Committee: Takes forward operational work between Plenary meetings. Three Standing Committees: Each with specific but complementary responsibilities.
Decisions	FSB decisions are not legally binding on its members.
India and FSB	Active Member with three seats in the Plenary represented by Secretary (Dept of Economic Affairs), Deputy Governor-RBI, and Chairman-SEBI.

Financial Services Institutions Bureau (FSIB)

- The Central Government has established the Financial Services Institutions Bureau, effective July 1, 2022, to **recommend whole-time directors and non-executive chairpersons for the boards of financial services institutions and provide advice on personnel management matters.** The final decision on the FSIB recommendation would be taken by the **Appointments Committee of the Cabinet** headed by the PM.
- It's a government body **set up under the Department of Financial Services.** It **replaced the Bank Board's Bureau (BBB)**.
- **Composition**
  - FSIB would be **headed by a chairman**, a **central government nominee.**
  - The **board would comprise the Secretaries of the DFS, the Chairman of IRDAI, and a Deputy Governor of the RBI.**
  - Additionally, it will have **three part-time members** who are experts in banking and three more from the insurance sector.
- **Other Mandates of FSIB**
  - It would also **issue guidelines for selecting general managers and directors of public sector general insurance companies.**
  - It will also be involved in **formulating and developing business strategies for state-run banks** and help them in their fund-raising plans.
  - It would also **monitor and assess the performance of public sector banks,** government-owned financial institutions and insurance companies.

UDGAM Portal

The RBI recently launched a **Centralised Web Portal, UDGAM (Unclaimed Deposits – Gateway to Access inforMation),** for the public to search for their unclaimed deposits across multiple banks at one place.

About UDGAM Portal

- It has been developed by RBI for use by members of public to facilitate and make it easier for them to search their unclaimed deposits across multiple banks at one place.

- Reserve Bank Information Technology Pvt Ltd (ReBIT), Indian Financial Technology & Allied Services (IFTAS), and participating banks have collaborated on developing the portal.
- The portal will enable users to either claim the deposit amount or make their deposit accounts operative at their respective banks.

Procedure:

- Customers can register on the 'Udgam' platform using their mobile number.
- Once registered, they can search for unclaimed deposits under their name and provide additional inputs such as PAN, voter ID, driving licence and passport number.
- Customers can then retrieve their deposits by completing a KYC process with their branch.
- In case the deposit-holder has passed away, their nominee will be required to submit documents.

What are Unclaimed Deposits?

According to RBI, "Unclaimed Deposits" refers to funds held in savings or current accounts that have remained inactive for a duration of 10 years, or in the case of fixed deposits (FDs), have not been withdrawn within 10 years from the maturity date.

100 Days 100 Pays Campaign

- The **Reserve Bank of India (RBI)** has launched a '100 Days 100 Pays' **campaign to settle the top 100 unclaimed deposits of every bank in every district within 100 days.**
- According to RBI, **unclaimed deposits are the balances held in current or savings accounts not operated for 10 years or term deposits not claimed within 10 years from maturity.**
- These amounts are **transferred to the Depositor Education and Awareness (DEA) Fund maintained by RBI.**
- **Depositors can claim the deposits at a later date** from the banks where they were held, along with interest.
- The total amount of unclaimed deposits transferred to the RBI was Rs 35,012 crore till February 2023.

De-dollarisation

- De-dollarisation refers to the **process wherein countries tend to reduce their reliance on the US dollar as a reserve currency, medium of exchange, and also a unit of account.**
  - **Reserve currency** is the foreign currency held by central banks to facilitate international transactions, stabilise exchange rates and bolster financial confidence.
- The attempts to dethrone the dollar as the global reserve currency have picked up pace in the aftermath of Russia's invasion of Ukraine last year.

EBRD Increases Capital Base

- The European Bank for Reconstruction and Development (EBRD) shared that its board has approved a 4-billion-euro capital increase.
- The **EBRD has been the largest institutional investor in Ukraine for the past 30 years**, greatly boosting its support since Russia's 2022 invasion. It deployed 3 billion euros ($3.3 billion) to Ukraine for 2022-2023.

European Bank for Reconstruction and Development (EBRD)

- EBRD is an **international financial institution** founded in 1991. As a **multilateral developmental investment bank**, the EBRD uses investment as a tool to build market economies.
- **Initially focused on the countries of the former Eastern** Bloc, it expanded to support development in more than 30 countries from **Central Europe to Central Asia**.
- Similar to other multilateral development banks, the EBRD has **members from all over the world (North America, Africa, Asia and Australia),** with **the biggest single shareholder being the United States,** but only lends regionally in its countries of operations.
- **Headquartered in London**, the EBRD is owned by 71 countries, the EU, and the European Investment Bank. Despite its public-sector shareholders, it **invests in private enterprises, together with commercial partners.**

Framework on Green Deposits

RBI recently clarified its stand on the 'Framework for Acceptance of Green Deposits'. The framework became effective from **June, 2023.**

Green Deposits

Green deposits are **interest-bearing fixed deposits denominated in Indian rupees, similar to regular fixed deposits.** The proceeds from green deposits are set aside for **allocation into projects or activities that yield environmental benefits.**

Key Points from The Framework

- Funds raised through green deposits must be **utilised for activities** promoting energy efficiency, reducing carbon emissions and greenhouse gases, aiding climate resilience and adaptation, and preserving and enhancing natural ecosystems and biodiversity.
- The deposits raised under the framework are covered by the **Deposit Insurance and Credit Guarantee Corporation (DICGC)**.
- It is **not mandatory for banks and NBFCs to raise green funds**, but in case they intend to do so they must follow the prescribed framework.
- **Banks can temporarily park proceeds of green deposits, in liquid instruments with maximum maturity up to one year**, pending allocation towards green activities/projects.
- The banks **cannot finance green activities/ projects first and raise green deposits later**. Besides, the framework is applicable for green deposits raised by banks on or after June 1, 2023.
- Since the activities listed in the framework for green deposits are the same as given in sovereign green bonds, **investment in sovereign green bonds are therefore covered** under the framework.
- The **banks must pay interest** on green deposits to their customers. Banks are **permitted to offer overdraft (OD) facilities** to their customers against green deposits.
- There is **no restriction on premature withdrawal** of green deposits. Premature withdrawals will also not have any bearing on activities/projects undertaken using the proceeds of green deposits.
- The framework **does not permit** green deposits to be denominated in **any foreign currency**.

Connected Lending

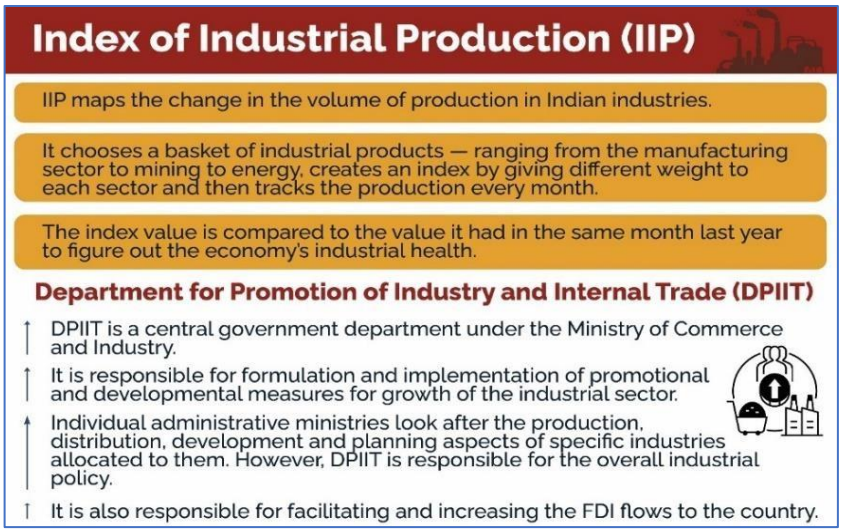
- The RBI is planning to bring in a unified regulatory framework on 'Connected Lending' (CL) for the regulated entities.
- According to World Bank, **CL is the extension of credit to individuals or firms connected through ownership or the ability to exert control, whether direct or indirect.**
- Examples of connected parties include a firm's parent, major shareholders, subsidiaries, affiliated companies, directors, and executive officers. Firms are also connected where they are controlled by the same family or group.
- In short, CL means **loans extended by a bank to its owners or managers and to their related businesses** on terms softer than the market-determined terms.

INDUSTRY AND INFRASTRUCTURE

Index of Eight Core Industries

- The Index of Eight Core Industries (ICI) saw an 8.1% increase in September 2023 compared to September 2022, providing insight into the **production performance of core industries.**
- It measures combined and individual performance of production in **eight core industries** viz. Coal (weight 10.33%), Crude Oil (8.98%), Natural Gas (6.88%), Refinery Products (28.04%), Fertilizers (2.63%), Steel (17.92%), Cement (5.37%) and Electricity (19.85%).

- These industries have a major impact on the Indian economy and significantly affect most other industries as well.
- The eight core industries comprise 40.27 percent of the weight of items included in the Index of Industrial Production (IIP).
- The **base year of ICI is 2011-12** and it is prepared every month and released by the **Office of the Economic Adviser, DPIIT**.



National MSME Council

- The first meeting of the National MSME Council was organized by the Ministry of Micro, Small, and Medium Enterprises (MSME) under the Raising and Accelerating MSME Performance (RAMP).
- The National MSME Council functions as an **administrative and functional body, overseeing inter-ministerial coordination and facilitating cooperation between the Centre and the States**. It is responsible for monitoring the progress of reforms mandated in the MSME sector, including the RAMP program.
- National MSME Council is **chaired by the Union Minister for MSME** while the Minister of State for MSME, serves as the Vice Chairperson.

Raising and Accelerating MSME Performance (RAMP)

- RAMP, launched in June 2022, is a **World Bank-assisted Central Sector Scheme** with a total outlay of Rs 6,062.45 crore. Out of this, Rs 3,750 crore is provided as a loan by the World Bank, while the remaining Rs 2,312.45 crore is contributed by the Union Government.
- The program's objectives include **enhancing access to markets and credit**, **strengthening institutions**, **fostering center-state partnerships**, addressing delayed payment issues, and promoting environmental sustainability in MSMEs.
- RAMP also seeks to **bolster implementation capacity and expand MSME coverage in states**, aiming to amplify the impact of existing MSME schemes.

BIZAMP Programme

- The Ministry of MSME and NSIC Venture Capital Fund Limited (NVCFL) have organized an outreach programme called "**BIZAMP" - Amplifying businesses of North East Region, aimed at empowering MSMEs in the region.**
- The event showcased the efforts of the State and Central government and provided insights on policies designed for MSMEs' growth.
- It also provided a platform for daughter funds of the Self-Reliant India (SRI) Fund to reach MSMEs in the NE Region of India. The aim is to help MSMEs interact with these funds and benefit from capital infusion for business growth.

Self-Reliant India (SRI) Fund

- The government has initiated the SRI Fund with a substantial corpus of Rs 10,006 crore, earmarked for infusing capital into MSMEs via Daughter Funds.
- **Managed by NVCFL**, the SRI Fund operates as an **Alternative Investment Fund (AIF)** designed to provide growth capital to MSMEs through various financial instruments such as equity, quasi-equity, or equity-like structures.
- Employing a 'Funds-of-Fund' investment strategy, the **SRI Fund invests in SEBI registered Category I and Category II Alternative Investment Funds**, which subsequently channel investments into MSMEs.

- The **primary investor in the Fund is the Government of India**, facilitated through the Ministry of Micro, Small, and Medium Enterprises.

GRSE Accelerated Innovation Nurturing Scheme (GAINS) 2023

- **Garden Reach Shipbuilders and Engineers Ltd** has launched the GRSE Accelerated Innovation Nurturing Scheme **(GAINS) 2023, a start-up challenge aiming to address challenges in the ship design and construction industry** while achieving Atmanirbhar Bharat objectives.
- GAINS 2023 will focus on **artificial intelligence, renewable energy, and energy efficiency** enhancement, leveraging India's vast start-up ecosystem.

The GAINS Challenge

- The GAINS challenge is **a two-stage process** aimed at generating ideas and selecting a few promising ones. Participants submit short, detailed submissions to clarify their understanding of a problem. Only proposals that are implementable within a reasonable time frame and add value to the shipyard's business interests are considered for selection.
- The selected entities have a fixed time to submit detailed proposals, including a technical description, implementation strategy, market potential, timelines, costing, and return on investment.
- Each entity will receive a **maximum of ₹5 lakh each**, based on the committee's recommendations, after delivering a project report. The final winners will be invited for further negotiations and potential contract award.

Garden Reach Shipbuilders and Engineers (GRSE)

- GRSE is India's leading shipyards under the administrative control of **Ministry of Defence**.
- Founded in **1884** as a small privately owned company, it was nationalized by Union Government in 1960.
- Located in **Kolkata**, GRSE's primary role has been building warships and other vessels for the Indian Navy and Indian Coast Guard.
- It is the first Indian shipyard to build 100 warships and was awarded the **Miniratna status** in 2006.

City Investments to Innovate, Integrate and Sustain (CITIIS) 2.0 and Circular Economy

Union Cabinet has approved the **City Investments to Innovate, Integrate and Sustain (CITIIS) 2.0**. This has been approved to promote **circular economy** in 18 Smart Cities to be selected through a competition.

City Investments to Innovate, Integrate and Sustain (CITIIS)

- CITIIS is a component of the Indian government's Smart Cities Mission. Its goal is to promote **creative ideas and integrate various urban systems** in order to help India's sustainable urban growth.
- CITIIS is a competitive program, and cities are selected through a rigorous process based on the strength of their proposals.
- **Institutions/agencies involved:** It is a joint program of the **Ministry of Housing and Urban Affairs**; **Agence Francaise de Development (AFD);** the **European Union** (EU), and the **National Institute of Urban Affairs (NIUA).**
- **Objective:** CITIIS aims to offer **financial and technical assistance and capacity building** to **selected Indian cities** to implement projects addressing their **urban challenges**, such as improving mobility, enhancing water supply and sanitation systems, and promoting sustainable energy solutions.

Key Pillars	**Innovation**	It encourages cities to propose innovative solutions to address their urban challenges.
	Integration	CITIIS promotes the integration of various urban systems and sectors. It aims to break silos and encourage collaboration between different stakeholders.
	Sustainability	It emphasizes the importance of sustainability in urban development.

Different Phases of CITIIS

Feature	CITIIS 1.0 (2018)	CITIIS 2.0 (2023-2027)
Launch Year	2018	2023
Total Outlay	₹933 crore (€106 million)	Loan: ₹1760 crore (€200 million) + Technical Assistance Grant: ₹106 crore (€12 million)
Duration	2018- 2022	4 years (2023-2027)
Funding Sources	France (€100 million) + European Union (€6 million)	Loan from AFD (€100 million) and KfW (€100 million), Technical Assistance Grant from EU (€12 million)
Components	12 city-level projects selected through a competitive process.	Financial and technical support for 18 cities to develop climate resilience projects, focusing on integrated waste management.
	Capacity-development activities in the State of Odisha.	Support for all states and UTs on demand, including setting up climate centers, creating data observatories, and capacity building.
	Promoting integrated urban management at the national level	Interventions at all three levels (central, state, and city) to enhance urban climate governance in India.

About Circular Economy

- The circular economy presents an **alternative to the traditional linear model, characterized by a "take-make-dispose" approach**.
- Unlike the linear pattern where resources are extracted, transformed into products, used, and eventually discarded as waste, the **circular economy aims to create a closed loop, ensuring continuous use of materials, products, and resources while minimizing waste and pollution.**

- **Main Principles of Circular Economy:**
  - **Designing out Waste and Pollution:** Products are designed for durability, easy repair, and recyclability**.**
  - **Keeping Products and Materials in Use:** Promoting reuse, refurbishment, and recycling to extend product lifetimes; Encouraging secondary markets for used goods and efficient recycling processes.
  - **Regenerating Natural Systems:** Focus on restoring and regenerating natural resources and ecosystems; Advocacy for renewable energy, sustainable agriculture, and biodiversity preservation.

Kerala Fibre Optical Network (KFON)

- Kerala has launched the Kerala Fibre Optical Network (KFON) to reduce the digital divide by providing high-speed broadband internet access to all households and government offices.
- KFON, an optical fibre cable network covering 30,000 km across Kerala, will act as an **infrastructure provider**, sharing its infrastructure with all service providers.
- While KFON will handle government office cable work, **individual beneficiaries will rely on private, local internet service providers.**
- KFON promises internet speeds from 10 Mbps to 10 Gbps and improved mobile phone call quality. Connecting KFON to mobile towers will accelerate 4G and 5G transition in Kerala.

- **Stakeholders:** The KFON project, a **joint venture between Kerala State Electricity Board and Kerala State IIT Infrastructure Limited**, is implemented by a consortium led by Central PSU Bharat Electronics Limited and operated and maintained by Kerala State Information Technology Infrastructure Ltd.
- **Funding:** The project is fully funded by **Kerala Infrastructure Investment Fund Board (KIIFB)**.
- **Beneficiaries:** The state government plans to provide free internet connections to 20 lakh below-poverty-line families through KFON, with the first stage aiming to connect 30,000 government offices and 14,000 BPL families in the state.

National Coal Index

- The NCI is a **price index which reflects the change in the price level of coal on a particular month relative to the fixed base year.**
- This price index **combines the prices of coal from all the sales channels- Notified Prices, Auction Prices and Import Prices.**
- The index, launched on June 4th, 2020, aims to accurately reflect market prices for **base year of FY 2017-18.**
- The concept and design of the Index as well as the Representative Prices have been **developed by the Indian Statistical Institute, Kolkata.**
- The Index is meant to encompass all transactions of raw coal in the Indian market.
- This includes coking and non-coking of various grades transacted in the regulated (power and fertilizer) and non-regulated sectors.

Bahubali Cattle Fence

- The National Highways Authority of India (NHAI) has decided to implement the Bahubali Cattle Fence along highways in India **to prevent the cattle from crossing the road and causing dangerous accidents that result in the loss of human life.**
- The cattle fence is **constructed using bamboo and offers a fully effective and environmentally friendly solution.**
- The **bamboo is treated with creosote oil and coated with high-density polyethylene (HDPE),** a nature-friendly solution tested to be a **stronger alternative to steel, hence termed Bahubali**.
- The fence has a fire rating of Class 1, ensuring safety, and aligns with the principles of Aatmanirbhar Bharat, which aims to make all highways sustainable and minimize harm to wildlife and cattle.
- The fence will be 1.20 meters high and will be installed on section 23 of NH-30 as a comprehensive solution.

National Highways Authority of India (NHAI)

- NHAI was constituted by the NHAI Act, 1988 under the Ministry of Road Transport and Highways.
- It became operational in 1995 and was formally made an autonomous body.
- It has been set up as a Central Authority to develop, maintain and manage the National Highways for which the responsibility is given to it by the Union Government.
- The NHAI reserves the right to levy toll on identified highways.

Surety Bonds

The **National Highways Authority of India (NHAI) is promoting the use of surety bond** insurance products for **highway projects** to address liquidity issues in the construction sector, in response to the Union Budget 2022-23, which allowed the use of surety bonds as an alternative to bank guarantees.

Background

- The Union Budget 2022-23 enabled the use of **surety bonds in government procurements to stimulate private sector investment in infrastructure.**
- Following the budget announcement, the **Insurance Regulatory and Development Authority of India (IRDAI) outlined detailed norms** for the issuance of surety bonds by general insurers.

- **Need for Surety Bonds:** Developers are required to provide bonds, which can account for up to 20% of the project cost, but **currently, all infrastructure sector guarantee requirements are fulfilled by banks, affecting contractors' working capital.**

Surety Bond

- A surety bond is a **legally binding agreement involving the principal, oblige, and the surety (provided by an insurance company).**
- If the principal violates the bond's terms, the harmed party can make a claim on the bond to recover losses.
- Surety bonds are widely utilized in developed western economies, with the global market valued at $29.5 billion.
- **Advantages:**
    - Surety bonds, which do not require collateral, **can lower indirect costs and enable contractors to participate in multiple projects simultaneously.**
    - They can also **reduce initial project costs and improve project viability** by mitigating risks like cost overruns and poor contract performance.
    - India, the world's third-largest construction market, may require an estimated Rs 2.70 lakh crore of Bank Guarantees in 2023.
    - Replacing Bank Guarantees with surety bonds could provide up to Rs 50,000 crore in capital relief.
    - **They remain in force for the project's duration and can be reimbursed like insurance.**

New Initiatives Under SAMARTH

- The Ministry of Textiles has expanded its implementing partners under the **Scheme for Capacity Building in the Textiles Sector (SAMARTH),** bringing together 43 new partners. The Ministry has partnered with 157 Textile Industries, 16 Central/State Government Agencies, and 3 Sectoral Organizations for training programs.
- Around 75,000 beneficiaries have been allocated to the training partners.
- The funding pattern has also been revised, with a 5% increase in cost norms to provide additional financial support to industries.

SAMARTH

- SAMARTH is a **skilling programme by the Ministry of Textiles**, aimed at incentivizing and supplementing industry efforts in creating jobs in organized textile and related sectors.
- Implemented through Implementing Partners, SAMARTH **covers the entire value chain of textiles, excluding spinning and weaving.** The training programme and curriculum are rationalized to meet domestic and international economic demands.
- SAMARTH also includes a **special provision for upskilling/re-skilling programs to improve worker productivity.**
- The scheme adopts 184 courses aligned with the **National Skill Qualification Framework (NSQF),** with **mandatory placement of 70% in entry-level courses and 90% for upskilling programs.**

Mega Container Terminal

- **Deendayal Port Authority and DP World** have signed an agreement for a mega-container terminal project in **Tuna Tekra, Kandla, Gujarat.**
- The project, **funded by the Ministry of Ports, Shipping & Waterways**, will build a terminal with an annual capacity of 2.19 million TEUs and a 1,100m berth capable of handling next-generation vessels.
- The terminal is **expected to transform the economic landscape of Kutch**, create ancillary services like warehousing, and create direct and indirect employment opportunities.
- It will also improve operational efficiency, reduce congestion at Kandla creek, and drive the port towards becoming a Mega Port.
- The terminal will comply with green port guidelines, ensuring sustainability in port operations.

- The project aligns with **India's Vision 2047 to quadruple port handling capacity** and develop multimodal logistics infrastructure to promote economic growth.

Deendayal (Kandla) Port

- Deendayal Port (previously called Kandla port) is situated in the Kandla Creek and is 90 kms from the mouth of the **Gulf of Kachch in Gujarat.**
- This is a **protected natural harbor** that is recognized as one of the **major ports in India**.
- It was **constructed in the 1950s as the chief seaport serving western India**, after the partition of India from Pakistan left the port of Karachi in Pakistan.
- Deendayal Port is **hub for major imports like petroleum, chemicals and iron also export grains, salt and textiles.**
- It remains **India's biggest state-owned cargo handler by volume**, but it has steadily lost market share to privately owned Mundra Port (India's largest private port) 60km to the southwest.

Land Ports Authority of India (LPAI)

- The LPAI was established in 2012 as a **statutory body under the Land Ports Authority of India Act, 2010**, with the **task of building land ports on Indian borders** and providing state-of-the-art infrastructure facilities to **facilitate safe, seamless, and efficient cross-border movement of cargo and passengers**.
- LPAI is developing land ports (**also known as Integrated Check Posts** (ICPs) to preserve regional connectivity across India's international borders.
- There are currently **nine operational land ports in India**, which are located at Attari, Agartala, Petrapole, Raxaul, Jogbani, Moreh, Sutarkandi, Srimantapur, and Dera Baba Nanak.
- **Nodal Ministry: Department of Border Management**, Ministry of Home Affairs
- **Objective:** To reduce dwell time, trade transaction costs, promote regional trade, people-to-people contact and imbibe the best international practices.
- **Composition-** Appointed by the Central Government, its members include-
  - **Chairperson & Two Members:** one for Finance and the other for Planning and Development.
  - Not more than nine members (ex-officio) from amongst the officers, not below the rank of the Joint Secretary to the Government of India among concerned Ministries.
  - The Chief Secretary or his nominee not below the rank of the Secretary of State where ICPs are located;
  - A representative each from recognized bodies of workers and of traders.

Khanan Prahari App

- Khanan Prahari App **allows citizens to report incidents of illegal coal mining through geo-tagged photographs and textual information.**
- The corresponding web portal, called as **Coal Mine Surveillance & Management System (CMSMS),** has been developed in association with the Bhaskaracharya Institute of Space Application & Geoinformatics **(BISAG), Gandhinagar, and CMPDI, Ranchi.**
- The user's identity is kept confidential, ensuring privacy and security.
- **Complaint Tracking:** Complainants receive a complaint number, which they can use to easily track the status of their reported complaints on the Khanan Prahari mobile app.

MoU Between Gati Shakti Vishwavidyalaya and Airbus

- The Indian Railways' Gati Shakti Vishwavidyalaya (GSV) Vadodara and Airbus have signed an (MoU) aimed at strengthening the Indian aviation sector.
- The industry-academic partnership aims to develop skill-enhancing courses for students and professionals in the aerospace sector. Around 15,000 students are expected to be placed in Airbus India operations. The partnership will also facilitate research, faculty exposure, internships, and placements.

Gati Shakti Vishwavidyalaya (GSV)

- GVS Vadodara was **established through an Act of Parliament in 2022**, for creating best in class manpower and talent for the **entire transportation and logistics sectors.**
- It's the first of its kind university which aims to fulfill the mandate of the **National Developmental Plans** across railways, shipping, ports, highways, roads, waterways, and aviation, among others.
- Sponsored by the Ministry of Railways, the university already has several collaborations with leading institutions and industries globally.

Airbus

- Airbus is the world's largest manufacturer of commercial aircraft and a leading producer of helicopters, defence and space equipment.
- Make in India is at the heart of Airbus' business strategy in India and the company is steadily increasing India's contribution to its global products.

Industrial Development Scheme (IDS) for Himachal Pradesh (HP) and Uttarakhand

- The Cabinet has approved an additional Rs. 1164.53 crore for the **Industrial Development Scheme (IDS), 2017 in HP and Uttarakhand** to cover committed liabilities up to 2028-29.
- The initial outlay was Rs 131.90 crore, which was exhausted in 2021-22. The additional funds will provide incentives for units in HP and Uttarakhand.

Central Capital Investment Incentive for Access to Credit (CCIIAC)

All eligible **new industrial units and existing industrial units** on their substantial expansion in the manufacturing and service sector will be provided CCIIAC @ 30% of the investment in plant and machinery with an upper limit of Rs 5 crore.

Central Comprehensive Insurance Incentive (CCII)

- **New industrial units and existing industrial units** on their substantial expansion will be eligible for reimbursement of 100% insurance premium on insurance of building and plant & machinery.
- This will be applicable for a maximum period of 5 years from the date of commencement of commercial production/operation.

Technology MoUs With IBM

- IBM has signed 3 MoUs with **Ministry of Electronics and Information Technology (MeitY)** to develop an **AI innovation sandbox environment to assist startups in solving AI challenges and building minimum viable products** using tools and resources from the sandbox, focusing on semiconductors, AI, and quantum computing.
- IBM is partnering with **IndiaAI, an AI-related division under the Digital India Corporation**, to create a national AI Innovation Platform (AIIP) focusing on AI skill development and ecosystem growth.
- IBM will offer its **Watsonx platform** for training, validating, and developing AI models across various domains.
- The company will also be a **knowledge partner of India Semiconductor Mission, promoting the semiconductor and display ecosystem.**
- IBM will assist with manufacturing and design research at India's largest semiconductor research facility. Additionally, IBM and the **Centre for Development of Advanced Computing** will collaborate on India's **National Quantum Mission**, aiming to build expertise in quantum applications and nurture a skilled quantum workforce.

A sandbox is a type of **software testing environment** that enables the isolated execution of software/ programs for independent evaluation, monitoring/testing.

Vizhinjam International Seaport Project

- The Vizhinjam International Seaport Project (VISP), **India's first deepwater trans-shipment port**, has welcomed the first cargo ship.

- The project, costing Rs 7,600 crore, is being built by **Adani Ports and SEZ Private Limited** on a **design, build, finance, operate, and transfer (DBFOT) model.**
- The project, located near Thiruvananthapuram, has a natural depth of over 18 meters and is crucial for large vessels and mother ships. The DBFOT deal is for 40 years, with provisions extending for 20 years.

Deepwater Port

- A deepwater port is a man-made structure that is used as ports or terminals to transport, store, or handle oil or natural gas.
- These structures can be fixed/ floating, located beyond state seaward boundaries. They can include: Pipelines, pumping stations, Service platforms, Mooring buoys

Design-Build-Finance-Operate-Transfer (DBFOT) Model

- The Design-Build-Finance-Operate-Transfer (DBFOT) model is a Public Private Partnership (PPP) model predominantly used by governments for project delivery.
- In this model, the private party assumes the entire responsibility for the design, construction, finance, and operation of the project for a specific period of concession.
- After this period, the ownership of the project is transferred to the government.

IRCON and RITES Granted Navratna Status

- The Ministry of Finance has awarded Navratna status to Ircon International Limited and RITES Ltd, both Central Public Sector Enterprises under the Ministry of Railways.
- The government categorises all Public Sector Undertakings (PSUs) into three categories, namely Maharatna, Navratna, and Miniratna.

Criteria for Maharatna Status

- Shall have **Navratna status**
- Listed on the Indian stock exchange with prescribed public shareholding
- Average annual turnover > Rs. **25,000 crore (last 3 years)**
- Average annual net worth > Rs. **15,000 crores (last 3 years)**
- Average annual net profit after tax **> Rs. 5,000 crores (last 3 years)**
- Significant global **presence/international operations**

Criteria for Navratna Status

- Miniratna Category – I or Schedule 'A' CPSEs
- 'Excellent' **or 'Very Good' rating in 3 of last 5 years**
- **Composite score of 60 or above in the following 6 performance indicators** including Net Profit to Net Worth, Cost of Services, Earning per share, etc.

Criteria for Miniratna Status

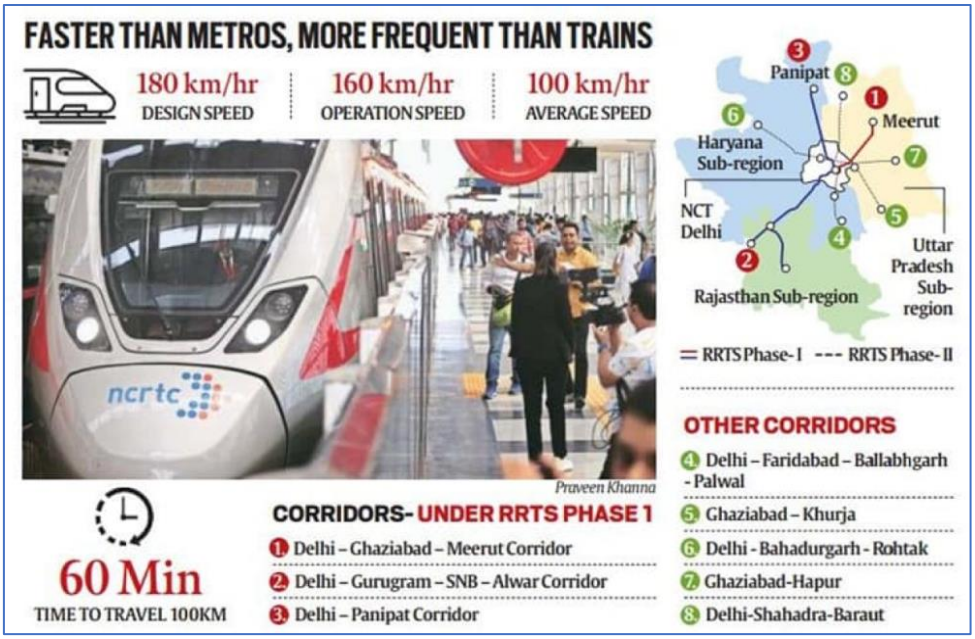
Miniratna Category-I	Miniratna Category-II
• Made profit in the **last 3 years continuously** • Pre-tax profit is **Rs.30 crores** or more in at least 1 of the 3 years • Having **Positive net worth status**	• Made profit for the last 3 years continuously • Having positive net worth status. • Not defaulted in the repayment of loans/interest payment on any loans due to the Government. • Not dependent upon budgetary support or Government guarantees.

Regional Rapid Transit System

India's Prime Minister inaugurated the first leg of the Regional Rapid Transit System (RRTS), India's first mass rapid system for regional connectivity. The RRTS aims to ensure balanced urban development through improved connectivity and access across the National Capital Region.

RRTS Details

- The RRTS also known as **Namo Bharat** has been constructed by the **National Capital Region Transport Corporation (NCRTC)**.
- NCRTC is a **joint venture company** of the Central government and the governments of Delhi, Haryana, Rajasthan and Uttar Pradesh. NCRTC comes under the **Ministry of Housing and Urban Affairs**.
- The project consists of **eight corridors, with three being constructed in phase I.** The RRTS network is faster than metros, covering smaller distances at higher frequency and providing more comfort than average Railways coaches.



- The RRTS is modelled on systems like the RER in Paris, Regional-Express trains in Germany and Austria, and the SEPTA Regional Rail in the United States.

Vanadium Deposits

- Recently, sediment samples from the Gulf of Khambhat, Gujarat, revealed the presence of vanadium, a critical raw material with diverse industrial applications.
- While traces of vanadium were previously discovered in states like Arunachal Pradesh, Karnataka, Odisha, and Maharashtra, this marks the first documented occurrence in offshore sediments in India.
- Vanadium, rarely found naturally in its pure form, has been **identified in titanomagnetite, a mineral formed during the rapid cooling of molten lava** in the Gulf of Khambhat.

Applications of Vanadium

- **Strategic Role in Aerospace:** Vanadium holds strategic importance in sectors such as defense and aerospace, where alloys containing vanadium, titanium, and aluminum are integral to jet engine components and high-speed airframes.
- **Diverse Industrial Applications:** Beyond aerospace, vanadium is crucial for energy storage, electronic components, and corrosion-resistant alloys capable of withstanding high temperatures.
- **Energy Storage Innovations:** Vanadium's role extends to the creation of vanadium redox flow batteries, showcasing its potential for large-scale energy storage solutions.

Jawaharlal Nehru Port (JNP)

- Jawaharlal Nehru Port Authority (JNP) has achieved significant recognition in the **World Bank's Logistics Performance Index for 2023**, boasting an impressive turnaround time (TAT) of just 22 hours.

The **Turnaround Time (TAT)** of a ship is defined as the **duration from when the vessel reports at the anchorage of a port to the moment it departs from the berth.**

- Situated in Navi Mumbai, JNP is a pivotal contributor, handling approximately 50% of the total containerized cargo volume across major ports in India.

- In a notable milestone in 2022, **JNP became the first major port in the country to achieve a 100% Landlord port status.** This achievement signifies that all berths within JNP are operated under the Public-Private Partnership (PPP) model.

National Investment and Infrastructure Fund

Recently, the National Investment and Infrastructure Fund has entered into a collaboration with Japan Bank for International Cooperation (JBIC) to unveil a $600 million India-Japan Fund.

National Investment and Infrastructure Fund (NIIF)

- NIIF is an investor-owned fund manager, **anchored by the Government of India** (GoI) in collaboration with leading global and domestic institutional investors.
- It is India's first-ever sovereign wealth fund (SWF) which was **set up in the year 2015.**
- It is an institution for enhancing infrastructure financing by **investing in greenfield (new), brownfield (existing) and stalled projects.**
- The primary goal of setting up NIIF was to **optimise the economic impac**t largely through investing in **infrastructure-related projects.**

Types of NIIF Funds

- **Master Fund:** This fund primarily **invests in infra-related projects** such as roads, ports, airports, and power. Also, the master fund invests in well-established enterprises that are into a long-term agreement and are operating in a regulated environment with a good history.
- **Fund of Funds:** It looks **to invest in funds managed by the renowned fund managers** having an excellent track record. The fund of funds invests as anchor investors, and this enables the fund managers to accumulate more funds from the institutional investors
- **Strategic Fund:** This **fund is registered as an Alternative Fund II** under the Securities and Exchange Board of India (SEBI) in India. Strategic funds invest primarily in equity and equity- linked instruments.
- The funds are registered as **Alternative Investment Fund (AIF)** with Securities and Exchange Board of India (SEBI).

Global Innovation Index 2023

India retains 40th rank out of 132 economies in the Global Innovation Index 2023 rankings.

Global Innovation Index 2023

- Published by the **World Intellectual Property Organization,** it is a reliable tool for governments across the world **to assess the innovation-led social and economic changes** in their respective countries.
- This year, the NITI Aayog, in partnership with the CII and the World Intellectual Property Organisation (WIPO), is hosting, virtually, the India Launch of the GII 2023 on 29th September 2023.

Key Findings

- The Global Innovation Index, a collection of 80 indicators from international sources, ranks countries based on their innovation performance.
- The **top five** countries are **Switzerland, Sweden, the United States, the United Kingdom, and Singapore.**
- **India**, among the 21 economies, outperformed for a 13th consecutive year in innovation relative to development level.
- India, Iran, Philippines, Turkiye, Vietnam, and Indonesia are among the top 65 economies that have climbed fastest in the ranking over the last decade.
- **India ranks 48th in human capital and research, 57th in business sophistication, and 22nd in knowledge and technology outputs.**

World Intellectual Property Organisation
• It works with the vision of encouraging **creative activity and promoting** the protection of Intellectual Property throughout the world.

- WIPO is one of the 15 **specialised agencies of the United Nations.**
- Currently, there are **193 members** of the World Intellectual Property Organisation.
- **Headquarter:** Geneva.

Dedicated Coal Corridors (DCC)

The Railway Board underscores the imperative for Dedicated Coal Corridors (DCC) to address burgeoning power demands.

About Dedicated Coal Corridors (DCC)

- DCCs, forming an integral part of Dedicated Freight Corridors, are specialized railway corridors solely dedicated to the transportation of coal.
- The primary focus is on facilitating the efficient movement of coal from resource-rich states like Odisha, Jharkhand, and Chhattisgarh to diverse regions across the country.
- Anticipating an increase in India's coal consumption and energy demand to 1,853 million tonnes and 3,000 billion units, respectively, by 2030, the establishment of DCCs becomes paramount.

Initiatives and Policies

- **Draft Coal Logistic Policy (2022):** The Ministry of Coal has released a draft Coal Logistic Policy for 2022, with the aim of optimizing infrastructure for coal transportation at both origin and destination points.
- **First Mile Connectivity (FMC) Projects:** Approximately 67 First Mile Connectivity Projects are actively being implemented to enhance coal transportation efficiency.

Technical Textiles

According to a recent research report, the global Technical Textile market size is expected to reach USD 272.3 billion by 2030.

About Technical Textiles

- Technical Textiles are **textile products that are manufactured primarily for their functionality** and use rather than aesthetic appeal.
- They are d**esigned to have high levels of physical, mechanical, thermal, and/or chemical properties** for use in specific applications within industrial sectors such as earthworks, construction, civil engineering, transport, defense, medical, and healthcare.

National Technical Textiles Mission

- The **Ministry of Textiles** has launched NTTM **to increase the penetration level of technical textiles in India** while leveraging the extraordinary growth rate of the sector.
- The **aim of the mission is to position India as a global leader in Technical Textiles.**
- The mission will comprise the **following four components:**
  - **Research, Innovation and Development;**
  - **Promotion and Market Development;**
  - **Export Promotion;**
  - **Education, Training, Skill Development;**
- **Implementation**: The NTTM has been **approved with an implementation period of four years starting from FY 2020-21 till FY 2023-24.** The total outlay of the mission is INR 1480 Cr.
- **Target**: The Mission has a target to **take the domestic market size of the technical textile sector to $ 40-50 Bn by the year 2024** with an average growth rate of 15-20% per annum.

CSR (Corporate Social Responsibility)

- According to the Ministry of Corporate Affairs (MCA), Corporate Social Responsibility (CSR) spending in India increased from ₹24,955 crore in 2019-20 to ₹25,715 crore in 2020-21.
- **Section 135 of the Companies Act, 2013** makes CSR mandatory for the following companies having:
  - A **net worth of rupees five hundred crores** or more, or

- A **turnover of rupees one thousand crores** or more, or
- A **net profit of rupees five crores or more** (over the preceding 3 financial years) to invest at least 2% of their net profit in areas such as education, poverty, gender equality, and hunger as part of any CSR compliance.

Extension of PLI Scheme for Automobile and Auto Components

The Production Linked Incentive (PLI) scheme for the automobile and auto components industry has received an extension until 2027-28, marking a strategic move by the government. Notably, the incentive disbursement will now occur on a quarterly basis, departing from the previous annual plan.

Key Aspects of PLI Scheme for Automobile and Auto Component Industry (PLI-AUTO)

- **Purpose:** Geared towards catalyzing the supply chain of Advanced Automotive Technology (AAT) products, encompassing both vehicles and components.
- **Base Year (BY):** The calculation of eligible sales for incentives refers to the base year 2019-20.
- **Conditions for Incentive:** Mandates a minimum 50% domestic value addition.
- **Nodal Ministry:** Administered by the **Ministry of Heavy Industries (MHI).**
- **Project Management Agency: IFCI Limited (IFCI**), a Public Sector NBFC
- **Government's Vision:**
  - The government aspires to enhance the contribution of the automobile sector to India's GDP, targeting a rise from the current 7.1% to 12%.
  - Simultaneously, the aim is to boost employment generation from the current 37 million to an impressive 50 million, reinforcing the sector's pivotal role in India's economic landscape.

BharatNet Project

The Union Cabinet recently approved an allotment of ₹1,39,579 crore for the next phase of Bharat Net to make 5G network available to remote areas of the country.

About BharatNet

- The **National Optical Fibre Network (NOFN**), **launched in October 2011**, was **renamed the Bharat Net Project in 2015.**
- It is an ambitious project of the Government of India **to provide broadband connectivity to all village panchayats in the country.**
- It aims to **provide affordable broadband connectivity of 2 Mbps to 20 Mbps for all households** and on-demand capacity to all institutions to realize the vision of Digital India**, in partnership with States and the private sector.**
- The objective is to **facilitate the delivery of e-governance, e-health**, e-education, e-banking, Internet and **other services to rural India.**
- To achieve this, the **existing fibres of PSUs** (BSNL, Railtel and Power Grid) **were utilised and incremental fibre was laid** to connect to Gram Panchayats **wherever necessary.**
- The entire project is **being funded by the Universal service Obligation Fund (USOF)**, which was set up to improve telecom services in rural and remote areas of the country.
- The project is being **executed by a Special Purpose Vehicle (SPV), namely Bharat Broadband Network Limited (BBNL),** which was incorporated on 25.02.2012 under Indian Companies Act 1956.

Universal Service Obligation Fund (USOF)

- **USOF** is a **government fund** established by the Government of India **to provide financial support for the expansion of telecommunications and broadband services in rural** and remote **areas of the country**.
- The **primary objective of USOF is to bridge the digital divide** and ensure that telecom and internet services are accessible to all, especially in areas where private telecom operators may find it economically unviable to operate due to high infrastructure costs and low population density.

Funding Mechanism

- The USOF is **funded through a levy on the revenue earned by telecom operators.**
- The **government imposes a Universal Service Levy (USL) on the gross revenue of the telecom companies**, which is a percentage of their Adjusted Gross Revenue (AGR).
- The USOF is **managed by the Department of Telecommunications (DoT)** under the Ministry of Communications.

Urban Infrastructure Development Fund (UIDF)

Officials from the Union Housing and Urban Affairs Ministry have indicated the imminent disbursement of the first tranche of loans under the Urban Infrastructure Development Fund (UIDF) to support ongoing projects in tier-2 and tier-3 cities.

Urban Infrastructure Development Fund (UIDF)

- The UIDF is created to **address priority sector lending shortfalls** and is designed to fund urban infrastructure projects in tier-2 and tier-3 cities.
- The fund is **managed by the National Housing Bank**, focusing on basic services such as sewerage and solid waste management, water supply, sanitation, and the construction and improvement of drains/stormwater drains. Priority is given to impact-oriented projects.
- **Corpus and Funding Structure:** The initial corpus for UIDF stands at ₹10,000 crore, and it operates on a model similar to the Rural Infrastructure Development Fund (RIDF).
- **Encouraging States' Resource Leveraging:** States are encouraged to leverage resources from the grants of the 15th Finance Commission and existing schemes. They are also urged to adopt appropriate user charges while accessing the UIDF.
- **UIDF Loans:**
  - **Interest Rate:** UIDF loans carry an interest rate set at Bank Rate minus 1.5%.
  - **Repayment Terms:** The principal amount is repayable in five equal annual installments within seven years from the draw date, including a two-year moratorium period. Interest is payable on a quarterly basis.

Understanding Tier-2 and Tier-3 Cities

- The NHB defines tier-2 cities as having a population between 1 lakh and 99,99,999, and tier-3 cities as having a population between 50,000 and 99,999.

Rural Infrastructure Development Fund (RIDF)

- **Establishment and Management:** Set up in 1995-96, RIDF is maintained by the National Bank for Agriculture and Rural Development (NABARD).
- **Contributions and Objective:** Domestic commercial banks contribute to the fund to cover their shortfalls in stipulated priority sector lending to agriculture. The main goal is to provide loans to State Governments and State-owned corporations to complete ongoing rural infrastructure projects.
- **Repayment Period:** The loan is repaid in equal annual installments within seven years from the withdrawal date, including a grace period of two years.

India Smart Cities Awards Contest (ISCAC) 2022

- The ISCAC 2022, an initiative of the Ministry of Housing and Urban Affairs under the Smart Cities Mission, recognizes and rewards excellence in sustainable development across 100 smart cities.
- Having conducted three successful editions in 2018, 2019, and 2020, ISCAC continues to highlight cities, projects, and ideas fostering inclusivity, equity, health, and collaboration.

Key Highlights

1. **Top 3 Smart Cities:** Indore, Surat, and Agra lead in demonstrating exemplary contributions to smart city initiatives and sustainable development.

2. **Top 3 in States:** Madhya Pradesh, Tamil Nadu, and Rajasthan are recognized as the top three states for their collective achievements in urban development.
3. **Top UT:** Chandigarh

Smart Cities Mission

- Smart Cities Mission was launched by the Union government in **June, 2015**.
- The main objective of the Mission is to **promote cities that provide core infrastructure, clean and sustainable environment and give a decent quality of life to their citizens through the application of 'smart solutions'**.
- The Mission aims to drive economic growth and improve quality of life through comprehensive work on social, economic, physical and institutional pillars of the city.
- The focus is on sustainable and inclusive development by creation of replicable models which act as lighthouses to other aspiring cities.

Petroleum Coke

- Recently, the Union government of India permitted the **import of pet coke for making graphite anode material** for lithium-ion batteries.
- Petroleum coke is a **final carbon-rich solid substance and residual waste material derived from the refining of crude oil.**
- It is a spongy, solid residue from oil distillation that, like coal, can be burned for fuel. It is a **byproduct of the extraction of bitumen from tar sands.**
- Bitumen contains a higher number of carbon atoms than regular oil and it's these atoms, extracted from large hydrocarbon molecules using heat, that go on to form petcoke.
- It is **high in calorific value** and easy to transport and store.
- It releases toxic gases like **carbon dioxide, nitrous oxide, mercury, arsenic, chromium**, nickel, and hydrogen chloride after burning.
- There are two distinctive grades of Petroleum Coke viz. **Calcinable or Green PPetcoke and Fuel Grade Petcoke.**
- **India, being the world's largest consumer of pet coke**, **imports more than half of its annual consumption, primarily from the USA.**
    - In 2018, the government prohibited the import of pet coke for use as fuel but allowed it for certain industries such as cement, lime kiln, calcium carbide, and gasification.
- **Varieties of Pet Coke:**
    - Petroleum coke exists in various forms, including NPC, Honeycomb Coke, Sponge Coke, and Shot Coke.
    - Each type finds applications in different industries, serving as feedstock or fuel (e.g., cement, gasification, boilers) and as a carbon source for various products (electrodes, synthetic graphite, silicon carbide, TiO2 pigments, carbon raiser, etc.).
- **Petcoke offers advantages over coal, such as**
    - higher calorific value (>7800 Kcal/Kg),
    - hydrophobicity that repels water (unlike water-absorbing coal),
    - lower volatile matter content
    - lower ash content

Extension of Validity of Industrial Licenses

- The **Department for Promotion of Industry and Internal Trade (DPIIT) has taken measures to enhance the ease of doing business** by extending the validity period of industrial licenses from **three years to fifteen years**.
- Additionally, the respective administrative ministry holds the authority to grant a three-year extension if the license holder has not initiated commercial production within the initial 15-year period from the license issuance.

- In the event that commercial production does not commence within the extended period (15+3 years), the industrial license will be automatically considered lapsed.
- The issuance and regulation of industrial licenses in India fall under the purview of the **Industries (Development and Regulation) Act (IDRA), 1951.**

Shanan Power Project

- Punjab and Himachal Pradesh are set to face off as the 99-year lease on the British-era 110 MW Shanan hydropower project, located in **Jogindernagar, Himachal Pradesh**, expires in March 2024.
- The project, which harnesses the power of the **Uhl River (a tributary of Beas)**, is under the control of the Punjab Government. Himachal Pradesh wants the project handed over upon expiry of the lease period, while the Punjab government is unwilling to part with the project and is prepared to take legal recourse to retain it.
- The project was constructed under a 99-year lease deed between Joginder Sen and Col B C Battye, and was given to Punjab by the Centre after the reorganisation of states in 1966.

Harit Sagar Guidelines

- The Ministry of Ports, Shipping & Waterways recently launched '**Harit Sagar', the Green Port Guidelines.**
- **Objective**: To **minimize waste through Reduce, Reuse, Repurpose and Recycle** to attain **zero waste discharge from port operations** and promote monitoring based on Environmental Performance Indicators.
- The guidelines aim to minimize the impact on the harbor ecosystem by focusing on ecosystem dynamics in port development, operation, and maintenance. They emphasize the use of clean energy, developing port capabilities for green fuel storage, handling, and bunkering.
- The guidelines also cover aspects of the **National Green Hydrogen Mission, green hydrogen facilities, LNG bunkering, offshore wind energy**, and **adopting global Green Reporting Initiative standards.**
- They provide a framework for Major Ports to develop comprehensive action plans for quantified reduction in carbon emissions and achieve Sustainable Development Goals (SDG).

MSME Card

- The Ministry of MSME and **NPCI** have launched the **MSME RuPay Credit Card**, a pilot program for Udyam registered MSMEs across India.
- The card offers a simplified payment mechanism for business-related expenses, including digital payments and utility bills, and offers an interest-free credit period for borrowers.

Technology Development Fund Scheme (TDF)

- TDF scheme has so far sanctioned 70 projects amounting to Rs 291.25 crore to various industries and 16 *defence technologies* have been successfully developed/realized.
- Launched in 2016, the TDF scheme is a **flagship programme of Ministry of Defence, executed by DRDO under 'Make in India' initiative.**
- It **aims to boost MSMEs and startups' engagement in designing and development of various defence technologies indigenously.**

Objectives

- Provide **Grant in Aid** to Indian industries, including MSMEs and Start-ups, as well as academic and scientific institutions for the development of defence and dual use technologies that are currently not available with the Indian defence Industry.
- Focus on research, design & development of niche technologies which are being developed for the first time in the country.

ADB Loan for Uttarakhand's Power Infrastructure

- The Centre has signed an agreement with the Asian Development Bank (ADB) for **availing a $200 million loan to improve the quality, efficiency, and reliability of power supply in Uttarakhand.**

- The project boosts the power system network's capacity for **integrating renewable energy seamlessly to load centers.**
- The **Japan Fund for Prosperous and Resilient Asia and the Pacific**, financed by the Government of Japan through ADB, will provide a **$2 million grant** to support livelihood enhancement, training, and awareness-raising activities of the project.

- **The Asian Development Bank (ADB)** is a regional development bank setup in **1996.**
- **Purpose:** ADB assists its members, and partners, by providing loans, technical assistance, grants, and equity investments to promote social and economic development.
- **Members:** From **31 members** at its establishment in 1966, ADB has grown to encompass **68 members**—of which 49 are from within Asia and the Pacific and 19 outside.
- **Shares:** As of 2022, ADB's five largest shareholders are Japan and the United States **(each with 15.6%)**, the People's Republic of China **(6.4%)**, India **(6.3%)**, and Australia **(5.8%)**.
- **Headquarters:** Manila, Philippines.

Sub-schemes Under RAMP Programme

- The Ministry of Micro Small and Medium Enterprises (MSME) has launched **three sub-schemes under the RAMP Programme**. The schemes were launched at the 2nd meeting of the *National MSME council*.
    1. **MSME Green Investment and Financing for Transformation Scheme** (MSE GIFT Scheme) will help enterprises adopt green technology with interest subvention and credit guarantee support.
    2. **MSE Scheme for Promotion and Investment in Circular Economy** (MSE SPICE Scheme) is the first ever scheme in the government to support circular economy projects. It will be done through credit subsidy and will aim for realizing the goal of zero emissions by 2070 under the MSME sector.
    3. **MSE Scheme on Online Dispute Resolution for Delayed Payments** is a first of its kind scheme to synergise legal support with modern IT tools and Artificial Intelligence to address the incidences of delayed payments for Micro and Small Enterprises.
- **Small Industries Development Bank of India (SIDBI)** is the implementing agency for MSE GIFT and MSE SPICE schemes.
- **National Informatics Centre Services Inc**. is the implementing agency for MSE Scheme on Online Dispute Resolution for Delayed Payments.

PPP Beginner's e-course

- The **World Bank Group and the Department of Economic Affairs (DEA)** have jointly launched the Public-Private Partnership (PPP) Beginner's e-course.
- The course is an **infra-focused capacity-building programme**. It aims to provide foundational knowledge and insights to individuals keen on understanding and contributing to the domain of PPPs in India.

VGF for Battery Energy Storage Systems

- The Ministry for Power and New & Renewable Energy has approved the scheme for Viability Gap Funding (VGF) for development of Battery Energy Storage Systems (BESS).
- The scheme aims development of **4,000 MWh of BESS projects by 2030-31**. It will provide **financial support of up to 40% of the capital cost** as budgetary support in the form of Viability Gap Funding (VGF).
- The VGF shall be disbursed in five tranches linked with the various stages of implementation of BESS projects. The projects under the scheme will be approved during a **period of 3 years (2023-24 to 2025-26).**
- Public and private sector entities shall be selected through a transparent bidding process to be conducted by the implementing agencies.
- To ensure that the benefits of the scheme reach the consumers, a **minimum of 85% of the power from VGF-funded BESS projects shall be offered to Distribution Companies** (Discoms) before making it available for others.

Viability Gap Funding (VGF) Scheme

- The Scheme for Financial Support to PPPs in Infrastructure (VGF scheme) was launched by the Cabinet Committee of Economic Affairs (CCEA) as a **Central Sector Scheme** in 2005.

- The scheme is administered by the **Department of Economic Affairs, Ministry of Finance**.
- It provides financial support in the form of grants, to economically desirable but commercially unviable infrastructure projects undertaken through PPPs to make them commercially viable.
- A revamped scheme was later approved in 2020, which includes **higher VGF support of up to 60% of the total project cost** (maximum up to 30% by the Central and State Governments each) for the social sector.
- This includes up to 80% of the total project cost (maximum up to 40% by the Central and State Governments each) for Pilot/Demonstration Projects in Health and Education sectors.
- For other sector projects, VGF up to 40% of the total project cost (maximum up to 20% by the Central and State Government each) is available.

National Transit Pass System

- The central government has recently launched the **National Transit Pass System (NTPS)** to facilitate seamless transit of **forest goods** across the country through a single permit.
- NTPS is a **web-portal** as well as **mobile application system**, facilitating online filing of applications from anywhere in the country for seeking permission to transport forest products as well as for obtaining no-objection certificate (NOC).
- The NTPS is envisioned as a **One Nation-One Pass regime**, which will enable seamless transit across country.
- Instead of regional languages, the permit issued by **NTPS will be a QR-coded, machine-read permit** which can be decoded by forest department of any state of the country.

Benefits of NTPS

- Streamline the issuance of transit permits for timber, bamboo, and minor forest produce by introducing an efficient online system.
- Implement a unified national permit for simplified business operations.
- Enable seamless interstate movement via a Mobile App, alleviating challenges faced by producers, farmers, and transporters.

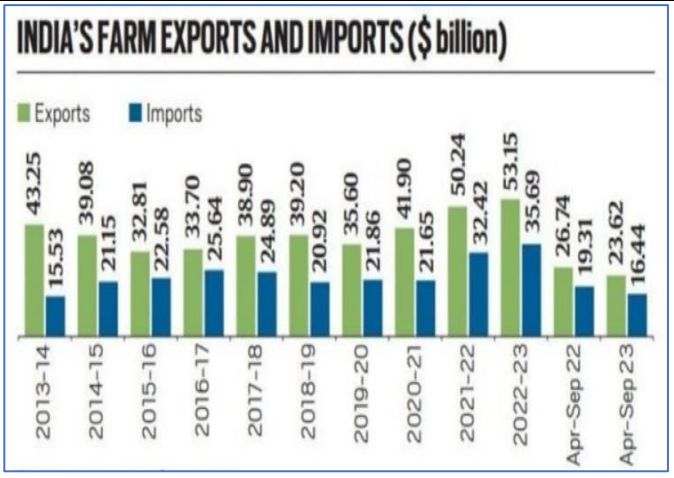
Zuari Bridge

- The Zuari bridge in Goa recently became fully operational. It is located on the Zuari river at Cortalim village on Margao-Panaji National Highway.
- It is India's **second longest cable-stayed bridge**. Mumbai's Bandra-Worli sea link is India's longest cable stayed bridge. It will improve connectivity between northern and southern Goa thus boosting tourism and commerce in the times to come.

AGRICULTURE

India's Agri Trade

- The Department of Commerce reports a decline in farm commodity exports from $26.7 billion to $23.6 billion from April-September 2022, and imports from $19.3 billion to $16.4 billion, resulting in a slight dip in the agricultural trade surplus.
- Despite this, the country experienced record-high farm exports at $50.2 billion in 2021-22 and $53.2 billion in 2022-23, reversing a declining trend from 2013-14 to 2020-21. Record imports were also recorded at $32.4 billion in 2021-22 and $35.7 billion in 2022-23.



Government Initiatives to Promote Agricultural Exports

- **Agriculture Export Policy 2018:**
  - To diversify our export basket destinations and boost high-value agricultural exports including focus on perishables.
  - To promote novel, indigenous, organic, ethnic, traditional and non-traditional agri products exports.
  - To provide an institutional mechanism for pursuing market access, tackling barriers and deal with sanitary and phytosanitary issues.
  - To strive to *double India's share in world agri exports* by integrating with global value chain at the earliest.
  - To enable farmers to get benefit of export opportunities in overseas market.
- **District as Export Hub Initiative:** Under the DEH initiative, products including agricultural products with export potential have been identified in all *733 districts across the country*.

INDIA'S TOP AGRI EXPORT ITEMS ($ million)

	2021-22	2022-23	Apr-Sep 22	Apr-Sep 23
Marine products	7772.36	8077.98	4119.63	3803.88
Non-basmati rice	6133.63	6356.71	3199.18	2706.58
Sugar	4602.65	5770.83	2636.25	1302.06
Basmati rice	3537.49	4787.65	2278.35	2589.98
Spices	3896.03	3785.36	1926.90	1949.78
Buffalo meat	3303.78	3193.69	1636.10	1734.40
Raw cotton	2816.24	781.43	435.87	393.82

INDIA'S TOP AGRI IMPORT ITEMS ($ million)

	2021-22	2022-23	Apr-Sep 22	Apr-Sep 23
Vegetable oils	18991.62	20837.70	11097.64	8508.76
Fresh fruits	2460.33	2483.95	1236.66	1131.58
Pulses	2228.95	1943.89	595.78	1265.23
Spices	1299.38	1336.65	755.20	774.55
Cashew	1255.46	1805.67	1412.52	968.79
Raw cotton	559.55	1438.69	1081.43	401.20
Natural rubber	1032.71	937.60	542.18	380.37
TOTAL*	32422.30	35686.20	19311.21	16444.83

*Includes other items. Source: Department of Commerce.

- **Transport and Marketing Assistance for Specified Agriculture Products:**
  - It is a Central Sector Scheme.
  - It aims at providing assistance for the international component of freight to mitigate the freight disadvantage for the export of agriculture products.
- **Product specific Export Promotion Forums (EPF)** for eight high potential agricultural products i.e., ***Grapes, Mango, Banana, Onion, Rice, Nutri-Cereals, Pomegranate, Floriculture & Plant material*** have been created.

Direct Seeding of Rice

Farmers in leading rice-growing states are adopting direct-seeding methods due to delayed rains and labour availability issues. This popular method allows farmers to sow seeds without waiting for rainfall, making it popular in small pockets across the country.

Normal Transplantation Technique

- In transplanting, **farmers prepare nurseries** where the paddy seeds are first sown and raised into young plants. These seedlings are then uprooted and replanted 25-35 days later in the main field.
- For the first three weeks or so after transplanting, the **plants have to be irrigated almost daily (if there are no rains) to maintain a water depth of 4-5 cm.**
- This is done because paddy growth is compromised by weeds that compete for nutrition, sunlight and water.
- **Water prevents growth of weeds by denying them oxygen in the submerged stage**. Water thus acts as herbicide for paddy.

Direct Seeding of Rice (DSR)

- DSR is also called the '**broadcasting seed technique**', under which pre-germinated seeds are directly drilled into the field by a tractor-powered machine.
- In DSR, **water is replaced by real chemical herbicides.** There is no nursery preparation or transplantation involved in this method.
- Farmers only have to **level their land and give one pre-sowing irrigation** (rauni), and paddy (non-basmati) is seeded immediately.

Advantages of DSR

- Significant water savings; first irrigation needed 21 days after sowing.
- Labour-saving compared to traditional transplantation.
- Reduced methane emissions due to shorter flooding periods and less soil disturbance.

Drawbacks of DSR

- Dependency on herbicides; seed requirement higher.
- Mandatory laser land levelling, incurring additional costs.
- Specific sowing time constraints; critical for proper plant growth compared to transplanting.

Aspect	Normal Transplantation	Direct Seeding of Rice (DSR)
Procedure	Seedlings raised in nurseries, then transplanted.	Pre-germinated seeds directly drilled into fields.
Water Management	Needs regular irrigation initially.	Chemical herbicides replace water for weed control.
Weed Control	Water depth prevents weeds.	Chemical herbicides control weeds.
Land Preparation	Requires nursery preparation.	No nursery; minimal land leveling.
Growth Factors	Weeds compete for resources.	Chemical herbicides control weeds.
Irrigation Dependency	High initially.	Less due to chemical herbicides.
Labor Intensity	Labor-intensive activities.	Reduced; no nursery, machinery used.

Farmers Distress Index

- The **Central Research Institute for Dryland Agriculture (CRIDA)** is developing an early warning system called **Farmers Distress Index** to minimize agrarian distress, such as crop loss failure and income shock.
- The index aims to anticipate distress and prevent its spread from a few farmers to the village or block level by pre-warning stakeholders, including central, state, local, and non-government agencies, so they can take preventive measures.
- This is in response to increased exposure to shocks due to climate events, market fluctuations, and suicides.

Essential Commodities Act, 1955

- The Essential Commodities Act (ECA), 1955 was enacted at a time when India was facing food scarcity due to low levels of food grains production.
- The country was dependent on imports and assistance (such as wheat imports from the US under PL 480) to feed the population. Thus, the Essential Commodities Act was enacted, **to stop hoarding and black marketing of food and gives consumers protection against irrational spikes in prices of essential commodities.**
- **Implementing Agency:** Ministry of Consumer Affairs, Food and Public Distribution.

Essential Commodity

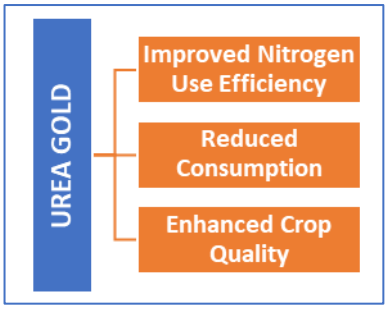
- There is no specific definition of essential commodities in ECA, 1955. It states that an **"essential commodity" means a commodity specified in the Schedule of the Act.**
- The Act **gives powers to the central government to add or remove a commodity in the Schedule.**
- By declaring a commodity as essential, the government can control the production, supply, and distribution of that commodity, and impose a stock limit.

Essential Commodities included under the Act

1. Drugs
2. Fertilizer, inorganic, organic or mixed
3. Foodstuffs, edible oilseeds and oils
4. Hank yarn made wholly from cotton
5. Petroleum and petroleum products
6. Raw jute and jute textile
7. seeds of food-crops and seeds of fruits and vegetables, cattle fodder, jute, cotton.

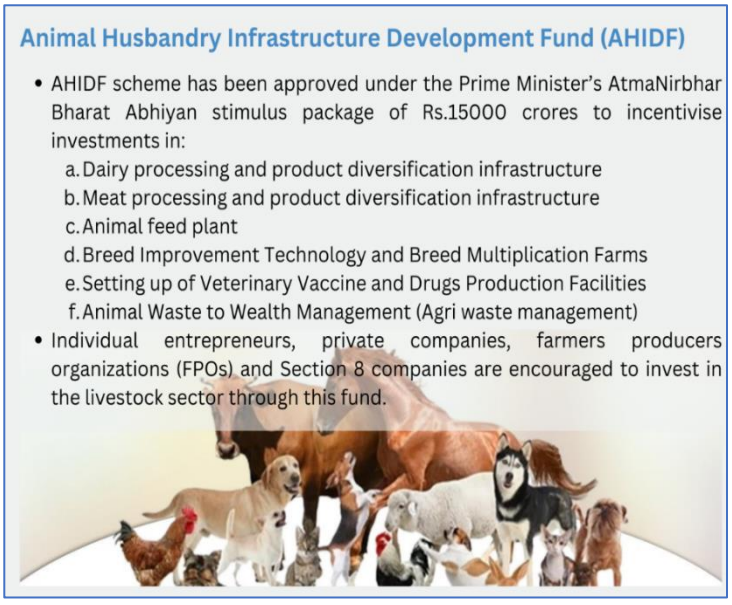
Urea Gold

- "Urea Gold" has recently been launched as a **new variety of urea coated with sulphur**. This innovative fertilizer **aims to address sulphur deficiencies in the soil more economically and efficiently than neem-coated urea.**
- Urea Gold is created by **infusing urea with sulfur,** creating a composite fertilizer with **37% nitrogen (N) and 17% sulfur (S). While normal urea** contains 46% of a single plant nutrient.
- The sulphur coating **facilitates the slow release of nitrogen, increasing its availability and uptake**.
- Additionally, **plants receive nourishment from sulphur, leading to reduced urea usage while enhancing crop yield.**
- Urea Gold **includes humic acid** to extend the fertilizer's longevity, with 15 kg of Urea Gold being comparable to 20 kg of conventional urea.



Credit Guarantee Scheme for Livestock Sector

The **Department of Animal Husbandry & Dairying (DAHD)** has introduced the first Credit Guarantee Scheme for Livestock Sector, **under the Animal Husbandry Infrastructure Development Fund (AHIDF), to provide collateral-free credit to MSMEs in the livestock sector.**



Objectives of Scheme

- The scheme aims to provide **financial assistance to the un-served and under-served livestock sector,** primarily first-generation entrepreneurs and underprivileged individuals **without collateral security.**
- It encourages lenders to **focus on project viability** and provide credit facilities based on the primary security of the financed assets.

Details

- The DAHD has set up a credit guarantee fund trust of **Rs 750 crore**, which will cover up to **25 per cent of credit facilities extended to eligible MSMEs by lending institutions.**
- The trust, formed in partnership **with NAB Sanrakshan Trustee Company Private Ltd, a subsidiary of NABARD**, ensures credit guarantee for MSMEs under the AHIDF scheme.
- **Interest subvention of three per cent loan of up to 90 per cent of the total project cost from any Scheduled Bank, National Cooperative Development Corporation (NCDC).**

Report Fish Disease App

- The **Ministry of Fisheries, Animal Husbandry and Dairying** has launched the **Report Fish Disease** app.
- It has been developed by Indian Council of Agricultural Research (**ICAR**)-National Bureau of Fish Genetic Resources (**NBFGR**), Lucknow and launched under the National Surveillance Programme for Aquatic Animal Diseases (**NSPAAD**).
- The app will be a central platform for connecting and will integrate fish farmers, field-level officers and fish health experts seamlessly.

- The NSPAAD has launched the app **to help farmers report diseases in finfish, shrimps, and molluscs on their farms.**
- Farmers can connect with district fisheries officers and scientists, and self-report diseases.
- The app also features **an early warning system and scientific advice to reduce losses** due to diseases and strengthen disease reporting among fish farmers in the country.

NATIONAL SURVEILLANCE PROGRAMME FOR AQUATIC ANIMAL DISEASES (NSPAAD)

- India is the third-largest fish-producing country with a fish production of 14.73 million metric tonnes. Further, it is one of the largest exporters of farmed shrimp at around 7 lakhtonnes.
- However, *fish diseases cost the country approximately 7,200 crores per year*. Therefore, early detection and managing the spread of diseases are considered crucial for controlling the diseases.
- For this, the government has implemented the NSPAAD since 2013, with a focus on strengthening the farmer-based disease surveillance system.
- The objective is to ensure that disease cases are reported immediately, investigated, and farmers receive scientific assistance.
- The results of the first phase proved the reduction in revenue losses due to diseases, increased farmers' income and exports.
- To continue the efforts, NSPAAD: Phase-II was launched in 2023 under the Pradhan Mantri Matsya Sampada Yojana (PMMSY). Under it, Rs. 33.78 crore has been allocated for a period of three years.
- Phase II will be implemented across India, and all the state fisheries departments, along with the Marine Products Export Development Authority (MPEDA) are expected to play an important role in this nationally important surveillance programme.

Open Market Sale Scheme

The Centre has reduced the maximum quantity a single bidder can purchase in a single bid under the Open Market Sale Scheme from 3,000 metric tonnes to 10-100 metric tonnes, as of recent decisions.

Open Market Sale Scheme (OMSS)

- **The Open Market Sale Scheme (OMSS) is a** strategic initiative employed by the **Food Corporation of India (FCI) to manage the supply and availability of food grains, specifically wheat and rice, in the open market.**
- FCI and State Corporations procure food grains like wheat and paddy during Rabi and Kharif marketing seasons, based on the Union Government's Minimum Support Price (MSP).
- The government allocates a portion of the procured food grains for the 80 crore beneficiaries under the National Food Security Act (NFSA), maintains a buffer stock, and retains a marketable surplus.
- FCI executes the Operation of OMSS by selling surplus food grains, particularly wheat and rice, to various entities in the open market, including traders, bulk consumers, and retail chains. E-auctions are used to sell surplus food grains, and **states are allowed to procure additional food grains beyond their central pool for distribution to NFSA beneficiaries.**
- OMSS is strategically **activated during the lean season to regulate domestic supply and improve wheat and rice availability in the open market**, aiming to mitigate food grain inflation by influencing market dynamics.

About Food Corporation of India (FCI)

- It is a **statutory body set up in 1965** (under the Food Corporation Act, 1964) under the **Ministry of Consumer Affairs, Food and Public Distribution, Government of India.**
- It was set up against the backdrop of a major shortage of grains, especially wheat, in the country.
- Currently, FCI is mandated with **three basic objectives:**
  - To **provide effective price support** to farmers;
  - To **procure and supply grains to PDS** for distributing subsidised staples to economically vulnerable sections of society;
  - Keep a **strategic reserve to stabilise markets for basic foodgrains**.

BHARAT Campaign

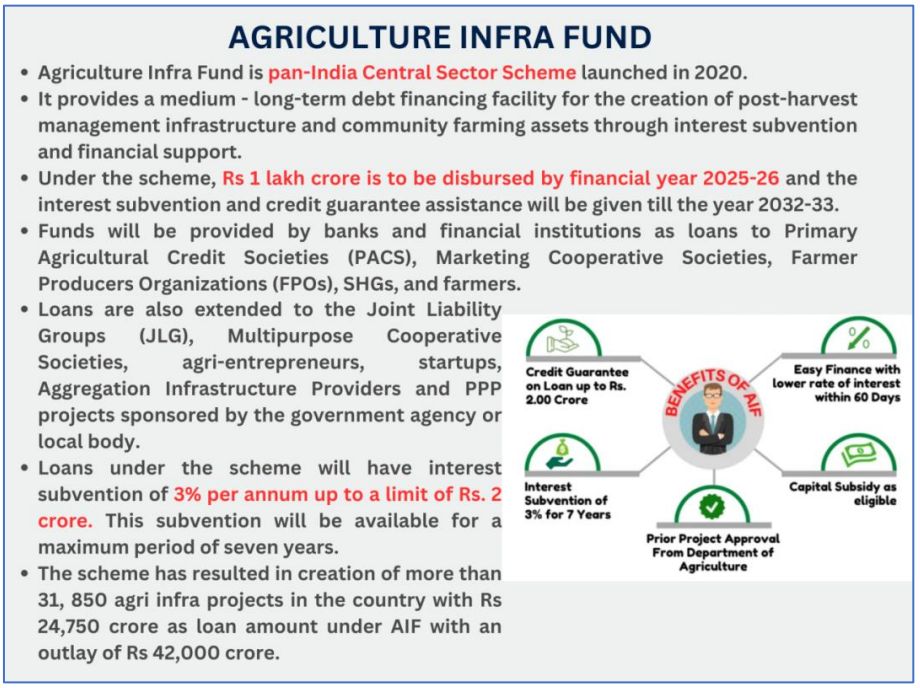
- The Ministry of Agriculture & Farmers Welfare has launched a new campaign for banks under **Agriculture Infrastructure Fund (AIF)** titled **BHARAT (Banks Heralding Accelerated Rural & Agriculture Transformation).**
- The one month-long Campaign (from 15th July 2023 to 15th August 2023) has been launched with a target of Rs 7200 crore.

Objectives

The financing facility will fulfil numerous objectives for different stakeholders in the agriculture eco-system viz:

1. **Farmers**

- **Improved marketing infrastructure** will enable farmers to sell directly to a larger consumer base, increasing value realization and income.
- **Investments in logistics infrastructure** will reduce post-harvest losses and intermediaries, making farmers more independent.
- **Modern packaging and cold storage systems** will allow farmers to decide when to sell, improving market realization.
- **Community farming assets** will improve productivity and optimize inputs, resulting in substantial savings for farmers.



2. **Government**

- The government will direct priority sector lending in unviable projects through interest subvention, convergence incentives, and credit guarantees, promoting innovation and private sector investment in agriculture.
- This will reduce national food wastage and enable the sector to compete globally.
- Central/State Government Agencies or local bodies can structure viable projects or PPPs to attract investment in agriculture infrastructure.

3. **Agri-entrepreneurs and Startups**

- Entrepreneurs can leverage new technologies like IoT and AI to innovate in the agriculture sector, fostering collaboration between entrepreneurs and farmers through a dedicated funding source.

New Wheat Variety- PBW RS1

- **Punjab Agricultural University** has developed a new wheat variety called **PBW RS1,** which has **high amylose starch content**, which is known to reduce the risk of type-2 diabetes and cardiovascular diseases.
- This wheat is used in chapatis, which release glucose slowly into the bloodstream, increasing satiety. PBW RS1 has a total starch content of 66-70%, but has 30.33% resistant starch, compared to only 7.5-10% for other varieties.
- Chapatis and biscuits made from its whole grain flour have a **lower glycaemic index, linked to the decreased digestibility of the starch**. PBW RS1 can help reduce the prevalence of diet-related diseases, including obesity and diabetes, especially type 2.
- However, the average grain yield from the variety is recorded at 43.18 quintals per hectare, which is below Punjab's average yield of 48 quintals.

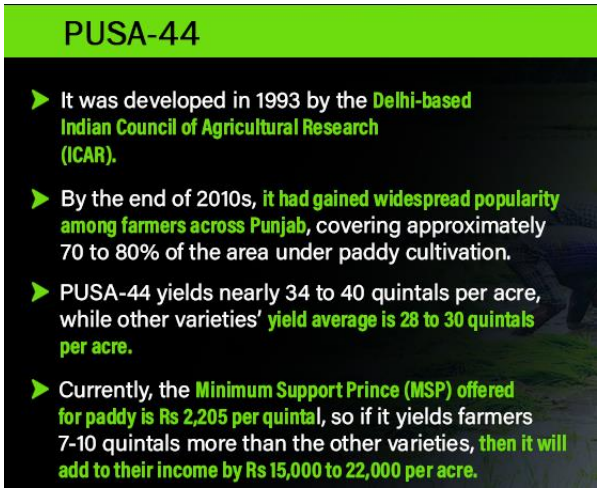
Ban on PUSA-44 Cultivation

The Punjab government recently announced that the state will ban the cultivation of the PUSA-44 paddy variety from next year onwards.

Reasons For the Ban

- Punjab is banning PUSA-44, a long-duration paddy variety, **due to severe groundwater depletion and the availability of short-duration varieties.**

- The government aims to conserve one month of irrigation water by banning this variety.
- The area under paddy, a water-intensive crop, continues to grow in the state, with 102 of the state's 141 agricultural development blocks declared 'dark zones'.
- Groundwater depletion exceeds recharge rates in these zones, making water available at depths of 200 to 300 feet or more. PUSA-44 also worsens stubble burning in the state. It is harvested just before wheat sowing, which is ideal for November.
- Farmers need 20 to 25 days between paddy harvesting and wheat sowing to manage stubble disposal properly, leading to increased incidents of stubble burning. **PUSA varieties generate around 2% more stubble than short varieties.**



National Turmeric Board

The Centre has established the **National Turmeric Board (NTB), focusing on the development and growth of turmeric and its products in the country.**

Role

- The Board will **lead turmeric-related matters and coordinate with government agencies.**
- The board aims to increase awareness, increase consumption, develop international markets, promote R&D, and develop traditional knowledge for value-added turmeric products.
- It will focus on **capacity building and skill development for turmeric growers, and promote quality and food safety standards**. The board will also **develop traditional knowledge for value-added turmeric products.**

Composition

- The Chairperson of the Board will be nominated by the Central Government.
- It will include representatives from the Ministry of AYUSH, the Departments of Pharmaceuticals, Agriculture and Farmers Welfare, the Ministry of Commerce and Industry, and top state government officials from three states (on rotation basis).
- Choose national/state research institutions, as well as turmeric farmers and exporters.
- The Department of Commerce will also appoint a Secretary.
- The **Ministry of Commerce** will be the **nodal department** providing funds and infrastructure for the NTB.

Turmeric

- It is a perennial **flowering plant** in the **ginger family (**Zingiberaceae). The plant is native to the Indian subcontinent and Southeast Asia and requires temperatures between **20-30 °C**.
- A friable **well-drained red loamy soil** in wet or garden lands under tropical conditions is ideal for cultivation. It can be grown in regions receiving an **annual rainfall of 1500 m**.

Turmeric Production in India

- **India is the largest producer, consumer and exporter** of turmeric in the world. In the year 2022-23, an area of 3.24 lakh ha was under turmeric cultivation with a production of 11.61 lakh tonnes (**over 75% of global turmeric production**).
- More than 30 varieties of Turmeric are grown in over 20 states. The largest producing states are **Maharashtra, Telangana, Karnataka and Tamil Nadu**.
- **India has more than 62% share of world trade** in turmeric. During 2022-23, 1.53 lakh tonnes of turmeric &turmeric products valued at 207.45 million USD were exported from India.
- The leading export markets for Indian turmeric are Bangladesh, UAE, USA and Malaysia.

YES-TECH

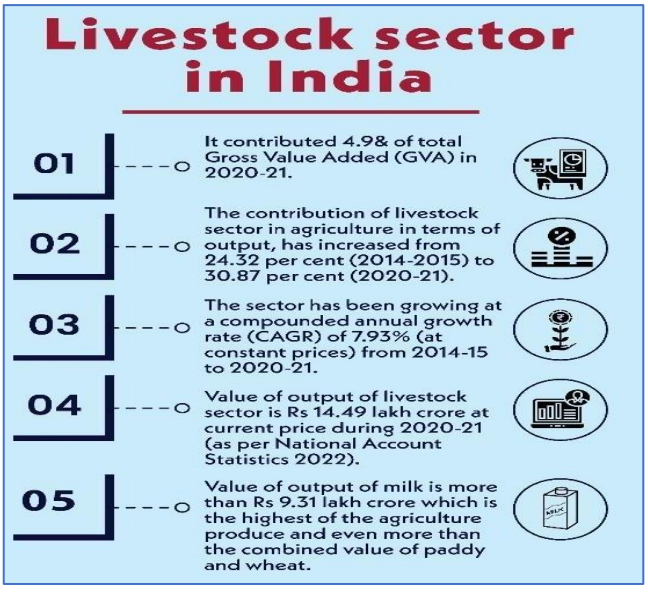
- The Finance and Corporate Affairs Minister has emphasized the need for **real-time assessments of yields for essential crops.** Until now, estimating land coverage for a crop like wheat was possible but not for estimating output. This leads to shortages and forced imports of food grains.
- Real-time assessments would help the economy by allowing the government to plan imports beforehand, ensuring farmers don't suffer due to import/export policies. It also aids in policymaking, such as deciding minimum support price (MSP) or procurement quantities.
- An automated real-time estimation system called **Yield Estimation System, based on Technology (YES-TECH)** has been **implemented for wheat and rice crops**.
- There is a crucial need to expand the automated real-time estimation system to cover pulses and oilseeds for a comprehensive agricultural assessment.
- The **YES-TECH Manual, developed with assistance from ISRO and the Indian Council of Agricultural Research (ICAR),** provides methodologies, best practices, and integration insights for accurate yield assessments at the Gram Panchayat level.

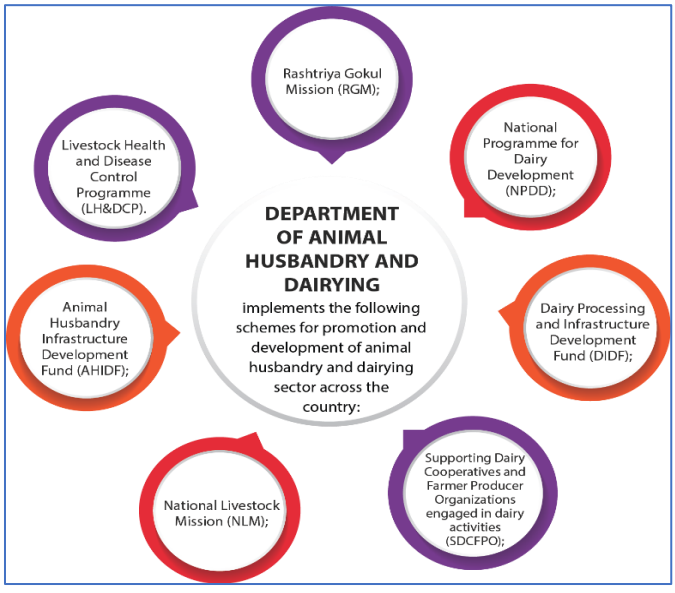
National Level Monitors for Livestock Scheme

- The Centre plans to use **National Level Monitors (NLMs)** to oversee the implementation of its livestock schemes.
- These **third-party independent monitors will be selected from retired Civil/Defence Services Officers** and academia, ensuring unbiased and objective monitoring.
- The department currently monitors the schemes through progress reports, management information systems, regional review meetings, and video conferencing sessions with participating states.

Monitoring Guidelines

- NLMs will conduct regular and special monitoring to ensure programs are implemented according to Ministry guidelines and processes are being followed.
- They will also assess villagers' views on the programmes, suggestions for improvement, and transparency in beneficiary selection.
- Incentives to para-vets, technicians, and farmers will be distributed according to the scheme.
- Real-time data on vaccination, disease monitoring, and artificial insemination will be uploaded on the National Digital Livestock Mission.
- If complaints are serious about misuse of funds or irregularities, NLMs will verify facts or conduct preliminary investigations with the Secretary's approval.





Impact of Disasters on Agriculture Report by FAO

The **Food and Agriculture Organization (FAO)** has released a groundbreaking report**, The Impact of Disasters on Agriculture and Food Security,** providing **the first-ever global assessment of agricultural production impacts.**

Food and Agriculture Organization (FAO)

- It is a **specialized agency of the United Nations** that leads international efforts to defeat hunger and improve nutrition and food security.
- Its goal is to achieve food security for all and make sure that people have regular access to enough high-quality food to lead active, healthy lives.
- **Headquarters:** Rome (Italy).
- **Member countries:** 195 members - 194 countries and the European Union
- Its sister bodies are the **World Food Programme (WFP)** and the **International Fund for Agricultural Development (IFAD).**

Reports Published by the FAO

- The State of the World's Forests (SOFO)
- The State of World Fisheries and Aquaculture (SOFIA
- The State of Agricultural Commodity Markets (SOCO)
- The State of Food Security and Nutrition in the World (SOFI)

Initiatives Taken by the FAO

- The **Codex Alimentarius Commission** is in charge of overseeing the implementation of the Joint FAO/WHO Food Standards Programme.
- Agricultural Heritage Systems of Global Importance **(GIAHS).**
- Monitors the status of **Desert Locusts** all over the world.
- The **International Treaty on Plant Genetic Resources** for Food and Agriculture was adopted by the Thirty-First Session of the Conference of the FAO in 2001.

Krishi 24/7

- The Department of Agriculture and Farmers Welfare **(DA&FW)** in collaboration with **Wadhwani Institute** for Artificial Intelligence (Wadhwani AI) has developed Krishi 24/7.
- **Krishi 24/7 is the first-ever AI-powered solution** for automated agricultural news monitoring and analysis, with support from google.org.
- The tool scans and translates news articles in multiple languages, aiming to identify and manage agricultural news articles of interest for timely decision-making. It will help DA&FW identify relevant news, generate alerts, and take prompt action to protect farmers' interests and promote sustainable agricultural growth.

Bharat Atta

- The Ministry of Consumer Affairs, Food and Public Distribution has launched 100 mobile vans for selling wheat flour (Atta) under the 'Bharat' brand.
- The initiative aims to provide affordable Atta at a MRP of Rs 27.50 per kilogram, with over two thousand outlets across India. The **goal is to stabilize the market and support farmers and consumers.**
- It will be available in over two thousand outlets across the country including Kendriya Bhandar, **National Agricultural Cooperative Marketing Federation of India Limited (NAFED)**, and National Cooperative Consumers Federation of India Limited (NCCF).

Stabilsing Essential Food Prices

- The launch of the Bharat brand Atta aims to increase market supplies at affordable rates and maintain moderate prices of food items.
- Under the Open Market Sale Scheme, 250,000 metric tonnes of wheat have been allocated to organizations like Kendriya Bhandar, NCCF, and NAFED for conversion into Atta.
- The government is also selling "**Bharat Dal**" at Rs 60/kg and onions at Rs 25/kg.
- The **Food Corporation of India** conducts weekly e-auctions to ensure regular supply and prevent hoarding. The government maintains buffer stocks of pulses and onions to stabilize prices.

Gum Arabic

- In the wake of the Sudan conflict, international consumer goods makers have stockpiled supplies of Gum Arabic.
- **Gum Arabic (gum acacia, gum sudani)** is a natural gum made from the hardened sap of two Acacia tree species. The term "gum arabic" doesn't indicate a specific botanical source.
- **Distribution:** The trees are **native to North Africa** and grow mainly in the sub-Saharan or Sahel zone of Africa and also in Australia, India and South America.
    - It is found in some parts of India mainly in the dry rocky hills of southeast Punjab, in the northern Aravalli hills and other drier parts of Rajasthan and Gujarat.
- **Major producing countries:** Cameroon, Chad, Mali, Nigeria and Sudan (market share of about 70%).
- **Method of harvesting:** The gum, a thick, frothy liquid, naturally forms from tree bark cracks under harsh conditions like heat, dryness, wounds, and diseases, and quickly concretes in the sun into tears.

Applications

- **Adhesive Properties:** The unique blend of polysaccharides and glycol-proteins in gum arabic provides adhesive properties, while still being edible.
- **Food Industry Essential:** Vital in the food industry as a stabilizer, emulsifier, and thickening agent. Used in confectionery, soft drinks, and is crucial for major brands like Pepsi and Coke.
- **Winemaking Role:** Employed as a wine fining agent in winemaking processes.
- **Artistic Use:** Traditional binder in watercolour paint and gum printing for artists.
- **Lithographic Printing:** Used in lithographic printing to maintain non-image areas of the plate receptive to water.
- **Pharmaceuticals and Cosmetics:** Acts as a binder, emulsifier, and viscosity-increasing agent in pharmaceuticals and cosmetics.
- **Shoe Polish Component:** An important ingredient in shoe polish.
- **Crafting Homemade Incense:** Utilized in crafting homemade incense cones.
- **Lickable Adhesive:** Functions as a lickable adhesive on postage stamps, envelopes, and cigarette papers.

EU Approves Glyphosate

- The European Union has approved the use of the controversial herbicide Glyphosate for another decade.
- **Glyphosate is a broad-spectrum herbicide used to kill weeds, which compete with crops for nutrients, water, and sunlight.**
- It is **non-selective and can kill all plants it comes into contact with**, making it suitable for tea or rubber plantations but not in fields where crops and weeds are at similar levels.
- The use of Glyphosate has been controversial since the **World Health Organization concluded in 2015 that it is likely carcinogenic** to humans and can lead to insect death, including bees.

International Sugar Organisation (ISO)

- The ISO announced India to be the **Chair** of the organisation for the year 2024.

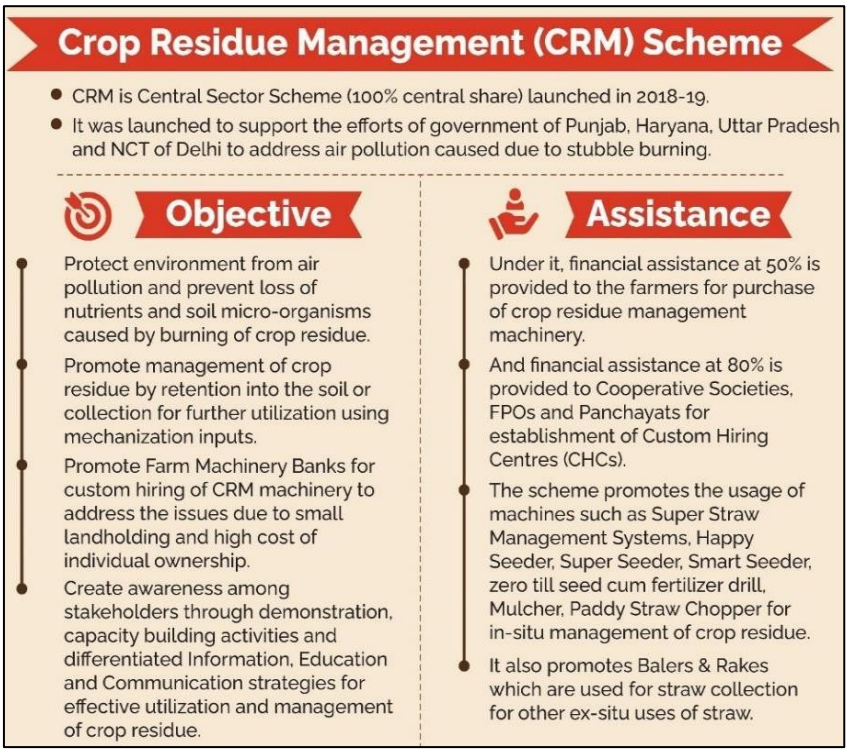
- ISO is the apex international body on sugar and related products with about 90 countries as members. It is devoted to improving conditions on the world's sugar market.
- **Headquartered in London**, ISO was established under the International Sugar Agreement 1968.

Sugar Production in India

- India has two distinct agro -climatic regions for sugarcane cultivation: tropical and subtropical.
  - The tropical region includes states like Maharashtra, Andhra Pradesh, Tamil Nadu, Karnataka, Gujarat, and Madhya Pradesh
  - The subtropical region includes Uttar Pradesh, Uttarakhand, Haryana, Punjab, and Bihar.
- **India is the largest consumer and second largest producer of sugar globally**, with a 15% share in global sugar consumption and 20% production.
- It is the market leader in the Eastern Hemisphere for sugar market, alongside Brazil in the Western Hemisphere.
- **India is now the third largest country in ethanol production, after the USA and Brazil.**
- The country has increased its ethanol blending percentage from 5% in 2019-20 to 12% in 2022-23, and its production has increased from 173 crore litres to over 500 crore litres.
- India has shown commitment to green energy and is the payer of the highest cane price to its farmers, with over 98% of last season's cane dues paid and 99.9% of previous seasons clear.

Baler Machine

- The Supreme Court is addressing farm fires, leading to increased demand for Baler machines in Punjab.
- Currently, around 2,000 Baler machines operate in the state, with 1,268 being subsidised under the Centre's **Crop Residue Management scheme.**



Need of the Machine

- Paddy crop leaves stubble on the ground, which farmers burn to remove before sowing.
- In situ management, using machines like super seeders, is eco-friendly but leaves fields vulnerable to insect attacks.
- To avoid toxic insecticides, ex situ management is preferred, using baler machines. In situ management is more environmentally friendly, as it doesn't require the use of toxic insecticides.

Mechanism of a Baler Machine

- Balers are used to **compress agricultural residue into manageable, transportable bales of 25-30kg each.** Farmers cut the crop residue with a **tractor-mounted cutter**, arrange it in straight lines, and compress it using netting.
- These compact bales are transported to factories or dumping sites, allowing farmers to plough the field and sow the next crop immediately.

- The balers can cover 15-20 acres per day, and if weather permits, they can operate for approximately 45 days.

Indian Council of Agricultural Research

Indian Council of Agricultural Research (ICAR)	
Establishment	July 16, 1929
Headquarter	New Delhi, India
Legal Status	Autonomous Organization under the **Department of Agricultural Research and Education (DARE)**
Affiliation	Ministry of Agriculture and Farmers Welfare, Government of India
Mandate	Conduct, coordinate, and promote agricultural research and development in India to ensure food security, improve agricultural productivity and sustainability, enhance farmer income, and develop a more resilient agri-food system.
Supervision	Governed by a Governing Body chaired by the Union Minister of Agriculture and Farmers Welfare and a Director General as the chief executive officer.

Key Role Played by Indian Council of Agricultural Research

- **Crop Varieties:**
  - Spearheaded the Green Revolution by developing high-yielding varieties, such as **Jaya and Swarna rice, Pusa Basmati 1121**, and wheat varieties like **HD 2967 and DBW 187**.
  - Introduced fruit varieties like **Amrapali mango and Bhagwa pomegranate**.
- **Seed Programs:**
  - Ensured global seed security by depositing seeds in the **Svalbard Global Seed Vault** as safety duplicates.
- **Genomics:**
  - Established the **National Gene Bank**, the world's second-largest gene bank, housing over 450 thousand indigenous and exotic crop accessions.
  - Contributed to global genome sequencing of rice, wheat, tomato, and potato, while independently sequencing genomes of pigeon pea, jute, mango, and fishes.
- **Health:**
  - Developed vaccines and diagnostics, contributing to improved health management and livestock productivity.
  - Successfully eradicated animal diseases like **Rinderpest** and **contagious bovine pleura-pneumonia.**
- **Climate Smart Farming:**
  - Advocated climate-smart farming through rainwater harvesting, community ponds, and the cultivation of climate-resilient crop varieties.
  - Encouraged hydroponic cropping as an innovative solution.
- **Bio-technology Solutions:**
  - Undertook crop biofortification to combat malnutrition, yielding biofortified crops like **Solapur Lal and Pusa Double Zero Mustard 31.**
  - Developed the **Pusa decomposer** for crop residue decomposition, addressing residue burning issues.

Bhagwa' Pomegranate Export to the USA

- The Agricultural and Processed Food Products Export Development Authority (APEDA) recently collaborated with the National Plant Protection Organization (NPPO) to facilitate the inaugural trial shipment of 'Bhagwa' pomegranates to the USA.
- **'Bhagwa' Pomegranate Characteristics:**
  - Known for its **saffron-color**, 'Bhagwa' pomegranate boasts **high antioxidant content** and is celebrated for its **superfruit characteristics**.
  - Solapur in Maharashtra holds a significant role, contributing nearly 50% of India's pomegranate exports.

- **APEDA:** The APEDA operates as a **statutory body under the APEDA Act, 1985**. It stands as the apex export trade promotion authority, facilitating and promoting agricultural product exports. It comes under the jurisdiction of Ministry of Commerce and Industry.
- **National Plant Protection Organization (NPPO):** The NPPO, represented by the Directorate of Plant Protection, Quarantine, and Storage, serves as India's national body responsible for phytosanitary measures related to agro-commodity exports. It plays a crucial role in ensuring compliance with international standards.

PUShP portal

Recently, the National Power Committee (NPC) has asked States to provide suggestions for offering incentives to buyers and sellers on the surplus power portal PUShP.

About PUShP portal

- A **High Price Day Ahead Market (HP-DAM) and Surplus Power Portal** (PUShP) was **launched by the Ministry of Power.**
- It was launched to ensure **greater availability of power during the peak demand season** at a price higher than the ceiling of Rs 12 per unit by certain category of sellers.
- The power distribution companies (DISCOMs) will be **able to indicate their surplus power in block times / days / months on portal.**
- DISCOMs can request surplus power, with the new buyer paying both variable charge (VC) and fixed cost (FC) as determined by regulators. The original beneficiary has no recall rights, as the entire FC liability is also shifted to the new beneficiary.
- This **will reduce the fixed cost burden on the DISCOMs**, and will also enable all the available generation capacity to be utilized.

Day Ahead Market

- It is a physical electricity trading market where **power is delivered within 24 hours of the next day starting from midnight.**
- They are traded in 15-minute time blocks and the prices and quantum of electricity closed the auction bidding process.

'Namoh 108' Lotus Variety Unveiled

- As part of the **One Week One Lab (OWOL) initiative by CSIR**, the CSIR-National Botanical Research Institute in Lucknow unveiled a **unique lotus variety named 'Namoh 108.'**
- This initiative, aimed at showcasing each lab's history and scientific achievements for a week, provided a platform for the introduction of this distinct lotus variety.
- **Discovery and Genome Sequencing:** Discovered several years ago in **Manipur**, 'Namoh 108' stands out as the **sole lotus variety in India with its genome sequenced**, marking a significant scientific achievement.
- **Lotus Mission Launch:** In a bid to encourage cultivation beyond its place of origin, the unveiling of 'Namoh 108' was complemented by the launch of the **Lotus Mission under the horticulture mission.** This mission aims to **promote the cultivation of this unique lotus variety in various parts of the country.**

Electric Freight Vehicle Alliance and e-Fast India Initiative

- In a strategic move aimed at boosting demand for electric freight vehicles, industry leaders have joined forces.
- The announcement of this alliance took place at the 14th Clean Energy Ministerial during an event related to NITI Aayog's e-FAST India (Electric Freight Accelerator for Sustainable Transport – India) initiative.

e-FAST India (Electric Freight Accelerator for Sustainable Transport – India) Initiative

- India's first electric freight platform, e-FAST, launched in September 2022, **aims to promote cleaner and greener freight transportation.**
- Launched by **NITI Aayog**, it facilitates **collaborations at national and international levels, supports scalable pilot programs, and explores technology integration and associated research.**

Global Lighthouse Network

- Recently, the Lighthouses Live 2023 event took place.
- Established in 2018, the Global Lighthouse Network is a **community within the World Economic Forum (WEF),** comprising **leading global manufacturers who are leaders in the utilization of Fourth Industrial Revolution (4IR) technologies.**
- Lighthouses represent manufacturers at the forefront of applying Fourth Industrial Revolution (IR) technologies on a large scale. Their focus is on driving financial, operational, and sustainability improvements by transforming factories, value chains, and business models.
- As of September 2023, the Global Lighthouse Network includes 132 lighthouses.

TRAI on Improving EoDB in the Telecom and Broadcasting Sector

- The Telecom Regulatory Authority of India (TRAI) has issued recommendations on improving Ease of Doing Business (EoDB) in the Telecom and Broadcasting Sector.
- **India, as the world's second-largest telecommunications market**, boasts 117 crore subscribers and 70 crore active Internet users.
- **Ease of Doing Business is a metric that gauges the simplicity, efficiency, and transparency of regulations and procedures in a country**, directly impacting businesses' operations, startups, and growth.

Telecom Regulatory Authority of India (TRAI)	
Establishment	Telecom Regulatory Authority of India Act, 1997
Composition	A chairperson and two full-time members and two part-time members
Functions	• Regulating telecommunication services • Protecting consumer interests • Promoting competition in the telecommunication sector • Fostering the growth of the telecommunication sector • Advising the Government on matters relating to telecommunication
Ministry	Department of Telecommunications, Ministry of Communications

National Bank for Agriculture and Rural Development (NABARD)

The Minister of Home Affairs highlighted that NABARD, a vital component of India's rural economy, infrastructure, agriculture, cooperative institutions, and self-help groups, has been instrumental in its development for the past four decades.

NABARD

- **Establishment:** In 1982, the National Bank for Agriculture and Rural Development (NABARD) was established on the **recommendations of the B. Sivaraman committee**, as outlined in the NABARD Act 1981.
  - This establishment involved the transfer of agricultural credit functions from the RBI and refinance functions from the then **Agricultural Refinance and Development Corporation (ARDC).**
- **Administration:** Wholly owned by the Government of India and operates under the **Ministry of Finance**.
- **Mission:** The primary mission of NABARD is to promote sustainable and equitable agriculture and rural development through participative financial and non-financial interventions.
- **Functions:**

Credit-Related Functions	**Non Credit-Related Functions**
Provides refinance to lending institutions in rural areas.	Supports financial inclusion efforts of Regional Rural Banks and Cooperative Banks.
Promotes credit flow for the advancement and promotion of agriculture, small-scale industries, cottage and village industries, etc.	Emphasizes promoting livelihood opportunities and Micro Enterprises.

Extends loans to Cooperatives, Farmers' Producers Organizations (FPOs), Primary Agricultural Credit Societies (PACS), or similar institutions.	Engages in research and development, rural innovations, etc.
	Serves as the development bank for fostering rural prosperity.

Government Sponsored Schemes Implanted by NABARD

Farm Sector:

- **New Agricultural Marketing Infrastructure (AMI) sub scheme of ISAM**: The scheme boosts farmers' income by promoting value addition, processing, and marketing infrastructure, ensuring remunerative prices, small processing units, post-harvest losses reduction, and pledge financing.
- **Agri Clinics and Agri Business Centres Scheme (ACABC)**: The scheme aims to enhance public extension efforts by offering extension services and creating self-employment opportunities for agricultural graduates, diploma holders, and biological science graduates.
- **Scheme for Extending Financial Assistance to Sugar Mills for Enhancement and Augmentation of Ethanol Production Capacity**: This scheme aims to increase the production of ethanol and its supply under the Ethanol Blended with Petrol (EBP) Programme. It improves the liquidity position of the sugar mills, enabling them to clear cane price arrears of the farmers.
- **Interest Subvention Scheme**: This scheme provides short-term agricultural credit to farmers at a subsidized interest rate. It helps farmers avail short-term crop loans up to Rs. 3 lakh payable within one year at only 4% per annum.

Off Farm Sector:

- **Stand-Up India**: This scheme aims to promote entrepreneurship among women and Scheduled Castes (SCs) and Scheduled Tribes (STs). It provides collateral-free loans of up to Rs. 1 crore to eligible borrowers for setting up new businesses in the manufacturing, services, and agri-allied sectors.
- **Special Credit Linked Capital Subsidy Scheme (SCLCSS)**: Introduced under the National SC-ST Hub (NSSH) scheme in 2017, this scheme aims to promote new enterprises and support the existing enterprises in their expansion for enhanced participation of SC/ST entrepreneurs in public procurement.

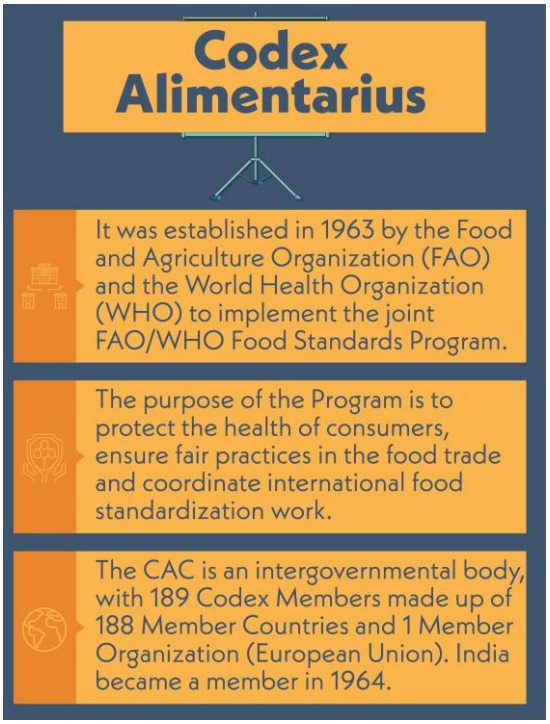
Phosphorus

- Phosphorus is a critical macronutrient vital for plant growth, serving multifaceted roles indispensable for their well-being:
  - **Photosynthesis Process:** Essential for the fundamental process of photosynthesis, where plants convert light into energy.
  - **Energy Transfer and Nutrient Movement:** Facilitates the transfer of energy and the movement of nutrients within the plant, ensuring metabolic processes.
  - **Strong Root Development:** Contributes significantly to the development of robust and resilient root systems, anchoring plants securely in the soil.
  - **Transfer of Genetic Characteristics:** Plays a pivotal role in the transfer of genetic characteristics, contributing to the overall genetic vitality of the plant.
- **Phosphorus Scenario in India:**
  - India, notably, holds the title of the **world's largest importer of Phosphorus**, primarily sourcing it from cadmium-laden deposits in **West Africa.**
  - Phosphate rocks, the primary source of Phosphorus, are predominantly produced in Rajasthan and Madhya Pradesh, with additional deposits located in Lalitpur (Uttar Pradesh), Mussoorie syncline, and the Cuddapah basin (Andhra Pradesh).

- **Concerns and Challenges:**
  - **Cadmium Coexistence:** Phosphorus often coexists with Cadmium, a heavy metal necessitating expensive removal methods.
  - **Global Geopolitical Concerns:** A handful of countries, including Morocco, Western Sahara, China, and Algeria, control the majority of the world's phosphorus reserves, posing significant geopolitical concerns.
- **Harmful Effects:**
  - **Environmental Impact:** Agricultural run-off and sewage contribute to the direct loss of phosphorus to water bodies, fostering the growth of toxic algal blooms.
  - **Health Ramifications:** Cadmium-laden fertilizers, applied to the soil, can be absorbed by crops, eventually entering the human food chain and bioaccumulating in the body, potentially accelerating heart disease.

Codex Alimentarius Commission (CAC)

- India has been elected as a member representing Asian region in the **Executive Committee of Codex Alimentarius Commission (CAC)** during its meeting held at FAO Headquarters at Rome.
- India has framed a comprehensive group standard for 15 types of millets specifying 8 quality parameters, which was acknowledged by the Commission and supported by the member countries. **Codex currently has standards for Sorghum and Pearl Millet**.



Codex Alimentarius

- The term **Codex Alimentarius** is Latin and means **food code**. Codex standards are **international food texts** i.e. standards, codes of practice, guidelines and other recommendations.
- They include provisions covering **food hygiene, food additives, residues of pesticides and veterinary drugs, contaminants, labelling and presentation, methods of analysis and sampling, and import and export inspection and certification.**
- They are **not a substitute for, or alternative to national laws**.

Drone Scheme for Women

- The Union Cabinet has approved a **Central Sector Scheme** for **providing Drones to the Women Self Help Groups (SHGs)**, with an outlay of Rs. 1261 Crore.
- The scheme aims to provide drones to **15,000 selected Women SHGs** during the period 2023-24 to 2025-2026 for providing rental services to farmers for agriculture purpose.
- **Central Financial Assistance @ 80% of the cost of drone** and accessories/ancillary charges up to a maximum of Rs. 8 Lakh will be provided to the women SHGs for purchase of drones.
- The Cluster Level Federation (CLFs) of SHGs may raise the balance amount (total cost of procurement minus subsidy) as **loan** under **National Agriculture Infra Financing Facility (AIF).** Interest subvention @ 3% on the AIF loan will be provided.

Paat-Mitro App

- The Ministry of Textiles has launched the Paat-Mitro mobile application to facilitate jute farmers, developed by the **Jute Corporation of India Limited (JCI)** the app is available in **six languages**.
- It will provide important information about **Minimum Support Price (MSP) and agronomy** to jute farmers.

- In addition, jute gradation parameters, farmer-centric schemes like **'Jute-ICARE' (Improved Cultivation and Advanced Retting Exercise for Jute**), weather forecasts, JCI's purchase centers' locations, procurement policies are also made available in the app.

Jute Corporation of India Limited

- JCI is a **Central Public Sector Enterprise (CPSE)** under the **administrative control** of **Ministry of Textiles**.
- It was set up in 1971 to protect the interest of jute growers through procurement of raw jute at the MSP. It has a clear mandate for the procurement of raw jute without any quantitative limit from the growers. This protects the jute growers from exploitation by middlemen.

Akkadi Saalu

- Akkadi Saalu is a **mixed cropping system** often found in the **drylands of Karnataka**. It encourages biodiversity on the farm and is traditionally practised on rainfed agricultural land as dryland agriculture.
- Multi-cropping in Akkadi Saalu provides smaller landholding farmers with **increased security by reducing the risk of losing all crops simultaneously.**
- While many natural farming systems boast lower input costs, a common criticism is the increased vulnerability to pests without pesticides. Akkadi Saalu farmers, however, **embrace weeds and pests with tolerance, opting not to eliminate them.**

TAXATION

Angel Tax Exemptions

Indian startups are exempt from angel tax levy for investors from 21 countries, including the US, UK, France, Australia, and Japan, while Singapore, Netherlands, and Mauritius, which make up the majority of FDI in India, are not included in the exemption.

About Angel Tax

- Angel Tax is **a tax levied on the capital raised** via the issue of shares **by unlisted companies if the share price of issued shares is seen in excess of the fair market value** of the company.
- The **excess funds raised** at prices above fair value **is treated as income, on which tax is levied.**
- **Rate**: It is levied at a rate of **30.9% on net investments in excess of the fair market value**.
- **Objective**: To **deter the generation and use of unaccounted money** through subscription of shares of a closely held company, at a value which is higher than fair market value.

Background

- The Angel tax, **introduced in the Finance Act, 2012**, taxes investments received by unlisted Indian companies valued above the fair market value, treating them as income. This section is derived from **Section 56(2) (viib) of the Income Tax Act, 1961.**
- **In 2019, the Government announced an exemption from the Angel Tax for startups** on fulfilment of **certain conditions. These are,**
    - The startup **should be recognized by the** Department for Promotion of Industry and Internal Trade **(DPIIT) as an eligible startup.**
    - The **aggregate amount of paid-up share capital and share premium** of the Startup **cannot be more than ₹25 crores**. This amount does not include the money raised from Non-Resident Indians (NRIs), Venture Capital Firms, and specified companies.
    - Angel investors can claim a 100% tax exemption if their investment exceeds the fair market value, provided they have a net worth of ₹2 crores or an income of ₹25 Lakh in the past three fiscal years.
- Previously, **angel tax provisions were applicable only for investments received from resident investors.**
- **The Finance Act, 2023** proposed to **include foreign investors in angel tax regime,** allowing it to be counted as income and taxable, but **excluded DPIIT-recognised startups.**

Current Exemptions

- **Sebi-Registered Entities:** Entities registered with Sebi as Category-I FPI are excluded from the recent CBDT notification.
- **Exemption for Broad-Based Investments:** Broad-based pooled investment vehicles with over 50 investors and residents of specified nations, including the US, UK, Australia, Germany, and Spain, are exempted.
- **Specified Nations:** Residents of 21 specified nations, including Austria, Canada, Czech Republic, Belgium, Denmark, Finland, Israel, Italy, Iceland, Japan, Korea, Russia, Norway, New Zealand, and Sweden, fall under the exemption.
- **Government and Related Investors:** Government and government-related investors, such as central banks, sovereign wealth funds, and international or multilateral organizations, with government ownership of 75% or more, are exempt.
- **Financial Institutions:** Banks and entities **involved in the insurance business**, subject to applicable regulations in their respective countries, are exempted.

Laundromat Countries

- The term "laundromat countries" is used to describe **nations that purchase Russian oil and export processed refinery products to European countries.** This practice allows them **to circumvent European sanctions imposed on Russia.**
- According to a report by a Finland based group **Centre for Research on Energy and Clean Air** (CREA), **India leads five countries named as Laundromat countries**. The other four laundromat countries are **China, Turkey, UAE and Singapore**.
- The report suggests that Indian sellers and European buyers may be circumventing sanctions by selling crude products from a Gujarat refinery owned by Russian oil company Rosneft.
- European countries are replacing oil products they previously bought directly from Russia with "whitewashed" products from third countries.
- India exported nearly 3.8 million tonnes of oil products to price cap coalition countries, including the EU, G-7 countries, Australia, and Japan.

Gift Tax

Recently, the Central Board of Direct Taxes (CBDT) has exempted buyers from gift tax when they acquire equity shares in public-sector units (PSUs) through strategic disinvestment.

About Gift Tax

- The Parliament of India introduced the **Gift Tax Act in 1958,** and gift tax is essentially the tax charged on the receipt of gifts.
- The Income Tax Act states that gift **whose value exceeds Rs.50,000** are subject to gift tax in the hands of the recipient.
- The gift tax is also applicable on certain transfers that are not considered a gift.
- The transfer of existing movable or immovable property in money or money's worth qualifies for gift tax.
- The gift is exempted from tax if **it was given by a relative.**
- Gifts can be exempted from tax in various situations, including wedding gifts, inheritance gifts, and cash or rewards received by local authorities or educational institutions based on merit.

Off-Budget Borrowings

The Centre for Social and Economic Progress (CSEP) has recently published a comprehensive report shedding light on 'Off-Budget Borrowings (OBB)' by Indian Governments.

- **Definition of OBB:** Off-budget borrowings by a government refer to **loans taken by its entities, special purpose vehicles**, that are expected to be repaid **by the government's own budget rather than the borrowing entity's cash flows or income.**

- Consequently, these borrowings are not factored into fiscal indicators, despite having fiscal implications.
- **Nature of OBBs:**
  - OBBs are not directly undertaken by the government but by other public institutions under its direction.
  - An example is the loan by the Food Corporation of India (FCI) for settling the food subsidy bill (a practice discontinued from FY 2020-21).
- **Reasons for OBB Usage:**
  - Bypassing fiscal deficit targets under the FRBM Act, 2003,
  - Avoiding borrowing limits stipulated by Article 293(3) of the Constitution (which mandates state consent for raising loans under certain conditions),
  - Preventing delays in central grants or reductions in other revenue sources.
- **Methods of OBB:** National Savings Schemes, Government Fully Serviced Bonds, and both domestic and foreign market borrowings.

Global Minimum Tax

138 countries and jurisdictions, including India, agreed to a historic global tax deal. The aim of the deal is to implement measures to prevent tax evasion and corporate tax avoidance.

Background of Global Tax Agreement Framed By OECD

- Tech giants like Apple, Facebook, and Google profit from domestic markets while making minimal public contributions.
- Many countries want new taxes on these companies. Under the OECD's auspices, nearly 140 countries are negotiating a global tax overhaul to address how multinationals are taxed in countries where they have users or consumers.
- **The OECD had proposed two ways:**
  - Countries would be allowed to have some rights to tax profits made on the basis of sales in their jurisdictions.
  - It also talked about a global minimum corporate tax rate to stop countries lowering corporate tax rates below that level.

About Global Tax Deal Agreed By The OECD

The deal has two main elements –

- **Pillar One,** which calls for the **redistribution of profits generated by the largest companies to the domicile markets where they actually make their sales** instead of simply where they are headquartered.
- A quarter of any profits they make above the 10% threshold will be reallocated to the countries where they were earned and taxed there.
- **Pillar Two,** which establishes a **global minimum effective tax rate of 15 percent** determined on a country-by-country basis.
- Governments will be equipped to impose additional taxes in case companies are found to be paying taxes that are considered too low.
- The 15% floor under the corporate tax will come in from 2023, provided all countries move such legislation.
- **Firms covered by this deal:** This deal will cover **firms with global sales above 20 billion Euros ($23 billion) and profit margins above 10%.** It is expected to hit digital giants like Amazon, Google and Facebook.

Related Terms: Base Erosion And Profit Shifting

Base erosion and profit shifting (BEPS) refers **to tax planning strategies used by multinational enterprises** that exploit gaps and mismatches in tax rules **to avoid paying tax.**

Organisation for Economic Co-operation and Development (OECD)	
Established	December 14, 1960
Members	38 countries, Typically democratic countries that support free-market economies

Founding Nations	18 European nations, United States, Canada
Headquarters	Paris, France
Goal	To shape policies fostering prosperity, equality, opportunity, and well-being for all
Working Relationships	Collaborates with non-member economies, including **India**, in addition to member countries
Key Focus Areas	Democracy, market economy, economic growth, equality, opportunity, well-being, anti-corruption, tax havens

Online Gaming

At the recently concluded 50th GST Council meeting, it was decided that **online gaming would be taxed at 28%** on the full-face value of the placed bets.

Defining Online Gaming

- The Ministry of Electronics and information Technology (MeitY) in its draft regulation has defined online game "as a **game that is offered on the Internet and is accessible by a user through a computer resource or an intermediary**."
- Real money online games involve users depositing cash or kind to earn winnings. These platforms can be fantasy, e-sports, skill-based, or cards-based.
- India's gaming industry is expected to reach $5 billion by 2025, growing at a compounded annual rate of 28-30%. In 2022, the real-money gaming segment generated over Rs 10,000 crore in revenue.

How Will the Taxation Work?

- Gaming platforms charge an entry fee for users to participate in a game, with the operator deducting a portion of the **Gross Gaming Revenue (GGR)** to run the game and the platform. The remaining amount is transferred to the prize pool.
- **Currently, online gaming platforms pay a 18% GST on the GGR**, resulting in lower tax. However, if the taxation is increased taxing 28% on the entry fee itself, the taxation amount would be much higher.

Types of Online Gaming	
e-Sports	• Video games that transitioned from private or console play in the 1990s to structured online competitions involving professional players, either individually or in teams.
Fantasy Sports	• Games where players assemble a team of real sports players from various teams and earn points based on the actual performance of selected players in real-life sports events.
Online Casual Games	• Includes skill-based games where outcomes depend on mental or physical prowess and chance-based games where results are influenced by random activities, such as rolling dice.
Gambling Consideration	• Games of chance may be classified as gambling if players wager money or items of monetary value.

Tax Inspectors Without Borders (TIWB)

- Tax Inspectors Without Borders has launched a programme in **Saint Lucia.** India has been chosen as a partner in the programme and **India will provide tax experts for this programme**.
- India aims to aid Saint Lucia in strengthening its tax administration by transferring **technical knowledge and skills and by sharing best practices.**

Common Reporting Standard (CRS)

- CRS is a **global reporting standard** for the automatic exchange of information (AEoI) developed by-OECD.
- The idea was based on the US Foreign Account Tax Compliance Act (FATCA) implementation agreements.

- Under CRS, jurisdictions have to obtain information from their financial institutions and **automatically exchange that information** with other jurisdictions on an annual basis.

Purpose of CRS

- Allow tax authorities to obtain a **clearer understanding of financial assets held abroad** by their residents to combat perceived **offshore tax evasion**.
- Provide minimum set of standards and framework to **increase efficiency and decrease cost** associated with exchange of information.

Tax Inspectors Without Borders (TIWB)

- TIWB is a joint initiative of the **United Nations Development Programme (UNDP)** and the **Organisation for Economic Cooperation and Development (OECD)**.
- It deploys qualified experts in developing countries across Africa, Asia, Eastern Europe, Latin America and the Caribbean.
- The experts help to build tax capacity in the areas of audit, criminal tax investigations and the effective use of automatically exchanged information.

FINANCIAL MARKETS

Legal Entity Identifier

- Capital markets regulator **SEBI** has introduced the **Legal Entity Identifier (LEI) system for issuers of non-convertible securities, securitised debt instruments, and security receipts.**
- The **LEI is a unique global identifier for legal entities participating in financial transactions**, designed to create a global reference data system. It is a unique **20-character code** that identifies legally distinct entities.
- **The Reserve Bank of India (RBI) mandates non-individual borrowers with aggregate exposure above Rs 25 crore to obtain the LEI code.**
- The LEI code can be obtained from **Legal Entity Identifier India Ltd, a subsidiary of the Clearing Corporation of India Ltd**. It is accredited by the **Global Legal Entity Identifier Foundation (GLEIF) for issuance and management.**

SCORES Platform of SEBI

- **SCORES** (SEBI Complaints Redress System), launched in June 2011 by **Securities and Exchange Board of India**, is an online **grievance redressal system for investors to file complaints against companies**, intermediaries, and market infrastructure institutions in the securities market.
- According to the regulatory authority, complaints can be lodged on SCORES **for any issues covered under the SEBI Act, Securities Contract Regulation Act, Depositories Act, and rules and regulations and provisions of Companies Act, 2013.**
- **Entities against which complaints are handled by SEBI include:**
  - Listed companies / registrar & transfer agents
  - Brokers / stock exchanges
  - Depository participants / depository
  - Mutual funds
  - Portfolio Managers
  - Other entities (KYC Collective investment scheme, Merchant banker, Credit rating, Foreign institutional investor etc)

About Securities and Exchange Board of India

- The SEBI is a **statutory regulatory body** established by the Government of India in 1992. It was given statutory powers through the SEBI Act, 1992.
- **Objective:** To regulate the securities market in India and protect the interests of investors in securities.
- **Members of SEBI:**
  - SEBI is run by a board of directors, whose members include:

- the chairman nominated by the Union Government
- two officers from the Ministry of Finance,
- one member from the Reserve Bank of India, and
- five members who are also nominated by Union Government

Powers of SEBI

- **Quasi-judicial powers:**
  - In case of frauds and unethical practices pertaining to the securities market, SEBI has the **power to pass judgments.**
  - The said power facilitates to maintain transparency, accountability and fairness in the securities market.
- **Quasi-executive powers:**
  - SEBI has the **power to examine the Book of Accounts and other vital documents to identify or gather evidence against violations.**
  - If it finds one violating the regulations, the regulatory body has the **power to impose rules, pass judgements and take legal actions against violators.**
- **Quasi-legislative powers:**
  - To protect the interest of investors, the authoritative body has been entrusted with the **power to formulate suitable rules and regulations.**
  - Such rules tend to encompass the listing obligations, insider trading regulations and essential disclosure requirements.

Delisting of Securities

The Securities and Exchange Board of India (SEBI) is considering revising delisting regulations for listed companies to prevent manipulation of shares. The board may allow companies to delist shares at a fixed price, instead of the current reverse book-building process.

Delisting

- Delisting is the **act of removing a listed company's securities from a stock exchange, preventing them from being traded**.
- It can be voluntary or compulsory. In **voluntary delisting, a company decides to remove its securities**, while in **compulsory delisting, it is removed as a punishment for non-compliance with listing agreement requirements**.
- **To delist, a company must buy back 90% of the total issued shares.**

Reverse Book-Building Process

Reverse book-building is a price discovery process where shareholders offer shares at prices above or equal to the floor price during the open period, and the buyback price is determined after the offer closing price.

Emerging Markets Bond Index

- JP Morgan Chase & Co has announced it will include Indian government bonds to its emerging markets bond index from June 2024. India's local bonds will be included in the Government Bond Index-Emerging Markets **(GBI-EM) index** of the JP Morgan.
- It is expected to reach the maximum weight of 10 % in the GBI-EM Global Diversified Index (GBI-EM GD).

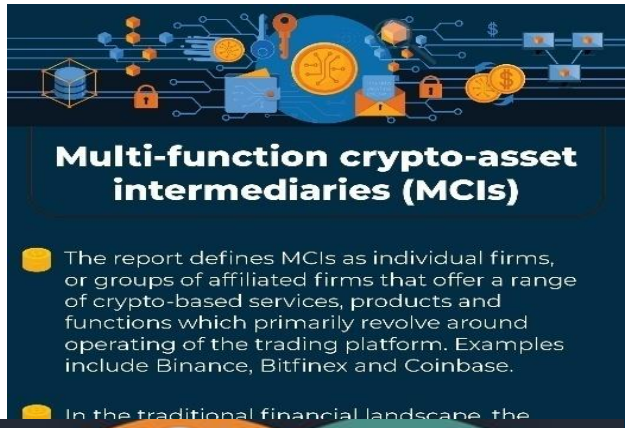
Emerging Markets Bond Index

- It is a benchmark index for measuring the **total return performance of international government and corporate bonds** issued by emerging market countries that meet specific liquidity and structural requirements.
- Emerging market **bonds are debt instruments** issued by developing countries, which tend to **carry higher yields than government** or corporate bonds of developed countries.
- Total 23 Indian Government Bonds (IGBs) with a combined notional value of $330 billion are eligible.

- All fall under the category of "**fully accessible**" for non-residents.

FSB Report on Multi-function Crypto-asset Intermediaries (MCIs)

The Financial Stability Board (FSB) has released a report on **multi-function crypto-asset intermediaries (MCIs)** operating globally.



Revenue Sources of MCIs

- **Transaction Fees:** Primary income stems from trading-related transaction fees, often involving self-issued crypto assets.
- **Diversified Services:** Trading activities indirectly drive demand for additional services, such as prepaid debit cards and lending.
- **Debit Card Issuance:** Platforms issue debit cards (e.g., Binance, Coinbase) for converting crypto-assets to fiat currency, enabling ATM withdrawals and retail purchases.
- **Blockchain Infrastructure Operation:** Some MCIs earn revenue by operating blockchain infrastructure, collecting transaction validation fees.
- **Proprietary Trading**: MCIs engage in proprietary trading, utilizing their own capital to seek profits.
- **One-Stop Shop Model:** MCIs aspire to be comprehensive service providers beyond trading, adopting a "one-stop shop" for various crypto-based services.

Value Investing

- Value investing refers to a style of **investing that involves buying assets such as stocks, bonds, real estate etc. at a price that is below their intrinsic value hoping to sell them at a higher price in the future.**
- Value investors believe that an asset's price may fluctuate widely in the short-run but will move towards its intrinsic value in the long-run.
- For example, the intrinsic value of a company's stock may be 100 rupees per share, but it may be trading at a market price of only 60 rupees.
- This difference between the price and the intrinsic value of an asset gives an opportunity for value investors to buy the asset at a price that is below its intrinsic value.

Efficient Market Theorists

- The philosophy of value investors differs from that of efficient market theorists (EMTs). As per EMTs the price at which an asset is traded in the market closely tracks its intrinsic value.
- They believe that markets are so efficient that all information that is relevant to an asset is quickly reflected in its price, thus offering very little opportunity for value investors to purchase undervalued assets.

NYMEX WTI Crude Oil and Natural Gas Futures contracts

- The **National Stock Exchange** (NSE) has introduced rupee-denominated NYMEX WTI Crude Oil and Natural Gas futures contracts in its commodity derivatives segment, thereby expanding its product offerings in the energy basket and the overall commodity segment.
- **Benefits:**
  - Enhances trading activities in the commodity and energy markets.

- Increases competition in the market, ultimately benefiting retail traders and investors.
- Particularly advantageous for Foreign Portfolio Investors (FPIs), allowing them to leverage margin collateral from their cash holdings in NSE to engage in trading commodity derivative contracts.

- **A futures contract** represents a legal agreement to buy or sell a specific commodity, asset, or security at a predetermined price at a specified time in the future.
- **National Stock Exchange of India Limited (NSE),** established in 1992, stands as India's largest financial market and the fourth-largest market by trading volume.
- **West Texas Intermediate (WTI)** is a light, sweet crude oil sourced from wells in the USA, serving as a key global oil benchmark. Other benchmarks include Brent Crude, Dubai/Oman.

World Investment Conference (WIC)

- WIC was recently held in **India** for the **first time**. WIC is an **annual flagship event of World Association of Investment Promotion Agencies (WAIPA).**
- WIC serves as a platform for global investment promotion and innovation stakeholders.
- The conference brings together Investment Promotion Agencies (IPAs), international organisations, academia, and the private sector, including startups, to discuss investment policies and trends, and an opportunity for collaboration, trade, investments and knowledge sharing.

World Association of Investment Promotion Agencies (WAIPA)

- WAIPA is an international non-governmental organization established in 1995 by the **United Nations Conference on Trade and Development (UNCTAD)**.
- Its **secretariat** is based in **Geneva**, Switzerland since 1995. Since 2015 its **headquarters** are established in **Istanbul, Turkey**.

MISCELLANEOUS

Global Debt

Factors Influencing Debt Levels

- The first half of 2023 witnessed a rise in global debt amid **increasing interest rates**, anticipated to dampen loan demand.
- Overall, a gradual increase in debt levels is expected due to the **steady rise in total money supply** globally each year.
- A **rise in savings in an economy can contribute to increased debt levels** as these savings are directed into investments.

Inflating Away Debt

- The process involves a **central bank creating currency to effectively pay off government debt, often by purchasing government bonds**.
- While this reduces debt, it imposes an indirect tax on the wider economy as the creation of fresh money leads to rising prices.

'A World of Debt' Report

The United Nations Conference on Trade and Development (**UNCTAD**) recently unveiled a comprehensive report titled 'A World of Debt,' shedding light on the intricate dynamics of global public debt.

Key Findings:

- **Magnitude of Global Public Debt:** As of 2022, the total global public debt stands at USD 92 trillion, representing a staggering fivefold increase since the year 2000.
- **Disparity Between Developed and Developing Countries:** Notably, the surge in debt has been more pronounced in developing countries over the past decade, with nearly 30% of the global public debt attributed to them. For instance, India's public debt has reached USD 2,815 billion.

- **Financial Strain on Developing Nations:** Alarmingly, half of the developing countries allocate over 1.5% of their GDP and 6.9% of government revenues to interest payments, surpassing investments in crucial sectors like education and health.
- **Shift Towards Private Creditors:** The report highlights a notable shift in developing countries' reliance on private creditors, intensifying the cost of credit and complicating debt restructuring processes.

Open Network for Digital Commerce (ONDC)

Open Network for Digital Commerce (ONDC) is an initiative **aimed at promoting open networks for all aspects of exchange of goods and services over digital or electronic networks.**

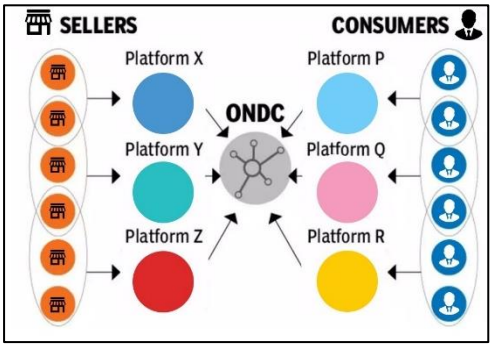
- It is to be based on **open-sourced methodology**, using open specifications and open network protocols independent of any specific platform.
- Making a software or a process open-source means that the code or the steps of that process is made available freely for others to use, redistribute and modify.
- It is developed as a counter to the current duopoly in the Indian e-commerce market which is largely dictated by Amazon and Flipkart.

Promoters

- It is a **private non-profit company** established by the **Department for Promotion of Industry and Internal Trade (DPIIT),** Union Ministry of Commerce and Industry.
- It was incorporated in 2021 with initial investment from **Quality Council of India (QCI) and Protean eGov Technologies Limited** (formerly NSDL e-Governance Infrastructure Limited).

What is ONDC Not?

- ONDC is not an application, an intermediary, or software, but a set of specifications designed to foster open interchange and connections between shoppers, technology platforms, and retailers.
- It should be noted that ONDC is not:
  - A government regulatory body
  - A super aggregator application or a platform
  - A central intermediary
  - A medium to help digitise business



Features

- ONDC, also known as UPI for e-commerce, is set to democratize digital commerce by **transitioning it from a platform-centric model to an open-network model.**
- It will standardize operations like cataloguing, inventory management, order management, and fulfilment, creating a **level playing field** for e-commerce giants like Amazon and Flipkart.
- ONDC will **comply with the Information Technology Act, 2000 and the Personal Data Protection Bill.**
- It will enable sellers and buyers to be digitally visible and transact through an open network, transforming all types of businesses.
- Merchants will be able to save their data for credit history and reach consumers, while ONDC ensures confidentiality and privacy of data.

Source of Funding

The initial funding was generated through **share allotments**, and it plans to charge a small fee from platforms to fund ongoing & expansion-related activities independently, allowing it to become a self-sustaining financial model.

Working

ONDC is an interoperable network based on the **BeckN protocol** which comprises of different entities called 'Network Participants', including Buyer Applications, Seller Applications, and Gateways that perform the search and discovery function.

Benefits of ONDC		
For Sellers	**For Buyers**	**For Technology Platforms**
• Access to more buyers • Better discoverability of products and cost • Autonomy on terms because of multiple choices • Lower cost of doing business • More options for value chain • Reduces the skewed bargaining power	• Promotes discoverability of local digital stores. • More inclusive and accessible • Increased freedom of choice • Better service and faster deliveries due to access to hyper-local retailers • Better customer experience	• New opportunities for start-ups to innovate • Access to the growth of digital commerce through buyer and seller side applications • Reduced time-to-market and time-to-scale • Focus on niche aspects

ONDC Academy

- The ONDC, a government-backed e-commerce protocol, has launched the **ONDC Academy in collaboration with NSE Academy Ltd, a subsidiary of the National Stock Exchange (NSE).**
- The academy provides **educational and informative content for sellers, buyer apps, and logistics providers in e-commerce.** As the academy grows, it will cater to various roles within ONDC, including programs for sellers and buyer network participants, and will be available in multiple Indian languages.
- The academy will **empower sellers and network participants to make informed decisions**, provide best practices for online business management, and provide a forum for expert views.
- Additionally, the academy will enable certification issued by NSE Academy to individuals completing an assessment, validating their understanding of managing operations across the network.

Standing Committee on Statistics (SCoS)

The Ministry of Statistics and Programme Implementation (MoSPI) has created **a new Standing Committee on Statistics (SCoS) under former Chief Statistician Pronab Sen**, to advise on official data from the National Statistical Commission (NSC), which will replace the 2019-formed SCES and have ultimate authority over survey results publication.

Standing Committee on Statistics (SCoS)

- **Objective:** The SCoS will provide a new internal oversight mechanism for official data, revamping a SCES set up in 2019.
- **Chairman:** Pronab Sen, India's first chief statistician and the former chairman of the National Statistical Commission (NSC), has been named the chair of the new committee.
- **Terms of reference:**
  - To ensure more coverage, the panel can have up to 16 members.
  - To expand the mandate beyond economic data and advise the Ministry on technical aspects for all surveys, such as sampling, design, survey methodology and finalisation of results.
  - To identify data gaps that need to be filled by official statistics, along with an appropriate strategy to plug those gaps.
  - To explore the use of administrative statistics to improve data outcomes.

- **Role to be played by NSC:** While the panel will help finalise survey results, the NSC will have the ultimate authority to approve the publication of those results.

Draft National Policy on Official Statistics (NPOS) by MoSPI

- The Ministry of Statistics & Programme Implementation (MoSPI) has introduced a Draft "National Policy on Official Statistics (NPOS)," signaling a commitment to advancing the field of statistical data management.
- **Definition:** According to UNFPOS, Official Statistics refer to data derived by government agencies from various sources, including statistical surveys, administrative and registration records, and other forms. These statistics are systematically published at regular intervals.

Key Features:

- **Technological Advancements:** The policy emphasizes the integration of cutting-edge technologies, outlining a roadmap for modernized data collection and the swift dissemination of information.
- **Alignment with UNFPOS:** In line with global best practices, the policy reaffirms its commitment to the United Nations Fundamental Principles of Official Statistics (UNFPOS), which India adopted in 2016.

United Nations Fundamental Principles of Official Statistics (UNFPOS)

- The United Nations Fundamental Principles of Official Statistics (UNFPOS) form a foundational set of principles governing the production of official statistics.
- Developed in response to the need for professional and scientific standards, particularly during transitions from centrally planned to market-oriented economies, these principles were initially **crafted by the Conference of European Statisticians in 1991.**
- They gained global recognition when **adopted by the United Nations Statistical Commission in 1994** and were reaffirmed in 2013, **receiving endorsement from the United Nations General Assembly in 2014.**
- The UNFPOS serve as a crucial framework guiding National Statistical Systems (NSS) to ensure the creation of high-quality, independent statistics.

Dark Patterns

Recently, the Department of Consumer Affairs warned e-commerce giants to refrain from using dark patterns which harm consumer interests by influencing their choices.

What Are Dark Patterns

- Harry Brignull, a UK-based user experience specialist, coined the term "dark patterns" to describe **how software can trick users into unintended actions**.
- Dark patterns are **user interfaces designed to manipulate users into making choices that are detrimental to their interests, often used when buying products or services online.**
- These patterns can lead to higher prices, disclosures, data sharing, and choices based on false or paid-for reviews.

Various Techniques Used

Drip Pricing	The technique involves gradually revealing additional costs during the purchase process, resulting in a significantly higher final price than initially shown, leading to confusion and frustration among consumers who may not have anticipated or budgeted for these hidden charges.
Bait and Switch	This technique involves attracting the consumers with an enticing offer, only to redirect them to a different, less desirable option resulting in customer disappointment and dissatisfaction.
Fake Scarcity	Through this technique, the advertisers create a sense of urgency or scarcity, pressuring consumers to make impulsive decisions and rushed purchases.
Disguised Ads	Advertisements are presented in a deceiving or misleading manner such that it becomes difficult for the users to differentiate between regular content and paid promotions. This

	results in compromised user trust and undermines their ability to make informed decisions.
Confirm Shaming	Using this technique, users are pressurized into opting for something they don't want to, like sharing their contact details or subscribing to a newsletter, by making the other option seem undesirable.
Nagging	It involves asking the users the same thing again and again through pop-ups or notifications.
Pre-selection	It is the practice of leaving the checkboxes automatically ticked hoping that the user might not notice it.
Visual Interference	It is the act of hiding, obscuring, or disguising important information on a page when it should be displayed clearly. This is common in the case of legal details, refund policies, or other particulars a website or app may want a user to miss. It is usually done by using small, low-contrast text or putting information at places where users may not notice.
Roach Motel	In this technique, signing up for a subscription or service is straightforward, but cancellation for the same is very difficult.
Sneak-into-Basket	In this technique, additional, unwanted items are placed in a shopper's basket/cart without their knowledge while using an e-commerce site.
Forced Continuity	Through this practice the users are deceived into subscribing to paid subscriptions at the end of free trials as it uses credit card details taken at the time of free trial to automatically subscribe users to paid services without warning or requiring any affirmative action from them.

Goldilocks Scenario for An Economy

- A Goldilocks scenario for an economy refers to a point **where it is running just perfectly — neither too hot (implying high inflation) nor too cold (referring to faltering GDP growth).**
- The reference to Goldilocks moment comes from the children's tale about a girl named Goldilocks who went inside the house of a family of three bears and chose the bowl of porridge which was just the perfect temperature — neither too hot, nor too cold.

Related Term: **The Goldilocks zone**, also known as the habitable zone or life zone, is a hypothetical region of space where a planet is the right distance from its star to support liquid water and potentially life.

Greedflation

- Greedflation is a term coined to describe a situation **where inflation is driven by corporate greed, rather than traditional economic factors** like supply chain disruptions or increased demand.
- It suggests that **companies are deliberately raising prices to take advantage of inflationary conditions and boost their profits, exceeding what is necessary to cover their own increased costs**.
- This has led to a growing consensus in Europe and the US that greedflation is the true culprit, as it is the primary cause of inflation.

Deflation

- Deflation occurs **when the prices of goods and services in the entire economy decrease**, boosting consumers' purchasing power.
- This phenomenon arises when the **inflation rate drops below 0%.** While deflation may initially seem advantageous for consumers, it poses a significant threat to the broader economy.

Impact of Deflation

- Deflation signals an **economic downturn**, potentially leading to a recession or depression.
- Cheaper goods **can tempt consumers to delay purchases in anticipation of further price reductions.**

- Reduced consumer demand prompts companies **to cut production, freeze hiring, lay off workers**, and offer discounts to sell existing stocks, negatively impacting profitability.

Deflation vs. Disinflation

- **Disinflation is a slowdown in the inflation rate**, where inflation declines to a lower but **still positive rate.**
- **Deflation involves actual decreases in prices**, leading to a decline in purchasing power.

Causes of Deflation

- **Monetary Policy:** Rising interest rates may discourage spending and borrowing, leading to decreased demand for goods and services.
- **Declining Confidence:** Adverse economic events, such as a global pandemic, can decrease overall demand as people become cautious about the economy and unemployment.
- **Higher Aggregate Supply:** Increased competition or a drop in production costs can boost aggregate supply, causing producers to lower prices. This surplus in supply relative to demand results in lower prices.

Growth Recession

- A recession implies that the total **economic activity in an economy contract for two consecutive quarters**.
- In other words, if an economy's GDP in the first three months of the year (first quarter) is lower than what it was in the first quarter of last year and the same thing happens in the second quarter, then the economy is said to have gone into a recession.

Growth Recession

- A growth recession is a period of slow economic growth that is not low enough to be classified as a recession, but unemployment is still on the rise. The term was coined by New York University professor Solomon Fabricant.
- A growth recession is characterized by **below-trend growth in Real GDP for more than one quarter and increasing unemployment.**
- In the United States, a growth recession would typically entail a growth rate in the 0-2 percent range. An official recession is usually identified by two consecutive quarters of negative real GDP growth.

Potential Growth Rate of An Economy

- Potential growth is the rate of growth that an economy can sustain without causing too much inflation. The formula for calculating the potential GDP growth rate is:

Potential growth rate = Long-term growth rate of the labor force+ Long-term labor productivity growth rate

- The potential growth rate for India is estimated to be 6.2% for 2019–2027. This is based on the following factors:
    - Higher employment
    - Larger working-age population
    - Increased labor productivity
- For a developed economy, an annual GDP growth rate of 2–3% is considered normal.

Lewis Model

- In 1954, the Saint Lucian economist William Arthur Lewis, who won a Nobel Prize in Economics, wrote about the significant **industrialization possibilities for underdeveloped countries with an unlimited supply of labour available at subsistence wages.**
- The marginal productivity of such labour, engaged in sectors like agriculture, was negligible, zero, or even negative.
- Essentially, the withdrawal of labour from farms would, far from reducing agricultural output, make the existing holdings more viable for productivity and enhance mechanization.

- Lewis's influential essay, "**Economic Development with Unlimited Supplies of Labor**," argued that an **expanding manufacturing ("capitalist") sector could absorb much of the surplus labour in agriculture and other subsistence sectors.**
- It just needed to pay wages high enough to encourage individuals to leave the family farm. This way, new industries could be created, or old industries expanded, without limit.
- **According to Lewis, industrialization was inevitable for countries with surplus labour populations**, and he specifically mentioned India.
- The only bottlenecks to this seamless transfer of labour from farms to factories were capital and natural resources, which these countries lacked relative to their populations.
- **China is the perfect example of the Lewis Model**. From the late 1970s to the 2000s, China utilized its demographic dividend and a large pool of surplus rural labour to become the world's factory.

Future of Jobs Report 2023

- The Future of Jobs Report 2023 has been unveiled by the **World Economic Forum (WEF).**
- This fourth edition, with its inaugural release in 2016, is part of a bi-annual series investigating the evolution of jobs and skills over the next five years (2023-2027).
- The report examines the labor-market effects of the Fourth Industrial Revolution, green and energy transitions, and supply-chain shifts.

Periodic Labour Force Survey 2022-23

The Ministry of Statistics and Programme Implementation has released the sixth Periodic Labour Force Survey (PLFS) data for July 2022 to June 2023, tracking data from July 2017 to June 2018.

Few Terminologies

- **Labour Force Participation Rate (LFPR):** LFPR is defined as the percentage of persons in labour force (i.e. working or seeking or available for work) in the population that is above 15 years of age.
- **Worker Population Ratio (WPR):** WPR is defined as the percentage of employed persons for past year in the population.
- **Unemployment Rate (UR):** UR is defined as the percentage of persons unemployed among the persons in the labour force.
- **Current Weekly Status (CWS):** The activity status determined on the basis of a reference period of last 7 days preceding the date of survey is known as the current weekly status (CWS) of the person.

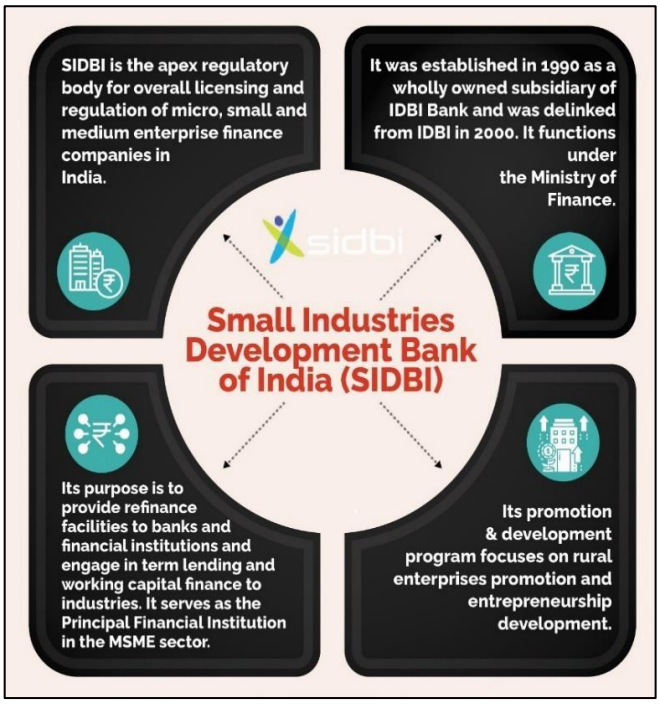
Latest Findings

- The Labour Force Participation Rate (LFPR) for persons of age 15 years and above and the Worker-Population Ratio (WPR) improved during the period.
- The **LFPR in urban areas increased** from 47.5% in April-June 2022 to 48.8% in April-June 2023 for persons of age 15 years and above.
- The **WPR in urban areas increased** from 43.9% in April-June 2022 to 45.5% in similar months in this year for persons of age 15 years and above.
- For male, it increased from 68.3% to 69.2% and for female, it increased from 18.9% to 21.1% during this period.

DAY-NRLM SIDBI MoU for Women-led Enterprises

- Deendayal Antyodaya Yojana - National Rural Livelihood Mission (DAY-NRLM) under the Ministry of Rural Development and the Small Industries Development Bank of India (SIDBI) have signed an MOU.
- The MoU that has been signed for **two years**, aims at **promoting women-led enterprises** among experienced members of Self-Help Groups (SHGs).
- The **primary focus of this collaboration is to demonstrate on-the-ground activities that establish a reliable and sensitive support structure for the capacity enhancement of women entrepreneurs (WEs).**

- Furthermore, it **aims to institutionalize standard protocols, systems, and procedures for streamlined access to formal finance** and development of a comprehensive framework for new financial products and schemes.



Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM)

- DAY-NRLM **aims at mobilizing rural poor households into Self Help Groups (SHGs)** in a phased manner and provide them long-term support to diversify their livelihoods, improve their incomes and quality of life.
- Most of Mission's interventions are being implemented and scaled up by the SHG women themselves who are trained as **community resource persons (CRPs)** – Krishi Sakhis, Pashu Sakhis, Bank Sakhis, Bima Sakhis, Banking Correspondent Sakhis etc.
- The Mission is also working on empowering the SHG women through **awareness generation and behaviour change communication** on issues like domestic violence, women's education and other gender related concerns, nutrition, sanitation, health etc.

Youth Co: Lab

- Twelve Indian start-ups from 9 states won the Youth Co: Lab National Innovation Dialogue India, each receiving a seed grant of US$5,000 to scale their ideas into tangible products or services.
- **Youth Co: Lab, a joint initiative by the United Nations Development Programme and the Citi Foundation**, aims to **empower young people to tackle global challenges and achieve the Sustainable Development Goals (SDGs).**

- It has been implemented in 28 Asia-Pacific countries, with over 240,000 participants in national dialogues, regional summits, and workshops. The initiative has also served over 14,000 young people and improved 1,530 youth-led social innovation teams.
- The goal is to **accelerate the implementation of the SDGs through leadership, social innovation, and entrepreneurship.**

Youth Co: Lab in India

- Youth Co: Lab was **launched in India in 2019** in partnership with **Atal Innovation Mission (AIM), NITI Aayog.**
- India, with 254 million young people aged 15-24, has a unique opportunity to lead innovation and social entrepreneurship. Social startups address social and environmental challenges, stimulate economic growth,

inspire other businesses, leverage technology, and promote collaboration, making the voices of young people count.

Most Favoured Nation Duty

India recently lifted additional duties on eight US origin products, including apples, walnuts and almonds. However, there is no reduction on the MFN duty or the basic custom duty (BCD), which still applies to all imported products, including US-origin products.

Most Favoured Nation Duty

- The MFN clause is the foundation of the World Trade Organization (WTO), requiring countries to extend the same trade terms to all their trading partners.
- This means that every time a country lowers a trade barrier or opens a market, it must do so for the same goods or services from all its trading partners, regardless of their wealth or strength.
- MFN is the first article of the General Agreement on Tariffs and Trade (GATT), which governs trade in goods.
- It is also a priority in the General Agreement on Trade in Services (GATS) and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), covering all three main areas of trade handled by the WTO.

Exceptions

- However, some exceptions are allowed. For instance, **countries can establish free trade agreements exclusively for goods traded within the group**, allowing them to discriminate against external goods.
- Moreover, nations have the flexibility to grant **special market access to developing countries** or impose barriers on products deemed to be traded unfairly from specific regions.
- And in services, countries are allowed in limited circumstances, to discriminate. But the agreements only permit these exceptions under strict conditions.

Harmonised System Nomenclature Code

- The Harmonised System Nomenclature, or HSN is a **six-digit identification code** developed by the **World Customs Organization (WCO)**.
- Over 200 countries use the system as a basis for their customs tariffs, gathering international trade statistics, making trade policies, and for monitoring goods.
- The system helps in harmonising of customs and trade procedures, thus reducing costs in international trade.
- The system currently **comprises of around 5,000 commodity groups**, each identified by a unique six-digit code.
    - Of the six digits, the first two denote the HS Chapter, the next two give the HS heading, and the last two give the HS subheading.
    - The HSN code for pineapple, for example, is 080430, which means it belongs to Chapter 08 (Edible fruit & nuts, peel of citrus/melons), Heading 04 (Dates, figs, pineapples, avocados, etc. fresh or dried), and Subheading 30 (Pineapples).

WORLD CUSTOMS ORGANISATION (WCO)	
Background	• The World Customs Organization (WCO), **established in 1952 as the Customs Co-operation Council (CCC)**, adopted its current name in 1994.
Objective	• To improve the effectiveness and efficiency of Customs administrations.
Key functions	• Managing the International Harmonized System (HS) goods nomenclature • Implementing technical aspects of World Trade Organization (WTO) Agreements on Customs Valuation and Rules of Origin.
HQ	• **Brussels, Belgium**
Administration	• The WCO is governed by the Council, which brings together all Members of the Organization once a year

Membership	• WCO represents 182 Customs administrations across the globe that collectively process approximately 98% of world trade. • Membership is divided into six Regions. Each of the six Regions is represented by a regionally elected Vice-Chairperson to the WCO's governing body (the Council). • India became the Vice Chair of the Asia Pacific region of the WCO on 1st July, 2018 for a two-year period.

Export Preparedness Index 2022

- NITI Aayog has released the **third edition** of the report titled 'Export Preparedness Index (EPI) 2022' for States/UTs of India.
- Prepared by **NITI Aayog** in association with the **Institute for Competitiveness**, EPI 2022 aims to assess the readiness of the states, in terms of their export potential and their performance.
- Its primary goal is to generate competition among all Indian states ('Coastal', 'Landlocked', 'Himalayan', and 'UTs/City-States')
- The tool enables states and UTs to compare their performance and identify challenges for sub-national export-led growth.
- It aims to establish favorable export promotion policies, streamline regulatory frameworks, establish export infrastructure, and provide strategic recommendations for enhancing export competitiveness.

Methodology

- The index evaluates the performance of the states across **four pillars**:
- These pillars are further based on **ten sub-pillars:**
  - Export Promotion Policy; Institutional Framework; Business Environment; Infrastructure; Transport Connectivity; Export Infrastructure; Trade Support; R&D Infrastructure; Export Diversification; and Growth Orientation.
- The index uses **56 indicators** which holistically capture the export preparedness of States and UTs in terms of exports at both the state and district-level.

Export Preparedness Index
Policy
Business Ecosystem
Export Ecosystem
Export Performance

Rankings

- The Indian state of **Tamil Nadu**, along with Maharashtra, Karnataka, and Gujarat, has been ranked as the **top-performing coastal states** in the country's Index.
- **Uttarakhand, among hilly/Himalayan states**, is the top performer, followed by Himachal Pradesh and Manipur.
- **Haryana, among landlocked regions**, is the top performer, followed by Telangana and Uttar Pradesh.
- In the **Union Territories/small states category, Goa is the top performer**, followed by Jammu and Kashmir, Delhi, Andaman, Nicobar, and Ladakh.

Debt-Fossil Fuel Trap

The term "Debt-Fossil Fuel Trap" refers to a situation in which countries, particularly those in the global south, find themselves caught in a cycle of indebtedness and reliance on fossil fuel extraction.

How Does Debt-Fossil Fuel Trap Work

- **High Debt Levels:** Developing countries accumulate substantial debts, resorting to borrowing from various sources to address economic emergencies.
- **Increased Fossil Fuel Dependency:** To meet debt repayments, nations turn to heightened extraction of fossil fuels like oil and natural gas.

- **Climate and Economic Challenges:** Climate-related issues, coupled with economic downturns, lead to additional borrowing, compounding challenges.
- **Impact on Public Spending:** Countries in debt crisis reduce public spending, affecting their ability to address both debt and environmental concerns.
- **Resource-Backed Loans (RBLs):** Despite assurances to reduce investment in fossil fuels, richer countries and lenders often contribute to the problem by financing fossil fuel projects through mechanisms like resource-backed loans. These loans may involve repayment in the form of natural resources or future income streams related to resource extraction.
- **Cycle of Dependency:** The reliance on fossil fuels, driven by debt repayment needs, creates a self-perpetuating cycle hindering the transition to sustainable and climate-friendly economic models.

Bharat New Car Assessment Programme

The Ministry of Road Transport and Highways has introduced an indigenous star-rating system for crash testing cars, assigning vehicles between one to five stars for safety in collisions.

Bharat New Car Assessment Programme (Bharat NCAP)

- The Bharat NCAP is a **testing protocol in India that awards Star Ratings to automobiles based on crash test performance**. Cars nominated by manufacturers will undergo crash testing according to the **Automotive Industry Standard 197.**
- The Bharat NCAP is **modelled on the Global NCAP** and will be of superior standard, aligning with global crash-test protocols.
- India will have a **Bharat NCAP Authority, unlike other countries** where NCAP is carried out by non-government entities. The authority will also host safety ratings on a website for public knowledge.
- **Applicability:** The programme is designed for **passenger vehicles with a maximum of eight seats** and a gross vehicle **weight of no more than 3,500 kgs**, testing only the **base model**.
- **Assignment of Rating**
  - Cars will be rated based on three parameters: **adult occupant protection, child occupant protection, and safety assist technologies.**
  - The first two parameters are calculated using frontal offset, side impact, and pole-side impact tests.
  - Frontal offset tests simulate a crash between two cars of the same weight, side impact tests simulate a crash at 50 kmph, and pole-side impact tests simulate a crash at 29 kmph.
- **Voluntary in Nature**
  - Bharat NCAP is a voluntary program where the **manufacturer or importer bears the cost of a new car** for assessment purposes**.**
  - However, in some cases, cars may undergo a crash test, such as for **popular variants with a minimum clocked sale of 30,000 units** or when the **Ministry of Road Transport and Highways recommends** a model for testing.

Global New Car Assessment Programme (Global NCAP)

- It is a project of the **Towards Zero Foundation** which is a UK registered charity.
- It promotes the universal adoption of the United Nations (UN) most important motor vehicle safety standards worldwide.
- Global NCAP adopted a Road Map for Safer Vehicles 2020 which provides a recommended timetable for UN Member States to apply the most important UN vehicle safety regulations.

Vivad se Vishwas 2 Scheme

- The Ministry of Finance's Department of Expenditure has introduced the **Vivad se Vishwas 2 – (Contractual Disputes) Scheme**, aligning with the Union Budget 2023-24.

- This initiative addresses **unresolved contractual disputes involving the government and its undertakings with private entities**.
- The scheme, applicable to all domestic contractual disputes involving the Government of India or its controlled entities, aims to enhance ease of doing business and clear the backlog of litigation.

Vivad se Vishwas 2 Scheme Key Points	
Scope	• Applicable to domestic contractual disputes involving the Government of India or its entities.
Deadline	• Claim submission deadline is 31 October 2023.
Entities Involved	• Government-held entities like ONGC and NHAI with disputes against private contractors.
Settlement Targets	• Scheme aims to resolve around 500 cases, totalling an estimated Rs 1 trillion.
One-Time Settlement	• Covers cases with court orders by 30 April 2023 and arbitral orders by 31 January 2023. • Settlement amount for court orders: Up to 85% of the net amount awarded. • Settlement amount for arbitral orders: Up to 65% of the net amount awarded.
Guidelines	• Applicable to all procurement types, including goods, services, and works. • Encompasses 'earning contracts' and contracts under Public Private Partnership arrangements.
GeM Platform Integration	• GeM has a dedicated web page for scheme implementation. • Eligible claims processed exclusively through GeM for a streamlined and transparent resolution.

Inward and Outward Investment in India

Foreign Direct Investment (FDI)

- FDI is a category of **cross-border investment in which an investor resident in one country establishes a lasting interest in an enterprise in another country.**
- With FDI, foreign companies are **directly involved with day-to-day operations** in the other country. This means they aren't just bringing **money** with them, but also **knowledge, skills and technology.**
- The total FDI flow in FY23 was Rs 49.93 lakh crore ($ 601 billion) as against Rs 46.72 lakh crore a year ago.
- In FY23, the US was the largest source of inward FDI in India, followed by Mauritius, the UK, and Singapore. The top ten countries contributed over 90% of the flows. Other major FDI contributors included Singapore, Netherlands and Japan
- The **manufacturing sector continued to attract the largest share of FDI equity**. Among services, **Information & Communication** and **Financial & insurance activities** were the major FDI recipient sectors.

Outward Direct Investment (ODI)

- An ODI is a business strategy in which a **domestic firm expands its operations to a foreign country.**
- Employing ODI is a natural progression for firms if their domestic markets become saturated and better business opportunities are available abroad.
- American, European, and Japanese firms have long made extensive investments outside their domestic markets. China has emerged as a large ODI player in recent years.
- FDI occurs when a **non-resident** invests in the shares of a resident company. ODI occurs when a **resident company** invests

OUTWARD DIRECT INVESTMENT FROM INDIA

COUNTRY	2022	2023	SHARE
Singapore	₹182,200 cr	₹203,233 cr	22.3%
USA	₹102,078 cr	₹124,123 cr	13.6%
UK	₹84,075 cr	₹116,398 cr	12.8%
Netherlands	₹97,723 cr	₹106,395 cr	11.7%
UAE	₹55,608 cr	₹87,459 cr	9.6%
Mauritius	₹70,392 cr	₹76,881 cr	8.4%
Switzerland	₹26,130 cr	₹28,228 cr	3.1%
Bermuda	₹11,515 cr	₹12,582 cr	1.4%
Jersey	₹13,198 cr	₹11,661 cr	1.3%
Cyprus	₹10,142 cr	₹9,985 cr	1.1%
Other Countries	₹1,09,591 cr	₹1,34,124 cr	14.7%
All Countries	₹7,62,652 cr	₹9,11,069 cr	100.0%

in a non-resident country as part of a strategy to expand their business.

- Indian firms' total ODI increased by 19.46% to Rs 9.11 lakh crore ($109 billion) in FY23, with the top ten countries accounting for up to 85% of the total.
- Singapore was the largest beneficiary, receiving Rs 2.03 lakh crore ($24.48 billion) or 22.3% of the total ODI. The US and the UK also received shares.

Foreign Portfolio Investment (FPI)

SEBI recently proposed allowing increased participation from NRIs and Overseas Citizens of India (OCIs) in the Indian securities market through the Foreign Portfolio Investor (FPI) route.

Foreign Portfolio Investment (FPI)

- FPI **refers to the purchase and holding** of a wide array of **foreign financial assets by investors seeking to invest in a country outside their own.**
- Foreign portfolio investors **have access to a range of investment instruments such as stocks, bonds, mutual funds, derivatives, fixed deposits**, etc.
- FPI **generally intends to invest money into the foreign country's stock market to generate a quick return.**
- **Who regulates FPI in India?**
  - In India, foreign portfolio investment is **regulated by the Securities and Exchange Board of India (SEBI).**
  - FPI in India **refers to investment groups or FIIs** (foreign institutional investors) **and QFIs** (qualified foreign investors).
- **Advantages**:
  - It offers investors the **freedom to diversify their portfolios internationally.**
  - A portfolio investor c**an also take advantage of exchange rate differences.** Thus, an investor from an economically challenged country can invest heavily in a foreign country that has a much stronger currency, thereby making sizeable profits.

Foreign Direct Investment (FDI)

- It is a category of cross-border investment in which an **investor resident in one economy establishes a lasting interest in and a significant degree of influence over an enterprise resident in another economy.**
- **It is an ownership stake in a foreign company or project** made by an investor, company, or government **from another country.**
- FDI is a key element in international economic integration because **it creates stable and long-lasting links between economies.**

Aspect	Foreign Direct Investment (FDI)	Foreign Portfolio Investment (FPI)
Objective	Aims for sustained presence in a foreign country	Focuses on realizing quick returns on investments
Control	Provides control and ownership over foreign entities.	Does not offer control
Transfer of Technology	Involves transferring intellectual property.	Does not require transferring IP or technology.
Investment Size	Involves larger sums	Comprises smaller funds
Duration	Longer-term commitments	Short-term investments.
Policy Regulations	Subject to government policies and sector-specific regulations	Operates under flexible regulations with easier entry/exit
Industry Players	Dominated by major players and financial institutions.	Involves smaller players for short-term profits.
Impact	Drives job creation, technology transfer, and economic growth	Influences short-term liquidity and stock market performance

OIML Certificate Issuing Authority

- India has become the International Organisation of Legal Metrology (OIML) certificate-issuing authority.
- The **Legal Metrology Division, Department of Consumer Affairs, is now authorized to issue OIML certificates**, alongside Australia, Switzerland, China, Czech Republic, Germany, Denmark, France, UK, Japan, Netherlands, Sweden, and Slovakia.

Legal Metrology

- Metrology is the science of measurement. **Legal metrology is the application of legal requirements to measurements and measuring instruments.**
- The objective of legal metrology is to **ensure public guarantee** from the point of view of security and accuracy of the weights and measurements.

OIML Certification System

The OIML-CS is a **system for issuing, registering and using OIML certificates**, and their associated OIML type evaluation/test reports, for instruments like digital balance, clinical thermometers, etc. It is a single certificate accepted worldwide.

Benefits

- India, a member of the OIML since 1956, now has the authority to issue internationally accepted certificates for selling weights and measures worldwide.
- This allows domestic manufacturers to export their instruments without additional testing fees, leading to cost savings.
- With only 13 authorized countries, neighboring countries and manufacturers can visit India for certification, generating foreign exchange revenue and employment.

International Organization of Legal Metrology (OIML)

- The **OIML is an intergovernmental organisation** that was created in 1955 **to promote the global harmonisation of the legal metrology procedures that facilitate international trade.**
- Such harmonisation ensures that certification of measuring devices in one country is compatible with certification in another, thereby facilitating trade in the measuring devices and in products that rely on the measuring devices.

World Local Production Forum (WLPF)

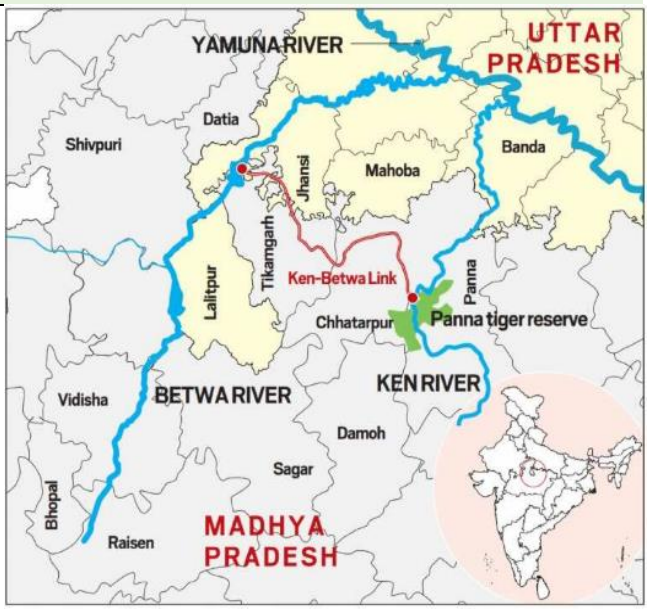
- The second **World Local Production Forum (WLPF) was held in The Hague**, Netherlands, to promote **equitable access to medicines and health technologies.**
- The WHO initiative created the WLPF to shape strategies and collective action for sustainable local production.
- The **Local Production and Assistance Unit serves as the WLPF Secretariat**. The forum aims to generate actionable recommendations and outcomes that support local production and improve global health security.
- Over the past two decades, the importance of local production and technology transfer has grown.

Passport to Earning Initiative

- The Passport to Earning (P2E) initiative is a bold step towards empowering young people, particularly in India, with the skills and opportunities they need to secure decent employment and build a brighter future.
- **Launched by UNICEF** in collaboration with the Government of India and other partners, P2E focuses on bridging the gap between education and employability, paving the way for financial independence and economic growth.
- **Target Audience:** Youth aged 14-29, with a special focus on reaching young women and marginalized communities.

- **In line with the National Education Policy 2020, P2E offers free certificate courses in digital productivity, financial literacy, and employability skills.**
- It offers online, hybrid, and offline learning models and aims to provide long-term sustainable skilling to 5 million youth aged 14-29 by 2024, enabling them to pursue job, self-employment, and entrepreneurship opportunities.

Ken-Betwa Link Project (KBLP)



- The Ken-Betwa Link Project (KBLP) recently secured its final forest clearance.
- KBLP is the first project under the **National Perspective Plan** for interlinking of rivers. It involves transferring of water from the Ken River in Madhya Pradesh to the Betwa river in Uttar Pradesh, both tributaries of the Yamuna.

Background

- In 2005, a tripartite MOU was signed to prepare a detailed project report (DPR) for Ken with Betwa.
- In 2008, the Centre declared KBLP a National Project and included it in the Prime Minister's package for drought-prone Bundelkhand.
- The DPR was prepared in two phases, and a comprehensive DPR was prepared in 2018.
- In March 2021, a memorandum of agreement was signed between the Ministry of Jal Shakti and Madhya Pradesh and Uttar Pradesh to implement KBLP.

Details Of Project

- The Ken-Betwa Link Project (KBLP) consists of two phases, with four components: Phase-I, which includes the Daudhan Dam complex and its subsidiary units, and Phase-II, which includes Lower Orr Dam, Bina Complex Project, and Kotha Barrage.
- The total cost of the project is Rs.44,605 crore, funded by the Centre at Rs 39,317 crore.
- A **Special Purpose Vehicle (SPV) called Ken-Betwa Link Project Authority (KBLPA)** will be established to implement the project.
- The Centre has initiated the creation of the **National Interlinking of Rivers Authority (NIRA)**, an autonomous body responsible for planning, investigation, financing, and implementation of river projects in the country.

India OPEC Energy Dialogue

- The **India-OPEC Energy Dialogue held in Vienna** focused on key issues related to oil and energy markets, emphasizing availability, affordability, and sustainability.
- The two sides discussed India's role in global economic growth and energy demand. India is predicted to be the fastest-growing major developing economy, with an average long-term growth of 6.1% between 2022-2045.
- It will account for over 28% of incremental global energy demand. As the third-largest energy consumer, crude oil importer, and fourth-largest global refiner, close ties between India and OPEC are essential and natural.

Organization of the Petroleum Exporting Countries (OPEC)

- The Organization of the Petroleum Exporting Countries is an **intergovernmental organization of 13 nations**, founded in **1960** in **Baghdad** by the first five members (Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela), and **headquartered since 1965 in Vienna, Austria**.

- Current OPEC members are Algeria, Angola, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Republic of the Congo, Saudi Arabia, United Arab Emirates and Venezuela.
- **Ecuador, Indonesia and Qatar are former members.**
- The **mission is to stabilize oil markets**, guaranteeing an efficient, economic, and regular petroleum supply to consumers, steady income for producers, and fair returns on capital for petroleum industry investors.
- OPEC members have **79.5% of world's proven oil reserves** and produce **39.7% of global oil production**.
- India is the third largest importer of crude oil behind only United States and China. **India's imports from OPEC countries constitutes 60% of its total crude imports**.

Competition (Amendment) Act (CAA) 2023

Several provisions of the Competition (Amendment) Act (CAA) 2023, which amends the Competition Act (CA), 2002, were notified by the Centre.

Revised Definitions in the Act

- **Combination:** The CAA **broadens the scope of combinations** (mergers, acquisitions, or amalgamation of enterprises) to include **transactions exceeding Rs 2,000 crore in value.**
- **Time Limit Reduction for Combination Approval:** The approval timeline for combinations is shortened **from 210 days to 150 days**. The CCI must now form a prima facie opinion on a combination within 30 days; otherwise, the combination is deemed approved.
- **Control Definition Modification:** CAA alters the definition of control, now **emphasizing the ability to exert material influence over management**, affairs, or strategic commercial decisions.
- **Expansion of Cartel Scope to Include "Hub and Spoke Arrangements":** The CAA extends the reach of cartels to include "Hub and Spoke Arrangements," making companies involved in dissimilar business activities potentially liable for anti-competitive horizontal agreements. This applies when they participate or intend to facilitate such agreements.

Competition Commission of India (CCI)	
Establishment	The Competition Commission of India (CCI) is a statutory body established in March 2009 under the Competition Act, 2002.
Objectives	• Eliminate practices having adverse effect on competition • Promote and sustain competition • Protect the interests of consumers • Ensure freedom of trade in the markets of India
Composition	One Chairperson and six members who shall be appointed by the Central Government.
Functions	• The commission is a quasi-judicial body who also gives opinions to statutory authorities. • It is also mandated to undertake competition advocacy, create public awareness and impart training on competition issues. • In order to fulfil its objectives, the commission may: • conduct an enquiry into certain kinds of agreements and dominant position of enterprise, • determine whether an agreement has AAEC (appreciable adverse effects on competition).
Powers	• It has the power to inquire into any acquisition or combination if it determines that such acquisition or combination may adversely affect competition in the Indian market. • It has the power to regulate its own procedures.

	• It has the power to **impose monetary penalties** upon violation of the Competition Act, 2002. • It has the power to pass an interim order for any act where there has been anti-competition agreements or abuse of position by dominant parties which adversely affects the competition in the market.

Electronics Repair Services Outsourcing (ERSO)

- Recently, the Union Ministry of Electronics & IT launched the ERSO Pilot initiative to validate certain transformational policy and process changes to make India the Repair Capital of the World.
- **ERSO** aims to **promote India as a hub for repairing electronic goods** and to assess the feasibility and potential of capturing 20% of the global repair service market within five years.
- A **pilot project in Bengaluru** aims to modify India's e-waste policy, allowing repair companies to domestically recycle 5% of imported goods by weight on a trial basis.
- The goods will not be sold in the domestic market and new provisions will allow exportation to regions outside their country of origin.

Offshore Areas Mineral (Development and Regulation) Amendment Act, 2023

The Offshore Areas Mineral (Development and Regulation) Amendment Bill, 2023, has recently been granted assent by the President.

Highlights of the Amendment Act

- It **allows the government to reserve offshore areas** that are not held under any operating rights.
- The Act also allows the administering authority to **grant a composite licence or production lease to the government or a government company.**
- It proposes to remove the provision for renewal of production lease and **provide a fixed period of fifty years for production lease** similar to the provisions of the Mines and Minerals (Development and Regulation) Act 1957.
- It also seeks to **provide for the grant of production lease to the private sector only through auction by competitive bidding.**
- It also **provides for grant of operating rights without competitive bidding to a government** or a government company, **or a corporation in the mineral-bearing areas reserved by the central government.**
- In the case of **atomic minerals**, the grant of exploration licence or **production lease shall be made only to a government** or a government or corporation.
- It **aims to introduce a four-year timeline for commencement of production and dispatch after the execution of composite licence** or production lease under and timeline of two years (extendable by one year) for re-commencement of production and dispatch after discontinuation.
- **It will enable the central government to frame rules for the conservation and systematic development of minerals in offshore areas** and for the protection of the environment by preventing or controlling any pollution which may be caused by exploration or production operations.

Asian Premium

Recent reports indicate a significant shift in Saudi Arabia's approach to oil exports to India, marked by a noteworthy reduction in premiums. This move comes in response to India strategically diversifying its oil sources, including sourcing from Russia at discounted rates.

Understanding the Asian Premium

- The **Asian Premium is an additional charge imposed by OPEC countries on Asian nations** for oil exports, distinguishing it from the rates offered to Western counterparts. This pricing practice has been in place since the 1980s.

- Saudi Arabia has substantially cut the premium on oil exports to India, bringing it down from approximately $10 per barrel last year to the current $3.5 per barrel.

Reasons Behind the Asian Premium

- **Price-Taker Dynamics:** Historically, Asian countries, heavily reliant on oil imports, were perceived as price-takers, allowing oil exporters to extract higher charges from them while offering more favorable rates to American and European customers.
- **Geostrategic Considerations:** Saudi Arabia's Gulf states, primarily the U.S. and Europe, allocate a significant portion of their oil exports to maintain a steady supply of military and political support.

India's Advocacy and Strategic Measures

- India is advocating for the elimination of the Asian Premium and proposing an 'Asian discount' to address oil pricing disparities.
- As part of its strategic oil procurement initiatives, India is diversifying its sources to secure more cost-effective oil and reduce dependency on traditional suppliers.

United Nations Conference on Trade and Development (UNCTAD)

- The United Nations Conference on Trade and Development (UNCTAD) recently unveiled its Trade and Development Report 2023, providing a comprehensive analysis of the global economic landscape. The report's key findings shed light on various challenges and trends affecting economies worldwide.

United Nations Conference on Trade and Development

- It is a permanent **inter-governmental body** established by the United Nations General Assembly in 1964.
- It is responsible for dealing with development issues, particularly international trade.
- Framing policies in various domains such as trade, technology, finance, aid, and transport are the most important priorities of UNCTAD.
- The Conference ordinarily **meets once in four years.**
- The second UNCTAD Conference took place in New Delhi, India in 1968.
- **Members:** 195 countries
- **Headquarters:** Geneva, Switzerland
- **Reports published by the UNCTAD:** Trade and Development Report, The Least Developed Countries Report and Commodities and Development Report etc.

Goa Roadmap for Tourism

- The 'Goa Roadmap', an **outcome of India's G20 Tourism Track,** is a blueprint **for sustainable global tourism.**
- It is **aligned with the theme of India's G20 Presidency** and underscores the role of tourism in society, the economy, and environmental efforts.
- The roadmap **focuses on five interconnected priorities**. They are green tourism; digitisation; destination management; skills development; an support for tourism micro, small, and medium-sized enterprises (MSMEs).
- These priorities have been **endorsed by all G20 countries**, **emphasising their commitment to achieving sustainable, resilient, and inclusive tourism.**
- **India's vision of 'Travel for LiFE' (Lifestyle for Environment) has been incorporated** into the Goa roadmap.

G20 Tourism and SDG Dashboard

- It was **launched by the Union Ministry of Tourism in collaboration with the United Nations World Tourism Organisation (UNWTO).**
- The dashboard will **serve as a global repository, showcasing the best practices** and case studies of sustainable tourism practices **and policies from G20 nations.**

International Tracked Packet Service

- **India Post and Canada Post** have partnered to introduce the **ITPS to facilitate e-commerce exports.**

- ITPS is a **competitive service for packet transmission and delivery, designed to meet the cross-border shipping requirements** of e-commerce exporters, including MSMEs and small businesses.
- With 38 partner countries, India Post already provides ITPS, with Canada joining the 39th. The service was extended from 16 to 38 countries by adding 22 new partners from June 1, 2023.
- ITPS rates are economical compared to International EMS and other market products, offering an affordable shipping solution up to 2 kg.

India's First International Cruise

- India's Ministry of Ports, Shipping & Waterways launched India's first international cruise vessel, **MV Empress, from Chennai to Sri Lanka**, marking the start of the international cruise tourism terminal at Chennai.
- The cruise service was initiated through a Memorandum of Understanding signed during the 2022 Incredible India International Cruise Conference between Chennai Port and M/S Waterways Leisure Tourism Pvt Ltd.
- Built at a cost of ₹17.21 crores, the cruise service will sail to **three Sri Lankan ports** viz. **Hanbantota, Trincomalee, and Kankesanturei**.

International Cruise Terminal

- The **Vizag** International Cruise Terminal (VICT) has been inaugurated at **Vishakhapatnam port,** serving as a **gateway for domestic and international cruise tourism along India's eastern coast.**
- The terminal will operate as a Cruise Terminal from November to March, while the remaining months will be used for Coastal Cargo operations.
- The Ministry of Tourism has committed 50% of the funding.

Lighthouse Tourism

- The Ministry of Ports, Shipping & Waterways inaugurated **India's First Lighthouse Festival at Fort Aguada Lighthouse in Goa.**
- The festival spans three days and is observed across all lighthouses nationwide, aiming to transform these historic sites into tourist destinations.

Lighthouse: A lighthouse serves as a navigational aid with a system of lamps and lenses, emitting light to guide vessels in the water.

- Part of the **lighthouse heritage tourism plan**, the **Directorate General of Lighthouses and Lightships** plans to develop 75 lighthouses into tourist hubs.
- The Directorate General of Lighthouses & Lightships operates under the MoPSW, providing general aids to marine navigation along the Indian coast.
- To boost lighthouse heritage tourism, the ministry aims to develop these sites using the Public-Private Partnership (PPP) model, following the European and American models.
- The **festival aligns with the Bharat Pravah initiative, emphasizing the significance of rivers, ports, and shipping in India's culture and history.**
- **Marine Aids to Navigation Act, 2021:**
  - In 2021, the Marine Aids to Navigation Act replaced the Lighthouse Act, 1927, providing a framework for the development, maintenance, and management of navigation aids in India.
  - The Act introduces the concept of Heritage Lighthouses, allowing the Central government to designate navigation aids for educational, cultural, and tourism purposes in addition to their primary function.

Nobel in Economics

- Claudia Goldin, Professor of Economics at Harvard University, has won the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel for 2023 — popularly referred to as the Nobel prize in Economics.

- Goldin had provided the **first comprehensive account of women's earnings and labour market participation through the centuries**. Her research reveals the causes of change, as well as the main sources of the remaining gender gap.

Goldin's Findings

- Goldin's research in the 1980s challenged misconceptions about women's role in the economy.
- She found that **female participation in the labour** market did not increase as economies grew industrialized. Instead, it formed a **U-shaped curve**.
- Women's engagement decreased during the 19th century as the US transitioned from agrarian to industrial. However, it increased in the 20th century due to rising education levels, scientific achievements, and social norms.
- Women also pursued careers in law, economics, and medicine, highlighting the importance of women's involvement in the economy.

Pay Gap and Parenthood

- The pay gap between men and women in factories was not too high until monthly pay contracts began.
- Childbirth significantly impacted women's pay compared to men, as women had to handle more parenting responsibilities, leading to slower pay rises.
- Initial earnings differences are small, but as the first child arrives, earnings immediately fall and do not increase at the same rate for women with a child, even if they have the same education and profession.

Golden Peacock Award

- REC Limited, the Maharatna Central Public Sector Enterprise under the Ministry of Power, has been recognized for its **exceptional performance in risk management** with the esteemed Golden Peacock Award, given by the **Institute of Directors (IOD), India.**
- **The Golden Peacock Awards, established in 1991, has emerged as an internationally acclaimed standard for corporate excellence.**
- REC Limited is a Non-Banking Financial Company (NBFC) that focuses on Power Sector Financing and Development in India.
- It was **established in 1969** to give financial assistance to state energy boards, state governments, central and state power utilities, independent power producers, rural electric cooperatives, and private sector utilities.

Bhoomi Samman Awards

- The President of India presented the "Bhoomi Samman" 2023 awards to state secretaries and district collectors for their outstanding achievements in the **Digital India Land Records Modernization Programme (DILRMP).**
- **Madhya Pradesh has secured the first position** in the field of DILRMP in the country. 15 districts of Madhya Pradesh have been **awarded Platinum Grading** for 100 percent achievement in all the components of Digital India Land Records Management Programme.
- It is a fine example of Centre-State cooperative federalism based on trust and partnership, as the grading system is largely based on reports and inputs of the States/UTs in the core components of computerization and digitization of land records.

Digital India Land Records Modernization Programme (DILRMP)

- It is a **central sector scheme** being implemented by the Department of Land Resources under the **Ministry of Rural Development.**
- **Aim:** It attempts to build upon the commonalities that exist in the arena of land records in various States to develop an appropriate Integrated Land Information Management System (ILIMS) across the country.
- The ILIMS integrates all the processes and lands records databases with the banks, financial institutions, circle rates, Registration Offices and other sectors.

- **Major components:** Computerization of land records, Survey/re-survey, Computerization of Registration.

Yashobhoomi

- The Prime Minister inaugurated the Phase 1 of **India International Convention and Expo Centre (IICEC) in Delhi, known as Yashobhoomi.**
- Developed at a cost of **Rs. 5400 crores**, the facility will be one of the world's largest MICE facilities. It features exhibition halls, trade fairs, and business events, and is inspired by Indian culture.
- The facility has a state-of-the-art wastewater treatment system, 100% wastewater reuse, and rainwater harvesting provisions.
- It has also received **Platinum certification from the Indian Green Building Council.**

Indian Green Building Council

- The Indian Green Building Council (IGBC), established in 2001, is India's premier certification body headquartered at Hyderabad.
- It offers services such as developing green building rating programs, certification services, and training programs.
- The council also organizes the Green Building Congress, its annual flagship event on green buildings.
- It is among the five countries on the board of the World Green Building Council, discussing global issues at COP.

Geographical Indication (GI) Tags

- A Geographical Indication (GI), as defined by the World Intellectual Property Organisation, refers to a **distinctive sign that can be applied to products with a specific geographical origin, possessing qualities or a reputation derived from that origin**.
- GIs are commonly associated with agricultural products, foodstuffs, handicrafts, industrial items, wines, and spirit drinks. Examples include Darjeeling tea, Kullu shawl, Mysore agarbathi, and Swiss watches.
- GIs are **recognized as part of intellectual property rights** under the **Paris Convention for the Protection of Industrial Property** and the Trade-Related Aspects of Intellectual Property Rights **(TRIPS) Agreement.**
- The **Geographical Indications of Goods (Registration and Protection) Act, 1999** seeks to provide for the registration and better protection of geographical indications relating to goods in India.
- This GI tag is **valid for 10 years following which it can be renewed.**
- GI registration grants a unique GI number to authorized traders, allowing them to sell products with the distinctive GI logo, thereby preventing unauthorized use of product names.

Kari Ishad Mango

- The Kari Ishad Mango prominently grown in Ankola taluk of **Uttara Kannada, Karnataka** was recently given the Geographical Indication (GI) tag.
- In addition to Ankola, the mango is grown in Karwar and to a certain extent in Kumta of Uttara Kannada.

Chokuwa Rice

- Chokuwa rice, also known as **Magic rice,** recently received the Geographical Indication tag.
- This unique and healthy rice is a culinary heritage of **Assam** and was a staple for the Ahom dynasty troops.
- Cultivated in various parts of Assam, including Tinsukia, Dhemaji, and Golaghat, Chokuwa is a **semi-glutinous winter rice categorized as Bora and Chokuwa based on amylose concentration**.
- **The low amylose Chokuwa rice is used to make soft rice, known as Komal Chaul,** and is consumed after soaking in cold or lukewarm water.
- It is valued for its convenience of preparation and nutritional benefits, representing a significant aspect of Assam's rich agricultural tradition.

Ladakh Gets GI Tag for Sea Buckthorn

The Ministry of Commerce & Industry has granted the Geographical Indication Registry (GI) tag for Sea buckthorn to Ladakh, **a berry with centuries-old use in food, medicine, and skin treatment.**

Benefits of Sea buckthorn plant

- Sea buckthorn is a **soil-binding plant that prevents soil erosion, reduces river siltation, and preserves floral biodiversity**.
- It is used as a **folk medicine for treating stomach**, heart, and skin problems, and its fruit and leaves are rich in vitamins, carotenoids, and omega fatty acids.
- Sea buckthorn is also a **source of fuelwood**, fodder, and has commercial value in making juices, jams, and nutritional capsules.
- Its parts, including fruit, leaf, twig, root, and thorns, have been traditionally used for medicine, nutritional supplements, fuel, and fence.
- However, **wild sea buckthorn cannot sustainably supply raw material to the industry**, so it needs to be cultivated on a large scale, as is being done in China.

National Mission on Seabuckthorn

- It is part of Green India Mission which is part of India's National Action Plan on Climate Change (NAPCC).
- This mission aims to promote seabuckthorn as a priority species for afforestation with goal of Achieving good health and poverty alleviation in the Indian Himalayan region.

Onattukara Sesame gets GI Tag

- Onattukara sesame, a unique and valuable **variety of sesame** native to the Onattukara region of Central Travancore in **Kerala**, has earned the prestigious Geographical Indication (GI) tag.
- Compared to other places, Onattukara sesame contains high levels of **Vitamin E** and **antioxidants.** It also contains oleic acid, linoleic acid, palmitoleic acid which help in maintaining good health.

Matti Banana

- The Matti Banana, native to **Kanyakumari district (Tamil Nadu),** has been granted the Geographical Indication (GI) tag due to its unique characteristics.
- The climate and soil of the district provide an ideal environment for the banana to thrive. Known as **'Baby Banana'** due to its nipple-like appearance, it thrives mainly in Kalkulam and Vilavancode taluks.
- The banana's fingers have a distinct wind-blown appearance, unlike typical bunches. Due to its **low total soluble solids content**, it is recommended as a baby food.

Types of Matti Bananas

Matti bananas come in six varieties: Nal Matti, Theyn Matti, Kal Matti, Nei Matti, Sundari Matti, and Semmati (red).

ILO Report on Working Environments

The ILO has released a report, titled A Call for Safer and Healthier Working Environments.

Key Findings

- Nearly **30 lakh workers die every year** globally due to work-related accidents and diseases. More than 63% of these deaths are reported from the Asia-Pacific region.

- **Exposure to long working hours** (55 hours or more per week) was the biggest killer, with almost 7.45 lakh people dying of it in 2016.
- Mining and quarrying, construction, and utilities sectors were the three **most hazardous sectors** globally.

ILO Conventions

- Out of 187 member countries, 79 have ratified ILO Occupational Safety and Health Convention (No. 155), and 62 have ratified the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187). **Notably, India has not ratified either of these conventions.**
- In the wake of the Uttarkashi tunnel incident, the Central Trade Unions has urged the Union government to ratify the conventions.
- In line with the core principles of the two fundamental Conventions, a sound and resilient national occupational safety and health (OSH) framework, is essential for the realisation of the fundamental right to a safe and healthy working environment.

International Labour Organisation (ILO)

- ILO was created in 1919, as part of the Treaty of Versailles that ended World War I.
- In 1946, the ILO became a specialized agency of the newly formed United Nations, which made it the first and the oldest specialised agency of the United Nations.
- Its mandate is to advance social and economic justice through setting international labour standards.
- Headquartered in **Geneva**, the ILO received the Nobel Peace Prize in 1969.

C-PACE

- Since the setting up of the **Centre for Processing Accelerated Corporate Exit (C-PACE)** in May 2023, more than 7,700 companies have voluntarily closed down their business in India.
- **Ministry of Corporate Affairs (MCA) has set up the C-PACE** to centralise the process of striking off companies from the MCA Register. The establishment of C-PACE is part of MCA's efforts towards **ease of doing business and ease of exit for companies**.
- It is intended to reduce the burden on the registry and provide stakeholders with hassle-free filing, timely and process-bound striking off of their company's names from the register.
- It is operational through the **Registrar of Companies (RoC)** for the purpose of processing and disposal of applications. It will work under the supervision of the **Director General of Corporate Affairs (DGCoA)**. It is located at the **Indian Institute of Corporate Affairs (IICA), Gurgaon**.

ENVIRONMENT AND GEOGRAPHY

CLIMATE

India's Own Heat Index

India is planning to launch a composite index of its own to measure the effect of heat on its population and produce impact-based heat wave alerts for specific locations.

About Heat Index

- It is a **measure of how hot it feels when humidity is factored in along with the air temperature.** It is also known as the **apparent temperature.**
- It takes into account the body's ability to cool itself through perspiration and evaporation, which can be hindered by high humidity levels.
- It will incorporate **additional variables like wind and exposure time** in addition to temperature and humidity. It will also serve as a reliable indicator of heat stress in people.
- The figures were calculated using data from the **India Meteorological Department (IMD).**

Introducing the Heat Hazard Score

- IMD is developing a new **multi-parameter product** called **Heat Hazard Score.**
- The heat index is typically higher than the actual air temperature on hot and humid days. When the heat index is high, it means that the combination of heat and humidity can make it feel much hotter and more uncomfortable for humans.
- It will be operational in the next summer season and will be used to issue impact-based heat wave alerts for specific locations.

Meri LiFE App

The **Ministry of Environment, Forest, and Climate Change (MoEFCC)** launched the Meri LiFE mobile application to empower young people and encourage their participation in tackling climate change.

About Meri LiFE App (Inspired by Mission LiFE)

- The app promotes mindful consumption and encourages a nationwide LiFE movement.
- It highlights the power of citizens in saving the environment and understanding the impacts of daily actions on climate change.

About Mission LiFe (Lifestyle for Environment)

- It is a global initiative by India to help the world in its fight against climate change.
- It was introduced by India during the 26th United Nations Climate Change Conference of the Parties **(COP26**) in **Glasgow** in 2021.
- The MoEFCC is responsible for coordinating and implementing Mission LiFE at the national level.
- India has included LiFE in its updated Nationally Determined Contributions (NDCs) submitted to UNFCCC, emphasizing the responsibility of everyone to live a life in harmony with Earth and not cause harm, and recognizing those who practice this lifestyle as Pro Planet People.
- **Objectives:**
    - To mobilize at least one billion Indians and other global citizens to take individual and collective action for protecting and preserving the environment in the period 2022 to 2027.

- Within India, at least 80% of all villages and urban local bodies are aimed to become environment-friendly by 2028.

- It aims at following a **three-pronged strategy** for changing our collective approach toward sustainable and healthy Lifestyle:

Change in Demand (Phase I)	**Nudging individuals** across the world to practice simple yet effective environment-friendly actions in their daily lives.
Change in Supply (Phase II)	Changes in large-scale individual demand are expected to **gradually nudge industries and markets** to respond and tailor supply and procurement as per the **revised demands.**
Change in Policy (Phase III)	By influencing the demand and supply dynamics, it aims to **trigger shifts in large-scale industrial and government policies** that can support both sustainable consumption and production.

Debt For Climate Swaps

- They are a type of debt swap in which the debtor nation, instead of continuing to make external debt payments in a foreign currency, makes payments in local currency to finance climate projects domestically on agreed upon terms.
- DFC (Debt for Climate) swaps can reduce the level of indebtedness as well as free up fiscal resources to be spent on green investments.

Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA Plan)

Established by	Adopted in 2016 by International Civil Aviation Organization (ICAO)
Aim	To achieve net CO2 emissions reduction by implementing strategies such as carbon offsetting, carbon credits, and sustainable aviation fuels.
Baseline and offsetting	CORSIA establishes a baseline for CO2 emissions from international aviation, using the average emissions for the years 2019 and 2020 as the reference point.
Scope	**Only applies to international flights** (specifically those covered by the Chicago Convention). • **The Chicago Convention**, signed by 52 states on December 7, 1944, established the **International Civil Aviation Organization (ICAO)**, a UN agency responsible for regulating and coordinating international air travel. • It established principles for international air travel and laid the foundation for the modern international aviation system.

Global Environment Facility

At the 64th Global Environment Facility council meeting in Brazil, the governing body approved the disbursement of $1.4 billion to accelerate efforts to tackle the climate, biodiversity and pollution crises.

About Global Environment Facility (GEF)

- It is a multilateral financial organization that was established **in 1991 ahead of the Rio Earth Summit** (1992) to help address global environmental problems.
- It provides grants and funding to support projects that promote sustainable development, biodiversity conservation, and climate change mitigation and adaptation.
- It is unique as it brings together governments, civil society organizations, and the private sector to work towards common environmental goals.

- It is governed by a council of representatives from 183 member countries, who make decisions on funding and policy.
- It serves as a "financial mechanism" to five conventions -
    - **Convention on Biological Diversity (CBD)**
    - **United Nations Framework Convention on Climate Change (UNFCCC)**
    - **Stockholm Convention on Persistent Organic Pollutants (POPs)**
    - **UN Convention to Combat Desertification (UNCCD)**
    - **Minamata Convention on Mercury**
- The GEF operates on the **principle of "incrementality,"** which means that its funding is meant to go beyond what would have been done in the absence of GEF support.
- It has funded over 4,000 projects in over 170 countries, with a total investment of over $20 billion.

Climate Change Related Developments at Global Level

Global Stocktake

- It is a process established under the **Paris Agreement** on climate **change to assess progress towards the long-term goal of limiting global warming** to well below 2°C above pre-industrial levels and pursuing efforts to limit it to 1.5°C.
- The first stocktake got underway at the UN Climate Change Conference in Glasgow last November (COP26) and will conclude at COP28 in 2023. **Each stocktake is a two-year process that happens every five years.**
- The first global stocktake is critical to assessing collective progress under the Paris Agreement and addressing opportunities for enhanced action and support.

Global Stocktake Report

The **UN climate secretariat recently published** Global Stocktake Report as part of the broader 'global stocktake,' which occurs every five years.

Carbon Border Adjustment Mechanism (CBAM)

- It was announced by the European Union (EU).
- CBAM would impose a carbon tax on imported goods based on their carbon footprint.
- It aims to prevent "carbon leakage", which occurs when companies move their production to countries with less stringent climate policies to avoid paying for carbon emissions.

New Collective Quantified Goal

- The 2015 Paris Climate Agreement agreed on setting a **New Collective Quantified Goal (NCGQ) for climate financing** prior to 2025.
- The NCGQ is expected to be finalised by 2024**. It will replace the current climate finance goal of $100 billion annually from developed countries.**
- The NCGQ is thus termed the “most important climate goal”. It pulls up the ceiling on commitment from developed countries.

Blue Ocean Event

- It refers to a situation in which the **Arctic Ocean becomes ice-free** during the summer, with the sea ice area dropping below 1 million square kilometres.
- This means that the Arctic Ocean is ice-free, and **the surface colour changes from white (sea ice) to blue (ocean)**. It signifies the absence of sea ice at the top of the world and is considered a significant and alarming consequence of climate change.
- It represents a critical tipping point in the Arctic system, as more sea ice melts, it reduces the amount of sunlight reflected into space, leading to further warming and ice loss.

Green Credit Program

- To take ahead 'Lifestyle for Environment' ('LiFE') movement the Ministry of Environment, Forest and Climate Change has introduced the Green Credit Program (GCP). It was first announced in the 2023-24 Union Budget.
- **GCP aims to incentivise environmentally conscious practices and promote a sustainable lifestyle through a market-based mechanism.**
- As per the scheme, **individuals, industries, farmers producer's organisations (FPOs), urban local bodies (ULB), gram panchayats, and the private sector**, among a host of other entities, will be able to earn green credit for undertaking environment-friendly actions.
- Green credits generated through such actions can be **traded on a domestic market platform.**
- Green Credits will extend beyond current carbon credits, allowing activities generating green credits under the Green Carbon Pricing Program to also receive carbon credits under the Carbon Credit Trading Scheme if they reduce or remove carbon emissions.
- **Administered by: Indian Council of Forestry Research and Education (ICFRE)**

Features

- Benchmarks will be developed for each green credit activity under the programme.
- 8 activities (Sectors) in which green credit can be earned under this programme: 1) Tree plantation, 2) Water, 3) Sustainable agriculture, 4) Waste management, 5) Air pollution reduction, 6) Mangrove conservation, 7) Eco mark and 8) Sustainable Infrastructure

Climate Polycrisis

- Climate Polycrisis refers to the **interconnected and compounding crises related to climate change** that are affecting the planet not just in a few sectors but **across several sectors and domains.**
- It includes the **physical impacts of climate change** (rising temperatures, sea-level rise, and extreme weather events) and the **social, economic, and political challenges that arise** from these impacts.

Factors	Causes	Effects	Mitigation
Green House Gas Emission	Deforestation Overconsumption Waste	Global Warming Extreme weather events- Droughts, Floods Sea Level Rise	Reforestation Sustainable Agriculture Transition to Renewable Energy
Biodiversity Loss	Anthropogenic Factors	Disrupts Food Web & Ecosystem	Conservation of Biodiversity

Climate Change and Its Effect on Amphibians

The study titled **'Ongoing declines for the world's amphibians in the face of emerging threats,'** published in the *Nature* journal, sheds light on significant challenges faced by amphibians globally, with climate change emerging as a major threat.

Scope of Assessment:

- The assessment appraised the extinction risk of over 8,000 amphibian species worldwide, including the evaluation of 2,286 species for the first time.
- This study is based on the second global amphibian assessment coordinated by the Amphibian Red List Authority, a branch of the Amphibian Specialist Group of the International Union for Conservation of Nature's (IUCN) Species Survival Commission.

Key Findings:

- **High Threat to Amphibians:** Two out of every five amphibians face the threat of extinction.
- **Global Threat Comparison:** 40.7% of amphibian species are globally threatened, marking the highest percentage compared to mammals (26.5%), reptiles (21.4%), and birds (12.9%).

Drivers of Status Deterioration (1980-2004):

- **Primary Threats:** Climate change is the primary threat for 39% of amphibian species, and its impact is growing. Habitat loss is the second most common threat, affecting 37% of amphibian species. Additional threats include disease, pollution, toxic chemicals, and UV radiation.
- **Occupational Structure Threats:** Agriculture poses the most significant threat (77%), followed by timber and plant harvesting (53%) and infrastructure development (40%).
- **Emerging Concerns:** Ongoing climate change effects are increasingly alarming, contributing to 39% of status deteriorations since 2004, followed by habitat loss at 37%.
- **Hotspots of Threatened Species:** Concentrations of threatened species are particularly high in specific regions, including India's Western Ghats, Sri Lanka, Madagascar, Caribbean islands, tropical Andes, Mesoamerica, and the mountains and forests of western Cameroon and eastern Nigeria.

Amphibians

- Amphibians, including frogs, toads, salamanders, and newts, belong to a class **of cold-blooded multicellular vertebrates that inhabit both land and water.**
- Their **semi-permeable skin** allows them to breathe and absorb water, but it also makes them susceptible to drought and toxins.

Importance of Amphibians

- Amphibians **indicate ecosystem health**, acting as an early warning system for pollution, habitat loss, and climate change.
- Amphibians, like frogs and toads, **control insect populations as voracious predators.**
- They **contribute to nutrient cycling** between aquatic and terrestrial ecosystems, benefiting plant growth.
- With diverse diets, amphibians **prevent the overpopulation of specific organisms** by consuming algae, insects, and other invertebrates.
- Amphibians, particularly frogs, are **valuable in scientific and medical research.**
- They hold **cultural and symbolic significance worldwide**, playing essential roles in folklore, art, stories, and cultural identity.

Climate Tipping Points

- Climate Tipping Points are critical thresholds or conditions in the Earth's climate system that, if crossed, could lead to significant and irreversible changes.
- **Climate tipping points have the potential to disrupt ecosystems, weather patterns, and the livelihoods of communities worldwide.**

Examples of Climate Tipping Points

- **Arctic Sea Ice:** The rapid loss of Arctic Sea ice due to warming temperatures could have far-reaching consequences for the climate system.
- **Amazon Rainforest:** Deforestation and changing climate patterns could push the Amazon rainforest toward a tipping point, resulting in a shift from a lush ecosystem to a savanna.
- **Atlantic Meridional Overturning Circulation (AMOC):** Changes in the circulation of the Atlantic Ocean can impact weather patterns and sea-level rise.

Climate Investment Trap

- Climate Investment Trap refers to the **challenge of balancing the need for immediate action on climate change with long-term sustainable investments**.
- Climate investment traps may arise when immediate economic concerns hinder the shift towards a low-carbon economy.

- To avoid falling into the climate investment trap, it is crucial to prioritize and incentivize sustainable investments.

Key UN Reports on Environment

UN Report (Interconnected Disaster Risk Report (IDRR) 2023) on Groundwater Extraction

- IDRR was first published in 2021 by Institute for Environment and Human Security (UNU-EHS with HQ- Bonn, Germany), the academic arm of UN
- **Findings of Report**
  - Regions with most severe depletion - parts of India, north-eastern China, western US, Mexico, Iran, Saudi Arabia and parts of Northern Africa.
  - Globally India pumps up the most groundwater, mainly for irrigation, domestic & industrial uses.
  - Indo-Gangetic basin region has already passed the groundwater depletion tipping point.
  - The report indicates that 78% of wells in Punjab are overexploited and the region will face critically lower groundwater availability in 2025.
  - Agricultural purpose causes for 70% of groundwater withdrawals.

Adaptation Gap Report 2023 (by United Nations Environment Programme (UNEP))

- **The adaptation gap —** the difference between estimated financing needs and costs of adapting to climate change and finance flows in developing countries.
- **Findings of Report**
  - Countries need financing of $215 billion to $387 billion every year to adapt to climate change.
  - Developing countries will require $387 billion per year for the next decade to implement projects that will assist them in adapting to climate change.
  - The adaptation finance needs are 10-18 times as high as the current international public adaptation fund flows.

Major Reports by UNEP: Emission Gap Report, Adaptation Gap Report, Global Environment Outlook, Frontiers, Invest into Healthy Planet.

Greenhouse Gas (GHG) Bulletin (By World Meteorological Organisation (WMO))

- The concentrations of GHGs that trap heat in the Earth's atmosphere rose to record levels in 2022. The rise in concentrations of GHGs is mainly due to the use of fossil fuels for various human activities.
- Global average concentrations of carbon dioxide (CO_2), which is the most important GHG, reached 417.9 parts per million, for the first time in 2022.
- The concentrations of the other two major GHGs methane & nitrous oxide also grew in 2022.

Climate Services Report for 2023 (By WMO)

- By 2030, there will be around 560 mediums to large-scale disaster events every year, or 1.5 per day.
- Less than 25% of health ministries across the world utilize, climate information and services to monitor health risks related to climate sensitivity.

Hydroclimate Extremes

- Hydroclimate extremes refer to unusual and intense climatic events related to the Earth's water cycle, encompassing both the atmospheric and hydrological components.
- These extremes can manifest an exceptionally heavy rainfall, prolonged droughts, intense storms, floods, or other weather-related phenomena.

Key Findings of Study

- Frequency of extreme rainfall is expected to increase over the Western Ghats & Northeast River basins, while heavy rainfall intensity is projected to increase over Upper Ganga & Indus basins.
- There will be an agricultural drought in the lower Ganga basin due to a decline in mean rainfall.

- In the mid-future, under certain carbon emission scenarios, a significant increasing change of about 30% precipitation per day was likely over the West flowing River (Kutch & Saurashtra), including Luni, Indus, and Upper Ganga River Basins.

Bengaluru Climate Action Plan

- After Mumbai and Chennai, Bengaluru is drafting its first Climate Action Plan (CAP), which is designed to serve as a blueprint for the city to become carbon neutral by 2050. The Plan is in line with C40 Cities' commitment to tackle climate change.
- The Bruhat Bengaluru Mahanagara Palike (BBMP) has appointed the World Resources Institute (WRI) as the global consultant to prepare a climate action plan for 2050 for Bengaluru.

Features of The Bengaluru Climate Action and Resilience Plan (BCAP)

The plan includes 269 actions to reduce greenhouse gas (GHG) emissions. Urban heat, urban flooding, droughts, thunderstorms, lightning and air pollution have been identified as climate and environmental hazards in the plan.

C40

- It is a global network of nearly 100 mayors of the world's leading cities that are united in action to confront the climate crisis. 6 Indian Cities namely Delhi NCT, Mumbai, Chennai, Kolkata, Bengaluru, and Ahmedabad are parties to it.
- As part of the signatory to the C40 cities, the commitment from the cities is to achieve carbon emission reduction by 2030 and carbon neutrality by 2050.

World Resource Institute (WRI)

- WRI is a global research non-profit organization **established in 1982 with HQ in Washington DC**.
- Its mission is to promote environmentally sound & socially equitable development with the purpose of supporting human society in six areas: food, forests, water, energy, cities, & climate.

Alliance for Transformative Action on Climate and Health (ATACH)

- WHO introduced an **Operational Framework for constructing climate-resilient and low-carbon health systems through ATACH.**
- ATACH is a **voluntary network** (established in 2022) where participants can share information, exchange views, and improve technical and political cooperation.
- Its goal is to achieve the climate change and health ambitions set at COP26. This includes building sustainable and climate-resilient health systems.
- It uses the collective power of WHO Member States and other stakeholders to drive this agenda forward.
- **ATACH is not a distinct legal entity.** It derives its legal status from WHO, which also provides its Secretariat.

Breakthrough Agenda Report 2023

- Released jointly by the **International Energy Agency**, **International Renewable Energy Agency**, and **UN Climate Change High-Level Champions**, this annual progress report was requested at the UN Climate Change Conference COP26 2021, aligning with the Breakthrough Agenda's launch.
- The Breakthrough Agenda focuses on **coordinating investments across five key sectors: Power, Road transport, Steel, Hydrogen, and Agriculture.**

Key Findings

- The transition to clean and sustainable energy solutions is gaining momentum.
- National contributions are not in sync with global climate objectives.
- The power sector contributes to 23% of total emissions, marking a 10% increase since 2010.

National Carbon Registry

- The **United Nations Development Programme (UNDP)** has developed an **open-source** software called the **National Carbon Registry**, which **enables countries to manage national data and processes for trading carbon credits.**
- Accredited as a **digital public good (DPG),** the registry uses open-source code, allowing countries to adapt and reuse its modules, software, and technical documentation.
- This could potentially **reduce production costs and implementation timelines**. The registry follows best practices from organizations like UNDP, the World Bank, UNFCCC, and EBRD.

About United Nations Development Programme

- The United Nations' lead agency on international development works in 170 countries to eradicate poverty and reduce inequality.
- It aids countries in developing policies, leadership skills, and institutional capabilities to achieve the Sustainable Development Goals, focusing on sustainable development, democratic governance, peacebuilding, and climate and disaster resilience.

Summit for a New Global Financing Pact

The recently concluded Summit for a **New Global Financing Pact in Paris**, aimed to enhance crisis financing for low-income states, alleviate debt burdens, reform financial systems, and mobilize funds for addressing climate change.

Key Announcements From The Summit

- **Unlocking Additional Lending Capacity:**
  - Multi-Development Banks (MDBs) committed to unlocking an additional lending capacity of $200 billion for emerging economies.
  - The World Bank introduced disaster clauses in debt deals, enabling the suspension of debt payments in the event of extreme weather events.
- **Financial Support through SDRs:**
  - Poorer countries are set to receive $100 billion through Special Drawing Rights (SDRs), a form of currency provided by the International Monetary Fund (IMF).
  - A proposal to recycle SDRs from affluent nations to developing countries aims to expand concessional finance.
- **Just Energy Transition Partnerships (JETP) Deal:** A new 2.5 billion Euro JETP deal was announced for Senegal, focusing on increasing the share of renewables in the energy mix.
- **Accelerated Momentum on Polluter Taxes:** Progress was made on polluter taxes, which impose levies on individuals or entities contributing to environmental pollution.
- **Global Expert Review on Debt, Nature, and Climate:** A Global Expert Review was proposed to assess the impact of debt on the capacity of low- and medium-income countries.
- **EU's Call to Action on Paris Aligned Carbon Markets:** The European Union (EU) unveiled a call to action on 'Paris Aligned Carbon Markets,' aiming to cover at least 60 percent of global emissions with carbon pricing mechanisms.
- **Climate Finance Goal:** The long-overdue $100 billion climate finance goal is expected to be fulfilled in 2023.

Carbon Credit Trading Scheme (CCTS)

- The **Ministry of Power** has officially introduced the Carbon Credit Trading Scheme (CCTS) in line with the nation's commitment to decarbonize the economy.
- With an ambitious **target of reducing emissions by 45% from 2005 levels by 2030,** the CCTS 2023 establishes a carbon credit trading market.

About CCTS

- This scheme was **initially announced under the Energy Conservation Act of 2001 and later amended by the Energy Conservation (Amendment) Bill 2022**.
- **National Steering Committee (NSC)**, also known as the Indian Carbon Market Governing Board (ICMGB), which is headed by Ministry of Power and MoEFCC Secretaries is responsible for governing and overseeing the functions of the Indian Carbon Market (ICM).
- **Role of Bureau of Energy Efficiency (BEE):** It is designated as the administrator for the carbon market. Its tasks include setting emission reduction targets, issuing carbon credit certificates, and accrediting carbon verification agencies.
- The **Central Electricity Regulatory Commission (CERC)** will play a crucial role in regulating all trading activities within the carbon market, while the **Grid Controller of India will serve as the registry for the Indian Carbon Market (ICM).**

What are Carbon Markets?

- Carbon markets are essentially a tool for putting a price on carbon emissions— they establish trading systems where carbon credits or allowances can be bought and sold.
- A carbon credit is a kind of tradable permit that, per United Nations standards, equals one tonne of carbon dioxide removed, reduced, or sequestered from the atmosphere.
- Carbon allowances or caps, meanwhile, are determined by countries or governments according to their emission reduction targets.

COP 28 & Related Global Initiatives

The 2023 United Nations Climate Change Conference, also known as COP28 (Conference of Parties), was held at Dubai, United Arab Emirates (UAE). The key initiatives/events happened under COP28 are as follows:

ALTERRA FUND (Launched by UAE)

- UAE President Sheikh Mohammed Bin Zayed announced a $30 billion ALTERRA climate fund that aims to attract $250 billions of investment by 2030. The fund will allocate $25 billion to climate strategies and $5 billion to incentivize investment flow into the Global South.
- The fund has four key pillars: 1) Energy Transition; 2) Industrial Decarbonization; 3) Sustainable Living; 4) Climate Technologies Top of Form.
- The term "Alterra" commonly denotes a Latin term frequently employed in diverse contexts to indicate *alteration, transformation, or variation.*

Global Green Credit Initiative (Launched by India)

- Under this initiative, green credits will be assigned to specific environmental activities, and will be treated as tradable commodities. These green credits will be able to be sold on domestic market platforms.
- The main purpose of this initiative is to boost voluntary environmental activities like tree plantation, water conservation, sustainable agriculture, & waste management by incentivizing it for big corporations & private companies, bringing about a change in the climate Change issues.
- There are two main priorities of the initiative – water conservation and afforestation.

Green Industrialization Initiative (Launched by African leaders)

- The initiative aims to accelerate and scale green industries and businesses across Africa.
- It aims to promote climate mitigation and adaptation, and catalyse economic green growth on the continent.

Global Drought Snapshot Report (by the UN Convention to Combat Desertification (UNCCD)

- The report states that drought causes more economic loss and affects more sectors of societies.

- **According to UNCCD**, 1.84 billion people were drought-stricken, out of which 4.7 percent were exposed to severe or extreme drought.
- **According to the World Bank**, around 85% of people affected by droughts live in low or middle-income countries.
- Around 23 countries (including India) declared **drought emergencies** at **a national or sub-national level** during 2022-23, according to new data from a **global drought map** compiled by the United Nations.
- The year 2023 has broken records when the **world breached 2 degrees Celsius of warming on November 17, 2023.**

Leadership Group for Industry Transition (LeadIT 2.0) (Launched by India & Sweden)

- **LeadIT** initiative aims at accelerating the adoption of low-carbon technologies and aligning with global environmental goals.
- The initiative, initially centered around pivotal sectors such as iron, steel, cement, and aluminum, focused on industry transition and knowledge sharing.
- Since its inception in 2019, LeadIT has grown into a collaborative effort involving 18 countries and 20 industry-leading companies.
- **Three core areas of LeadIT 2.0:** 1) Inclusive and Just Industry Transition; 2) Low Carbon Technology Development and Transfer; 3) Emerging Economy Technology Transfer

Global Renewables & Energy Efficiency Pledge

- The initiative was led by the European Union, the UAE and the US.
- 118 countries signed a renewable energy pledge at the COP28 climate summit to ***triple the world's green energy capacity to 11,000 GW by 2030***, thereby reducing the reliance on fossil fuels in generating energy.
- According to Pledge, Countries have to "double the global average annual rate of energy efficiency improvements from around 2% to over 4% every year until 2030".
- The pledge is neither legally binding nor a part of the official COP28 calendar.
- India and China have stayed away as the initiative calls for phasing down of coal & "ending the continued investment in unabated new coal-fired power plants.

Climate Club (Led by Germany and Chile and currently represent 55% of the global economy)

- **Climate Club** is an initiative aimed at cooperation between countries in decarbonizing the industrial sector by developing strategies and standards for decarbonization.
- The Club has garnered support from 36-member countries including Kenya, the European Union, Switzerland and others.
- A secretariat will be formed to implement the work program. Currently, OECD and IEA are the joint interim heads of secretariat.

Oil and Gas Decarbonising Charter (integral to the Global Decarbonization Accelerator (GDA))

- COP28 President Dr. Sultan Al Jaber and the Kingdom of Saudi Arabia announced the official launch of the Oil and Gas Decarbonization Charter (OGDC).
- It aims to induce substantial impact in addressing climate challenges.
- Currently, 50 companies, collectively responsible for over 40 percent of global oil production, have committed to the OGDC.

Extra Mile: Global Decarbonization Accelerator (GDA)

- The GDA was introduced at the World Climate Action Summit.
- It focuses on three primary pillars: 1) Scaling the energy system of the future; 2) Decarbonizing the present energy system 3) Addressing methane & other non-CO2 greenhouse gases.

BIODIVERSITY

People's Biodiversity Register (PBR)

The **National Campaign for Updation and Verification** of **People's Biodiversity Register (PBR)** was launched by the Union Ministry of Environment, Forest and Climate Change in **Goa.**

About People's Biodiversity Register (PBR)

- It is designed as **a tool for the formal maintenance of the local knowledge with proper validation**.
- It serves as a comprehensive record of various aspects of biodiversity, including the conservation of habitats, preservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals and micro-organisms.
- The concept was defined in the **Biological Diversity Act, 2002.**
- So far, 2,67,608 PBRs have been prepared by Biodiversity Management Committees in different states.
- Kolkata was the 1st major metropolitan city in country to make a detailed PBR.

About Biodiversity Management Committees

- BMCs are local bodies under the **Biological Diversity Act 2002.** It is created to ensure the conservation, sustainable use and equitable sharing of benefits from biodiversity.
- **Composition:** A BMC is made up of a **chairperson and no more than six members** nominated by the local body, at least **33% of whom must be women** and at least **18% must be from the Scheduled Castes or Scheduled Tribes.**

Ocean Census

- The **Nippon Foundation and the Nekton Foundation** have launched a new initiative called the Ocean Census.
- It aims to **expand marine biodiversity knowledge by finding 100,000 new marine species** within a decade.
- It will send scientists on dozens of **expeditions at marine biodiversity hotspots** and **use advanced technology** like high-resolution imagery, DNA sequencing and machine learning, to identify new species.
- Scientists estimate that only about 10% of marine species have been formally described, and about 2 million species have yet to be identified.

Central Asian Flyway (CAF)

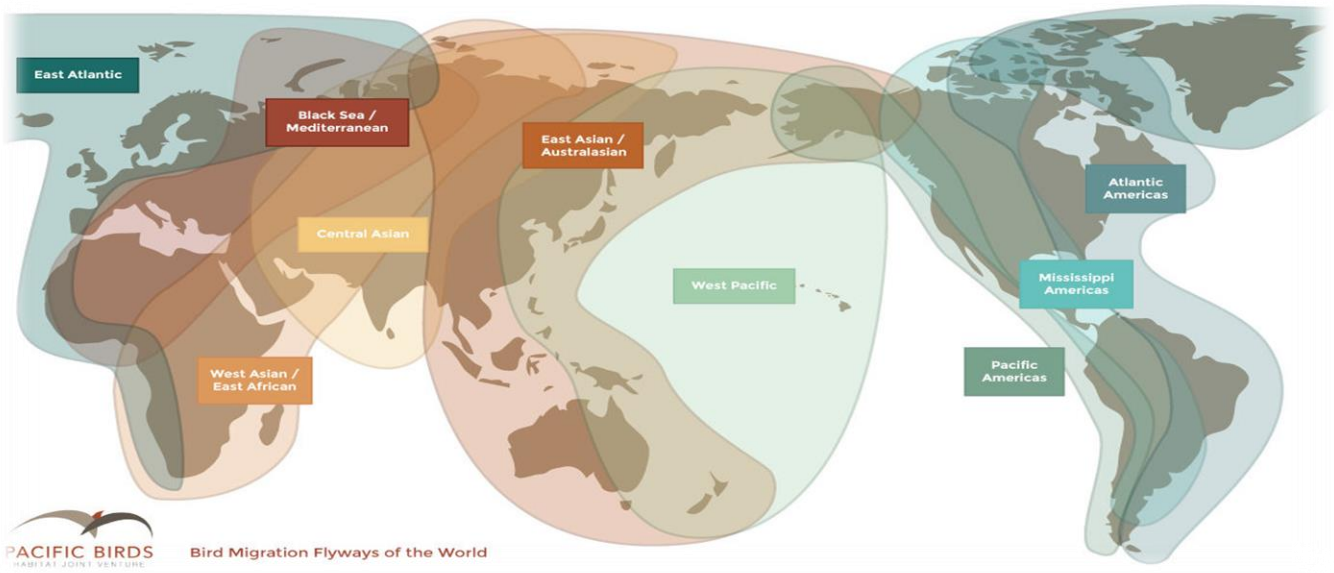
The Ministry of Environment, Forest and Climate Change had organized a meeting of **Range Countries** to strengthen conservation efforts for migratory birds and their habitats in the Central Asian Flyway (CAF).

About Central Asian Flyway (CAF)

- The CAF extends from the **Arctic tundra in Russia** and **Siberia** to the **Indian Ocean** and includes diverse habitats such as wetlands, grasslands, deserts, and high-altitude areas.
- Including India, it encompasses countries such as Russia, Kazakhstan, Mongolia, China, Kyrgyzstan, Tajikistan, Afghanistan, Pakistan, Nepal, Bangladesh, and Myanmar etc.
- Every year, millions of birds migrate along the CAF, traveling long distances to breed or find suitable feeding grounds.

Flyway

- The flyway serves as a vital pathway for the seasonal movements of various bird species, particularly waterbirds. The flyway provides critical stopover sites where birds rest and refuel during their journey.
- These stopover sites are often wetlands, lakes, rivers, and coastal areas, which offer abundant food resources.
- Understanding and conserving the flyway not only benefits bird populations but also contributes to the overall health and functioning of ecosystems along its route.



Biological Diversity (Amendment) Bill, 2021

The Parliament recently passed the Biological Diversity (Amendment) Bill, 2021 which seeks to amend the Biological Diversity Act, 2002. Major amendments include-

(i) Encouraging cultivation of medicinal plants and Indian system of medicine.

(ii) Fast-tracking the process of research, patent application, and transfer of research results.

(iii) Decriminalizing offences.

(iv) **Attracting more foreign investment** in the preservation and commercial utilization of India's biological resources.

(v) **Simplifying and streamlining processes** to make compliance with provisions easier.

About Biological Diversity Act, 2002

- It was enacted to fulfill its commitments made under the United Nations Convention on Biological Diversity (CBD), 1992 for sustainable, fair and equitable sharing of benefits arising out of the utilization of biological resources and associated traditional knowledge.
- **The United Nations Convention on Biological Diversity (CBD)** was signed in **Rio De Janeiro in 1992**. Under this agreement, countries including India agreed on three things-
  - Indiscriminate use of biological resources to be halted.
  - Sustainable use of these resources to be regulated.
  - People and communities helping in protecting and maintaining these resources to be rewarded for their efforts.
- It formulated a three-tier structure-
  - **National Biodiversity Authority (NBA)**: To advise the central government on issues related to conservation and sustainable use of biological resources.
  - **State Biodiversity Boards (SBBs)**: To advise state governments.
  - **Biodiversity Management Committees (BMCs)**: Established at local body levels for promoting conservation, sustainable use and documentation of biological diversity.

Key Amendments in The Biological Diversity (Amendment) Bill, 2021

Amendments	The Biological Diversity Act, 2002	Biological Diversity (Amendment) Bill, 2021
Restrictions	Foreign citizens, companies, NRIs, and registered Indian companies with foreign	Companies registered in India and controlled by Indians will now be treated Indian,

	equity or partnership were prohibited from obtaining biological resources or related knowledge for research, commercial utilization, or bio-survey without NBA permission.	irrespective of any foreign equity or partnership, reducing restrictions on accessing India's biological resources.
Prior Intimation to SBBs	Indian citizens and companies are required to inform SBBs before accessing biological resources in India for commercial use.	To access associated knowledge for commercial utilization, prior intimation will be required.
Exempted Stakeholders from Prior Intimation to SBBs	Local people and communities including growers and cultivators of biodiversity, and vaids and hakims practicing indigenous medicine.	Codified traditional knowledge, cultivated medicinal plants and their products, AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy) practitioners.
Approval for Intellectual Property Rights (IPR)	NBA approval was mandatory before (a) applying for IPR based on research conducted on biological resources available in India or (b) sealing the patent.	Approval will be required before the grant of IPR and not before the application for IPR. Foreign entities will be required to get approval from NBA whereas domestic entities will be required to register with NBA.
Benefit sharing	Benefit sharing refers to sharing monetary and non-monetary benefits between applicants, benefit claimers (conservers of biodiversity, or creators or holders of associated traditional knowledge) and local people.	
	NBA determined benefit sharing terms with applicant, local bodies, and claimers, involving research, commercial utilization, bio-survey, and bio-utilization for certain entities.	The act allows SBB to determine domestic entity benefit sharing, excluding research, bio-survey, and bio-utilization, in accordance with mutually agreed terms with NBA's Biodiversity Management Committee.
Decriminalizing Offences	Offences like failing to take approval or providing prior intimation for various activities were punishable with imprisonment of up to five years, or a fine, or both.	The Bill decriminalizes offenses and imposes penalties ranging from Rs 1 lakh to Rs 50 lakh, with continuous violations potentially resulting in an additional Rs 1 crore. It also removes the National Biodiversity Authority's power to file First Information Reports against defaulting parties.

Adjudicating Officer

- **In Original Act:** No such provision.

In 2021 Bill:

- The bill establishes an adjudicating officer at Joint or State Government levels to hold inquiries and impose penalties, and introduces a 'Member-Secretary' to serve as the chief coordinating officer and convener of the National Biodiversity Authority.

Floral and Faunal Database

Compiled By	• The **Zoological Survey of India (ZSI)** compiled the **faunal** discoveries in a publication called "**Animal Discoveries – New Species and New Records 2023**". • The **Botanical Survey of India (BSI)** published the "**Plant Discoveries 2022**".

Faunal Discoveries

- India added a total of 664 animal species to its faunal database in 2022. These comprise 467 new species and 197 new records, species found in India for the first time.
- The maximum number of new faunal discoveries has been of **invertebrates with 583 species,** while **vertebrates constitute 81 species**.
- The new mammal species included a long-fingered bat, and a bamboo-dwelling bat, both found in Meghalaya.
- **Sela macaque** (named after the Sela Pass), a new macaque species discovered in **Arunachal Pradesh.**

Vertebrates	Invertebrates
Vertebrates are animals with a backbone, a well-developed internal skeleton, a distinct head with a brain, bilateral symmetry, and complex internal organs.	Invertebrates are animals that lack a backbone or spine. They typically have either an exoskeleton or a soft body, exhibit various body plans, and possess simpler internal organ systems.
E.g.: mammals, birds, and reptiles	E.g.: insects, worms, and jellyfish

Floral Discoveries

- India added 339 new plant taxa to its floral database in 2022, with 186 new to science and 153 new distributional records.
- Seed plants made up the majority of discoveries, with dicotyledons contributing 73% and monocotyledons 27%. Other new taxa include 37% seed plants, 29% fungi, 16% lichen, 8% algae, 6% bryophytes, 3% microbes, and 1% pteridophytes.
- New genus discoveries include Nandadevia Pusalkar and Nilgiriella Pusalkar, endemic to the southern Western Ghats of India.
- **Calanthe lamellosa, an orchid species** previously recorded in China and Myanmar, was found for the first time in India in the **Japfu mountain range (Nagaland).**

Region wise Discoveries

Animal Discoveries	Plant Discoveries
Kerala, Karnataka, and Tamil Nadu **were the top states in terms of new animal discoveries, accounting for 14.6%, 13.2%, 12.6 respectively.**	About 21% of the total discoveries were made from the **Western Himalayas** followed by 16% from the **Western Ghats**.

	BSI (HQ: Kolkata)	ZSI (HQ: Kolkata)
Establishment	In 1890 under of Sir George King	In 1916
Objective	To explore the plant resources of the country and to identify plant species with economic value	To promote research and documentation on various aspects of animal taxonomy in Indian subcontinent
Nodal Ministry	Ministry of Environment, Forest & Climate Change.	

EXTRA MILE: INDIA BIODIVERSITY PORTAL

- It is an online platform that provides access to information on the country's biodiversity.
- It was launched in 2008 by the National Biodiversity Authority
- It is managed by the Ashoka Trust for Research in Ecology and the Environment.
- It contains information on over 1.5 million species, including their scientific names, common names, distribution, and conservation status.
- One of the key features of the portal is its citizen science platform, which allows anyone to contribute observations of plants and animals from across the country.

Diversity For Restoration (D4R) Tool

- Researchers at **Biodiversity International** have developed a tool called **Diversity for Restoration (D4R),** a **decision support tool that helps in species selection and seed sourcing for restoration** using local site conditions and user-determined restoration objectives.
- It contains information on 100 plant functional traits of 237 important native trees of Western Ghats which have socio-economic significance.
- **Aim**: To help better decision-making and bring the best outcome for those plantation programs.

Features

- The tool aids users in **identifying species that align with restoration objectives**, resist local stresses, and adapt to changing environmental conditions.
- It helps **pinpoint seed procurement areas** and determines tree species' commercial benefits, including timber, fruit, and manure.
- It also **assesses tree resilience to physiological stresses** like extreme temperatures and soil salinity or acidity.

Significance

- It will help **improve the effectiveness of restoration programmes** by providing manifold benefits to interested stakeholders while promoting sustainable development along with **improving socio-ecological perspectives.**

Global Declaration of River Dolphins

- In a groundbreaking initiative, **11 countries from Asia and South America have collectively signed** the first-ever Global Declaration aimed at protecting the world's six surviving species of River Dolphins **by the year 2030.**
- The signatory nations include **Bangladesh, Bolivia, Brazil, Cambodia, Colombia, Ecuador, India, Nepal, Pakistan, Peru, and Venezuela**.
- **Objective**: To coordinate conservation efforts and implement crucial actions necessary to arrest the decline of river dolphin species on a global scale.

Current State of River Dolphin Decline

- River dolphin populations have witnessed a staggering 73% decline since the 1980s, attributed to various threats such as hunting, entanglement in fishing nets, habitat loss, and pollution.
- The impact of climate change poses a significant threat to river dolphins, exemplified by the death of over 150 river dolphins in the Amazon's Lake Tefé due to drought.

About River Dolphins

River dolphins are small, usually freshwater aquatic **mammals that are related to whales** (Order Cetacea). They are important **indicators of the health of rivers.**

Characteristics:

- **Body:** Slender beaks with many teeth, small eyes, flexible necks and bodies, large flippers, and small dorsal fins
- **Vision:** Poorly developed because they live in dark, muddy water
- **Activity:** Less active than marine dolphins because they don't need to search widely to find fish

Species of River Dolphins

1. **Ganges River Dolphin (Endangered):** found in the Ganges, Brahmaputra, and Meghna River systems in South Asia, primarily in India, Bangladesh, and Nepal.
2. **Indus River Dolphin (Endangered):** This species inhabits the Indus River in Pakistan and parts of the adjoining river systems. It is characterized by its long snout.
3. **Amazon River Dolphin (Endangered):** The **largest river dolphin species**. They live in the Tapajos River in Brazil. It is known for its distinctive pink coloration.

4. **Irrawaddy Dolphin (Endangered):** Found in Coastal areas in South & Southeast Asia, rivers including Ayeyarwady (Myanmar), Mahakam (Indonesian Borneo), Mekong, & Chilka Lake (India)
5. **Yangtze River Dolphin (Critically Endangered):** The world's only freshwater porpoise. They swim in the Yangtze River (the longest river in Asia) in China.
6. **Tucuxi River Dolphin (Endangered):** Tucuxis are freshwater dolphins that live in the Amazon River and its tributaries.

A seventh river dolphin, the **Chinese river dolphin, or baiji, was declared extinct in 2007**.

Steps Taken to Protect River Dolphin in India

- **Listing dolphins in the Wildlife (Protection) Act, 1972:** Gangetic River dolphins are listed in Schedule I of the act, which gives them the highest degree of protection. Common dolphins are listed in Schedule 2 of the act, which makes them a protected species.
- Designating the **Gangetic River dolphin as India's National Aquatic Animal**
- **Establishing the Vikramshila Ganges Dolphin Sanctuary:** This sanctuary is located in Bihar and covers a 60 km stretch of the Ganges River.
- **Observing National Ganga River Dolphin Day:** The National Mission for Clean Ganga observes this day on October 5.
- The Ministry has included Gangetic River dolphin as one of the 22 critically endangered species for providing financial assistance to States under the **Centrally Sponsored Scheme 'Development of Wildlife Habitats'.**
- **A comprehensive action plan (2022-2047)** has been developed to ensure well-being of the river dolphin and aquatic habitats
- **Making dolphin hunting illegal:** Conviction for hunting dolphins can result in up to three years in prison or a Rs 25,000 penalty, or both.

Coral Reef Breakthrough

At the 37th ICRI General Meeting, 2023 **International Coral Reef Initiative (ICRI) has launched the Coral Reef Breakthrough.** It was Launched in partnership with the **Global Fund for Coral Reefs (GFCR) and the High-Level Climate Champions (HLCC).**

About Coral Reef Breakthrough

- It **aims to secure the future of at least 125,000 km^2 of shallow-water tropical coral reefs** with investments of at least US$12 billion to support the resilience of more than half a billion people globally **by 2030.**

Action Point 1	Mitigate local drivers of loss including land-based sources of pollution, destructive coastal development, and overfishing.
Action Point 2	Double the area of coral reefs under effective protection
Action Point 3	Assist the development and implementation of innovative solutions at scale and climate smart designs that support coral adaptation to impact 30% of degraded reefs by 2030.
Action Point 4	Secure investments of at least USD 12 billion by 2030 from public and private sources to conserve and restore these crucial ecosystems

About International Coral Reef Initiative (ICRI)

- This informal collaboration involves nations and organizations working together to safeguard coral reefs and associated ecosystems globally.
- The inception of this initiative took place at the **1st Conference of the Parties of the Convention on Biological Diversity in 1994.**
- With 101 members, **including India**, the initiative operates as an informal group, and its **decisions do not hold binding authority over its member.**

Operation “Kachchhap”

- Operation "Kachchhap," **led by the Directorate of Revenue Intelligence (DRI),** achieved notable success in the recovery of 955 live baby turtles.
- These included various species such as the Indian Tent Turtle, Indian Flapshell Turtle, Crown River Turtle, Black Spotted/Pond Turtle, and Brown Roofed Turtle.
- The **DRI functions as India's premier anti-smuggling agency**, operating **under the Central Board of Indirect Taxes & Customs within the Ministry of Finance.**

Tokhü Emong Bird Count (TEBC)

- **Nagaland** is hosting the first edition of the **Tokhü Emong Bird Count** (TEBC), a **four-day** documentation event to list birds in the state.
- It is the **first avian documentation exercise** taken by Nagaland to go beyond Amur falcons.
- The TEBC falls within the Salim Ali Bird Count, a nationwide event conducted by the **Bombay Natural History Society.**

About Tokhu Emong Festival

- **Tokhü Emong** is the post-harvest festival of the Lotha Nagas, which is celebrated in the month of November and lasts for nine days.
- ‘Tokhu’ means moving from house to house, collecting tokens and gifts in form of natural resources and food. However, the meaning of ‘Emong’ is to put a halt for the appointed time.
- With the harvest done and the granaries full, the people in Nagaland in northeast India take a break from the farm work and enjoy the festivities that include folk dances and the singing of folk songs.
- During the festival, gracious offerings are made to the ‘Sky God’ and ‘Earth God’ seeking for blessings.

CITES RST

India has been a participant in the **Review of Significant Trade (RST) process for Red Sanders** since 2004, and has been removed from the process.

About Convention on International Trade in Endangered Species of Wild Fauna and Flora

- It is a global legally binding agreement (administered by UNEP) among governments to regulate or ban international trade in species under threat.
- It came into force in 1975. India joined CITES in 1976 and hosted CITES CoP-3rd in 1981.

What is CITES RST?

- The CITES RST process enables disciplinary action in the form of trade suspensions directed at countries that do not meet their obligations.
- The Red Sanders species has been listed for the RST process more or less since 2004.
- This is a process through which the CITES Standing Committee places increased scrutiny on the exports of a species from a country to determine if the Convention is being properly implemented.

World Organisation for Animal Health (WOAH)

India hosted the 33rd Conference on World Animal Health by the World Organisation for Animal Health (WOAH) Regional Commission for Asia and Pacific in Delhi.

About WOAH/OIE

- The World Organisation for Animal Health (WOAH), founded in **1924**, was established in response to the **rinderpest cattle plague.**
- Headquartered in **Paris**, it has five Regional Commissions to address global challenges.
- The primary mission of the OIE is to disseminate information on animal diseases and establish international standards for controlling them, including zoonoses.

- The OIE works for both terrestrial and aquatic animal health, addressing specific challenges faced by its members in different regions.

Ghol Fish

- **Gujarat** recently declared the black-spotted croaker (Protonibea Diacanthus), locally known as **the Ghol fish, as the state fish.**
- **About Ghol Fish/Goldfish/Sea Gold: IUCN Status:** Near Threatened

Distribution

- In the Indo-Pacific region that stretches from the Persian Gulf to the Pacific Ocean.
- Commercial Importance (A kilogram of Ghol fetches between Rs 5,000 to Rs 15,000 in Gujarat).
- The meat of the fish is exported to European and Middle-Eastern countries and Its air bladder which is cut open from the stomach and dried is mainly exported to China, Hong Kong and other Asian countries where it is in high demand for its medicinal values.

Health Benefits

- **Rich in Omega-3 Fatty Acids:** These fatty acids are known to support heart health, reduce inflammation and contribute to brain health.
- **Excellent source of high-quality protein:** Protein is essential for the body's growth, repair of tissues, and overall maintenance.
- **Vitamins and Minerals:** Ghol fish contains various vitamins and minerals, including vitamin D, vitamin B12, iodine, selenium, and zinc. These nutrients play crucial roles in bone health, immune function, and overall well-being.

PET 46

- Researchers have identified a **PET46 enzyme in a deep-sea microorganism** for the first time. PET, a lightweight plastic extensively used in packaging food and beverages, such as soft drinks and water.
- The uniqueness of the **PET46** enzyme lies in its **ability to degrade both long-chain and short-chain PET molecules, allowing for continuous degradation.**

Significance

- PET46 enzyme is a valuable tool in combating plastic pollution by breaking down PET plastic into terephthalic acid and ethylene glycol.
- It also aids in understanding the ecological role of deep-sea archaea, a marine organism. Other PET-degrading enzymes include PETase, MHETase, and THC_Cut1.

Tiger Translocation

- The **first inter-state tiger translocation project in India**, spearheaded by the National Tiger Conservation Authority (NTCA) in 2018, faced setbacks and ultimately **failed**.
- The initiative involved relocating two tigers, a male named Mahavir from Kanha Tiger Reserve and a female named Sundari from Bandhavgarh in Madhya Pradesh, **to the Satkosia Tiger Reserve in Odisha.**
- The **objectives** were twofold:
    - **mitigating tiger population in areas with an excess to minimize territorial conflicts**
    - **reintroducing tigers to regions with depleted populations**.
- The project encountered challenges leading to its failure, including inadequate prey augmentation, insufficient capacity building for staff, unsuccessful enhancement of protection measures, diversion of funds allocated under Project Tiger, and increased instances of tiger-human conflict.

National Tiger Conservation Authority (NTCA)

- The National Tiger Conservation Authority (NTCA) is a **statutory body** under the Ministry of Environment, Forests and Climate Change constituted under enabling provisions of the Wildlife (Protection) Act, 1972.

- NTCA is set up under the Chairmanship of the Union Minister for Environment and Forest.
- **Mandate:**
  - Provide oversight and guidance to tiger reserve management.
  - Manage the Project Tiger scheme, the flagship program for tiger conservation.
  - Support tiger research and monitoring.
  - Address threats to tigers and their habitat.
  - Encourage local community participation in conservation efforts.

Artificial Reefs (AR)

The Department of Fisheries has approved 732 artificial reef units for 10 coastal states. This initiative falls under the "**Integrated Modern Coastal Fishing Villages**" component of the Pradhan Mantri Matsya Sampada Yojana **(PMMSY).**

Advantages

- Boosts marine biodiversity.
- Encourages fish population growth.
- Reduces pressure on natural reefs.

Artificial Reefs (AR)

- An artificial reef is a manmade structure designed to mimic natural reef characteristics which aims to rehabilitate and improve natural habitats, enhance productivity, and manage aquatic resources.
- Materials for construction include rocks, cinder blocks, wood, and old tires, offering various shapes and styles.
- The projects receive technical support from the Fisheries Survey of India (FSI) and ICAR-Central Marine Fisheries Research Institute (CMFRI).

Pradhan Mantri Matsya Sampada Yojana (PMMSY)

- A flagship scheme for the focused and sustainable development of the fisheries sector in India.
- Estimated investment of Rs. 20,050 crores for implementation over five years (FY 2020-21 to FY 2024-25) across all States/Union Territories.
- Aims to increase fish production by an additional 70 lakh tonnes by 2024-25.
- Targets fisheries export earnings of Rs. 1,00,000 crore by 2024-25.
- Seeks to double incomes of fishers and fish farmers while reducing post-harvest losses from 20-25%.
- **Nodal Ministry**: Ministry of Fisheries, Animal Husbandry and Dairying.

Cheetah Project

- The Cheetah Project Steering Committee (CPSC) has been established by the National Tiger Conservation Authority to monitor the progress of Project Cheetah.
- The 11-member committee, comprising national and international experts, is tasked with overseeing the implementation of the world's first intercontinental large wild carnivore translocation project.
- The formation of the CPSC follows the recent unfortunate incident of the death of cubs born to a translocated Namibian cheetah at **Kuno National Park** (KNP) in Madhya Pradesh. The committee will be operational for a duration of two years.

Project Cheetah

- Discussions to bring the Cheetah back to India were initiated in 2009 by the Wildlife Trust of India.
- Under the 'Action Plan for Reintroduction of Cheetah in India', 50 cheetahs will be brought from African countries to various national parks over 5 years.
- **Most suitable site - Kuno Palpur National Park (KNP) in Madhya Pradesh:**
  - Amongst the surveyed sites of the central Indian states, KNP has been rated the highest, because of its suitable habitat and adequate prey base.
  - It is assessed to be capable of supporting 21 Cheetahs and is likely the only wildlife site in the country where villages have been completely relocated from within the park.

- Kuno also provides the possibility of harbouring four of India's big cats - tiger, lion, leopard and Cheetah, enabling them to coexist as they have in the past.

- As part of this project, **20 Cheetahs (8 from Namibia and 12 from South Africa) were introduced in KNP** (since last year) to establish a free-ranging population for the first time since their extinction in India 70 years ago.

Status of Tiger Report

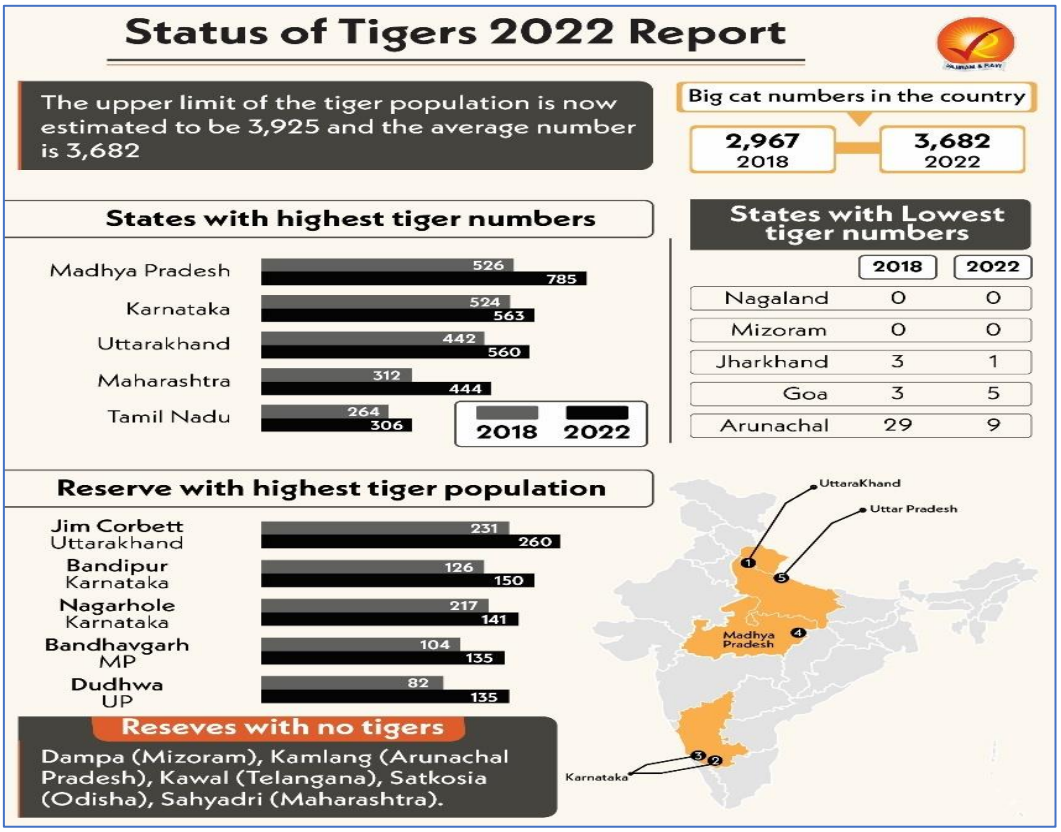
The recent release by the National Tiger Conservation Authority (NTCA) of report **Status of Tigers, Co-predators, and Prey in India-2022** provides insights into the current state of tigers in India.

Key Observations:

- **Land Area:** Tiger reserves, totaling 53, cover 2.3% of India's total land area.
- **Population:** India currently hosts nearly 75% of the world's wild tiger population.
- Notable increases in tiger populations are observed in Central India and the Shivalik Hills and Gangetic Plains.
- **Conservation Challenges:** Approximately 35% of tiger reserves urgently require enhanced protection measures, including tiger reintroduction, highlighting the need for strengthened conservation efforts.

Techniques Used

- **M-STrIPES (Monitoring System for Tigers-Intensive Protection and Ecological Status):** Utilizes the Global Positioning System and remote sensing for comprehensive field information collection.
- **Camera Trap-based Capture-Mark-Recapture:** Established method for abundance and density estimation of tigers, particularly in areas where camera trapping was feasible.
- **Molecular Tools:** In areas where camera trapping was not possible, molecular tools were employed to determine the presence of tigers by extracting DNA from scats.



Ban On Drugs Harmful for Vultures

- **The Drugs Technical Advisory Board (DTAB)** has proposed a ban on two additional drugs, Ketoprofen and Aceclofenac, known to be harmful to vultures.
- This decision aims to prevent the manufacture, sale, and distribution of these drugs, particularly for treating livestock animals, in an effort to conserve vulture populations.
- **Targeted Drugs:** *Ketoprofen and Aceclofenac*, along with *Diclofenac and Nimesulide*, are Non-steroidal Anti-Inflammatory drugs (NSAIDs) commonly used in veterinary practice.

- **NSAIDs' Impact on Vultures:**
  - Some NSAIDs are not fully metabolized by vultures and can cause kidney damage.
  - Vultures feeding on carcasses of animals treated with these drugs face severe health risks.
  - The ban aims to protect vultures from inadvertent exposure to these harmful substances.
- **Species of Vultures found in India and their Conservation Status:**

Indian Vulture or Long-billed vulture	Critically Endangered
Indian White-backed Vulture	Critically Endangered
Red-headed Vulture	Critically Endangered
Slender-billed Vulture	Critically Endangered
Egyptian Vulture	Endangered
Cincerous Vulture	Near Threatened
Bearded Vulture	Near Threatened
Himalayan Vulture	Near Threatened
Griffon Vulture	Least Concern

- **About Drugs Technical Advisory Board:** It is the highest statutory decision-making body on technical drug matters in the country, operates **under the Central Drugs Standard Control Organization (CDSCO) within the Ministry of Health and Family Welfare.**

Management Effectiveness Evaluation (MEE) of Tiger Reserves

Recently, the NTCA unveiled the Final Report for the 5th cycle of Management Effectiveness Evaluation (MEE) of Tiger Reserves in India.

About Management Effectiveness Evaluation (MEE):

- The MEE has been an integral tool for nationwide tiger reserve assessments since its initiation in 2006. The MEE is jointly conducted by the **NTCA and the Wildlife Institute of India (WII).**
- The 5th cycle of MEE is part of the government's ongoing efforts to evaluate the management effectiveness of tiger reserves.

What is MEE?

- It is the **evaluation of how well Protected Areas (PAs) are managed, focusing on their ability to protect values and achieve agreed-upon goals.**
- Management effectiveness includes **design issues, the adequacy of management systems, and the delivery of PA objectives.**

5th Cycle Highlights

- **The Periyar Tiger Reserve in Kerala was ranked as the best-maintained tiger reserve in India.**
- The overall mean MEE score has increased from 65% in 2010 to 78%, indicating continuous improvement.
- The 'carbon capture and climate change' indicator received the lowest score due to the absence of a mandate in Tiger Conservation Plans.
- Evaluation excluded two newly declared tiger reserves, Ramgarh Visdhari and Ranipur.

Report on 'Inclusive Conservation Initiative (ICI)'

Released by the Global Environment Facility (GEF) and Conservation International (CI).

Inclusive Conservation Initiative (ICI)

- Inclusive Conservation Initiative (ICI) is a global initiative working with Indigenous People and Local Communities (IPLCs) to conserve nature and address global environmental challenges. It was launched in 2022 as part of the Global Environment Facility's (GEF) seventh replenishment (GEF-7).
- It aims to support Indigenous Peoples and Local Communities (IPLC) in securing and enhancing their stewardship over landscapes, seascapes, and territories with high biodiversity and irreplaceable ecosystems.

- **Comprises four components:**
  - Local Action to deliver Global Environmental Benefits.
  - Global IPLC Capacity Building.
  - IPLC Leadership in International Environmental Policy.
  - Inclusive Conservation Knowledge to Action.

Key Highlights

- Indigenous people own 40% of terrestrial protected areas and 37% of ecologically intact landscapes.
- Indigenous land management has an equal or greater impact on reducing deforestation compared to state-managed efforts.
- Less than 1% of climate change mitigation and adaptation funding is directed to IPLC.
- Only 7% of the US$ 1.7 billion funding pledged for IPLC at the 26th CoP of UNFCCC in 2021 directly reaches them.

Other Initiatives for Inclusive Conservation

- Global Biodiversity Framework Fund proposed by GEF.
- In India, initiatives include the formation of Community Reserves, recognition of Sacred Groves under the Wildlife (Protection) Act, 2002, and acknowledgment of the Forest Rights Act, 2006.

Holobionts

- A holobiont is a collection of species that are closely associated and have complex interactions. The term comes from the Greek words holos, meaning "all", and bios, meaning "life".
- **A holobiont is made up of:**
  - **Host**: A multicellular organism, such as a plant or animal
  - **Microbiota**: The microorganisms that are closely associated with the host, like bacteria
- Animals and plants are no longer considered standalone entities; instead, they are recognized as biomolecular networks i.e. "holobionts."
- Each species in a holobiont is called a biont. **The combined genome of all the bionts is called the hologenome.**
- **Some examples of holobionts include:**
  - A plant and its microbiome
  - Coral heads, which get their colors from photosynthetic protists called zooxanthellae
  - Kombucha, which is fermented by a consortium of bacteria and yeasts

State of India's Birds 2023' Report

- The State of India's Birds 2023 Report reveals a **widespread decline in the numbers of most bird species across the country.**
- While raptors, migratory shorebirds, and ducks have experienced significant declines, certain species such as the Indian Peafowl, Rock Pigeon, Asian Koel, and House Crow are exhibiting an increasing trend.

Key Points From The Report

- The report aims to assess the conservation status of the majority of species regularly found in India.
- Published by the State of India's Birds Partnership, consisting of **13 government and non-governmental organizations, including SACON, WII, and ZSI.**
- **Long-distance migrants have experienced a significant decline of over 50%**, with Arctic-breeding shorebirds particularly affected, showing a close to 80% decline.
- **Bird species richness has decreased** due to factors such as commercial monoculture plantations, urbanization, infrastructural development, and climate change.

Organisation	SACON	WII	ZSI
Full Name	Salim Ali Centre for Ornithology and Natural History	Wildlife Institute of India	Zoological Survey of India
Year of Establishment	1990	1985	1916
Location	Coimbatore, Tamil Nadu	Dehradun, Uttarakhand	Kolkata, West Bengal
Mandate	Conservation of avian biodiversity and research in ornithology	Wildlife research and conservation	Zoological research and survey of Indian fauna
Key Areas of Research	Bird conservation, bird ecology, avian influenza, bird migration	Wildlife management, wildlife disease, human-wildlife conflict, biodiversity conservation	Taxonomy, systematics, ecology, wildlife conservation, animal behavior

Export Policy of Red Sanders Wood

- The **Directorate General of Foreign Trade (DGFT), operating under the Ministry of Commerce and Industry**, has modified the export policy for **red sanders wood sourced from privately cultivated land.**
- This amendment, authorized by the Foreign Trade (Development & Regulation) Act, 1992, and Foreign Trade Policy 2023, **establishes an annual export quota for artificially propagated red sanders, while imposing a zero-export quota for wild specimens.**
- Importantly, the recent amendment aligns with the foreign trade policy, **prohibiting the import of Red Sanders and placing restrictions on its export.**
- Notably, in 2019, DGFT had previously revised the export policy, allowing the export of Red Sanders in log form and roots only if exclusively obtained from privately cultivated land, including pattaland.

Red Sanders (Pterocarpus santalinus)	• Indian endemic tree species • Grows 10 to 15 meters in height • Restricted geographical range in the Eastern Ghats • Very slow-growing, matures in 25-40 years in natural forests
Utility and Demand	• Highly sought after in Asia, especially China and Japan • Uses in cosmetics, pharmaceuticals, furniture, woodcraft, and musical instruments • Known for healing properties and rich color
Threats	• Population declines of 50-80% in the last 50 years • Due to smuggling, forest fires, cattle grazing, diseases like spike disease
Conservation Status	• Briefly **'near threatened' in 2018** • Returned to '**endangered**' category on IUCN Red List in 2021 • Protected under CITES (Appendix II) and Wildlife Protection Act 1972 (Schedule IV)
Legal Protections	• Andhra Pradesh Forest Act amended in 2016 • Special protection status granted • Red Sanders offenses made cognizable and non-bailable

Indian Ocean Tuna Commission

The Department of Fisheries organized the 19th Working Party on Data Collection and Statistics (WPDCS19) of the Indian Ocean Tuna Commission (IOTC) in Mumbai.

Indian Ocean Tuna Commission (Headquarters: Victoria, Seychelles)

It's an intergovernmental organization established in 1993 under the FAO (Food and Agriculture Organization). It is responsible for the management of highly migratory tuna and tuna-like species in the Indian Ocean. The Indian Ocean is the second-largest tuna fishery in the world.

Working

The IOTC works with member countries and cooperating non-members to set policies and regulations for fishing activities in the Indian Ocean.

Membership

- The IOTC currently has 31 contracting parties who are members of the IOTC and two cooperating non-contracting parties, Liberia and Senegal.
- **Membership of the IOTC is open to:** Indian Ocean coastal countries; countries, or regional economic integration organisations, that are members of the UN; countries that fish for tuna in the Indian Ocean. **India is a member of this organisation.**

About Tuna Fish

- Tuna is a popular and commercially important fish species that belongs to the Thunnini tribe. These fish are found in warm seas and oceans and are known for their streamlined bodies & powerful tails.
- **Migration:** Tuna migrate widely across oceans for food and breeding.
- **Diet:** Tuna are fast predators that hunt small fish and squid, using their sleek bodies and strong tails to swim swiftly.
- **Health Benefits:** Tuna is nutritious and packed with protein, healthy fats, and vitamins.It's rich in omega-3 fatty acids, magnesium, potassium, zinc, selenium, vitamin C, and vitamin B complex.

Eco-Sensitive Zones (ESZ)

- Eco-sensitive zones are the areas declared under the **Environment Protection Act (EPA), 1986**. ESZs are created as "shock absorbers" for the protected areas, to minimize the negative impact on the "fragile ecosystems" by certain human activities taking place nearby.
- As per the **National Wildlife Action Plan (2002-2016)**, land within 10 km of the boundaries of national parks & wildlife sanctuaries is to be notified as eco-fragile zones or ESZ.
- **Ministry of Environment, Forest and Climate Change notifies Eco-Sensitive Zones** (ESZs) on the basis of proposals and recommendations of the State Government.

Classification of Activities in ESZ

Prohibited	Regulated	Permissible
• Commercial mining • Setting of industries causing pollution • Commercial use of firewood • Establishment of major hydroelectric projects	• Felling of trees • Establishment of hotels • Widening of roads • Introduction of exotic species • Sign boards & hoardings	• Ongoing agriculture & horticulture practices by local communities • Rainwater harvesting • Organic farming & Use of renewable energy sources

Press Mud

- Sugarcane by-product press mud can help generate 460,000 tonnes of compressed biogas (CBG) valued at Rs 2,484 crores. It is a by-product of the sugar cane processing industry.

- Its properties and applications vary depending on the processing methods and type of sugar produced.
- **Composition:** It contains organic matter, cellulose, lignin, nitrogen, phosphorus, potassium, calcium, magnesium, and other trace elements. This nutrient content makes it a valuable organic fertilizer, enhancing soil fertility and structure.
- **Characteristics:**

Property	Description
Color	Ranges from dark brown to black, reflecting its rich organic origin.
Nutrient Content	A source of nitrogen, phosphorus, potassium, and other essential nutrients, contributing to soil fertility.
Moisture Content	Variable moisture levels, generally relatively high, impacting its application and handling.
Bulkiness	Can be bulky, requiring proper management during storage and transportation.
pH Levels	Typically has a neutral to slightly alkaline pH, influencing its effect on soil pH.
Odour	May have a distinct odour due to the presence of organic materials undergoing decomposition.

Applications

- **Soil Amendment & Soil Conditioner**
- **Crop Nutrient Source**
- **Biofuel Production**
- **Waste Management**
- **Erosion Control**
- **Landfill Cover**

Tiger Reserves (TR) in the News

Satpura Tiger Reserve (In Madhya Pradesh)

- **Geography:** Surrounded by Pachmarhi Hill Station, Bori Wildlife Sanctuary. The Dhoopgarh peak, the highest point in central India, lies within the reserve.
- **Unique Geological Formations:** Sandstone cliffs and gorges, sculpted by millions of years of erosion, add to the reserve's rugged beauty. Dinosaur fossils and ancient rock formations offer a glimpse into the region's geological past.
- **Rivers:** Tawa River forms the western boundary, while the Denwa and Machak rivers carve their way through the heart of the reserve.
- **Flora (Riparian Forests and Grasslands):**Tropical Dry Deciduous Forests: Dominant vegetation, characterized by teak, mahua, and aonla trees.
- **Fauna:** Tigers, Leopards, Gaur, Spotted Deers, Sambar, Sloth Bears, Wild boars etc.

Kawal Tiger Reserve

- **Relevance:** The Kawal Tiger Reserve is evolving into a thriving haven for an intriguing aquatic species, the smooth-coated otter, referred to as "Neeti Pilli" in Telugu.
- **Location:** Located in the north-eastern part of Telangana, with the Godavari River on one side and the Maharashtra border on the other. It forms part of the Deccan peninsula-central highlands.
- **Rivers**: The reserve is the catchment for the rivers Godavari and Kadam, which flow towards the south of the sanctuary.
- **Corridor**: It has connectivity to the Tadoba-Andhari Tiger Reserve of Maharashtra in the North and to the Indravati Tiger Reserve of Chhattisgarh towards its north-eastern side.
- **Vegetation**: Southern Tropical Dry Deciduous Forest. Teak is found, along with Bamboo.
- **Fauna:** Nilgai, chousinga, chinkara, sambar, spotted deer, fox, tiger, leopard, and the jungle cat.

Binsar Wildlife Sanctuary

About Binsar Wildlife Sanctuary (Uttarakhand)

- It is situated at an elevation of 2500 m. It provides awe-inspiring panoramic vistas of snow-covered Himalayan peaks, including Chaukhamba, Nanda Devi, Nanda Kot, Panchachuli, and Kedarnath.
- **Rivers**: Saryu River, Ramganga River

Flora: Oak, rhododendron, and maple trees,pine forests, laurel, birch, fir, cypress,wild ginger, chirata, and barberry.

Fauna: Forktail, Blackbird, Rufous-bellied Niltava and the Pied Cuckoo

Cultural uniqueness: The Binsar Mahadev Temple, Sacred Groves.

Pong Dam Lake Wildlife Sanctuary (Himachal Pradesh)

- It is a manmade reservoir formed due to the construction of Pong Dam on the Beas River in the wetland zone of Shivalik Hills (Sub-tropical type climate). It is a Ramsar Site.
- **Flora:** Shisham, Mango, Jamun & Aquatic Plants such as water lilies, lotus, hydrilla etc
- **Fauna:** Sambar deer, Barking deer, Wild boars, Nilgai, Monkeys,langurs, Mahseer, Otter

Indian Forest & Wood Certification Scheme (IFWCS)

- The **Ministry of Environment, Forests and Climate Change has launched own "national" forest certification scheme The Indian Forest & Wood Certification Scheme** to validate entities that adhere to sustainable practices in management of forests and its products.
- IFWCS will offer an **alternative to the private foreign certification agencies** that have been operating in the Indian market for the last two decades.

About IFWCS

- This scheme offers **voluntary third-party certification which includes forest management certification, tree outside forest (TOF) management** certification & chain of custody certification.
- The certification is **applicable for both timber and non-timber forest produce** (NTFP).
- The Forest Management certification is based on the **Indian Forest Management Standard** which is an integral part of the National Working Plan Code 2023, launched earlier this year.

Operating & Accreditation Agencies

- **Indian Institute of Forest Management, Bhopal** will act as the scheme operating agency and will be responsible for overall management of the Indian Forest and Wood Certification Scheme.
- The **National Accreditation Board for Certification Bodies under the Quality Council of India will accredit the certification bodies** which will carry out independent audits and assess adherence of various entities on the standards prescribed under the scheme.

Gajraj Suraksha

- Indian Railways has introduced a cutting-edge technology named 'Gajraj' to prevent elephant accidents on railway tracks.
- **Gajraj Suraksha** uses an AI-based algorithm and a network of sensitive optical fibers cables to detect elephants getting closer to railway tracks.
- It **aims to address the issue of elephant fatalities resulting from train accidents**.
- Gajraj Suraksha uses optical fibers to sense pressure waves from moving elephants. As elephants move, the optical fibers detect vibrations caused by their footsteps.
- These vibrations trigger signals within the Optical Fibers Cable (OFC) network, enabling the system to identify the presence of elephants up to 200 meters ahead of their arrival on the track.

- When movement is detected, alarms are sent to station masters, accurately tracking elephant movement along the tracks.

POLLUTION

E-retrofitment

E-retrofitment, also known as electronic retrofitting, refers to **the process of converting a conventional vehicle into an EV by replacing the internal combustion engine with the electric powertrain.**

Various Applications

- **Transportation:** E-retrofitting is also applicable to vehicles and transportation systems. Converting traditional combustion engine vehicles into electric vehicles (EVs) through retrofitting involves replacing the internal combustion engine with an electric motor.
- **Housing Infrastructure:** E-retrofitting can be applied to buildings and facilities to improve energy efficiency. Upgrading older equipment with energy-efficient alternatives, such as LED lighting or high-efficiency motors, is also part of e-retrofitting.
- **In manufacturing and industrial settings:** e-retrofitting involves integrating automation technologies, such as programmable logic controllers (PLCs), sensors, and robotic systems, into existing machinery or production lines.
- **Internet of Things (IoT):** E-retrofitting can leverage IoT technologies to connect and control existing devices and systems.
- **Healthcare:** In the healthcare sector, e-retrofitting involves updating medical equipment and devices with electronic components for improved functionality, connectivity, and data integration.

Dissolved Oxygen

What is DO?	• It is the amount of oxygen present in water. It is a major indicator of water quality. • Water contains only a tiny fraction of a percentage of dissolved oxygen, as opposed to air, which is normally about 21 percent oxygen.
Formation of DO in Water	Oxygen enters water primarily through two processes: **Diffusion:** Oxygen from the atmosphere can diffuse into water at the air-water interface. This process is influenced by the **concentration gradient between the air and water, temperature, and surface agitation** (such as wind or waves). **Photosynthesis:** Aquatic plants and some microorganisms produce oxygen as a by-product of photosynthesis. During daylight hours, the dissolved oxygen levels can increase in bodies of water with a sufficient presence of photosynthetic organisms.
Utilisation of DO in water	Like the air we breathe, the survival of aquatic life depends on a sufficient level of oxygen dissolved in water. Dissolved Oxygen is consumed through various processes, including: **1) Respiration:** Aquatic organisms, such as fish and bacteria, consume oxygen through respiration, converting it into carbon dioxide and water. **2) Decomposition:** Organic matter, such as dead plants and animals, decomposes in water, and this decomposition process consumes dissolved oxygen.
Required Concentration of DO	• The DO levels, typically measured in milligrams per liter (mg/L) or parts per million (ppm), required for the survival of different aquatic organisms vary, but generally, **higher levels are preferred.**

	• In general, a **DO level above 5 mg/L is considered suitable** for most aquatic life, while levels below 2 mg/L can be stressful or even lethal for many species.

Additional Information

- **Cool water can hold more oxygen than warm water**, with variations ranging from seasonal to time of day or night.
- **At sea level, fresh water can absorb more oxygen per volume than water at mountainous elevations** because of the higher atmospheric pressure near sea level.
- Water with high concentrations of dissolved minerals such as salt will have a lower dissolve oxygen concentration than fresh water at the same temperature.

Causes of Low Dissolved Oxygen

- **Eutrophication**: It is an overgrowth of algae caused by excess nutrients, such as nitrogen and phosphorus, in the water. As algae die and decompose, they consume the available oxygen in the water, causing dissolved oxygen levels to fall.
  - The process of decomposition is called Carbonaceous Biochemical Oxygen Demand (CBOD).
- **Temperature**: Warmer water temperatures can lead to a decrease in dissolved oxygen levels, as warmer water is less able to hold oxygen than cooler water.
- **Salinity:** Changes in salinity can also cause a drop in dissolved oxygen levels. When saltwater and freshwater mix, for example, the resulting brackish water may have lower dissolved oxygen levels than either pure saltwater or freshwater.
- **Pollution**: The presence of pollutants such as oil or chemicals in the water can also lead to a decrease in dissolved oxygen levels. These pollutants can directly consume oxygen, or can lead to the growth of bacteria that consume oxygen.
- **Natural phenomena**: Natural phenomena such as algal blooms or sudden changes in water flow can also lead to a decrease in dissolved oxygen levels.
- **High Altitude or Pressure:** Dissolved oxygen levels decrease at higher altitudes (or under low pressure) conditions. This is because the partial pressure of oxygen in the atmosphere decreases with increasing altitude, resulting in lower oxygen diffusion into the water.
- **Insufficient Mixing or Turbulence:** Adequate mixing or turbulence in water is crucial for the exchange of oxygen between the water and the atmosphere. Calm water conditions, such as stagnant ponds or slow-flowing rivers, can result in reduced oxygen transfer and lower DO levels.

Solution To Tackle the Problem of Low-Level Dissolved Oxygen

- **Reducing Agricultural and Urban Runoff:** Implementing measures to control agricultural practices and urban runoff can significantly reduce the nutrient load entering water systems by curbing fertilizer and chemical use.
- **Enhancing Wastewater Treatment:** Upgrading infrastructure and employing advanced treatment technologies can contribute to better water quality.
- **Enhancing Water Circulation:** Increased water flow in affected areas aids in oxygen dispersal and replenishment, either naturally or through engineered solutions.
- **Utilizing Aeration Devices:** Aerators and similar devices introduce oxygen directly into water, ensuring suitable oxygen levels and supporting aquatic ecosystems.

E20 Fuel

E20 fuel	• E20 is a blend of **gasoline (Petrol: 80%) and ethanol (20%)** with respect to **volume**. • It is designed to be used in vehicles that are designed to run on higher ethanol blends, such as flex-fuel vehicles.

Benefits of E20 Fuel	• **Lower Greenhouse Gas Emissions & Improved air quality:** It has a lower carbon footprint than traditional gasoline (Petrol Vehicles). • **Renewable Fuel:** Ethanol, which is a key component of E20 fuel, can be produced from renewable feedstock's, such as corn, sugarcane, and switchgrass. • **Improved Engine Performance:** Ethanol has a higher-octane rating than gasoline, which can help to reduce engine knock and improve fuel efficiency. • **Sustainable energy source & Increased Energy Security along with Job Creation:** By increasing the use of domestic renewable resources, E20 fuel can help to enhance energy security and reduce reliance on foreign oil.
Issue with E20 Fuel	• **Limited Availability** & **Compatibility with Older Vehicles** • **Higher Cost** & **Lower Energy Content:** It can be more expensive & lower energy than traditional gasoline, which can make it less attractive to consumers. • **Infrastructure Challenges:** The production, storage, and distribution of E20 fuel require specific infrastructure, which may not be readily available. • **Seasonal Variability & Fluctuation in Food Prices:** Ethanol production can be impacted by seasonal factors, such as weather and crop yields, which can lead to fluctuations in availability and price.
Government Steps to Promote the Use of E20 Fuel	• India achieved the target of 10 % ethanol blending in petrol in June 2022.The government has advanced & set a target of achieving 20% ethanol blending in petrol by 2025. • The government has announced a new ethanol procurement policy that aims to provide a guaranteed market for ethanol producers and encourage the production of ethanol from a variety of feedstocks. • The government has revised the pricing of ethanol to make it more attractive for oil marketing companies to procure and blend ethanol with petrol. • Government's policy push like Ethanol Blending Program and National Green Hydrogen Mission will fuel Indian economy towards its target of 5 trillion-dollar economy and realizing Net Zero by 2070. • According to Petroleum Minister E20 Fuel is now available at 1,350 fuel retail outlets and will be available all over the country by 2025.

Extra Mile: Ethanol Based Fuel Around the world

- **The United States and Brazil, together, produce 82% of the world's ethanol,** with the United States producing over 15 billion gallons in 2021.
- The vast majority of U.S. ethanol is produced from corn, while Brazil primarily uses sugarcane.
- **Brazil has the largest and most successful bio-fuel programs in the world.** It is considered to have the world's first sustainable biofuels economy.

India & Flex-Fuel Vehicle

- The government of India has started production of flex fuel in India. These are classified as E95, E90 and E85 depending on the petrol-ethanol ratio.
- Toyota Corolla Altis Hybrid is a first-of-its-kind pilot project vehicle that is based on Flexi-Fuel Strong Hybrid Electric Vehicles (FFV-SHEV) technology.
- Oil marketing companies are now allowed to sell E100 but only to flex-fuel vehicles.

Global Biofuel Alliance

About	• Launched by Prime Minister Modi on September 9, 2023, during the G20 summit • The GBA is a multi-stakeholder alliance of governments, international organizations, and industries.
Members	• Led by India, with support from Brazil and the United States. • Countries that are not part of the G20 can become members of the GBA by giving their endorsement to the foundational document.
Objective	To leverage the transformative potential of biofuels in economic growth, rural development, energy self-sufficiency, reduced air pollution, and the global transition to clean energy.

Children Displaced in a Changing Climate Report

A **UNICEF study** has unveiled a concerning pattern regarding children displaced as a consequence of climate change impacts. The key findings of this report include:

- Approximately **43.1 million children have experienced internal displacement in the past six years due to weather-related events,** averaging around 20,000 child displacements daily.
- Nearly 95% of documented child displacements were attributed to floods and storms.
- In the period from 2016 to 2021, the Philippines, India, and China collectively witnessed nearly 23 million child displacements resulting from weather-related events, with India alone accounting for 6.7 million.
- The **primary weather-related hazards leading to child displacement are floods, storms, droughts, and wildfires.**

Stages of GRAP	Stage 1	AQI 'poor'
	Stage 2	AQI 'very poor'
	Stage 3	AQI 'severe'
	Stage 4	AQI 'severe +' (450+)

Graded Response Action Plan (GRAP) for Coming Winter Pollution

- Delhi government began implementation of GRAP to check city's notorious winter pollution.
- **Graded Response Action Plan (GRAP)** is a set of emergency measures that kick in to prevent further deterioration of air quality once it reaches a certain threshold.
- The **Commission for Air Quality Management (CAQM)** is responsible for implementing GRAP. Until 2020, the Environment Pollution (Prevention & Control) Authority (EPCA), appointed by the Supreme Court, used to instruct states to carry out GRAP measures.

Features of GRAP

- The Graded Response Action Plan (GRAP) was endorsed by the Supreme Court in 2016 (*MC Mehta v Union of India*) and introduced in January 2017 by the Ministry of Environment, Forest and Climate Change.
- It mandates measures to be executed by Pollution Control Boards (PCB) of NCR states and relevant departments and agencies.
- **Recent modifications involve shifting the basis for action to rely on the air quality index (AQI)** instead of particulate matter concentrations (PM2.5/10).

Why Is Winter Pollution Challenging In North India?

- Atmospheric changes during winter leads to **temperature inversion**, calm conditions, change in wind direction, and seasonal drop in ambient temperature **entraps pollution** across north India.
- This is further aggravated into a severe category by **smoke from farm fires and Diwali firecrackers** during November.

- **Industrial emissions and vehicular pollution** further exacerbate the problem.

Commission for Air Quality Management (CAQM)

- It is a **statutory body** formed under the **Commission for Air Quality Management in National Capital Region and Adjoining Areas Act, 2021.**
- It aims at better coordination, research, identification, and resolution of problems related to air quality in NCR and adjoining areas.
- Adjoining areas refer to areas in **neighbouring states of NCR namely, Punjab, Haryana, Uttar Pradesh and Rajasthan.**

National Air Quality Index (AQI)

- It was launched in October 2014 to disseminate information on air quality in an easily understandable form for the general public.
- The measurement of air quality is based on **eight pollutants**, namely, **PM10, PM2.5, NO2, SO2, CO, O3, NH3, and Pb.**

AIR QUALITY INDEX (AQI)	CATEGORY
0-50	Good
51-100	Satisfactory
101-200	Moderate
201-300	Poor
301-400	Very Poor
401-500	Severe

Report on Targeted Methane Mitigation

Report titled "Imperative of Cutting Methane from Fossil Fuels" released recently. It was prepared by **International Energy Agency (IEA)** with contributions from **UNEP** and UNEP-Convened **Climate and Clean Air Coalition (CCAC).**

Key Findings Of This Report

- Targeted methane mitigation from fossil fuels could prevent 0.1°C warming by 2050, preventing a global average surface temperature increase of 1.6°C.
- Around 580 million tonnes of methane are emitted annually, 60% from human activities. In 2022, fossil fuel operations accounted for 120 Mt of methane emissions.
- Total anthropogenic methane emissions could rise by up to 13% between 2020 and 2030. Mitigation by 2050 can prevent 1 million premature deaths due to ozone exposure.

About Methane (CH4)

- It is the simplest hydrocarbon, consisting of one carbon atom and four hydrogen atoms.
- It is a **powerful greenhouse gas**, contributing at least a quarter of today's climate warming.
- Approximately 40% of methane emitted is from natural sources, about **60% comes from human influenced sources, including livestock farming, rice agriculture, biomass burning** and so forth.

International Energy Agency

- It is an autonomous inter-governmental organisation within the OECD framework.
- It was founded in 1974 to ensure the security of oil supplies.
- India is an Associate Member of IEA.

United Nations Environment Programme

- It was established after the United Nations Conference on the Human Environment in Stockholm in June 1972.
- It is responsible for coordinating responses to environmental issues within the United Nations system.
- Major reports by UNEP are Emission Gap Report, Adaptation Gap Report, Global Environment Outlook, Frontiers, Invest into Healthy Planet.

Climate and Clean Air Coalition (CCAC)

- It is a voluntary partnership of over 160 governments, intergovernmental organizations, and non-governmental organizations founded in 2012.

- It is the only international body working to reduce powerful but short-lived climate pollutants (SLCPs) – **methane, black carbon, hydrofluorocarbons (HFCs), and tropospheric ozone.**

Invisible e-waste

The **WEEE Forum** in Brussels has commissioned **United Nations Institute for Training and Research (UNITAR)** to calculate the annual volume of "invisible" e-waste items.

About Invisible e-waste

- It refers to **e- waste that goes unnoticed due to its nature or appearance, leading consumers to overlook its recyclable potential.**
- It includes cables, e-toys, e-cigarettes, e-bikes, power tools, smoke detectors, USB sticks, wearable health devices and smart home gadgets.

Key Highlights of this Study

- The study reveals that 35% of the 9 billion kg of invisible e-waste is e-toys, with 3.2 billion kg or 35% of the total being in this category. Much of this e-waste is stored in homes, potentially for future use.
- Improper disposal of e-waste poses a significant environmental risk due to hazardous components like lead, mercury, and cadmium.

About WEEE Forum (Established in 2002)

- It is an international association that works towards promoting the proper collection, recycling, and disposal of electronic waste, aiming to minimize its environmental impact and maximize resource recovery.

Provisions Regarding E-Waste in India

- **E-Waste Management Rules, 2016**: These rules were introduced by the Ministry of Environment, Forest and Climate Change (MoEFCC), under the EPA, 1986 to regulate the management of e-waste in the country.
- **Extended Producer Responsibility (EPR):** It holds manufacturers, importers, and brand owners responsible for the collection, recycling, and safe disposal of e-waste generated from their products.
- **Authorized E-Waste Recyclers:** Only authorized recyclers are permitted to handle and process e-waste. These recyclers are required to adhere to strict guidelines to ensure safe and environment friendly recycling practices.
- **E-Waste Exchange:** It encourages the establishment of e-waste exchange platforms, which facilitate the proper disposal and recycling of e-waste by connecting waste generators with authorized recyclers.

Global Framework on Chemicals (GFC)

- The United Nations Conference in Bonn, Germany, approved a novel global initiative called the Global Framework on Chemicals.
- **Objective:** To mitigate environmental risks stemming from chemicals and waste, with a specific aim of **phasing out harmful agricultural pesticides by 2035.**

Key Features

- The management and establishment of the Framework will be overseen by the **United Nations Environment Programme.**
- National governments have pledged their commitment to crafting policies aimed at curtailing chemical pollution by the year 2030.

Methanol Diesel-15 (MD15) Fuel

Indian Railways' technical advisor, **Research Design and Standards Organisation (RDSO), with the Indian Oil Corporation Ltd. (IOCL**), has developed a special fuel called Methanol Diesel-15.

About MD15

- It is a cost-effective blended fuel containing **15% methanol, 71% mineral diesel**, and 14% indigenously

developed additives by IOCL.

- **Methanol:** Methanol is a non-polluting and versatile fuel that can fully or partially replace Petrol; Diesel and Liquefied petroleum gas (LPG).
- **Mineral diesel:** A fuel that's used in locomotives.

Benefits of MD-15

MD 15 in petrol can reduce pollution by 33%, while diesel replacement with methanol can reduce it by over 80%, potentially saving railways around Rs 2,280 crore annually. This could lead to substantial annual savings.

Methanol & Methanol Economy

- Methanol is a clean, efficient fuel that can replace petrol and diesel in transportation, cooking, and other sectors.
- It can also be used in railways, marine sectors, generators, and power generation. Methanol economy is a bridge to hydrogen-based fuel systems, as it burns efficiently in all internal combustion engines and produces almost zero SOX and NOX emissions.
- It can be produced from natural gas, Indian high-ash coal, biomass, MSW, and flared gases.

White Hydrogen

- White hydrogen is a naturally occurring, geological hydrogen found in underground deposits (Earth's crust) and created through fracking.
- It's also known as "natural," "gold," or "geologic" hydrogen.
- White hydrogen is created through fracking and found in underground deposits. There are no strategies to exploit this hydrogen at present.

Features of White Hydrogen (Abundant and Untapped Source Of Clean-Burning Energy)

- White hydrogen's estimated cost is around $1 per kilogram, significantly lower than green hydrogen, which costs about $6 per kilogram, making it a more affordable clean energy source.
- Their deposits have been identified worldwide including in the US, eastern Europe, Russia, Australia, Oman, France, and Mali.

National Efficient Cooking Programme and Energy Efficient Fans Programme

Energy Efficiency Services Limited (EESL) launched its groundbreaking National Efficient Cooking Programme (NECP) and Energy Efficient Fans Programme (EEFP) under the Ministry of Power.

National Efficient Cooking Programme (NECP): A Subset Of The Clean Cooking Scheme

- Programme aims to transform cooking practices in India by introducing induction-based cook stoves
- NECP focuses on Non-Solar/Electricity-based Induction Cookstoves (For Low Energy Consumption), aligning with the Go- electric initiative by the Ministry of Power.
- EESL has already initiated efforts to promote clean and safe electric cooking to support India's Go-electric campaign and contribute to carbon mitigation goals.

Energy Efficient Fans Programme (EEFP)

ESL will distribute 1 crore efficient BLDC fan and 20 Lakh energy-efficient induction cook stoves.

Energy Efficiency Services Limited (EESL)

- It is a Joint Venture company of four Central Public Sector Undertakings, viz. NTPC Limited, PFC Limited, REC Limited and POWERGRID Corporation of India Limited.
- **It is promoted by Ministry of Power,** registered under the Companies Act, 1956.
- It is also leading the market-related activities of the National Mission for Enhanced Energy Efficiency (NMEEE-One of the missions under National Action Plan on Climate Change (NAPCC).

Mandatory Biogas Blending

India announces mandatory biogas blending for domestic use from 2025-26

Mandatory Biogas Blending

- The National Biofuels Coordination Committee (NBCC) gave its nod to mandatory blending of compressed bio gas (CBG) with compressed natural gas (CNG) for transportation and piped natural gas (PNG) for households starting 2025-26 (FY26).
- The key objectives of the CBO (compulsory blending obligation) are to stimulate demand for CBG in CGD sector, import substitution for liquefied natural gas (LNG), saving in forex, promoting circular economy and to assist in achieving the target of net-zero emission.
- **The 2018 Biofuel Policy** aims to reach **20% ethanol-blending and 5% biodiesel-blending by 2030.** However, the Centre plans to move ahead with its ethanol blending target of 20% of petrol containing ethanol by 2025-26.
- NBCC is headed by the Prime Minister and has been constituted for providing High-level co-ordination and policy guidance/review on different aspects of biofuel development.

About Biogas

- Biogas is an energy-rich gas produced by anaerobic decomposition of biomass.
- It is produced from sources like agriculture residue, cattle dung, sugarcane press mud, municipal solid waste, and sewage treatment plant waste, among others.
- It can be burned directly as a fuel, or purified and upgraded by removing carbon dioxide, hydrogen sulphide, and then compressed to make compressed bio gas (CBG).
- The CBG (compressed bio gas) has methane content of more than 90%, which is similar to commercially available natural gas in composition and energy potential.

India & Natural Gas

- India is a major consumer of natural gas and depends on imports to meet around half of its requirement.
- The country's natural gas consumption is only set to rise in the coming years given the government's aim to increase the share of natural gas in the primary energy mix to 15 per cent by 2030 from a little over 6 per cent at present.
- Increased production of CBG could help India in reducing reliance on natural gas imports.

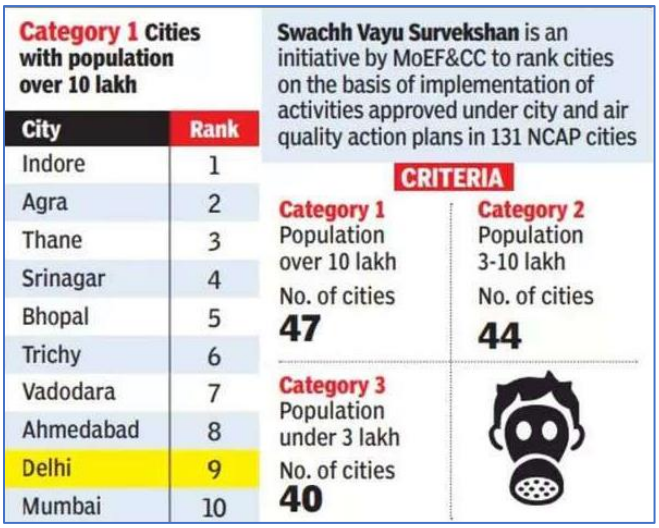
Government Measures to Achieve Targets

- **SATAT scheme:** Under the Sustainable Alternative Towards Affordable Transportation (SATAT) scheme, 5,000 CBG plants were envisaged by 2023 to produce 15 million Tonnes of CBG. The scheme's objective was to encourage entrepreneurs to set up CBG plants across the country and supply gas to public sector oil companies.
- **GOBARdhan scheme:** Galvanizing Organic Bio-Agro Resources Dhan (GOBARdhan) is an umbrella initiative aims to build a robust ecosystem for setting up Biogas/Compressed Biogas (CBG)/ Bio-Compressed Natural Gas (CNG) plants to drive sustainable economic growth and promote a circular economy.

Swachh Vayu Sarvekshan

- The Union **Ministry of Environment, Forest and Climate** recently announced awards under the Swachh Vayu Sarvekshan 2023.
- The aim of launching Swachh Vayu Sarvekshan is to give ranking to 131 cities in the country for implementing **City Action Plans** prepared as part of NCAP for **reducing air pollution up to 40% by 2025-26**.
- 131 cities are categorized into three groups based on population. Cities are required to do the **self-assessment** as per the framework provided on **PRANA** (Portal for Regulation of Air-pollution in Non-Attainment Cities) **online portal.**

- **Major Components of Assessment:**
  - Solid Waste Management
  - Road Dust Management
  - Management of Construction and Demolition Waste
  - Control of Vehicular Emissions and Industrial Pollution
- The ranking is **based** not on the measurement of the air quality parameters to rank the cities but on the **actions taken by the cities to improve the air quality in different domains.**



National Clean Air Programme

- National Clean Air Programme (NCAP), launched in **2019**, is India's flagship program for better air quality and to tackle the air pollution problem across the country in a comprehensive manner.
- **Goal**: **20% to 30% reduction in Particulate Matter concentrations by 2024 keeping 2017 as the base year**.
- Under NCAP, **132 non-attainment cities** have been identified across the country based on the Air Quality data from 2014-2018.
- Non-attainment cities are those that have fallen short of the **National Ambient Air Quality Standards (NAAQS)** for over five years.
- **Nodal Ministry**: Ministry of Environment, Forest and Climate Change

Electrified Flex Fuel Vehicle

- Recently, the world witnessed the launch of the first prototype of the BS 6 Stage II 'Electrified Flex Fuel Vehicle (FFV)'. This innovative vehicle integrates both a flex fuel engine and an electric powertrain.
- The FFV boasts higher utilization of ethanol, contributing to improved fuel efficiencies.

Flex Fuel Vehicle

- Flexible fuel vehicles (FFVs) have an **internal combustion engine** and are capable of operating on gasoline and **any blend of gasoline and ethanol up to 83%.**
- In flex fuels, the ratio of ethanol to petrol can be adjusted, but the most commonly used **flex fuel uses 85 per cent ethanol and 15 per cent petrol.**
- Bio-ethanol contains less energy per litre than petrol, but the calorific value (energy contained in the fuel) of bio-ethanol will become on par with petrol with the use of advanced technology.
- Since an FFV is capable of running on either petrol or ethanol, it will be the first of its kind 100 per cent dual fuel vehicle to be running on Indian roads.
- **Benefits:** Lower harmful pollutant emissions (e.g., carbon monoxide, sulphur) and reduced dependence on crude oil imports.
- **Drawbacks:** Lower mileage compared to traditional gasoline and potential issues related to the use of water-intensive crops like sugarcane for ethanol production.
- Flex fuel engines are already popular in Brazil, the US, the European Union and China, among many others.

Sustainable Alternative Towards Affordable Transportation (SATAT) and CBG

- The Parliamentary Standing Committee on Petroleum and Natural Gas has submitted an action taken report concerning its previous recommendations on the topic of **'Review of Implementation of CBG (SATAT).'**
- **Sustainable Alternative Towards Affordable Transportation (SATAT)** was launched in **2018** with the objective of **establishing Compressed Bio-Gas (CBG) production plants.**

- The aim is to make CBG available in the market for use in automotive fuels.

Targets under SATAT		
5000 CBG Plants by 2023	**15 MMT of CBG**	**50 MMT of Bio-Manure**

- The nodal ministry overseeing SATAT is the **Ministry of Petroleum and Natural Gas** (MoPNG).

About Compressed Bio-Gas (CBG)

- Bio-gas is **naturally produced through the anaerobic decomposition of biomass**, such as agricultural residue, municipal solid waste, and sugarcane press mud.
- CBG, obtained after the purification and compression of bio-gas, has a **high methane content (>90%) and a higher calorific value (47-52 MJ/kg).**
- Other components of CBG include CO2 (<4%), Hydrogen Sulphide (<16 ppm), Nitrogen (<0.5%), Oxygen (<0.5%), and Moisture (<5mg/m3).

Several initiatives have been undertaken in India to promote CBG:

- Integration of Bio-CNG as a fuel for transportation.
- **National Policy on Biofuels, 2018**, which aims to promote the production of CBG and other biofuels.
- **GOBAR-Dhan Scheme**, designed to support villages in the effective management of cattle and bio-degradable wastes.
- Recognition of CBG projects under the Priority Sector Lending (PSL) scheme by the RBI to enhance access to credit.
- **Fertilizer Control Order for Fermented Organic Manure**, aimed at promoting the use of organic fertilizer in agriculture and expanding the market for solid and liquid by-products of CBG plants.
- **National Bioenergy Programme by MNRE**, focusing on capacity building and research in biogas, solid waste management, and other bioenergy aspects.

Minamata Convention and Mercury Pollution

- The Minamata Convention on Mercury, adopted in 2013 in Geneva, stands as the world's inaugural **legally binding treaty** designed to **safeguard human health and the environment from the detrimental impacts of mercury.**
- Named after the Japanese city that witnessed the devastating **Minamata disease, a neurological ailment caused by severe mercury poisoning in the 1950s**, the convention came into force in 2017.
- Currently, it boasts 144 Parties and 128 Signatories, with India ratifying it in 2018, allowing for the continued use of mercury-based products and processes involving mercury compounds until 2025.

Minamata Convention Mandates

- Reduce and, where possible, eliminate the use and release of mercury from Artisanal and Small-Scale Gold Mining.
- Control mercury air emissions from sources such as coal-fired power plants and industrial boilers.
- Phase out or decrease mercury use in various products, including batteries, switches, lights, cosmetics, pesticides, and dental amalgam.
- Address the supply and trade of mercury, establish safer storage and disposal practices, and formulate strategies to remediate contaminated sites.

About Mercury

- Mercury, a **naturally occurring element present in air, water, and soil**, can exert toxic effects on the nervous system, thyroid, kidneys, lungs, immune system, eyes, gums, and skin.
- It is recognized by the World Health Organization (WHO) as one of the top ten chemicals of major public health concern.

Plastic Overshoot Day

- The Plastic Overshoot Day Report, conducted by Swiss-based research consultancy **Earth Action (EA),** brings attention to the pressing issue of plastic pollution and its environmental implications.
- In 2023, **India contributed 16.7 days to the global total of 157 days** designated as World Plastic Overshoot Days.
- **Plastic Overshoot Day marks the point at which the volume of plastic waste exceeds the capacity of waste management systems to effectively handle it.** This calculation is based on the country's **Mismanaged Waste Index (MWI)**, representing the ratio of mismanaged waste to total waste.

Key Findings Specific To India

- The report categorizes the nation as **'The Waste Sponges**,' indicating **low consumption coupled with a high level of plastic pollution,** with an **annual per capita plastic consumption of 5.3 kg**.
- India ranks fourth in the MWI with 98.55% of generated waste being mismanaged, attributed to the disposal of collected plastic in unsanitary landfills and dumpsites.
- 330,764 tons of microplastics are generated from activities such as tire abrasion, shedding of textile fibers, and paint, subsequently released into waterways.
- Importantly, 1.33% of the country's total plastic waste was imported, while 0.8% was exported.

Biofuels

- Biofuels involve the **direct transformation of biomass into liquid fuels that can be seamlessly integrated with conventional automotive fuels.**
- The primary transport biofuels are ethanol and biodiesel, both derived from various biomass sources.

Bioethanol	Produced through the distillation of carbohydrates from sugarcane and beet or distilling starch from food grains.
Biodiesel	Produced by converting vegetable oils into compounds known as fatty acid methyl esters.
Compressed Biogas (CBG)	Production of biogas through the process of anaerobic decomposition

Generation	Feedstock	Characteristics
1G	Edible feedstock (e.g., sugarcane)	Made from food crops, potential competition with food supply
2G	Lignocellulosic biomass (energy crops, waste biomass)	Uses non-food crops and waste, addresses food competition
3G	Algal biomass	High yield, versatile biofuel production from algae
4G	Genomically engineered microorganisms and modified feedstock	Enhanced efficiency, growth in nonarable land

One-Stop Centers for Zero Waste

- The government of India is launching "**Reduce, Recycle, and Reuse" (RRR) centers** as part of the nationwide campaign **'Meri LiFE, Mera Swachh Shehar'** (‘My Life, My Clean City’) under the Swacch Bharat Mission – Urban 2.0 (SBM-U 2.0).
- These one-stop centers are designed to facilitate citizens in dropping off items that can be recycled or repurposed.
- **The items accepted at RRR centers include clothing, shoes, books, toys, and plastic.**
- The scheduled nationwide opening of RRR centers is on May 20, 2023.

- Serving as a comprehensive solution, these centers aim to cater to the needs of citizens, institutions, and commercial enterprises.

Resource Efficiency Circular Economy Industry Coalition (RECEIC)

- Recently, the Union Minister of Environment, Forest, and Climate Change, inaugurated the Resource Efficiency Circular Economy Industry Coalition (RECEIC).
- This initiative witnessed the collaboration of 39 multinational corporations (MNCs) from diverse sectors, all committing to embrace resource efficiency and circular economy principles.

About RECEIC:

- **RECEIC's Mission:**
  - Facilitate and encourage company-to-company collaboration.
  - Build advanced capabilities across sectors and value chains.
  - Share insights from diverse global experiences of coalition members.
  - Propel on-ground private sector actions to enhance resource efficiency.
  - Accelerate the transition towards a circular economy.
- The coalition operates under three Guiding Pillars:
  - **Partnerships for Impact:** Focused on collaborative efforts for tangible outcomes.
  - **Technology Cooperation:** Emphasizes sharing technological advancements across industries.
  - **Finance for Scale:** Aims at mobilizing financial resources to scale up circular economy practices.
- RECEIC, **born out of India's G20 Presidency**, is designed to be an **industry-driven and self-sustaining initiative,** extending its functionality beyond India's G20 Presidency.

Sludge For Use as Fertilizer

About Sludge

- It is the thick residue produced during the treatment of wastewater or sewage in sewage treatment plants.
- Sludge is a significant source of organic chemicals, heavy metals, and bacterial contaminants, with its composition varying based on the source and treatment methods.

Classification of Treated Sludge

As per standards of the ***United States Environment Protection Agency*****,** treated sludge can be classified as:

- **Class A sludge** - It is safe to be disposed of in the open and **useful as organic fertilizer.**
- **Class B sludge** - It is suitable for **limited agricultural use**, ensuring the crop's edible parts are not exposed to sludge-mixed soil and animals and people are not in close contact.

Use of Sludge as Fertilizer

Sludge can be utilized as a fertilizer or soil amendment due to its nutrient content and organic matter. When properly treated and processed, sludge can provide beneficial nutrients and improve soil fertility.

- **Nutrient Content:** Sludge contains valuable nutrients such as nitrogen, phosphorus, and potassium (N, P, K), as well as micronutrients like iron, zinc, and copper. These nutrients are essential for plant growth and development.
- **Organic Matter:** Sludge is rich in organic matter, which improves soil structure**, water-holding capacity, and nutrient retention**. Organic matter also encourages the growth of beneficial soil microorganisms, enhancing overall soil health.
- **Fertilizer Value:** Sludge can replace or supplement commercial fertilizers, reducing the reliance on chemical fertilizers and promoting sustainable agriculture.
- **Soil Improvement:** Applying sludge to agricultural land can help improve soil fertility and productivity,
- particularly in degraded or nutrient-deficient soils.

Government Initiative to Treat Sludge

- **Arth Ganga** aims to monetise, and **reuse treated wastewater and sludge.**
  - Arth Ganga is a sustainable viable economic model conceptualized under the **Namami-Gange program** to integrate people in the basin with Ganga Rejuvenation.

Challenges with the Sludge as a Fertilizer

- **India doesn't yet have standards classifying sludge as class A or B.**
- Sludge management in India requires careful handling to prevent adverse effects on water bodies and agricultural land, with **most analysed sludge falling into the class B category.**

Intergovernmental Negotiating Committee (INC)

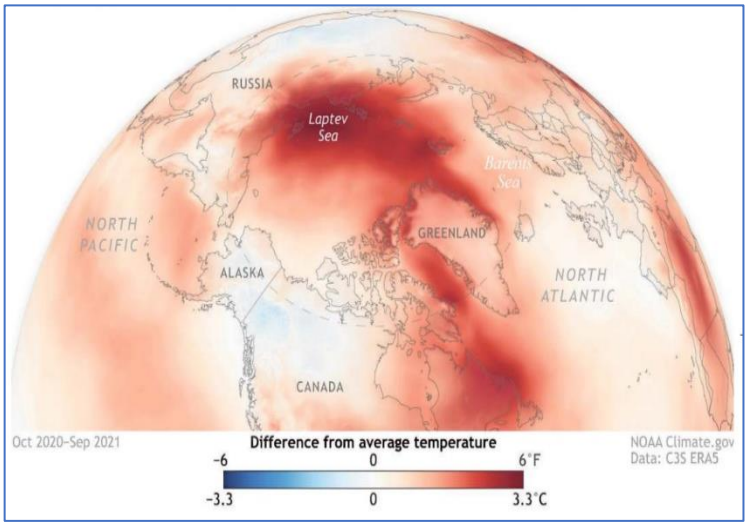
- Recently, the United Nations Environment Programme (UNEP) has gathered in Nairobi (Kenya) for the third meeting of the Intergovernmental Negotiating Committee (INC-3) Under the UNEA (United Nations Environment Assembly) Resolution 5/14.
- **UNEA Resolution 5/14**- UNEA adopted a resolution to develop an international legally binding instrument on plastic pollution, including in the marine environment.

About INC (Legally binding agreement assisted by the IUCN)

- Its operations commenced in November 2022 at Punta del Este, Uruguay (INC-1). The subsequent gathering (INC-2) occurred in May-June 2023 in Paris, France.
- **Objective:** To develop an international legally binding treaty on plastic pollution in the environment between 2022-24. The INC is tasked with delivering a global plastics treaty by 2025.

GEOGRAPHY

Arctic Amplification



- Arctic amplification is the increasingly ramped-up warming that's taking place in the area of the world north of 67^0 N latitude.
- For more than four decades, temperatures in the Arctic have risen at two to three times the pace of the rest of the world.
- The difference in temperature between the poles and the tropics is referred to as Arctic (or polar) amplification.
- The accelerated warming of the Arctic in comparison to other regions can be attributed to several factors:
  - **Melting ice cover** in the Arctic exposes **more land and water to sunlight**, leading to **increased absorption of solar radiation**.
  - Heat is transferred from the tropics to the poles through **established air circulation systems**.
- The phenomenon of polar amplification is more pronounced in the Arctic compared to Antarctica. This distinction arises due to the **Arctic being an ocean covered by sea ice**, whereas Antarctica is a higher elevated continent covered in more enduring ice and snow.

Permafrost

According to a new study, with rising global temperatures, melting permafrost is likely to destabilize thousands of industrial sites and associated contaminated areas in the Arctic.

About Permafrost

What is Permafrost?	• It is essentially any **ground that stays frozen 0 degree Celsius or lower for at least two years straight.** • These permanently frozen grounds are most common in regions with high mountains and in Earth's higher latitudes near the North and South Poles.
Composition	• A combination of soil, rocks, and sand that are held together by ice.

Some Key Features and Characteristics of Permafrost

- **Ground Stability:** Permafrost stabilizes land by providing structural support, preventing slope failures and landslides, but thawing can cause ground subsidence, destabilizing infrastructure, buildings, and transportation systems.
- **Permafrost Layers:** Permafrost consists of layers, including an **annual thawing active layer** and a **permanently frozen layer**, with thickness varying based on local climate and geological factors.
- **Permafrost and Climate Change: Rising Arctic and sub-Arctic temperatures** are accelerating the **thawing of permafrost, releasing greenhouse gases like methane and carbon dioxide.** Arctic permafrost, which contains 1,700 billion metric tons of carbon, contributes to global warming, according to a 2022 NASA report.
- **Impact on Ecosystems:** Permafrost supports unique ecosystems and habitats, influencing vegetation, wildlife, and microorganisms. Thawing can disrupt these, **affecting biodiversity and altering plant and animal communities.**
- **Human Impacts:** It is crucial for local communities and indigenous peoples, as it provides stability for traditional activities like **hunting, transportation, and infrastructure construction.**

Initiative to Tackle Negative Effect of Permafrost

- **Arctic Council:** The Arctic Council is an intergovernmental forum addressing regional issues like permafrost thaw, facilitating research, data sharing, and developing strategies to mitigate its impacts. (India is an Observer.)
- **International Permafrost Association (IPA):** The IPA is an international scientific organization dedicated to studying permafrost.
- **Global Research Observatories:** International collaborations, such as the **Global Terrestrial Network for Permafrost (GTN-P) and the Circumpolar Active Layer Monitoring (CALM) network**, establish research observatories to monitor permafrost conditions.
- **NASA's Soil Moisture Active Passive (SMAP) mission** orbits Earth collecting information about moisture in the soil. SMAP's measurements are helping scientists to understand where and how quickly the permafrost is thawing.

Blue Hole

Scientists have discovered a **900-foot-deep sinkhole off Mexico's Yucatan Peninsula, dubbed the 2nd deepest blue hole globally**, following the Dragon Hole in the South China Sea.

About Blue Hole

- It is a **large marine cave or sinkhole**, which is open to the surface and develops as a bank or island made of carbonate bedrock.
- These geological formations are characterized by their deep blue colour, which is caused by the way the light is absorbed as it travels through the water.
- It extends below sea level for most of its depth and may provide access to submerged cave passages.
- Many contain a **high diversity of plants and marine life** including corals, sea turtles and sharks.
- Well-known examples are the **Dragon Hole, the Great Blue Hole and Dean's Blue Hole**.

Study on Arctic Ocean Ice

An international study has suggested that the Arctic Ocean could be ice-free in the summers by 2030s.

Key Finding of This Study

- The Arctic Ocean is expected to become ice-free, despite global efforts to reduce greenhouse gas emissions, with contributions from aerosols and natural factors like solar and volcanic activity being significantly lower.

Consequences of Ice-Free Conditions of the Arctic Ocean

- **Arctic indigenous communities** will be affected because their hunting and travelling depend upon ice-free conditions.
- **Animals that depend on sea ice** will also be badly affected as permafrost melts and many species, including polar bears, walruses and reindeer, will have trouble surviving.
- Arctic warming and **melting permafrost** can enhance the release of greenhouse gases into the atmosphere, **further intensifying global warming.**

Significance of Sea Ice

- The Earth's **temperature is regulated** by the circulation of the atmosphere and ocean, reducing coastal erosion and protecting ice shelves. It creates an insulating cap, reducing evaporation and heat loss.
- The melting ice **releases nutrients into the water**, stimulating phytoplankton growth and **providing habitat for animals** like seals, Arctic foxes, polar bears, and penguins.

Difference Between Sea Ice and Glacier

Sea Ice	Glacier
Sea ice forms **when the surface of the ocean freezes**, typically in polar regions like the Arctic and Antarctic.	A glacier is a **large mass of ice that forms on land**, usually in mountainous regions where snow accumulates and compresses over time.
It is composed of frozen seawater, with **no landmass involved**.	It is made up of compacted snow and ice that has undergone years of accumulation and transformation.
Sea ice is **temporary and seasonal,** melting and re-forming with the changing seasons.	Glaciers **can persist for hundreds or thousands of years**, continuously moving down-slope under the influence of gravity.
Sea ice is **dynamic and constantly in motion** due to ocean currents, winds, and tides. It is **relatively thin,** typically measuring a few meters in thickness	Glaciers are much thicker than sea ice, often measuring hundreds of meters to several kilometers in thickness. They shape the landscape through the process of erosion, carving valleys, and creating landforms like cirques, moraines, and **fjords**.

Myristica Swamps

Myristica Swamps	• These swamps are named after the dominant tree species found within them, which belong to the Myristicaceae family, commonly known as the nutmeg family. They have evolved over millions of years and are comprised of old-growth trees.
Distribution	• Myristica swamps are primarily found in the **Western Ghats of southwestern India** and in parts of Southeast Asia, particularly in the Indonesian island of New Guinea and its surrounding regions. • A smaller distribution exists in the Andaman and Nicobar Islands.
Characteristics	• Myristica swamps are characterized by their **waterlogged and acidic conditions**. • These swamps are typically situated in low-lying areas, often associated with river valleys or other water sources.

	• The waterlogged conditions are influenced by factors such as poor drainage, high rainfall, and impermeable soils.
Tree Dominance	• The most well-known tree species in these swamps is Myristica malabarica, commonly known as the **Malabar nutmeg or Bombay nutmeg.** • These trees have adaptations to the waterlogged conditions, such as **stilt** roots (roots that emerge from the base of stem nodes) and **pneumatophores** (upward-growing root structures that help with aeration).
Threats	• Diversion of water from the swamps to the plantations and the building of check dams for potable water are detrimental to these ecosystems. • It also exploited for non-timber forest products (NTFP) collection and medicinal plants.
Significance	• The forest has a higher capacity to store carbon compared to nearby non-swamp forests. • It helps in retaining water and act as a sponge, ensuring **perennial** water availability. • These swamps are home to many vertebrate and invertebrate faunal species.

Salt Cavern-Based Reserves V. Rock Cavern-Based Reserves

- Cavern-based strategic oil storage facilities are storage facilities designed for crude oil or petroleum products, utilizing naturally occurring underground caverns for storage.
- These caverns are typically formed in salt formations or other geological structures through processes like solution mining or excavation.

	Salt cavern-based Reserves	**Rock cavern-based Reserves**
Formation	Created by injecting water into salt deposits and then pumping out the brine, leaving behind an empty space that can be used for storage.	Created by drilling into solid rock and excavating a cavern that can be used for storage.
Usage	Used for storing hydrocarbons, natural gas, and liquid petroleum products due to their excellent sealing properties and high storage capacity	Used for various purposes, including storage of perishable goods, strategic reserves (e.g., emergency supplies), or specialized storage for hazardous materials.
Cost	Generally, more cost-effective and can be built more quickly.	Generally, more expensive to construct
Safety	More prone to leaks and other safety issues, since salt is more porous than rock.	More secure and reliable

HI-WISE Report

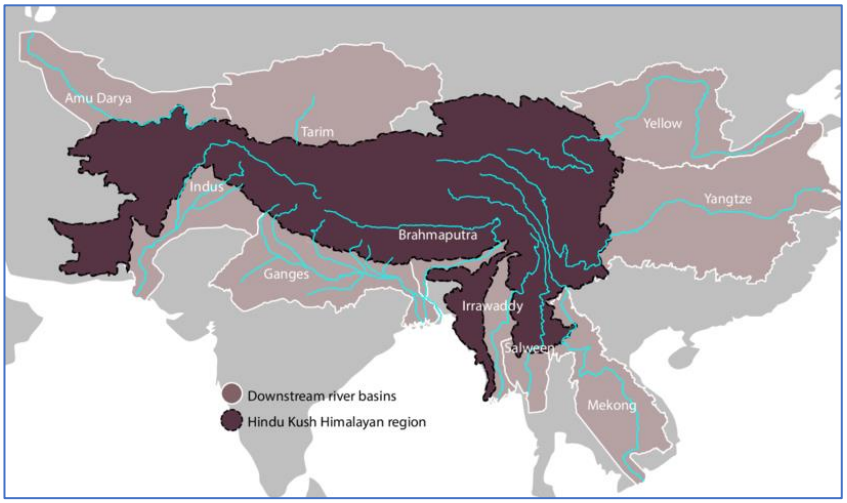
The International Centre for Integrated Mountain Development (ICIMOD) released the **Water, Ice, Society, and Ecosystems** in the **Hindu Kush Himalaya (HI-WISE) report.**

Key Findings

- Glaciers disappeared 65% faster in the 2010s than in the previous decade, with 80% of their current volume predicted to be gone by 2100 due to current emissions pathways.

- Availability of water is expected to peak in mid-century and then decline.
- Mountain communities are already facing significant adverse impacts, including loss of lives, property, heritage, and infrastructure, with floods and landslides projected to increase. Impacts on fragile mountain habitats are particularly acute.

About Hindu Kush Himalaya



- The region, stretching 3,500 km from Afghanistan to Myanmar, is known as "Asia's water tower" due to its high mountain ranges and vast ice volume.
- It is considered the Third Pole (after the North and South Poles), and has significant implications for climate.
- Water flowing from these mountains feeds major rivers including the Brahmaputra, Ganges, Indus, Irrawaddy, Mekong, Yangtse, and Yellow.
- The region is undergoing “unprecedented and largely irreversible” changes triggered by global warming.

Groundwater Extraction has Tilted Earth’s Spin

A recent study has revealed that the extraction of groundwater from the earth has caused a shift in the planet’s axis, tilting it nearly 80 cm to the east.

Understanding the Earth’s Axis Tilt

- The Earth's axis tilt, also known as obliquity, refers to the angle between the Earth's rotational axis and its orbital plane around the Sun. This tilt is responsible for the changing seasons and variations in the length of daylight throughout the year.
- Earth's axis is tilted at an angle of approximately 23.5 degrees (oscillates between 22.1 and 24.5 degrees) relative to its orbital plane. This means that as the Earth orbits the Sun, different parts of the planet receive varying amounts of sunlight, leading to the seasonal changes we experience.
- Earth's axis tilt is not constant and undergoes slight variations over long periods of time. This phenomenon is known as axial precession, which causes the axis to trace out a circular path (wobble motion) over a period of about 26,000 years.
- This means that the orientation of the Earth's axis changes slowly over time, altering the positions of the North and South Poles in relation to the stars.

Linking Groundwater Pumping and Axis Tilt

- The locations of the North and South poles aren’t static. They are unchanging spots on the earth.
- The Earth’s axis spins around or more specifically the surface that invisible line emerges from is always moving due to processes scientists don’t completely understand.
- The way water is distributed on Earth’s surface is one factor that drives the drift.
- The Earth spins around an axis kind of like a top. If the weight of a top is moved around, the spinning top would start to lean and wobble as its rotational axis changes.
- The same thing happens to the Earth as weight is shifted from one area to the other.

Tropical Cyclone

What is a Tropical Cyclone

- It is a rapidly rotating storm originating over warm tropical oceans from where it draws the energy to develop.
- It has a **low-pressure centre** and clouds spiralling towards the eyewall surrounding the **"eye"**, the central part of the system where the weather is normally calm and free of clouds.
- Its diameter is typically around 200 to 500 km but can reach 1000 km.
- The winds blow counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

- A tropical cyclone brings very violent winds, torrential rain, high waves, and, in some cases, very destructive storm surges and coastal flooding.

Characteristics Of Tropical Cyclones

- **Calm and Clear Eye:** The cyclone's centre features a calm and clear eye characterized by very low air pressure.
- **Average Speed:** These cyclones typically boast an average speed of 120 kmph, contributing to their powerful nature.
- **Closed Isobars:** Tropical cyclones exhibit closed isobars, imaginary lines on weather maps connecting locations with equal atmospheric pressure.
- **Oceanic Development:** They exclusively develop over oceans and seas, drawing energy and moisture from warm water surfaces.
- **Direction of Movement:** Under the influence of trade winds, tropical cyclones generally move from east to west.
- **Seasonal Nature:** Tropical cyclones are seasonal phenomena, occurring under specific climatic conditions.

Recent Tropical Cyclones

- Mawar, Biparjoy, and Guchol are names of tropical cyclones that occurred in the recent past.

Cyclone Name	Category	Impact Areas	Named by
Mawar	Category 4	Philippines, China	Malaysia
Biparjoy	Category 3	India, Pakistan	Bangladesh
Guchol	Category 4	Japan	Micronesia

Cotton Crop in India

Cotton Production Ranking	India is the world's **2nd largest producer of cotton**, following China, contributing to approximately 25% of the global cotton production.
Major Cotton-Growing Regions	Maharashtra, Gujarat, Andhra Pradesh, Telangana, and Punjab.
Water Requirements	Cotton cultivation demands a substantial amount of water and is typically grown in areas receiving a **minimum of 600 mm of annual rainfall.**
Soil Conditions	Ideal cotton cultivation requires well-drained soil enriched with essential nutrients such as nitrogen, phosphorus, and potassium.
Introduction of BT Cotton	BT cotton, introduced in India in 2002, has become the primary type of cotton cultivated in the country due to its genetic modification.
Varieties of Cotton Cultivated in India	India cultivates different cotton varieties, including both **short-staple (medium-fibre length)** and **long-staple (extra-long fibre length) cotton**. The most widely grown varieties **include hybrid cotton (Bt cotton) and desi cotton.**

Singhbhum Craton

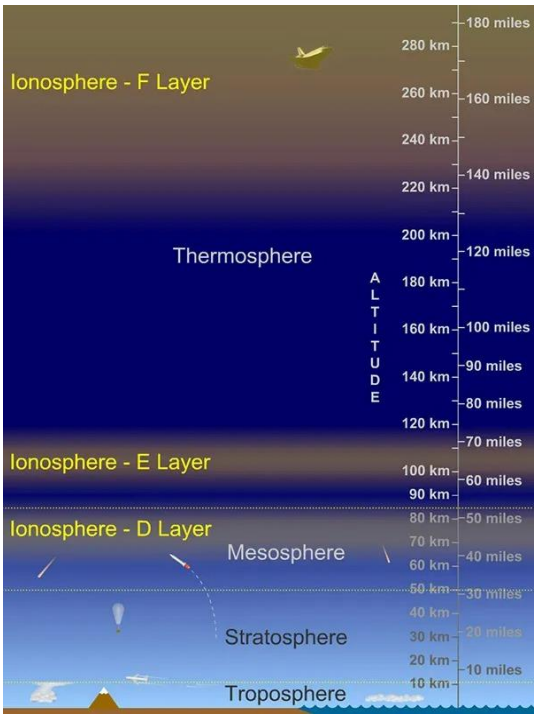
A craton is a large, stable part of Earth's continental crust. Cratons are made up of ancient crystalline basement rock. They have remained relatively stable since the Precambrian era.

Location	It is one of the oldest cratons in the world, located in Jharkhand, dating back to the Archean era, which began around 4 billion years ago.
Geological Significance	• Singhbhum is also home to several important geological formations, such as the Iron Ore Group and the Dhanjori Formation. • The Singhbhum craton is characterized by a complex geological history, including periods of mountain-building, volcanic activity, and sedimentation.

Mineral Resources	• The Singhbhum craton is known for its rich mineral resources. It contains significant deposits of iron ore, copper, manganese, chromite, gold, and uranium, among other minerals. • The mining industry in the region has played a crucial role in the economic development of the area.

Ionosphere

- Ionosphere is a layer of the Earth's atmosphere that extends from about **60 km to 1,000 km** above the Earth's surface.
- It is divided into several layers, including the D layer, E layer, F1 layer, and F2 layer. (F2 layer is the highest layer and is primarily responsible for long-distance radio communication)



Importance of Ionosphere

- **Propagation of Electromagnetic Waves:** The ionosphere affects the propagation of various electromagnetic waves, including radio waves, by altering their speed, direction, and polarization.
- **Radio Communication:** The ionosphere's ability to reflect radio waves back to the Earth's surface allows for long-distance radio communication, especially in the high-frequency (HF) and very high-frequency (VHF) ranges.
- **Aurora Borealis and Aurora Australis:** The ionosphere interacts with energetic particles from the Sun, resulting in the beautiful natural light displays known as the Northern Lights (Aurora Borealis) and Southern Lights (Aurora Australis).
- **Global Navigation Satellite Systems (GNSS):** Signals from satellite-based navigation systems, such as GPS (Global Positioning System), pass through the ionosphere.
- **Space Weather:** The ionosphere is highly influenced by space weather phenomena, such as solar flares and coronal mass ejections. These disturbances can disrupt radio communication, satellite operations.

Brahmani Natural Arch

- Geological Survey of India has proposed the **'Geo Heritage' tag** for the Jurassic age **'Natural Arch' in Odisha.**
- Brahmani Natural Arch is a geological feature located in the **Deomali mountain range in Odisha**.
- It was created by the erosive forces of wind and water over millions of years.
- It is made of sandstone and stands at a height of about 200 feet.
- It is a popular tourist attraction and is considered to be one of the largest natural arches in Asia.

Geological Survey of India	
Established	1851
Initial purpose	Find coal deposits for the Railways
Current role	Repository of geo-science information for various fields in India
Chief responsibility	Providing objective geological expertise and geoscientific information for policy-making, commercial, and socio-economic needs
Focus	Systematic documentation of geological processes (surface and subsurface) of India and its offshore areas

Methodology	Geological, geophysical, and geochemical surveys using latest and cost-effective techniques
Main functions	Creation and Updation of national geoscientific information and mineral resource assessment
Headquarters	Kolkata
Nodal Ministry	Ministry of Mines

Critical Minerals

What are Critical Minerals?

- Critical minerals, also known as strategic minerals or rare earth elements, are a group of minerals that are essential for the production of a wide range of modern technologies, including smartphones, electric vehicles, and renewable energy systems.
- These are considered to be critical because of their economic and strategic importance, as well as their potential to become scarce due to limited supply and geopolitical factors.

Critical Minerals: Examples

- **Lithium (White gold)** is a key component in rechargeable batteries, making it essential for electric vehicles, portable electronics, and energy storage systems.
- **Cobalt** is used in the production of lithium-ion batteries, as well as in aerospace alloys and superalloys for gas turbines.
- **Platinum group metals (such as platinum, palladium, and rhodium)** are critical for catalytic converters, fuel cells, and various chemical processes.
- **Rare earth elements (such as neodymium, dysprosium, and yttrium)** are vital for manufacturing high-strength magnets used in electric vehicle motors, wind turbines, and computer hard drives.

Critical Minerals: Key Distribution

- About three-fourths of the world's cobalt, is produced by the **Democratic Republic of the Congo.**
- **Major Global Lithium Reserves**: Chile > Australia > Argentina are top countries with Li reserves.
- **Lithium Triangle**: Chile, Argentina, Bolivia.
- The Geological Survey of India has for the first-time found **Lithium 'inferred' resources in Salal-Haimana area of the UT of Jammu & Kashmir.**

Metallurgical Coke

- Metallurgical coke, also known as Coke breeze, Met Coke, or Blast Furnace Coke, is a **carbonaceous material** produced by **heating coal to high temperatures without air**, leaving behind a **solid, carbon-rich material.**
- It is a crucial component in the production of steel and iron, used in various ways in the steel-making process, and currently accounts for over **70% of the world's steel production.**

Metallurgical coke should not be confused with petroleum coke or foundry coke. **Petroleum coke is a by-product of oil refining** and has different properties, while **foundry coke is a similar carbonaceous material used in foundries for melting metals.**

Properties and Characteristics of Metallurgical Coke

- Metallurgical coke, with a **carbon content of 90%-95%**, is an ideal fuel for the smelting process, a metallurgical technique used to extract metals from ores by heating them in a furnace.
- Its **porous structure facilitates efficient gas flow**, has **low ash content**, and has **high mechanical strength.**

Uses

- It is used as a fuel in blast furnaces, which are used to extract iron from iron ore.
- It is used in electric arc furnaces, which are used to melt scrap steel and other metals.

- It is also used as a reducing agent in the production of ferroalloys. Ferroalloys are alloys that are made by combining iron with other metals, such as chromium, manganese, or silicon.

Disadvantages

- **Environmental impact**: The production of metallurgical coke involves the release of large amounts of greenhouse gases, such as carbon dioxide and methane.
- **Large amounts of energy**: The production of metallurgical coke, which requires significant energy, can lead to air pollution, environmental issues, and health issues.
- **High cost**: The production of metallurgical coke is a complex process that requires specialized equipment and skilled workers.

Difference Between Coal and Coke		
	Coal	**Coke**
Composition	Coal is a naturally occurring sedimentary rock. It is formed from the remains of ancient plants that have undergone geological processes over millions of years.	Coke, on the other hand, is a fuel produced by heating coal in the absence of air. It is derived from coal through a process called carbonization or coking
Properties	Heterogeneous material with a range of properties depending on its type and grade	More homogeneous and pure form of carbon. It has a low moisture content and is virtually free of volatile components and impurities
Uses	Coal has a wide range of applications. It is primarily used as a fuel for electricity generation in power plants and for heat generation in industrial processes.	Coke has specific applications, particularly in the iron and steel industry. It is used as a fuel and reducing agent in blast furnaces for the production of iron and steel.

Shelf Clouds

Shelf Clouds (Arcus Cloud)	• It is a low-hanging cloud that appears to be attached to the front of a storm. • It is often dark and ominous, and it can give the impression that the storm is moving in quickly. • These clouds are sometimes seen beneath cumulonimbus clouds, the dense, towering vertical cloud that causes intense rain.
Formation of Shelf Clouds	• These are formed when a thunderstorm pushes a gust of wind ahead of it. • This gust of wind can be so strong that it lifts the warm, moist air in front of it. • As the warm air rises, it cools and condenses into a cloud, which becomes the shelf cloud. • The shelf cloud is often accompanied by a strong gust of wind, which can be dangerous to those caught in its path. • This rush of cold air often occurs in a thunderstorm's downdraught, where cold air rushes towards the ground before spreading out to create a gust front. ○ A thunderstorm is a rain shower during which you hear thunder. Since thunder comes from lightning, all thunderstorms have lightning.
Distinctive Features	• These have a distinct horizontal appearance (Roll Cloud), stretching across the sky in a straight line. • They often take on a wedge-like or arc-shaped structure, curving upward toward the storm's main cloud base.

	• These have a well-defined, solid line separating the cloud formation from the sky.
Impact/ Indication of Shelf Cloud	• It is often a sign of severe weather, which can cause damage to structures, power lines, and other infrastructure. • The storm that follows the shelf cloud can also produce heavy rain, hail, and even tornadoes, which can cause flooding, landslides, and other hazards.
Frequency	• In India, Arcus clouds formation is rare phenomenon. • However, they are seen around the world routinely in places such as Australia, Alaska, California, etc., during powerful thunderstorms.

Gravity Hole: an Anomaly in Indian Ocean

- Indian scientists have uncovered the cause of mysterious giant anomaly referred to as a gravity hole in the Indian Ocean.
- It is also known as the **Indian Ocean Geoid Low (IOGL)** and was discovered in 1948 during a survey by Dutch geophysicist. It covers more than three million square kilometres of the ocean.

Concept of Gravity	• The prevailing notion of Earth as a flawless sphere with uniform gravity across its expanse is a common misconception. Our planet is flat at the poles, and it bulges at the equator. Also, it doesn't have uniform gravity everywhere. • For example, there is a massive "gravity hole" in the Indian Ocean and now, researchers have uncovered why that is the case.
About Gravity Hole & It's Cause	• These are areas where the **gravitational pull is significantly stronger** than in the surrounding areas. • These anomalies are caused by variations in the gravitational pull of the Earth due to **differences in the density of the materials** that make up the Earth's crust.
Effect of Gravity Hole	• It can have a profound **effect on the ocean currents** and the movement of water around them. • The gravitational pull of a gravity hole can **cause water to be pulled towards it, creating a vortex** that can suck in anything that comes too close. • This can be dangerous for ships and other vessels that are navigating the area. • It can also **influence the geology of the surrounding area.** The increased gravitational pull can cause the rocks and sediment in the area to be compressed, which can lead to the formation of new geological features.
Indian Ocean Geoid Low (IOGL)	• It is a **negative geoid anomaly**, meaning that the **sea level in this region is lower than what would be expected** based on the Earth's gravitational field. • It has important implications for oceanography, climate science, and geodynamics. • It **affects the ocean circulation patterns**, the distribution of heat and salt in the ocean, and the sea level rise projections for the Indian Ocean region.

Different Anomalies in the World

South Atlantic Anomaly (SAA)

The SAA is a region in the **Earth's magnetic field where it is significantly weaker** than in other parts of the globe. This anomaly is located in the **South Atlantic Ocean**, extending from South America to the southern coast of Africa.

Karakoram Anomaly

'Karakoram Anomaly' is termed as the **stability or anomalous growth of glaciers in the central Karakoram, in contrast to the retreat of glaciers in other** nearby mountainous ranges of Himalayas and other mountainous ranges of the world.

Temperature Anomaly

- The term temperature anomaly means **a departure from a reference value or long-term average.**
- A positive anomaly indicates that the observed temperature was warmer than the reference value, while a negative anomaly indicates that the observed temperature was cooler than the reference value.
- For Example, March 2023 was the second warmest March on record. The warmest March occurred in 2016, when the biggest El Niño of the 21st century triggered a 'mini' global warming.

Anthropocene Epoch

Scientists said that the sediments of **Crawford Lake in Canada** provide evidence of the beginning of the Anthropocene epoch.

About Anthropocene Epoch

- The term "Anthropocene" combines "Anthropo," meaning human, and "cene," referring to a geological epoch. The term "Anthropocene" was 1st proposed by the Nobel Prize-winning chemist Paul Crutzen in 2000.
- **It is a geological epoch that marks the period during which human activity has had a significant impact on the Earth's geology and ecosystems.**
- It is suggested that the Anthropocene **follows the Holocene Epoch**, which represents the current geological epoch and has been characterized by relatively stable climatic conditions over the past approximately 11,700 years.
- It is **not yet officially recognized as a geological epoch by the International Commission on Stratigraphy,** which is responsible for defining and naming geological time periods.

Key Features of Anthropocene Epoch

- **Human Intervention:** It is characterized by a range of human-induced changes to the Earth's systems, including climate change, deforestation, land use change, ocean acidification, and biodiversity loss.
- **Climate Change & Biodiversity Loss:** These changes have resulted in significant alterations to the Earth's atmosphere, oceans, and land surface, and are expected to have long-term impacts on the planet's ecosystems and human societies.
- One of the key drivers of the Anthropocene is the **release of greenhouse gases** such as carbon dioxide and methane from the burning of fossil fuels.

Extra Mile: The Geological Time Scale (GTS)

GTS provides a chronological framework for understanding the history and evolution of the Earth and the life forms that have existed on the planet over millions of years. It is divided into several hierarchical units. The basic units of the Geological Time Scale, from largest to smallest, are as follows:

1. **Eon:** The largest division of time, spanning billions of years. The two primary eons are the Phanerozoic Eon (the most recent) and the Precambrian Eon (the time before complex life forms).
2. **Era:** A subdivision of an eon, representing a significant period of geological time. The Phanerozoic Eon is divided into **three eras: Paleozoic, Mesozoic, and Cenozoic.**
3. **Period:** A subdivision of an era, representing a substantial interval of time characterized by distinct geological and biological events. For example, the Paleozoic Era is divided into the Cambrian, Ordovician, Silurian, Devonian, Carboniferous, and Permian periods.

4. **Epoch:** A subdivision of a period, representing a smaller interval of geological time. For example, the Quaternary Period is divided into the Pleistocene and Holocene epochs.
5. **Age:** The smallest unit of the Geological Time Scale, representing a relatively short span of time within an epoch. Ages are often named after specific geological formations or key fossil assemblages.

Lightning - Not a Natural Disaster

The Union government is not in favour of declaring lightning a natural disaster.

Lightning

- **Lightning is a rapid and massive discharge of electricity into the atmosphere, sometimes directed towards Earth.** It occurs between clouds and the ground or within clouds, accompanied by flashes, sounds, and thunderstorms.
- Inter cloud or intra cloud (IC) lightning is harmless, while cloud to ground (CG) lightning is harmful due to high electric voltage and current. Discharges occur in large moisture clouds 10-12 km long.

Formation of Lightning

- Water vapor condenses in a cloud due to falling temperatures, turning into tiny ice crystals that fall to the earth.
- This system involves smaller ice crystals moving up and larger ones falling down. Electrons are released and triggered after collisions, causing a chain reaction.
- The upper layer of the cloud becomes positively charged, while the middle layer becomes negatively charged. The electric potential difference between the two layers is large, causing a huge current flowing between them.
- Earth, a good conductor of electricity, becomes positively charged compared to the middle layer, directing about 15%-20% of the current towards the earth.
- This results in a large current flow between the layers, causing a significant impact on the Earth's electrical conductivity.

Concern

- In 2021-22, 1.49 crore strikes were registered across the country, making it difficult to issue timely warnings.
- Lightning-related deaths have been at least 2,000 annually since 2005, with 96% occurring in rural areas.
- Buildings, communication networks, and power plants are often destroyed, and lightning and thunder can cause devastating forest fires.

Lightning-prone Area

- **Madhya Pradesh has the highest ground lighting rate**, followed by Chhattisgarh, Maharashtra, Odisha, and West Bengal.
- Other high strike rates include Bihar, UP, Karnataka, Jharkhand, and Tamil Nadu.
- **The Earth's most lightning activity is observed on Lake Maracaibo.**

What will be the benefit after considering it as a natural disaster?

- States like Bihar and West Bengal are demanding lightning-related deaths be considered natural disasters, with compensation from the State Disaster Response Fund (SDRF) provided once notified. The Centre contributes 75% of SDRF funds.
- Current disasters covered under SDRF include cyclones, droughts, earthquakes, fires, floods, tsunamis, hailstorms, landslides, avalanches, cloudbursts, **pest attacks, frost, and cold waves.**

Government Initiatives

- The National Disaster Management Authority (NDMA) has introduced the Common Alert Protocol (CAP) system to alert people about thunderstorms and lightning.

- The Lightning Alert System provides location-specific forecasts for up to 48 hours. ISRO uploads satellite information about convective clouds every 15 minutes.
- The **Indian Institute of Tropical Meteorology** and **Earth System Science Organization** developed the **Damini app**, which **alerts users of lightning within 20 and 40 km radius.**

Waterspouts

What is it?	A waterspout is a tornado-like column or funnel of violently rotating air that usually forms over the surface of the sea.
Formation	• Waterspouts are typically formed in warm and humid environments when there is a temperature difference between the warm water surface and the cooler air above. • As warm, moist air rises from the water's surface, it can encounter cooler air aloft, leading to the development of a rotating updraft. If the rotation intensifies, it can lead to the formation of a waterspout.
Types	• There are two types of waterspouts: tornadic and fair-weather. ○ **Tornadic waterspouts** are more common and are formed from a rotating thunderstorm cell. ○ **Fair-weather waterspouts**, on the other hand, form from a single cumulus cloud and are less common.
Distribution	Waterspouts form mostly in tropical and subtropical areas. But regions, including Europe, Middle East, Australia, New Zealand and Antarctica also report these on rare occasions.
Appearance	Waterspouts can vary in size and intensity. Some waterspouts may appear as a slender, rope-like funnel, while others can be larger and more pronounced, resembling tornadoes over water.
Risk	• Waterspouts are generally not as powerful as tornadoes, but they can still pose risks to boaters and swimmers if they move close to the shore. • They have the potential to cause waterspouts, and occasionally, waterspouts can come ashore as weaker tornadoes.

Plasticulture

- It refers to the **use of plastic materials in agriculture ("ag plastics") to improve crop production.**
- It involves the use of **plastic mulch, drip irrigation, and greenhouse coverings** to protect crops from pests, weeds, and extreme weather conditions.
- While it can be beneficial for crop production, there are also concerns about the environmental impact of plastic materials.

Solar Maximum & Solar Minimum

<table>
<tr><th></th><th>Solar Maximum</th><th>Solar Minimum</th></tr>
<tr><td rowspan="2">What is it?</td><td>The greatest number of sunspots in any given solar cycle is designated as "solar maximum."</td><td>The lowest number of sunspots in any given solar cycle is "solar minimum.</td></tr>
<tr><td colspan="2">Both are two distinct phases in the solar cycle, which is an approximately 11-year cycle of varying solar activity.
The most recent solar maximum occurred in 2014, and the next one is expected to occur in 2025.</td></tr>
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Impact	Both can impact space weather, potentially affecting satellites, communication systems, power grids, and astronauts.	
Solar Flares and CMEs (Coronal Mass Ejections)	**More frequent and intense.** These events are driven by the increased magnetic activity associated with sunspots.	**Less frequent and less intense** during a solar minimum due to the reduced sunspot activity.
Auroras (Northern and Southern Lights)	**More frequent and can be more vivid**. This is because increased solar activity produces more charged particles interacting with Earth's atmosphere.	While auroras can still occur during a solar minimum, they tend to be **less frequent and less intense.**

Silvopasture System

What is it?	• It is an ancient and proven practice that **harmoniously integrates trees, forage and livestock on the same land.** • By combining these elements, silvopasture brings numerous environmental advantages, including improved local climate resilience.
Advantages	• The trees on silvopasture lands act as natural carbon sinks, sequestering significantly five to ten times more carbon than pastures, without compromising productivity. • It can play a vital role in reversing the negative trend of deforestation for pastureland.

How Silvopasture System is Different from Open Pasture System?

	Open Pasture System	**Silvopasture System**
Tree Integration	Involves unmanaged grazing on natural grasslands with no deliberate inclusion of trees or woody plants.	Involves intentionally integrating trees with forage and livestock production, providing shade, shelter.
Forage Quality	Depends solely on the natural vegetation, which may decline over time without proper management.	Offers a diverse range of forage options from both trees and understorey vegetation.
Soil Health	May be more prone to erosion without the stabilizing effect of trees.	Helps control soil erosion with tree root systems, improving soil health.
Management and Sustainability	Requires less initial investment and management but may be less resilient and sustainable over time.	Requires more deliberate planning and investment but offers long-term sustainability and ecological benefits

Desiccation-tolerant (DT) vascular plants

- India's biodiversity hotspot, **the Western Ghats (WG), is home to 62 Desiccation-Tolerant Vascular Plant Species**
- **Vascular plants are equipped with specialized tissues dedicated to transporting water, nutrients, and sugars across their anatomies.** These specific tissues, known as vascular tissues, includes the **xylem and phloem components**.

Desiccation-tolerant (DT) plants	**DT plants can withstand extreme dehydratio**n, losing up to 95% of their water content, and re-emerge once water is available again.
Key Points	These plants are **able to withstand long periods of drought and extreme temperatures** by entering a state of suspended animation when water is scarce.

Distribution	**World:** found in a variety of habitats, including deserts, tundras, and alpine regions. **India:** In the inventory of 62 species, 16 are Indian endemic, and 12 are exclusive to the Western Ghats outcrops, highlighting WG's importance as a global DT hotspot.

Related Term: **Cryptobiosis (Anabiosis)**

- **Cryptobiosis is a suspended animation state where an organism's metabolic processes are slowed or stopped**, enabling survival in extreme conditions like heat or cold, lack of water, or radiation exposure. It is found in tardigrades, brine shrimp, and some bacteria.

Glacial Lake Outburst Floods (GLOFs)

- **GLOF** is a type of flood occurring when water dammed by a glacier, or a moraine is released suddenly.

Trigger Points of GLOFs	
Natural Factors	**Anthropogenic Factors**
Melting Glaciers, earthquakes, Volcanic Activity, extremely heavy rains and ice avalanches	Mass tourism; construction of roads and hydropower projects
Impact of GLOFs	**Mitigation guidelines**
• Destruction of Existing Structures • Threat to Human Life and Livelihoods • Erosion of riverbanks • Loss of vegetation • Disruption of aquatic ecosystems • Create new Landforms	• Early Warning Systems • Risk Assessment and Mapping • Infrastructure Planning and Preparedness • Community Awareness and Preparedness

Historical Examples of GLOFs

- **1934 GLOF in Peru**: **Lake Palcacocha** in Cordillera Blanca Mountain range resulted in a devastating flood.
- **1994 GLOF in Bhutan**: **Lake Luggye Tsho** in Bhutan caused widespread destruction in Punakha Valley.
- **2002 GLOF in Nepal**: Tsho glacial lake in Everest region triggered a powerful flood that swept away bridges, homes, and trekking trails.
- **2010 GLOF in Pakistan**: Attabad glacier in Karakoram Mountain range created a massive artificial lake, submerging several villages and displacing thousands of people.
- **February 2021 GLOF in Uttarakhand:** Nanda Devi glacier broke, leading to a massive flood in Rishiganga and Dhauliganga rivers.

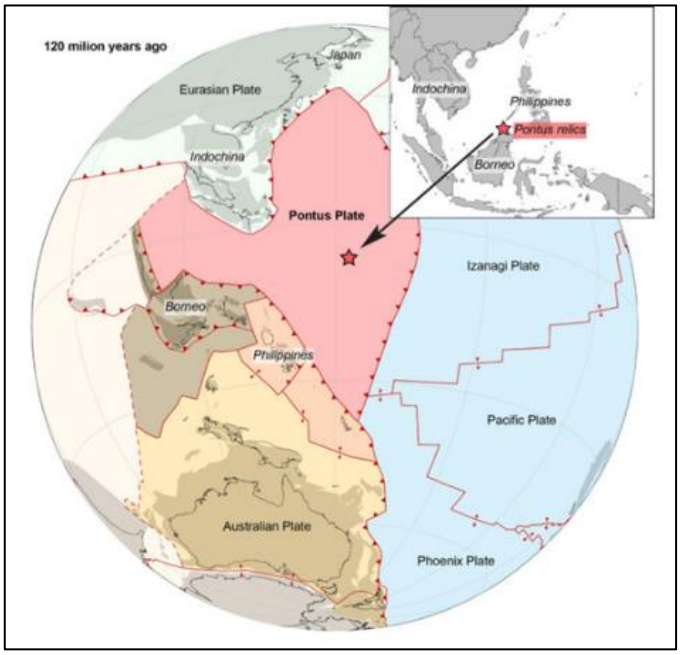
E Prime Layer

- Recently, a study by an international team of researchers revealed the formation of a new enigmatic layer **– E prime layer at the outermost part of Earth's core.**
- The **E-Prime Layer is a result of surface water** altering the composition of the metallic liquid core's outermost region.
- When the water reaches the core-mantle boundary, it undergoes chemical changes, forming a hydrogen- rich, silicon-depleted layer. This layer resembles a film-like structure.

Significance of the Discovery

- This discovery enhances researchers' comprehension of Earth's internal mechanisms, indicating a broader and more intricate global water cycle than previously acknowledged.
- The transformed layer in the core holds significant implications for the interconnected geochemical processes linking surface water cycles with the deep metallic core.

Pontus Tectonic Plate



- A long-lost tectonic plate named 'Pontus' was discovered in Borneo. 'Pontus' is a minor tectonic plate in the northern part of the Eastern Hemisphere.
- **Location:** It is located in **present-day South China Sea.**

Pontus's History

- It is approximately formed at least 160 million years ago. Over time, it gradually diminished in size before being pushed under the Australian plate to the south and China to the north.
- It disappeared 20 million years ago.

Tectonic Plate

- Tectonic Plate is a **massive, irregularly shaped slab of solid rock**, generally composed of both continental and oceanic lithospheres.
- Plate size can vary greatly, from a few hundred to thousands of kms across; the Pacific and Antarctic Plates are among the largest.

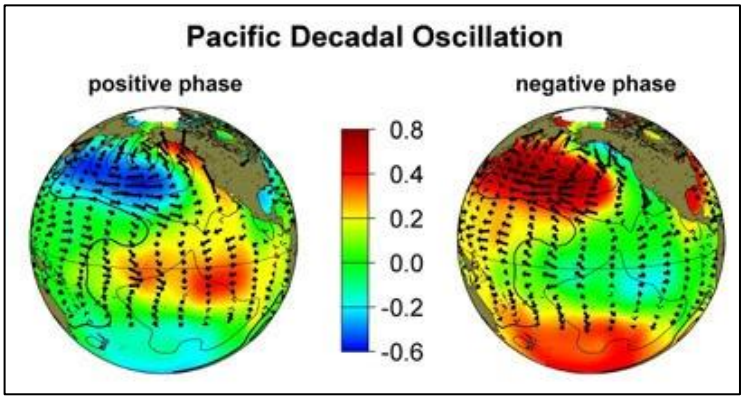
Types of Plates

- There are primarily **seven major tectonic plates** - African Plate, Antarctic Plate, Eurasian Plate, North American Plate, South American Plate, Pacific Plate, and Indo-Australian Plate.
- Additionally, there are several **minor plates** and microplates like Cocos plate, Nazca plate, Arabian plate, Philippine plate etc.

PBKnot Technology

- As an initiative under **"Project Bandhan – A Knot of PBW Protection,"** the South Asia Biotechnology Centre (SABC) in Jodhpur has implemented an extensive field experiment and demonstration of the innovative mating disruption technology known as **PBKnot**.
- This technology **involves the release of sex pheromones by the PBKnot dispenser**, **hindering male moths from locating females and disrupting the reproductive cycle.**
- Mating disruption proves to be a potent tool for pest management, particularly in addressing pests like Pink Bollworm.
    - Pink bollworm (PBW) is a major pest on cotton crop. It's known to occur during the later stages of cotton crop growth. Large infestations of PBW can affect quality and yields.

Pacific Decadal Oscillation (PDO)



- **Pacific Decadal Oscillation** is a long-term ocean **fluctuation in the Pacific Ocean.** The term PDO was coined in about **1996 by Steven Hare** at the University of Washington.
- It can be known **only after several years of measuring ocean temperatures** and their interaction with the atmosphere.
- The PDO waxes and wanes **approximately every 20 to 30 years.**

- From ocean surface topography data, together with other ocean and atmospheric data, scientists can determine **whether we are in a 'cool' phase or a 'warm' phase.**
    - **Cool Phase:** Characterized by a cool wedge of lower-than-normal sea-surface heights in the eastern equatorial Pacific and a warm horseshoe pattern in the north, west, and southern Pacific.
    - **Warm or Positive Phase:** In this phase, the west Pacific Ocean cools, and the wedge in the east warms.

How does this affect climate?

- The change in location of the cold and warm water masses **alters the path of the jet stream.**
- The jet stream in the northern hemisphere **delivers storms across the United States.**

Atlantification

- Atlantification is a **process causing the Arctic Ocean to become saltier and warmer, driven by the increasing flow of warm water from the Atlantic.**
- **Mechanism of Atlantification:**
    - Warm water from the Atlantic is transported into the Arctic, particularly affecting parts of the Barents Sea.
    - Some areas in the Barents Sea now more closely resemble the Atlantic due to Atlantification.
    - The Arctic Ocean typically has a layered structure: sea ice on top, cool freshwater beneath, and a deeper layer of warmer, saltier water from the Atlantic.
    - Differences in water salinity help maintain these layers, protecting sea ice from melting due to warm Atlantic water.
    - The decline in Arctic ice cover disrupts the layered structure, promoting the mixing of ocean layers.
    - This disruption drives the process of Atlantification, contributing to the warming trend in the Arctic Ocean.
- **Feedback Loop of Atlantification:** Once Atlantification begins, it leads to further melting of sea ice. This creates a feedback loop, exacerbating the Atlantification process and contributing to ongoing sea ice decline.
- **Role of Arctic Dipole in Atlantification:**
    - Atlantification is associated with a process called the Arctic Dipole, influenced by alternating anticyclonic winds over North America and cyclonic winds over Eurasia.
    - The positive phase of the Arctic Dipole restricts Atlantic water entry via the Fram Strait, slowing Arctic sea-ice loss, while the negative phase accelerates sea-ice decline.

Amrit and Moonga Blocks In Arabian Sea

The Oil and Natural Gas Corporation (ONGC) has made significant discoveries of crude oil and natural gas in two blocks named Amrit and Moonga under the Open Acreage Licensing Policy (OLAP) in Mumbai offshore on the Arabian Sea.

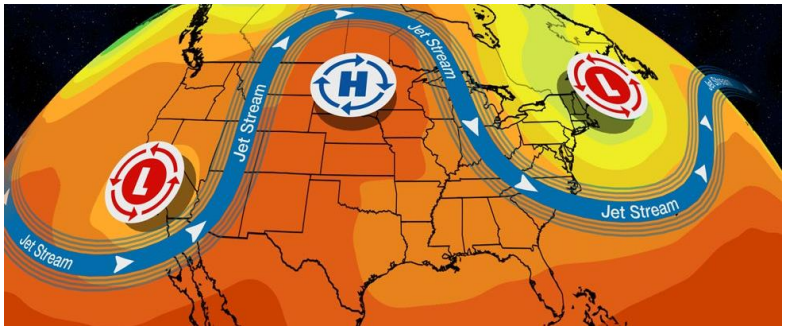
Open Acreage Licensing Policy (OLAP)

- OLAP, operating under the Hydrocarbon Exploration and Licensing Policy (HELP), provides companies with the flexibility to independently select exploration blocks without waiting for formal government bid rounds.
- Bidders can apply directly to the government for exploring hydrocarbons, including oil, gas, coal bed methane, and gas hydrates, for any new block not already under exploration.

Hydrocarbon Exploration and Licensing Policy (HELP)

- Introduced in 2016 by the Ministry of Petroleum and Natural Gas, HELP replaced the New Exploration Licensing Policy (NELP) with the aim of enhancing exploration and production activities in India.
- The policy encourages a proactive approach from companies in selecting exploration blocks and streamlining the exploration process.
- As part of HELP, the Indian government aims to expand the exploration acreage to 0.5 million sq. km. by 2025 and further to 1.0 million sq. km. by 2030.

Omega Blocks



- **Omega blocks**, denoted by the isobars resembling the Greek letter Ω in the Northern Hemisphere, are **upper-level weather patterns characterized by a low-high-low arrangement in the west–east direction.**
- These large-scale atmospheric pressure configurations, nearly stationary and aptly named for their Ω shape, act as formidable barriers.
- They **effectively "block" or redirect migratory cyclones**, maintaining their position for days or weeks and inducing prolonged, consistent weather conditions in the affected areas. The recent heatwave, attributed to an "omega block," showcases a high-pressure pattern diverting the jet stream.
- This redirection allows a mass of hot air from northern Africa and the Iberian Peninsula to flow, leading to persistent and fine weather conditions. The decreased cloud cover and the transport of warm air over several days contribute to elevated temperatures.

Sun Halo

Sun Halo is an optical phenomenon that occurs **due to sunlight refracting millions of hexagonal ice crystals suspended in the atmosphere.**

How It Is Formed?

- When white light passes through **unique hexagonal ice crystals** found in **upper-level cirrus clouds**, causing the halo to have colours.
- The clouds contain millions of tiny ice crystals, which refract and split the light to give an impression of a circular rainbow ring. The crystals have to be oriented and positioned just so with respect to your eye, for the halo to appear.
- Light undergoes **two refractions** as it passes through the ice crystals and the bending that occurs depends on the ice crystal's diameter.
- The two refractions **bend the light by 22 degrees** from its original point, producing a ring of light around the Sun or the Moon.
- The **lunar halos** are mostly colourless as moonlight is not very bright.
- In the case of the Sun, these colours are more noticeable and appear as bright as a rainbow.

Rare Auroras Captured by IAO in Ladakh Hanle

- The Indian Astronomical Observatory (IAO) situated above Mount Saraswati documented a unique celestial event as a geomagnetic storm impacted Earth's magnetic field, resulting in the creation of extraordinary auroras.
- **Significance:** Typically observed at higher latitudes in locations like Alaska and Norway, this event marked the first-time auroras were documented in India, specifically captured by the IAO in Ladakh.
- **Observation Details:** The phenomenon was recorded using a 360-degree camera mounted atop the IAO in Ladakh Hanle. The interaction between plasma particles emitted by the Sun and Earth's magnetic field triggers these mysterious auroras.

About Auroras

- **Formation:** Charged particles ejected by the Sun's corona create solar wind. When this solar wind collides with Earth's ionosphere, it gives rise to the aurora.

- **Northern and Southern Lights:** Known as the northern lights (aurora borealis) in the Northern Hemisphere and the southern lights (aurora australis) in the Southern Hemisphere.
- The variation in the aurora's appearance is influenced by the interference of the sun's magnetic field with Earth's magnetic field.

STEVE - Similar Phenomenon:

- Strong Thermal Emission Velocity Enhancement (STEVE) is an aurora-like atmospheric occurrence with a distinct appearance from traditional auroras.
- Unlike typical auroras, STEVE displays a glowing atmospheric phenomenon.
- Notable for its visibility from lower latitudes closer to the equator compared to the traditional northern and southern light

Urban River Management Plans

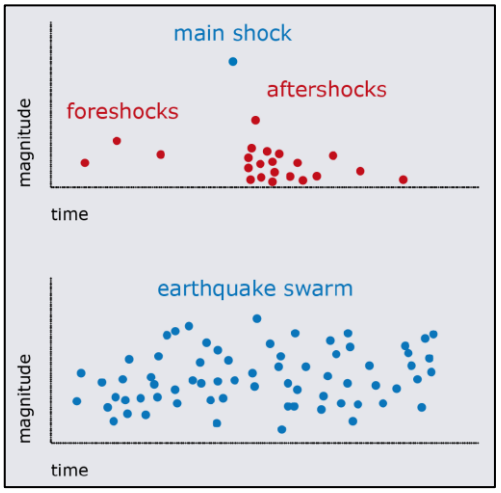
- The Committee of the National Mission for Clean Ganga (NMCG) has granted approval for a project focused on preparing Urban River Management Plans (URMPs) for 60 cities.
- This initiative is a crucial component of the **River-Cities Alliance (RCA)** operating under the umbrella of Namami Gange.

River-Cities Alliance (RCA)

- Launched in 2021, it is a collaborative effort between the **Ministry of Jal Shakti (MoJS) and the Ministry of Housing and Urban Affairs (MoHUA).**
- Its overarching **vision is to connect river cities and promote sustainable, river-centric development.**
- The project will be executed in two phases, with the initial phase encompassing 25 cities situated in the main stem Ganga basin states, namely Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, and West Bengal.
    - The main stem denotes the primary channel of a drainage system, into which smaller streams or rivers flow.
- Funding for this project will be provided by the **World Bank.**

Earthquake Swarm

- An earthquake swarm is a series of small earthquakes that occur in a localized area over a short period of time.
- **Duration:** The duration used to define the swarm itself varies but may be on the order of days, weeks, or months. Swarms typically conclude after a few days or months.
- **Cause:**
    - The development of an earthquake swarm over time is as challenging to predict as earthquakes in general.
    - Earthquake swarms occur when seismic energy builds up inside the Earth and is released in small amounts from certain points. They can produce thousands of earthquakes within a relatively small volume.
    - Many earthquake swarms happen in regions with complex contiguous fracture systems and are associated with the movement of fluid gases and liquids in the Earth's crust.

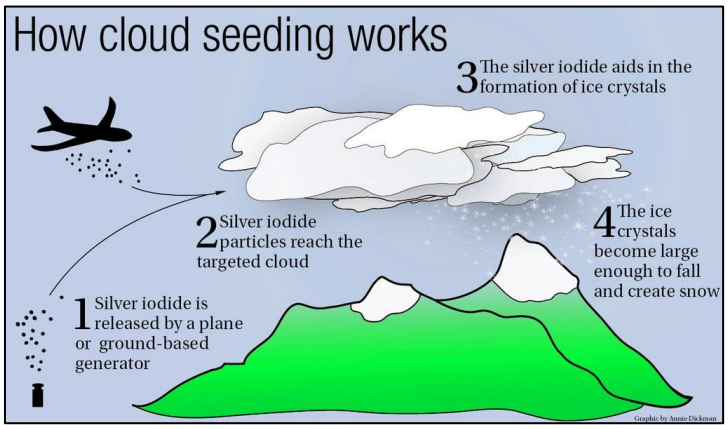


Cloud Seeding

- Cloud seeding is a common term for one form of weather modification. It is used for a variety of reasons, including -
    - increasing the amount of rainfall produced from clouds,
    - reducing hail from thunderstorms, and

- eliminating fog that reduces visibility at busy airports.
- Modern cloud seeding dates back to the late 1940's, springing from a discovery at the General Electric (GE) labs in Schenectady, New York in 1946.

How Does Cloud Seeding Work?



- Cloud seeding does not create new clouds. It increases the amount of rainfall by 10-15% from existing clouds by adding tiny particles called ice nuclei to the clouds. Inside the seeded clouds, water vapour freezes onto the particles.
- These heavier frozen particles fall towards the ground as rain.
- Cloud seeding materials are released via ground-based and/or airborne systems.
  - IIT Kanpur utilized the airborne method in the **Cloud Aerosol Interaction and Precipitation Enhancement Experiment (CAIPEX) – IV** conducted over Solapur, Maharashtra, during the consecutive monsoon seasons of 2018 and 2019.
- Cloud seeding primarily involves the use of eight chemicals: **silver iodide, dry ice**, potassium iodide, propane, calcium carbide, ammonium nitrate, sodium chloride, and urea compound.

Ureilite

- In a recent discovery revealed that the **Dhala crater resulted from the collision of an exceptionally rare and ancient meteorite, known as Ureilite.**
- 'Ureilites' are a rare **class of primitive meteorites** that constitute just a **tiny fraction of meteorites on Earth.**
- It is **named after the locality** where the **first specimen was discovered**, **the Novo Urei village in Russia.**

Composition	They **consist of silicate rock**, **mostly olivine and pyroxene**, **interspersed with less than 10% of carbon** (diamond or graphite), **metal sulphides and a few fine-grained silicates.**
	They contain **elongated cavities** generally **stretched in the same direction**.
	Lack of Chondrules: **Unlike many other stony meteorites**, **ureilites do not contain chondrules**, which are small, spherical grains that formed in the early solar system.

- **Primitive Nature**: Ureilites are considered primitive meteorites **because their composition closely resembles the material from which the solar system formed**.

Key Facts about Dhala Crater

- It is the **oldest and the largest impact crater in India.**
- It is estimated to have **formed some 2500 million years ago.**
- **Named after the village Dhala**, the crater is an eroded leftover of the original impact structure.
- **Location**: It is located in **Shivpuri district in Madhya Pradesh.**
- **Size**: It is a massive **11 km in diameter**, making it the **largest in Asia.**

FloodWatch App

The FloodWatch mobile application, recently **introduced by the Central Water Commission (CWC), offers real-time updates on flood situations across the country, along with forecasts** for the benefit of the general public. The application provides detailed State-wise and Basin-wise Flood Forecasts.

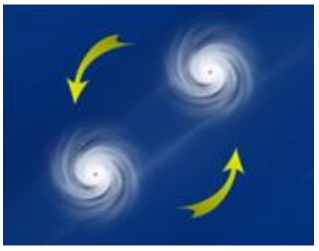
Earth Overshoot Day

- Earth Overshoot Day is **the day when humanity's demand for ecological resources and services exceeds what the Earth can regenerate in a given year.** The first Earth Overshoot Day was December 19, 1987.

- In 2023, Earth Overshoot Day was on August 2. This means that between January 1 and August 2, humanity's demand for biological regeneration was equivalent to the planet's entire annual regeneration.
- The **Global Footprint Network** hosts and calculates Earth Overshoot Day.

$$\frac{Global\ Biocapacity}{Global\ Ecological\ Footprint} \times 365 = Earth\ Overshoot\ Day$$

Fujiwhara Effect



- Fujiwhara Effect is a phenomenon that occurs **when two nearby cyclonic storms, such as hurricanes, typhoons, or tropical cyclones, come close enough to each other to interact.**
- As per the National Weather Service (NWS), when two hurricanes (or cyclones), spinning in the same direction, are brought close together, they begin an **intense dance around their common centre**.
- This interaction between two cyclones is called the Fujiwhara effect.
- The interaction could lead to changes in the track and intensity of either or both storms systems.
- In rare cases, the two systems could merge, especially when they are of similar size and intensity, to form a bigger storm.

MISCELLANEOUS

LEED Certification

According to the U.S. Green Building Council (USGBC) and Green Business Certification Inc. (GBCI), **India ranks 1st in the world in LEED (Leadership in Energy and Environmental Design) Zero certified green building projects,** surpassing the US and China.

LEED Certification	• LEED is one of the most popular green building certification programs used worldwide. • It recognises projects that have reached net zero or net positive status in the categories of carbon, energy, water, or waste. • It is available for virtually all building types.
Developed by	• The non-profit U.S. Green Building Council (USGBC)
Aim	• It aims to provide a framework to building owners and operators for identifying and implementing practical green building solutions.
Types of ratings	• It has 4 types of ratings: Certifies<Silver<Gold<Platinum. Certified (40-49 points), Silver (50-59 points), Gold (60-79 points) and Platinum (80+ points).
Significance	• It provides a framework for healthy, highly efficient and cost-saving green buildings, which deliver environmental, social and governance benefits. • It encourages and accelerates the adoption of sustainable green building and development practices through the creation and implementation of universally understood and accepted standards.

Other Green Building Certifying Agencies

- **Indian Green Building Council (IGBC) Ratings**: It is a division of the *Confederation of Indian Industry (CII)* that works closely with the government and aims at sustainably built environment.
- **Energy Conservation Building Code (ECBC)**: It was established by the *Bureau of Energy Efficiency (BEE)* to set energy efficiency standards for design and construction of buildings.

- **Green Rating for Integrated Habitat Assessment (GRIHA)**: It is a national rating system developed by *The Energy and Resources Institute (TERI)* with Ministry of New and Renewable Energy, for green buildings that is adopted while designing and evaluating new buildings.

High Cost of Cheap Water Report

A new report titled "The High Cost of Cheap Water," was **released by the Worldwide Fund for Nature (WWF**) on World Food Day (on 16th October).

Key Highlights of the Report

- **Water blindness** refers to a lack of awareness about the importance of water resources.
- **The global economic value of water is estimated at $58 trillion, equivalent to 60% of the world's GDP.** Direct benefits include water consumption for households and irrigation, amounting to $7.5 trillion annually. Indirect benefits include water purification, soil health improvement, carbon storage, and flood protection are estimated at approximately $50 trillion annually.
- However, the loss of wetlands since 1970 and declining freshwater wildlife populations contribute to water shortages, pollution, and dwindling food sources like freshwater fisheries.

World Wildlife Fund for Nature (WWF) (headquartered at Gland, Switzerland.)

- It is an international non-governmental organization established in 1961.
- It has been publishing the Living Planet Report every two years since 1998.
- It works around six areas: food, climate, freshwater, wildlife, forests, and oceans

World Food Day and Food and Agriculture organisation (FAO)

- It is celebrated on 16th October every year (1st celebrated in 1979) to mark the anniversary of the establishment of the Food and Agriculture organisation in 1945.
- FAO is a specialised agency of the United Nation that leads international efforts to defeat hunger (Focuses on Sustainable Development Goal 2 (SDG 2) i.e., Zero Hunger).
- **Theme of World Food Day 2023:** "Water is life, Water is food. Leave no one Behind."

State of Global Water Resources 2022 Report

- The **World Meteorological Organization's (WMO) State of Global Water Resources Report** highlights severe impacts on the world's water cycle due to climate change and human activities.
- This independent, global-scale assessment quantitatively evaluates the status of hydrological variables such as river discharge, groundwater, evaporation, soil moisture, and reservoir inflow, comparing them to hydrological norms.

Key Terms in the Report

Asian Water Tower (AWT): From 2000 to 2018, the total glacier mass in the AWT region decreased by approximately 4.3%.

- **AWT ranks as the third-largest repository of ice and snow globally, following the Arctic and Antarctic regions**. Both the Arctic and Antarctic experienced substantial glacial melting in 2022.
- **AWT includes the Tibetan Plateau, Himalayas, Karakoram, Hindu Kush, the Pamirs, and Tien Shan Mountains**, collectively known as the **Third Pole.**
- Notably, North Sikkim witnessed devastating glacial lake outburst floods after the burst of **South Lhonak Lake**.

About World Meteorological Organization

- Established in 1950 with headquarters in **Geneva**, the World Meteorological Organization (WMO) traces its roots back to the **International Meteorological Organization (IMO)**, formed after the 1873 Vienna International Meteorological Congress.
- As a specialized agency of the United Nations, WMO's mandate encompasses weather, climate, and water resources, boasting a membership of 193 Member States and Territories, including **India**.

- It maintains a close association with the Intergovernmental Panel on Climate Change (IPCC).

Land Degradation Neutrality (LDN)

- The concept of LDN emerged from the UN Conference on Sustainable Development **(Rio+20)** in 2012.
- The LDN concept was developed under the UN Convention to Combat Desertification **(UNCCD)** and is aligned with the Sustainable Development Goals (SDGs- Target 15.3).

World's Commitment

- **New York Declaration** on Forests (goal: 350 million hectares of forest to be restored by 2030, also incorporating the Bonn Challenge).
- **The Bonn Challenge** is a global goal to bring 150 million hectares of degraded and deforested landscapes into restoration by 2020 and 350 million hectares by 2030.

India's Target

Restoration of 26 million hectares of degraded land aimed by 2030 to achieve an additional carbon sink of 2.5 to 3 billion tonnes of carbon dioxide equivalent.

Related Report & Pledges

- **Global Land Outlook report** is released by the UNCCD.
- **The Delhi Declaration**, adopted at the 14th Conference of Parties to UNCCD in 2019, called for better access and stewardship of land.

UNCCD Data Dashboard on Land Degradation

The UN Convention to Combat Desertification (UNCCD) has launched its first-ever Data Dashboard, revealing rapid land degradation across 126 countries.

Initiatives to Combat Land Degradation

- **United Nations Convention to Combat Desertification (UNCCD):**
  - The UNCCD was established in **1994** as the **sole legally binding international treaty dedicated to combatting desertification, land degradation, and drought.**
  - This **Convention focuses its efforts on** arid, semi-arid, and dry sub-humid regions, collectively known as **drylands**. Within the framework of the UNCCD, more than 100 countries have made commitments to combat and reverse land degradation across a total of over 450 million hectares by 2030, with 250 million hectares of this land being used for agriculture.
- **Land Degradation Neutrality (LDN) Target Setting Programme:**
  - The UNCCD 2018-2030 Strategic Framework represents a comprehensive global commitment to realize Land Degradation Neutrality (LDN) by endeavouring to restore the productivity of extensive areas of degraded land.
- **The Global Mechanism (GM) of the UNCCD:** The Global Mechanism (GM) is an organisational unit established by the UNCCD in 1994 to support the implementation of the Convention. GM works directly with countries on LDN Target Setting, LDN Transformative Projects and programmes, and the Drought Initiative.
- **The Bonn Challenge:**
  - It was launched in 2011 by the **International Union for Conservation of Nature (IUCN) and the German government** to **bring 150 million hectares** of degraded and deforested lands into restoration by 2020 and 350 million hectares by 2030.
- **The Great Green Wall Initiative:** It is an African-led initiative to restore biodiversity, **rehabilitate Africa's degraded landscapes, and transform millions of lives in the Sahel**, by restoring 100 million hectares of land.

Initiatives in India

- **National Action Plan to Combat Desertification (NAPCD-Part of UNCCD):** It is a comprehensive plan launched in 2010 to address desertification, land degradation, and drought in the country.

- **Conference of the Parties 14 (COP14, 2019) of UNCCD held in India:** India hosted the UNCCD COP for the first time. The Conference adopted the Delhi Declaration in which parties expressed commitment for Peace Forest Initiative and recovery of 26 million hectares of degraded land in India.
- **The Peace Forest Initiative: South Korea** established the **UNCCD in 2019** at the **14th COP in New Delhi**, aiming to promote collaboration among nations to restore degraded lands and forests in conflict-affected areas, while also fostering peace and trust.

Miscellaneous Efforts

- **India joined voluntary Bonn Challenge** pledge to bring into restoration 26 million hectares of degraded and deforested land by 2030.
- Desertification & **Land Degradation Atlas** of India (**published by ISRO**), for state-wise areas of degraded land.
- **Aravali Green Wall Project**, which is an ambitious plan to create a 1,400km long and 5km wide green belt buffer around the Aravali Mountain range covering states of Haryana, Rajasthan, Gujarat and Delhi.
- India set up a **Centre of Excellence at the Forest Research Institute, Dehradun**, for providing technical assistance to meet the challenges.

Brazzaville Summit or Three Basins Summit 2023

- The Brazzaville Summit of the Three Basins of the Amazon, Congo, and Borneo-Mekong-Southeast Asia concludes with a declaration in Brazzaville (capital of the Republic of the Congo).
- The seven-point Brazzaville Declaration aimed to halt and reverse biodiversity loss by 2030.

About Three Basins

Amazon Basin (Amazon Rainforest/"lungs of the Earth.")

- It is the **largest tropical rainforest** in the world spanning across several South American countries.
- The Amazon River, second-longest river in world (after the Nile), runs through the heart of the Amazon Basin.
- The Amazon Rainforest plays a crucial role in regulating the earth's climate. It acts as a significant carbon sink, absorbing and storing large amounts of CO_2, and contributes to production of oxygen through photosynthesis.

Congo Basin ("Lungs of Africa.")

- It is the **second-largest tropical rainforest** in the world, after the Amazon Rainforest.
- The Congo Basin spans across six countries—Cameroon, Central African Republic, Democratic Republic of the Congo, Republic of the Congo, Equatorial Guinea and Gabon.
- The Congo River, the second-longest river in Africa, flows through the basin.

The Borneo-Mekong-Southeast Asia Basin (Island of Borneo + Mekong River)

- Southeast Asia is a **subregion of Asia, consisting** of 11 countries: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar (Burma), the Philippines, Singapore, Thailand, Timor-Leste, and Vietnam.
- Borneo is the third-largest island in the world and is located in Southeast Asia. It is divided among three countries: Malaysia, Indonesia (Kalimantan), and Brunei.
- The Mekong River Basin includes parts of China, Myanmar, Laos, Thailand, Cambodia, and Vietnam.

These Three Basins collectively house 80% of the world's tropical forests and two-thirds of terrestrial biodiversity.

Belém Declaration

- The Belém Declaration was signed in the Brazilian city of Belém by **member countries of the Amazon Cooperation Treaty Organization (ACTO).**
- The Belém Declaration **advocates for the active participation of Indigenous People in decision-making**

Amazon Cooperation Treaty Organization

- **Members:** Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela
- **Objectives:** To harmoniously develop Amazonian territories and was created in 1995 to implement the goals of the ACT.
- **Permanent Secretariat:** Brasilia, Brazil

processes. Additionally, it **pledges to establish the Amazon Alliance to Combat Deforestation.**

- However, consensus among member countries on the objective of protecting the Amazon rainforest could not be reached.

Carbon Nanoflorets

- **Carbon Nanoflorets are a unique nanostructure composed of carbon atoms that show structural (morphology) similarity to plant flowers.**
- They stand out as promising materials for application in electrochemistry, gas adsorption and absorption, batteries and supercapacitors.

About Nanoflorets

- Nanoflorets can **absorb light at multiple frequencies,** including infrared, visible light, and ultraviolet (UV), making them highly efficient at converting sunlight into thermal energy. Contrast to traditional solar-thermal materials that typically absorb only visible and UV light.
- The unique surface area and morphology of these structures can impart specific properties that make them valuable for various technological advancements.
- Its unique shape ensures minimal light reflection & efficient heat retention. A 1-square-meter coating of nanoflorets can vaporize 5 litres of water in an hour, surpassing commercial solar stills.

New CO_2 to CO Conversion Technique

- A new energy-efficient carbon dioxide capture technology that converts carbon dioxide to carbon monoxide has been developed.
- It is done under **electro catalytic conditions under ambient temperatures in the presence of water.** It has been developed with potential for **application in the steel sector**.
- **DST-supported National Centre of Excellence in Carbon Capture and Utilisation (NCoE-CCU) at IIT Bombay** is actively working towards developing novel, scalable and affordable pathways on capturing CO2 from various emission sources, and converting it into usable chemicals or permanent storage, representing a crucial pathway for greenhouse gas mitigation.

CO_2 to CO Conversion Technology

- **Traditional processes require high temperatures (400-750 °C**), and the presence of the equivalent amount of hydrogen, But recent process can operate at ambient temperatures (25-40 °C) in the presence of water, eliminating the need for high-temperature conditions.
- The energy for this electrocatalysis reaction can be sourced directly from renewable energy, such as solar panels or windmills, ensuring a carbon-neutral operation.

IUCN's Integrated Tiger Habitat Conservation Programme (ITHCP) Or Tiger Program

- The **Integrated Tiger Habitat Conservation Programme (ITHCP)**, launched in 2014 and supported by the German Federal Ministry for Economic Cooperation and Development (BMZ), has introduced **a Call for Concept Notes for Phase IV of the Tiger Programme.**
- This phase **expands its scope to protect not only tigers but also includes leopards and both mainland and Sunda clouded leopards.**
- Countries eligible for funding under this initiative include Bangladesh, Bhutan, Cambodia, India, Indonesia, Myanmar, Nepal, and Thailand. The focus of the call is on specific conservation areas.

Protection of Plant Varieties and Farmers' Rights Authority (PPVFRA)

PPVFRA is a **Statutory body** created by an act of Parliament. It **works under the Department of Agriculture**, Cooperation and Farmers Welfare, **Ministry of Agriculture and Farmers Welfare.**

Formation

- India enacted the **Protection of Plant Varieties and Farmers' Rights (PPV&FR) Act, 2001**, **to protect plant varieties, farmers' rights, and encourage plant breeder development.**
- The legislation acknowledges the contributions of commercial plant breeders and farmers in breeding activities and supports socio-economic interests of all stakeholders, including private, public sectors, research institutions, and resource-constrained farmers.
- The **Protection of Plant Varieties and Farmers' Rights Authority was established on November 11, 2005**, to implement the Act's provisions.

Structure

- The **Chairperson is the Chief Executive** of the Authority. Besides the Chairperson, the Authority has **15 members, as notified by the Government of India (GOI).**
- **Eight of them are ex-officio members representing various Departments/ Ministries**, three from SAUs and the State Governments, **one representative each for farmers, tribal organization, seed industry and women organization associated with agricultural activities are nominated by the Central Government.**
- The **Registrar General is the ex-officio Member Secretary** of the Authority.

Functions of the PPVFRA	
Registration of new plant varieties, essentially derived varieties (EDV), extant varieties	Developing DUS (Distinctiveness, Uniformity and Stability) test guidelines for new plant species
Developing characterization and documentation of varieties registered	Compulsory cataloguing facilities for all variety of plants
Documentation, indexing and cataloguing of farmers' varieties	Maintenance of National Gene Bank
Preservation of plant genetic resources of economic plants and their wild relatives	Maintenance of the National Register of Plant Varieties and
Recognizing and rewarding farmers, community of farmers, particularly tribal and rural community engaged in conservation and improvement	

Decarbonisation

Decarbonization is the process of reducing or eliminating carbon emissions. It's a strategic effort to reduce human-caused carbon dioxide (CO_2) emissions to combat the effects of global warming.

India's Carbon Emissions Profile

- **India holds the position of the third-largest aggregate emitter globally.**
  - There is a potential for a fivefold increase in emissions if the historical growth rate of 5% continues.
  - Despite being home to 1/6th of the world's population, **India's historical contribution to cumulative global emissions has been only 3.3%.**
- In terms of major sectors, the **industrial and power sectors together contribute the majority of India's emissions, amounting to 2.7 $GtCO_2e$.**
  - Notably, approximately one-third of emissions originate from the steel and cement sectors, another one-third from the power sector, and the remaining share from transportation and other sectors.
- Additionally, **agriculture and allied activities constitute a significant sector, contributing nearly 17% of emissions.**

India Climate Energy Dashboard (ICED) 3.0

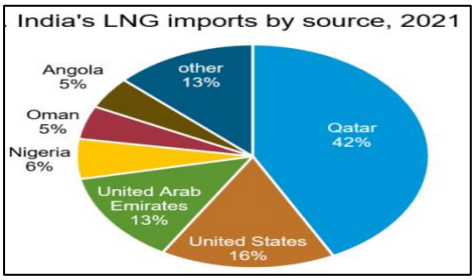
- India Climate Energy Dashboard (ICED) 3.0 is the country's one-stop platform for near real-time data on the energy sector, climate, and related economic datasets based on government published sources.
- It was **developed by NITI Aayog** with the energy and climate think-tank **Vasudha Foundation.**

Features

- ICED 3.0 is a user-friendly portal, offering free access to over 500 parameters, 2000 infographics, and numerous visualizations.
- This analytical engine facilitates insights and a better understanding of India's energy and climate sectors, aiding in monitoring the progress of the nation's clean energy transition journey.
- Additionally, the dashboard includes information on economy and demography for comparative analysis.

Gas-Based Economy

- A gas-based economy refers to an economy that heavily relies on the production, distribution, and consumption of natural gas as a major energy source.
- India's goal is to increase the share of gas in the energy mix from 6% today to **15% by 2030.**



Summary of Key Initiatives for Transistion

Policy and Regulation

- **Revised Domestic Natural Gas Pricing:** Based on the **Kirit Parikh panel report**, the pricing of APM gas is now benchmarked against imported crude oil with monthly revisions, ensuring market competitiveness.
- **Hydrocarbon Exploration and Licensing Policy (HELP):** This policy aims to boost domestic gas production by facilitating faster development of existing discoveries, supporting marginal field development, and providing marketing freedom for gas from specific areas.
- **India Gas Exchange:** This nationwide platform allows transparent and competitive gas trading, leading to efficient price discovery and benchmark prices.
- **Unified Tariff for Gas Pipelines:** This initiative promotes seamless gas movement across the country by ensuring a single tariff structure for all pipelines.

Infrastructure Development

- **LNG Terminals:** India has expanded its LNG import capacity through terminals like Dahej, Hazira, Dabhol, and Kochi, ensuring a reliable gas supply.
- **National Gas Grid:** This network of pipelines connects various regions, facilitating efficient gas transportation across the country, including the eastern and northeastern states through projects like **Pradhan Mantri Urja Ganga** and **North East Gas Grid**.
- **City Gas Distribution (CGD):** This initiative expands piped natural gas access to households and industries in various cities, promoting cleaner fuel usage.

Kalasa-Bhandura Project

- Goa is concerned about Karnataka's plan to build the **Kalasa Bhandura canal** to divert water from the upper reaches of the **Mahadayi to the Malaprabha basin.**
- The project involves the construction of dams and a canal system across **Kalasa and Banduri (two tributaries of the Mahadayi river**) to divert water from the Mahadayi River to the **Malaprabha River (a tributary of Krishna River)** basin in Karnataka.
- The main goal of the project is to meet the drinking water needs of the districts of Belagavi, Dharwad, Bagalkot, and Gadag in Karnataka.
- The project was proposed by the Karnataka Government in the 1980s, but faced opposition from the state of Goa. The **Mahadayi Water Disputes Tribunal was set up in 2010.** Goa, Karnataka and Maharashtra are parties to the tribunal.
- Karnataka received clearance for two Detailed Project Reports (DPRs) in January 2023, following Central government approval for the Kalasa-Banduri Nala on the Mahadayi River.

- Following the endorsement from the **Central Water Commission (CWC),** the Karnataka state government has made the decision to proceed with the project.

Tiger Reserves (TR) in News

Melghat Tiger Reserve (MTR)

Location	● Situated in the Amaravati district of Maharashtra. ● Located on the southern offshoot of the Satpura Hill Range, called Gavilgarh Hill.
Features	● It was established as a wildlife sanctuary in 1967 and was declared a tiger reserve in 1974. ● It was the 1st tiger reserve in Maharashtra. It was among the 1st nine tiger reserves notified in 1973-74 under Project Tiger, a wildlife conservation project initiated in India in 1972 to protect Bengal tigers. ● It is considered a stronghold of the critically endangered forest owlet. ● **Vegetation:** The forest is a tropical dry deciduous in nature, dominated by teak. ● **Rivers:** The reserve is a catchment area for five major rivers: the Khandu, Khapra, Sipna, Gadga, and Dolar, all are tributaries of the river Tapti. ● **Tribes:** The Korkus are the largest tribal community in Melghat. Other communities include the Gawli community, the Gond tribe.
Fauna	Sloth Bear, Indian Gaur, Sambar deer, Leopard, Nilgais, dhole, hyena, jungle cat, langur, etc.
Flora	Teak, Bamboo, etc

Mukundra Hills Tiger Reserve

Geographic Location	• Situated in a valley formed by two parallel mountains, Mukundra and Gargola in **Rajasthan** • Located on the eastern bank of the **Chambal River** and is drained by its tributaries.
Features	• The Mukundra Hills attained the status of a Wildlife Sanctuary in 1955 and was later designated as a National Park, known as **Mukundra Hills (Darrah) National Park**, in 2004. • It was declared as tiger reserve in 2013 under the Wildlife Protection Act, 1972. • Mukundra Hills National Park consists of three wildlife sanctuaries: 1) **Darrah** WLS, 2) **Chambal** WLS and 3) **Jaswant Sagar** WLS
Flora	• Kala Dhok or Kaladhi is the predominant species, along with Khair, Ber, Kakan, Raunj, etc.
Fauna	• It is a home of Leopard, Sloth bear, Nilgai, Chinkara, Spotted Deeretc.

Kalakkad-Mundanthurai Tiger Reserve (KMTR)

Location	• South Western Ghats montane rainforests, spanning across the Tirunelveli and Kanyakumari districts in the state of **Tamil Nadu** • Part of the Agasthyamala Biosphere Reserve
Features	• 1st Tiger Reserve of Tamil Nadu. known as the “River Sanctuary”(as origin of 14 rivers • Established in 1988, formed by merging the Kalakad Wildlife Sanctuary and the Mundanthurai Wildlife Sanctuary • The reserve is drained by several rivers, including the Tamiraparani, Karaiyar.
Fauna	• Tigers, elephants, leopards, gaurs, and sambar deer.
Flora	• Teak, rosewood, sandalwood, and bamboo. • The reserve is also home to a variety of orchids, ferns, and other flowering plants.

Kamlang Tiger Reserve

Location	• Southeastern part of Lohit District in **Arunachal Pradesh** near the border with Myanmar.
Features	• It is named after the **Kamlang River**, which flows through the reserve and joins the Brahmaputra. • It is spread **between the Namdapha National Park on its south and Lang River on its north.** • The local inhabitants are **Hishmi, Digaru and Mizo.** • **Landscape**: It encompasses a diverse range of landscapes, including dense tropical forests, grasslands, rivers, and hills. • **Climate:** It enjoys a sub-tropical climate as it falls within the sub-tropical zone.
Fauna	• The reserve is home to **four big cats, Snow Leopard, Clouded Leopard, Leopard, and Tiger**, as well as endangered species like Himalayan Palm Civets, Leopard Cat, Slow Lories, and Hoolock Gibbon. Other common species include Giant and Flying Squirrels, Hornbills, Deer, Civets, Boar, Capped Langur, and Stump Tailed Macaque.
Flora	• **Ammora wallichi (Amari), Gmelina arborea (Gamari), Terminalia chebula (Hillika**), Canarium resigniferum (Dhuna) and many others.

Wildlife Sanctuaries in The News

Dandeli Wildlife Sanctuary (DWL)

Location	• In the Uttara Kannada district of Karnataka • Situated in the Western Ghats • Drained by rivers, including the **Kali River**, Kaneri River, and Bedthi River
Features	• Part of the Anshi Dandeli Tiger Reserve • Karnataka state government has officially notified the Dandeli Elephant Reserve under Project Elephant
Fauna	• Most famous for the Great Hornbill (great Indian hornbill or great pied hornbill) and the Malabar Pied Hornbill.
Flora	• Some of the trees found in the reserve teak, rosewood, sandalwood, and bamboo. • The reserve is also home to a variety of orchids, ferns, and other flowering plants.

Debrigarh Wildlife Sanctuary

Location	It is located in Odisha near the **Hirakud Dam (Mahandi River).** It is bounded on the east and north by the huge Hirakund reservoir.
Features	• It was declared as a wildlife sanctuary in February **1985.**National Tiger Conservation Authority (NTCA) approved Odisha's Proposal to declare Debrigarh a Tiger Reserve (Upgradation of Wildlife sanctuary to Tiger Reserve). • It will become the *third tiger reserve in Odisha after Similipal and Satkosia*. • It finds a special mention because of noted freedom fighter veer Surendra Sai. During his rebellion against the British Veer Surendra Saimade his base at 'Barapathara" located within the sanctuary.
Flora & Fauna	• It is one of the few sanctuaries (having Dry deciduous forests) supporting both terrestrial and aquatic biodiversity; which further attracts a significant number of migratory waterfowl during winter (Hirakud Reservoir, which attracts a variety of migratory birds). • It is home to four-horned antelope, Indian leopard, Indian elephant, sambar, chital, gaur, etc.

Kolleru Wildlife Sanctuary

Location	**In Andhra Pradesh, Between Krishna and Godavari deltas**

Features	• **Important Bird Area (IBA)** • **Kolleru Lake (Ramsar Site):** Part of Sanctuary, Asia's largest freshwater lake, serves as a breeding ground for various (estimated 20 million) migratory birds along the East Coast Flyway. • **The Atapaka Bird Sanctuary** at Kolleru Lake has become a safe breeding ground for two migratory species namely, Grey Pelicans and Painted Storks.

Burachapori Wildlife Sanctuary

Location	It is located on the southern bank of the river Brahmaputra in Assam. It is part of the larger **Kaziranga-Karbi Anglong** landscape.
Features	• It was declared a Reserved Forest in 1974 and became a sanctuary in **1995.** • It serves as a notified **buffer zone** of the renowned **Kaziranga Tiger Reserve**. • This crucial connection contributes to the conservation of the region's tiger population and the overall ecological balance.
Flora & Fauna	• It consists of a mosaic of wet alluvial grasslands, riparian and semi-evergreen forests dotted by wetlands and river systems. • The abundance of **freshwater mangrove trees** is a unique flora of the sanctuary. • Its bird list includes the highly endangered Bengal Florican, Black-necked Stork, Mallard, Open billed Stork, Teal, and Whistling Duck among others. • It is home to the Great Indian one-horned rhinoceros, tiger, leopard, wild buffalo, hog deer, wild pig, and elephants.

Kambalakonda Wildlife Sanctuary

Location	• It is a vast forest reserve located near **Vishakhapatnam,** Andhra Pradesh.
Features	• The name of the place referred to the local hill, Kambalakonda. It is considerably hilly with steep slopes. • This Wildlife Sanctuary serves as a vital green lung for Visakhapatnam city.
Flora & Fauna	• One of the most amazing flowers found in the region include the **Indian screw tree.** • Other flowers and fruits such as *bush plum tree, jungle berry bunches* can be found throughout the landscape. • The animals included in this sanctuary are Indian leopard, Indian pangolin, Madras treeshrew. • Russell's viper or Daboia russelli is also a rare breed of snakes found in this sanctuary. • Some of the unusual birds include Indian Golden Oriole, Indian Peafowl, Banded Bay Cuckoo etc.

Nugu Wildlife Sanctuary

Location	North of Bandipur National Park in Mysore District, Karnataka Built across the Nugu River, a tributary of the Cauvery
Information	Declared as a Wildlife Sanctuary in 1974; Added to Nilgiri Biosphere Reserve in 2003- 2004. The National Tiger Conservation Authority (NTCA) has recommended to the authorities that the Nugu Wildlife Sanctuary (WLS) adjoining the Bandipur Tiger Reserve be declared as a core critical tiger habitat. Average 1000 mm (from both southwest and northeast monsoons)
Flora	Dry, deciduous and interspersed with patches of plantations

Fauna	Home to two important riverine wildlife species: the smooth-coated otter & the marsh crocodile

Important Days

International Day for Biological Diversity: 22 May

- On **22 May**, International Day for Biological Diversity is observed annually across the world.
- When it was first established by the UN General Assembly in 1993, the 29th of December (the date of the Convention on Biological Diversity's entry into force) was designated as International Biodiversity Day. Later the UNGA designated 22 May as IDB in 2000 to commemorate the adoption of the Convention's text.

India and Convention on Biological Diversity (CBD)

- The Convention on Biological Diversity (CBD) was negotiated and signed by nations at the **Earth Summit at Rio de Janeiro in Brazil in June, 1992**
- India is also a party to the Convention. India ratified it in **1994.**
- India enacted the **Biological Diversity Act in 2002** to give effect to the provisions of the CBD.
- To implement the provisions of the Act, the government established the **National Biodiversity Authority (NBA) in 2003.**

International Day for the Conservation of the Mangrove Ecosystem: 26 July

- Adopted by the General Conference of UN Educational, Scientific and Cultural Organization (UNESCO) in 2015
- Mangroves are unique kinds of trees or shrubs that can grow in saltwater environments and provide habitat for a wide variety of marine and bird species, and they are an important source of food and livelihood for many coastal communities.

International Tiger Day: 29 July

- Established in 2010 at St Petersburg Tiger Summit in Russia to raise awareness about the decline of wild tiger numbers.
- The tiger population has shown a steady increase from 1,411 in 2006 to 1,706 in 2010, 2,226 in 2014, 2,967 in 2018, and 3,167 in 2022.
- India has achieved the remarkable feat of doubling the tiger population in 2018 itself, 4 years ahead of the targeted year 2022.
- India currently has 53 tiger reserves, Guru Ghasidas National Park of Chhattisgarh is the 53rd Tiger Reserve.
- 14 Tiger Reserves in India have already been awarded with international CA|TS (Conservation Assured Tiger Standards) accreditation.

World Environment Day: 5 June

- It is celebrated annually on **5 June** since 1973. It is led by United Nations Environment Programme (UNEP).
- **Aim:** To raise awareness on degrading environmental conditions as well as to encourage people worldwide to take positive environmental actions for a better future.
- **Features**
  - It is hosted by a different country each year.
  - In 2023, Cote d'Ivoire will host the event in partnership with the Netherlands.
  - India hosted the 45th celebration of World Environment Day in 2018 under the theme 'Beat Plastic Pollution.

Devankanam Charuharitham

- On World Environment Day, the Kerala government inaugurated a project called *Devankanam Charuharitam* or the beautiful green abode of God.
- The primary focus of the project is to improve the green cover (Planting various flowering plants and fruit-bearing trees) around the temples (3800 temples across Kerala).

- Alongside the green cover enhancement, the project also includes the renovation of abandoned temple ponds.

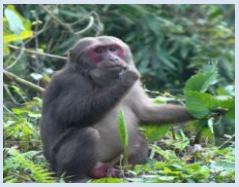
About United Nations Environment Programme (UNEP)

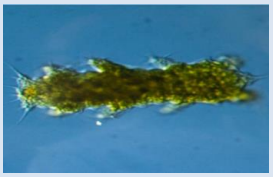
Origin	• Established in 1972 (Headquartered in Nairobi, Kenya) • In 2022, UNEP celebrated its 50th anniversary, having served as an authoritative advocate for the global environment since 1972
United Nations Environment Assembly (UNEA) • UNEA is the governing body of the UNEP, established during the **Rio+20 Conference** in 2012. • It serves as the highest-level decision-making body within the United Nations system for environmental matters. • UNEA convenes biennially in Nairobi, Kenya, with the objective of setting global environmental priorities and formulating international environmental law. • UNEA-5 Summit in Nairobi endorsed a resolution to combat plastic pollution, emphasizing the need for an international legally binding agreement by 2024.	
Reports	Emission Gap Report, Frontiers Report, Invest into Healthy Planet, Global Environment Outlook, The Production Gap Report, Adaptation Gap Report, Greening the Blue report.

SPECIES IN NEWS

Fauna In News

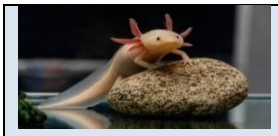
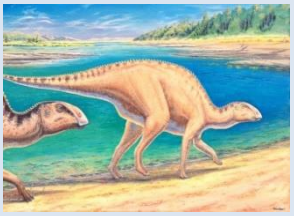
Ruddy Shelduk 	• It is a member of the Anatidae family, which includes ducks, geese, and swans. • In India it is known as the Brahminy duck. • It is a migratory bird distributed across ~~in~~ Europe, Asia, Indian Subcontinent and a few pockets in Africa. • It is listed as Least Concern in the IUCN Red list.
Dancing Frog 	• It is endemic to the Western Ghats and can be found in High altitude shola forests, wet evergreen forests, Myristica swamps, and secondary forests. • It popularly known as "dancing frogs" due to their peculiar habit of waving their feet to attract females and ward off competition during the breeding season. • They have prominent white vocal sacs.
Egyptian Vulture 	• It is a native bird of Europe, Central Asia and Africa, and in winters, it travels towards Asian countries, including India. • It inhabits open, arid areas near humans, with plenty of food options. • They build a large nest and will constantly replenish it during the breeding season. • One of the primary threats facing this species is illegal poisoning aimed at carnivores. • It is listed as Endangered in the IUCN Red list.
Snow Crabs 	• It lives in the coldest parts of the North Atlantic Sea and the Northern Pacific Ocean. • On top they are brownish in colour and underneath they are lighter. • Males and females can be distinguished by the shape of their abdominal flaps. On males this flap is triangular, and on females it is broadly rounded. • These are found off the coast of Alaska in the Bering, Beaufort, and Chukchi Seas.

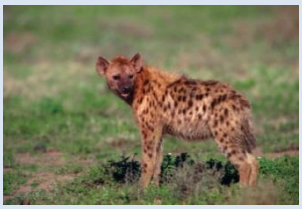
Paintbrush Swift 	• It is a butterfly species of the Hesperiidae family. • It is identified based on two separated spots in the upper forewing cell. • Its habitat is distributed in northeast, central and south India, and rare in Uttarakhand. • It is protected in India under Schedule IV of the Wildlife (Protection) Act, 1972.
Swamp Deer 	• It is a deer species distributed in the Indian subcontinent. • It is also called as barasingha. • It is the state animal of the Indian states of Madhya Pradesh and Uttar Pradesh. • It has been locally extinct in Pakistan and Bangladesh, and its presence is uncertain in Bhutan. • It is listed as Critically Endangered in the IUCN Red list and in the Schedule I of the Indian Wildlife (Protection) Act, 1972.
Walking Leaves 	• These are also called leaf insects, are insects that look very similar to leaves. • They are any of more than 50 species. They feed on plants and typically inhabit densely vegetated areas. • Their natural range extends from islands in the Indian Ocean, across parts of mainland South Asia and Southeast Asia, to Papua New Guinea and Australia in the western Pacific.
Takahe Bird 	• It was believed to be extinct decades ago, has returned to the forests of New Zealand's South Island. • It had been formally declared extinct in 1898. • It is large flightless bird, has predominantly blue feathers on their bodies, green wings, and a large red beak. • It is territorial and non-migratory, adapting its behavior to the changing seasons.
Tharosaurusindicus 	• The scientists named the dinosaur Tharosaurusindicus, with Tharo deriving from the Thar desert. • At 167 million years old, they are the oldest known Diplodocoid fossils in the world. • This family was unique, its members were smaller and had shorter necks and tails compared to the other long-necked sauropods.
Stump-tailed Macaque 	• It is also called the bear macaque. • It is a species of Old-World monkey found in South Asia. • It is mostly found in North east state. • They have thick, long, dark brown fur covering their bodies and short tails. • It is listed as Vulnerable in the IUCN Red List and in Schedule II of Wild Life (Protection) Act, 1972.
Indian Oil Sardine 	• It is a species of ray-finned fish in the genus Sardinella. • It contributes to about 15% of the total marine fish production in India. • It is distributed on the entire west coast from Gujarat to Kerala and also on the Tamil Nadu, Andhra Pradesh and Orissa coasts in the east. • Highest abundance and large-scale shoaling are observed off Kerala and Karnataka coasts.
Sambar deer 	• It is a large deer native to the Indian subcontinent and Southeast Asia. • Hunting and habitat encroachment are the main threats. • It is listed as Vulnerable in the IUCN Red List and in Schedule III of Wild Life (Protection) Act, 1972.

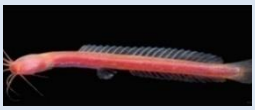
	• Their range is distributed from the foothills of the Himalayan Mountains across southern Asia and reaching the islands of Taiwan, Sumatra and Borneo.
Chitala Fish 	• It is a species of fish known for its nocturnal predatory behaviour and is known as the Indian featherback or Indian knifefish. • It is native to the Indian subcontinent, including regions of Pakistan, India, Nepal, and Bangladesh. • It is listed as Near Threatened in the IUCN Red List • It is found in the Indus, Ganges-Brahmaputra and Mahanadi River basins in India.
Batillipes Kalami 	• Researchers named a new species of marine tardigrade after former President A.P.J. Abdul Kalam • Tardigrades are also known as water bears. They are microscopic eight-legged animals. • It belongs to species known as extremophiles, that survive in extreme conditions, without food or water.
Mithun 	• Mithun descendant of the Indian Gaur or bison gets a 'food animal' tag from the Food Safety and Standards Authority of India (FSSAI). • It is distributed in Northeast India, Bangladesh, northern Myanmar and in Yunnan, China. • It is the state animal of Arunachal Pradesh and Nagaland. • It is listed as Vulnerable in the IUCN Red List.
Indian skimmers 	• It is also known as Indian scissors bill. • It is native to India, Bangladesh, Myanmar, Nepal, Pakistan and Vietnam. • It is more widespread in winter; found in the coastal estuaries of western and eastern India. • It is listed as Endangered in the IUCN Red List.
Western Tragopan (VUL) 	• Distribution: endemic to the northwest Himalaya. • It is a medium-sized brightly plumed pheasant • It feeds on the ground, but is known to roost in trees. • It is the state bird of Himachal Pradesh.
Himalayan Vulture (NT) 	• Distribution: It is native to the Himalayas and the adjoining Tibetan Plateau and also found in the Central Asian mountains. • One of the largest Old World vulture species • It has a bald white head, wings that are very wide and short tail feathers. • These are diurnal and mostly solitary species.
Yellow-bellied Sea snake (LC) 	• Distribution: It is widely distributed across the warm tropical and subtropical waters of the Indian and Pacific Oceans. • It is a highly venomous species of snake that belongs to the subfamily Hydrophiinae (the sea snakes). • This species is renowned for its striking appearance, potent venom, and unique adaptations to a marine lifestyle.
Clouded Leopard (VUL) 	• Distribution: It is a wild cat found in dense forests from the foothills of the Himalayas to mainland Southeast Asia and South China. • State animal of Meghalaya • It prefers grassland, shrubs, subtropical and dense tropical forest up to a height of 7,000 feet.

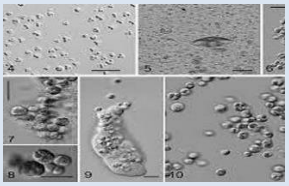
Vaquita Porpoise (CR) 	• Distribution: It only lives in a small 1,500 square-mile area in Mexico's upper Gulf of California. • (world's smallest cetacean) • Its name means "little cow" in Spanish. • It has a dark ring around the eyes is its most striking feature, along with a proportionally large dorsal fin.
Monitor Lizards (LC) 	• Distribution: It mainly native to Asia, Africa, and Australia. India is home to four Monitor lizards, Bengal Monitor, Asian Water monitor, yellow monitor and Desert monitor. • (most intelligent of all lizards) • Most monitor lizards are terrestrial and largely carnivorous. • It is listed as Schedule 1 in the Wildlife (Protection Act), 1972.
Indian Flying Fox Bat (LC) 	• Distribution: It is the largest bat in the world and belongs to the species of megabats native to the Indian subcontinent. • (also called the Great Indian Fruit Bat) • These bat species have been identified as carriers of the Nipah Virus, which is fatal for humans. • It is listed in Schedule II in Wildlife (Protection) Act, 1972.
Palm cockatoo (LC) 	• Distribution: It is native to New Guinea, Aru Islands, and Cape York Peninsula. • Also known as the great black cockatoo • It has a unique appearance, characterized by its large, strong bill, prominent crest, and striking black plumage. • It is a large smoky-grey or black parrot of the cockatoo family.
American Bald Eagle 	• It is a large, predatory raptor that are recognizable for their brown body and wings, white head and tail, and hooked yellow beak. • It is the only sea eagle endemic to North America. • It is listed as Least Concern in the IUCN Red list. • It has been the national emblem of the United States since 1782.
Sea Lion 	• It is a marine mammal belonging to the Otariidae family. • It is known for semi-aquatic lifestyle, spending considerable time on both land and water. • It can be found in various regions including the Pacific Ocean, Atlantic Ocean and parts of the Indian Ocean. • Adult males develop a thick mane of hair around their necks. • Currently, there are 6 subspecies of sea lions – Australian sea lions, California sea lions, Galapagos sea lions, New Zealand sea lions, South American sea lions and Steller sea lions.
Octopus 	• It is a sea animal famous for their rounded bodies, bulging eyes, and eight long arms. • They live in all the world's oceans but are especially abundant in warm, tropical waters. • It has three hearts, two of which pumps blood to the gills and the third heart circulates blood to rest of the body.

	• It has blood that is coloured blue, mainly because of the presence of hemocyanin, a copper-based protein in its blood cells. • All octopuses are venomous – it does not make the venom by itself, but are produced by symbiotic bacteria instead.
Santa Fe frog 	• It is known for its striking "leopard-print" appearance. • It is an extremely rare species found only in South American countries namely Argentina, Bolivia and Paraguay. • It is listed as Near Threatened in the IUCN Red list. • Its existence is threatened by habitat loss caused by deforestation in the Dry Chaco.
Tunicates 	• These are marine invertebrate species belonging to phylum Urochordata. • They are commonly called sea squirts. • They spend most of their lives attached to docks, rocks or the undersides of boats. • Their body structure is sac or barrel like with two siphons, a tubular opening. • These are considered as closest relatives of vertebrates such as fish, mammals, and people.
Atlantic Menhaden 	• It is a commercially important Atlantic Ocean fish, also known as Fatback, Bunker, Pogie. • It is found in coastal and estuarine waters from Nova Scotia to northern Florida. • It is a major source of omega-3 fatty acids, so they are also used to develop human and animal supplements. • It is listed as Least concern in the IUCN Red list.
Cicada 	• These are hemipteran insects, also known as true bugs. • There are more than 3,000 known species of cicadas. • Most diversity of this species is found in Indian and neighbouring country Bangladesh. • This species is an indicator of soil health and vegetation. • They are used in folk medicines. While in some regions they act as religious and monetary symbols. • The dead body acts as a nutrient source, nitrogen to be specific, which helps in growth of the plants.
Pilot Whale 	• It is the largest members of the dolphin family, but are treated as whale for the Marine Mammals Protection Regulations 1992. • They are also called blackfish or pothead whale. • It is characterized by a round bulging forehead, a short beaklike snout, and slender pointed flippers. • Males are larger than females and are much heavier and bulkier than females, and have larger heads and dorsal fins.
Himalayan Brown Bear 	• It is a large carnivore found in the high-altitude regions of the Himalayas including Pakistan, India, Nepal, China and Bhutan. • It is omnivorous and hibernate in dens during the winter. • The mammal is listed as Critically Endangered in IUCN Red List and in Schedule I in Wildlife (Protection) Act of 1972
Axolotls	• It is a species of salamander (lizard-like amphibians). • They are Carnivorous and remain aquatic throughout their lives.

	• It has been variously interpreted as water dog, water twin, water sprite, or water slave. • They were originally found in Lake Xochimilcan, near Mexico City. But they are now almost extinct in the wild. • It is listed as critically endangered in the IUCN Red list.
Alligator Gar Fish 	• It is known for its crocodile-like head and razor-sharp teeth. • It is normally found in northern and central America and also in Mexico. • It is a predator fish and a carnivore. It can eat all types of fish and therefore poses a threat to native species. • It is listed as least concerned in the IUCN Red list.
Duck-billed Dinosaur 	• It is a species of herbivorous dinosaur previously unknown in the southern hemisphere. • Duck-billed dinosaurs were herbivorous. • These were slender-looking dinosaurs, which could easily adopt a bipedal and quadrupedal posture to reach the vegetation at height and ground level. • During the Cretaceous period duck-billed dinosaurs lived in the Americas, Europe, and Asia.
Spotted Pond Turtles 	• Spotted pond turtles are named for the yellow or white spots on their black heads, legs and tails. • They have large heads and short snouts, and their webbed feet help them swim. • They are found in large, deep rivers in India, Pakistan and Bangladesh. • They are Carnivorous and they bask in the sun to regulate their body temperature. • In India, the species is distributed across the north, northeast and a few parts of central India. • It is listed as Endangered in the IUCN Red list.
Black Buck 	• It is the sole extant member of the genus Antilope found in India. • It lives mainly in open grasslands or dry deciduous forests. • It has been declared as the state animal by the governments of Punjab, Haryana and Andhra Pradesh. • It is listed as Least concerned in the IUCN Red List and Schedule I in Wildlife Protection Act of 1972.
Hasarius Mumbai 	• It is a newly discovered species of jumping spider. • These are spiders who, instead of trapping their prey in a web, stalk and hunt them by pouncing. • It has multiple eyes that give a 360-degree view of its surroundings and a bulbous body covered in hair. • In India, there are only two other Hasarius species which have been documented
White-Rumped Vulture 	• It is a medium-sized Old-World vulture. • It is also known as Indian White-backed Vulture or Oriental White-backed Vulture. • It is frequently spotted close to areas where people are present. • It is listed as Critically Endangered in the IUCN Red list and Schedule-1 in Wildlife Protection Act 1972. • White-rumped vultures die of kidney failure caused by diclofenac poisoning.
Indian Skimmer	• It is a species of bird, that gets its name from the way it feeds, flying low over the water surface and 'skimming' for fish.

	• It is native to India, Bangladesh, Myanmar, Nepal, Pakistan and Vietnam. • It is listed as Endangered in the IUCN Red List. • Its population is declining primarily because of the degradation of wetland and riverine habitats.
Hyena 	• It is doglike carnivores found in Asia and Africa and are noted for their scavenging habits. • There are three hyena species — spotted, brown, and striped. Spotted hyenas are the largest of the three. • All hyenas are more or less nocturnal. • They are four-legged animals with scraggly fur and large ears. • Spotted Hyena is listed as least concern in IUCN Red list; brown and striped hyenas are listed as near threatened.
Moroccan Locust 	• It is a grasshopper in the insect family Acrididae. • It is found in northern Africa, southern and eastern Europe and western Asia. • It lives a solitary existence but increases rapidly in numbers over a few years, and tends to form groups. • It poses a significant threat not only to wheat crops but also to more than 150 other plant species. • They have a robust body, short antennae, and powerful hind legs adapted for jumping. The coloration of their bodies can vary, ranging from greenish brown to reddish-brown.
Comb Jellies 	• It is formally known as ctenophores • It is a beautiful, oval-shaped animal with eight rows of tiny comb like plates. • Most of the comb jellies are bioluminescent. • As it swims, the comb rows break up (diffract) light to produce a shimmering rainbow effect. • They live in almost all ocean regions, particularly in surface waters near shores.
Painted Stork 	• It is a large wading bird in the stork family. • It is usually seen in the freshwater wetlands and occasionally in the coastal regions. • It found in Pakistan, India, Sri Lanka, Myanmar, Malaysia and Thailand. • It is listed as Near Threatened in the IUCN Red list. • They are not migratory and only make short distance movements in some parts of their range in response to food and for breeding.
Scalloped Hammerhead Shark 	• It is a circum-global shark species that is found worldwide in coastal warm temperate and tropical seas of the Atlantic, Indian, and Pacific oceans. • It is listed as Endangered in the IUNC Red List. • Its population is declining because of overfishing, driven by the high economic value of its fins and the consumption of its meat. • The Hammerhead Shark uses sensors in its head to detect its prey • Hammerhead Sharks do not lay eggs like most other fish.
Milkweed butterflies 	• A team of researchers shed light on the migration patterns of Milkweed butterflies in southern India. • Milkweed Butterflies are a diverse group of butterflies belonging to the brush-footed butterfly family. • It flies slowly, and some migrate great distances.

	• It feed mainly on milkweed plants and sometimes on nightshade.
Gekko Mizoramensis 	• New species of flying gecko is found near Myanmar border named after Mizoram. • It is a subgenus called Ptychozoon of the Gekko genus. • Its habitat spread into the parts of Bangladesh, Myanmar, Thailand and Cambodia along with Mizoram. • It is arboreal, nocturnal and glides from one tree to another. • They have webbed limbs and flat tails to help them glide (they do not fly). • The species is paraphyletic and comprises multiple cryptic species.
Sea Butterflies 	• It is a subgroup of sea snails known as shelled pteropods. • It has muscular legs that allow them to swim in water instead of gliding on solid surfaces. • It is holoplanktonic and spends its entire life cycle in the water column. • It is found in all oceans but is more diverse and abundant in colder waters. • Their shell is mostly transparent and very fragile and can be easily dissolved by ocean acidification.
Pygmy Hog 	• It is an indicator species. • It is the smallest and rarest species of wild pig in the world. • It is a native to alluvial grasslands in the foothills of the Himalayas. • It is one of the very few mammals that build its own home, or nest, complete with a roof. • The viable population of this pig in the wild is in the Manas Tiger Reserve in Assam. • It is listed as Critically Endangered in the IUCN Red list and in the Schedule I of the Indian Wildlife (Protection) Act, 1972.
Horaglanis Populi 	• It is a species of catfish endemic to India mainly in Kerala. It lacks pigmentation and eyes. It was genetically very different from all other known species. • It is highly vulnerable to extinction due to its small ranges. • It has blood-red body and transparent skin. • It has a highly reduced pectoral fin and a shortened spine while the dorsal and anal fins are long, extending to the tail.
Pliosaur 	• Pliosaurs were aquatic carnivorous reptiles that lived between 220 and 70 million years ago. • Pliosaurs have been found as fossils from the Jurassic and Cretaceous periods • They were the largest aquatic carnivorous reptiles that have ever lived and are often dubbed sea monsters. • Their limbs were in the form of fins. They used four large fins to swim through Mesozoic seas. They had powerful large skulls and large jaws with large sharp teeth.
Pancorius Sebastiani 	• A New species of jumping spiders' Pancorius sebastiani' has been discovered from the Western Ghats (In Shendurney Wildlife Sanctuary – under Agasthya Mala Biosphere Reserve). • Its distribution was hitherto limited to the east and northeastern regions in India. • Males and the Females of this species exhibit reddish brown carapace. • They have yellowish abdomens with black patches and chevron-shaped markings posteromedially.

	• Distribution: Only two States, West Bengal and Tamil Nadu, have reported high numbers of Salticidae species.
Awaous Motla 	• A group of scientists has discovered that an edible freshwater fish, available in the markets of western Odisha, is actually an unregistered species. The new species was named 'Awaous Motla. • The species belongs to the family 'Awaous' (Oxudercidae), thus named Awaous motla and 'motla' by fishermen. • The fish has a vibrant yellow-coloured body. • It was discovered from the Mahanadi River and can be consumed both fresh and dried.
Alcalus Fontinalis 	• Researchers recently discovered a new species of frog named Alcalus fontinalis in Arunachal Pradesh (in the Namdapha Tiger Reserve). • The identification of the new species is based on molecular, morphological, and osteological characteristics. • The frog appeared to be a mix of a bush frog & a water frog, something not seen before in India. • They are no ordinary frogs but members of a dwarf mountain frog of the genus Alcalus, hitherto unknown from India.
Attenborough Echidna 	• An elusive Attenborough's long-beaked echidna which was feared extinct after disappearing for six decades has been rediscovered in a remote part of Indonesia. • They are part of the monotreme group, which are unique mammals laying eggs instead of giving live birth. • They are nocturnal and shy and rolls up into a spiny ball when it feels threatened, resembling the behaviour of a hedgehog (spiny mammal). • Adults have no teeth, but the tongue is covered in tooth-like spikes. • IUCN Status: Critically Endangered & CITES: Appendix II
Paintbrush Swift Butterfly 	• Paintbrush swift butterfly is photographed for the first time in Himachal Pradesh. • It's specie of the Hesperiidae family. • Scientific name is Baoris Farri. • Species larvae feed on bamboo and some other grass species. • It is found across northeast, central and south India. • Conservation status: Schedule IV of Wildlife Protection Act 1972
Picocystis Salinarum 	• A researcher has divulged the molecular mechanisms behind the resilience of the green alga Picocystis Salinarum in extreme conditions of saline-alkaline soda lakes. • It is one of the smallest green algae. • Though the algae had been widely found in saline-soda lakes around the world, it was spotted for the first time in India only in the Sambhar Lake. • The unique organism apparently enhances photosynthesis and ATP synthesis along with chaperone proteins as key response to high salinity-

	alkalinity. • This discovery is a potential candidate for biotechnological applications, including carbon capture and biomass production.
Black Stork 	• Black Stork (Immature) was spotted in Hastinapur Wildlife Sanctuary, now known as the State Swamp Deer Wildlife Sanctuary • The black stork is a large bird in the stork family (Blackbuck) • The adult black stork has mainly black plumage, with white underparts, long red legs and a long pointed red beak. • **IUCN Status:** Least concern • **Breeding locations**: Across Europe (predominantly in Portugal and Spain, and central and eastern parts), and east across the Palearctic to the Pacific Ocean.
Gangetic Dolphin 	• The Ganges River dolphin has a sturdy, yet flexible, body with large flippers and a low triangular dorsal fin. Females are larger than males. • They are among the oldest creatures in the world along with some species of turtles, crocodiles, and sharks. Generally blind. • They emit an ultrasonic sound that reaches the prey. So they known as Susu • **IUCN Status**: Endangered (IUCN). • **Habitat**: Ganges river dolphins prefer deep waters, in and around the confluence of rivers. • **Distribution**: India covers seven states namely, Assam, Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar, Jharkhand and West Bengal**.**
De Winton's Golden Mole	• It is an elusive blind mole that "swims" through sand, lives in inaccessible burrows. • **Distribution**: It is endemic to South Africa. • **Habitat**: Its natural habitats are subtropical dry shrubland, Mediterranean-type shrubby vegetation, and sandy shores. • **IUCN status**: C**ritically Endangered**. It is currently the only golden mole species with that classification. • It is among the 25 "most wanted lost" species that are the focus of Global Wildlife Conservation's "Search for Lost Species" initiative.
Double Humped Camels 	• Double Humped Camels or Bactrian camels, have two humps on their backs where they store fat. • **Distribution**: They are native to the harsh and arid regions of Central Asia. • **IUCN Red List:** Critically Endangered • They typically live in herds of 6-20 members, although they can occasionally be solitary or in groups of up to 30 individuals. • **Diet:** They are omnivores but are primarily herbivores that constantly graze on grasses.
Megamouth Shark 	• It is an extremely rare and unusual species of deep-water shark. • **Distribution**: They are believed to exist between latitudes 40°N and 40°S. These sharks inhabit the Atlantic, Indian, and Pacific oceans. • **IUCN Red List:** Least Concern • **Habitat**: They are found in deep, warm Oceanic water.

	• They are filter feeders, and they swim with their mouths constantly wide open in order to filter out their preferred planktonic prey.
Salamander 	• A salamander is an amphibian with a slender body and a long tail. • Most salamanders look like a cross between a lizard and a frog. They have moist, smooth skin, like frogs, and long tails, like lizards. • **Distribution**: Salamanders range in North America, Europe, Asia, the northern parts of South America, and North Africa • **Habitat**: They live in or near water or find shelter on moist ground. • They are **nocturnal**.
Indian Bison	• Indian Bison are one of the largest extant bovines. (Wildlife Institute of India (WII)) • They are found on the forested hills and grassy areas of south to southeast Asia. • In India, they are found in Nagarhole, Bandipur, Masinagudi National Parks and BR Hills. • **IUCN status**: Vulnerable.
Electric eel 	• They can release up to 860 volts, which is enough to run a machine. • It can deliver a shock because its nervous system contains a number of disc-shaped electrogenic (electricity-producing) cells called electrocytes. • **Habitat**: They dwell mainly on the muddy bottoms of rivers and occasionally swamps, preferring deeply shaded areas. • **Distribution**: Its range spans across Brazil, the Guianas, Suriname, Venezuela, Colombia, Ecuador and Peru. • **IUCN Status**: Least concern
Green Turtle 	• The Green turtle is one of the largest sea turtles and the only herbivore among the different species. • In the Eastern Pacific, a group of green turtles that have darker shells are called black turtles by the local community. • They graze on seagrasses and algae, which maintains the seagrass beds and makes them more productive. • **Distribution:** Green turtles are found mainly in tropical and subtropical waters. • **IUCN:** Endangered, **CITES:** Appendix I
Indian Mouse Deer	• The Indian Mouse Deer or Spotted Chevrotain is the smallest deer in India and is highly nocturnal. • **Distribution:** It is endemic to the Indian Subcontinent.It is mainly found in peninsular India, with some old records from Nepal. • **IUCN status**: Least Concern
Finn's Weaver Bird 	• Finn's weaver bird, which until now was listed as "vulnerable" in the International Union for Conservation of Nature's (IUCN) Red List has been uplisted to "endangered" category. • The bird is primarily found in Terai grasslands in Uttarakhand and western Uttar Pradesh, apart from a few pockets in Assam.

	• Has population less than 500.
Smooth-Coated Otter 	• It is a species of otter, the only representative of the genus Lutrogale. • **Distribution**: They are found in southeast Asia, • **Habitat:** They are mostly found in lowlands, coastal mangrove forests, peat swamp forests, freshwater wetlands, large forested rivers, lakes, and rice paddies. • **Features:** They are the largest otter in Southeast Asia. • **IUCN status**: Vulnerable
Saiga Antelope 	• It is a large migratory herbivore. • **Appearance**: This antelope has an extremely unusual appearance with an over-sized and flexible nose, the internal structure of which acts like a filter. • **Habitat**: It inhabits open dry steppe grasslands and semi-arid deserts. • **Distribution**: The antelope were once found throughout the Eurasian Steppe, the great band of grassland that stretches from Hungary in Europe to Manchuria in Asia. • **IUCN status**: Near threatened, **CITES:** Appendix II
Indian Tent Turtle	• Recently, the Directorate of Revenue Intelligence (DRI) (Zonal Unit, Lucknow) seized 436 baby Indian Tent turtles from a person illegally transporting them interstate. • DRI is an enforcement agency on anti-smuggling matters under the aegis of Central Board of Indirect Taxes & Customs (CBIC) which comes under the Ministry of Finance. **Characteristics** • Distinctive "tent-like" shell with Small to medium-sized grows up to 26.5 cm • **Distribution:** The species is native to **India, Nepal and Bangladesh**. • **Lifespan**: Can live for 30-40 years or more in the wild. • Protected under **Schedule I of the Wildlife Protection Act, 1972**: Hunting & trade are prohibited. • **IUCN Status:** Least Concern & CITES: Appendix II • **Habitat and Behavior:** Prefers freshwater environments, Semi-aquatic and Diurnal • **Dietary Nature:** Omnivorous: Feeds on a variety of aquatic plants, algae, insects, worms, crustaceans & small fish.
Blue Dragon	• Blue dragons, a type of sea slug, have been spotted on the beach of Chennai. It is an extinct, large marine reptile from the Late Cretaceous period. Belonged to the Mosasauridae family. • **Impressive Size:** Estimated to be about 8 meters long, similar in size to a great white shark. • **Predatory Features:** Possessed powerful jaws and sharp teeth, indicating its predatory nature. • **Exceptional Fins:** unusually large front & rear fins, suggesting agility & maneuverability in water

	• Its long, paddle-like tail likely provided efficient propulsion for swift swimming.
Namdapha Flying Squirrel	• A nocturnal Namdapha flying squirrel missing for 42 years has resurfaced again in Arunachal Pradesh. It is an arboreal, nocturnal mammal endemic to Arunachal Pradesh. • **IUCN Status:** Critically Endangered & under Schedule II of the Wildlife Protection Act, 1972. • **Body Features:** Relatively small, with a tail exceeding its body length. It has a furry membrane stretching between its forelimbs and hindlimbs, allowing it to glide between trees. These squirrels are not capable of flight like birds or bats; instead, they glide between trees. • **Habitat:** Limited to Mesua ferrea jungles & on hill slopes in the catchment area of Dihing River • **Threats:** Habitat loss, destruction, landslides, flooding, and poaching • This Squirrel was identified as one of the 25 species categorized as "most wanted lost species," a focus of the Global Wildlife Conservation's initiative known as the "Search for Lost Species."
Fanged Frog Species	• World's Tiniest Fanged Frog Species is found in The Indonesian Jungle. **About Fanged Frogs (around 75 species- most well-known species is the Asian house frog)** • Fanged frogs are a group of frogs that have sharp, pointed teeth. • Fanged frogs use their teeth to grip their prey, such as insects, spiders & worms. However, unlike many snakes, these frogs don't use their fangs to bite humans or inject venom into their bodies. • Fangs are a unique adaptation that helps frogs to survive in their environment. They provide various advantages, including the ability to capture prey, defend themselves & mate.

Watermeal 	• It belongs to the genus Wolffia, is renowned as the smallest flowering plant on Earth. • It is an aquatic plant that is often found floating on the surface of still bodies of water, such as ponds, lakes, and slow-moving streams. • Watermeal is a prolific producer of oxygen through photosynthesis and is rich in protein.
Curcuma kakchingense 	• It is a new flowering plant species discovered in Manipur. • It is a member of the angiospermic family Zingiberaceae, which includes well-known plants like Curcuma (turmeric), gingers, and cardamom. • It is a robust plant, as tall as eight feet, having large terminal inflorescence. • It has been classified as "Data Deficient" (DD) under the IUCN Red List category.
Bhojpatra Tree 	• **Distribution:** It is a deciduous tree native to the Western Himalayas. • It forms a tree-line in the Himalayan region because of high freezing tolerance potential. • The white, paper-like bark was used in ancient times for writing Sanskrit scriptures and texts. • It is still used as paper for the writing of sacred mantras, with the bark placed in an amulet and worn for protection.
Takakia 	• **Distribution:** It is found exclusively on the Tibetan Plateau. • It is a rare genus of moss that adapted over millions of years to life at high altitudes. • It has developed the ability to survive frost, life-threatening UV radiation and other hazardous conditions. • It is a moss that separated from other mosses 390 million years ago, not long after the first land plants evolved.
Sal Tree 	• It is a large sub deciduous tree found in Assam, Nepal, Bengal and on the bank of the Yamuna River. • It is widely grown in the foothills of the Himalayas. • It resin is used in the indigenous system of medicine as an astringent and detergent. • The leaves of the Sal tree are used by the tribal people for preparing rice cakes and for smoking.
Hijol 	• A new study notes that the suitable habitat for Hijol to grow may shrink by 50.5% due to rainfall and temperature changes. • It is also known as Indian oak, is a medium-sized evergreen tree. • It is native to coastal wetland in Southern Asia and northern Australia. • It is commonly found in the Ganges-Brahmaputra-Meghna basin. • Its bark has tannin, which is useful for heart diseases.
Salsola Oppositifolia Desfontani	• It is a perennial shrub belonging to the Amaranthaceae family, thriving in saline, arid to semi-arid environments. • Unlike other Salsola species, it lacks hairs and is rarely prostrate. • Known for its adaptation to saline conditions, it was initially found in Italy, Northern Africa, Palestine, Spain, and Western Sahara. • **Recently discovered in India, specifically in Khadir Bet, Kutch, Gujarat.** • It becomes the sixth species of the Salsola genus identified in the country.

	• Salsola oppositifolia is utilized for manufacturing soda ash, while other Salsola species are employed in producing lye and soaps.
Baobabs	• Baobabs, belonging to the genus Adansonia, are native to mainland Africa, Madagascar, and Australia. • These trees are characterized by unusual barrel-like trunks. • Known for exceptional longevity, some baobabs can live up to 2,000 years. • Baobabs hold significant ethnobotanical importance. • The unique pendulous flowers of these trees are pollinated by bats and bush babies. • IUCN status: Endangered.

Fungus in News

Gucchi Mushroom 	• It is a species of fungus. • It is pale yellow in colour with large pits and ridges on the surface of the cap, raised on a large white stem. • It replete with health benefits. It is rich in antioxidants, also rich in potassium, vitamins and copper. • It is found naturally in the forests of various districts of Himachal Pradesh, including Chamba, Kullu, Shimla and Manali.

Invasive Species in News

Caribbean False Mussel 	• It is an invasive species that, originally from the Atlantic and Pacific coasts of South and Central America. • It poses a severe threat to mussel aquaculture farms and native species, outcompeting them in their natural habitats. • It can be found growing on hard surfaces such as logs, stones, shells, and artificial structures.
Red Fire Ant 	• It is one of the world's most invasive ant species, native to South America. • These insects can be aggressive when disturbed and they have a painful sting, which is irritating to the skin and can cause allergic reactions. • The ant can also damage crops and local ecosystems.
Yellow-Legged Hornet 	• **Distribution:** It is a species of hornet native to Southeast Asia. • It is a predatory insect that commonly feeds on other social bees and wasps, including honey bees. • It has a dark velvety appearance on its body, with a characteristic yellow color on its legs and the first segment of its abdomen. • Human activities, such as global trade and transportation, have contributed to its invasive spread.
Gambusia Fish 	• It is also known as mosquito fish, and is widely used as a biological agent for controlling mosquito larvae. • It is native to the waters of the south-eastern United States. • It has been a part of mosquito-control strategies for over a century in various parts of the world, including India. • It is listed as invasive alien species by IUCN
Ludwigia Peruviana 	• It is an aquatic plant with pale yellowish flowers. • It is popularly called primrose willow, is a native of Central and South America. • Its introduction to new regions has resulted in it becoming an invasive weed, causing ecological disruptions in various swampy areas worldwide. • It is an aquatic plant. It thrives in wetlands and water bodies.

	• It is among the 22 priority invasive plants in Tamil Nadu.
Red-eared sliders turtle	• It is a semi-aquatic turtle from fresh and brackish water ecosystems. • It is native to the south-eastern USA and Mexico. • It is considered one of the world's 100 worst invasive non-native species. • It is known for its distinct red stripes behind each ear. • It is listed as Least Concern IUCN Red List.
Eretmopteramurphyi	• It is an invasive species on Antarctic Signy Island • It is a tiny insect, feasts on dead organic matter. • It has led to faster plant decomposition, thus increasing the soil nitrate levels by three-five times. • It is a native of South Georgia and was accidentally introduced to Signy in the 1960s during a botany experiment.
Conocarpus Trees	• Recently prohibited by the Gujarat government, Conocarpus trees are an invasive mangrove species. • Conocarpus belongs to the Combretaceae family, with two species native to tropical regions globally. • Commonly used in public spaces for its ornamental appeal. • Flowering occurs in winter, releasing particles that can lead to health issues such as colds, coughs, asthma, and allergies. • The species' deep and extensive root system poses a threat by causing damage to telecommunication lines, drainage systems, and freshwater systems.

Chandrayaan 3

The Indian Space Research Organisation (ISRO) launched its 3rd lunar mission - Chandrayaan 3 which aims to be the world's first mission to soft-land near the lunar South Pole.

About Chandrayaan 3

- It is **a follow-on mission to Chandrayaan-2.**
- It consists of:
  - **Lander module (LM):** for soft landing and deployment Rover
  - **Propulsion module (PM)**: To carry the lander and rover configuration till 100 km lunar orbit
  - **Rover**: To carry out in-situ chemical analysis of the lunar surface
- It was launched by **Launch Vehicle Mark-III or LVM3** from, Sriharikota.
- India become the 4th country along with the United States, China and Russia to successfully perform a controlled landing on the Moon.

About LVM3 (Launch Vehicle Mark 3 (LVM3) (previously known as GSLV-MK III))

- LVM3 is the new heavy lift launch vehicle of ISRO for achieving a 4000 kg spacecraft launching capability to GTO (Geosynchronous Transfer Orbit) in a cost-effective manner.
- LVM3 is configured as a three-stage vehicle with two solid strap-on motors (S200), one liquid core stage (L110) and a high thrust cryogenic upper stage (C25).

Chandrayaan-1 Mission	Chandrayaan-2 Mission
First Lunar Mission, in 2008	Launched in 2019
Launch Vehicle: PSLV	**Launch Vehicle: GSLV-Mk 3**
• It involved an orbiter and an impactor. It was the 1st to discover water on the Moon • It was operational for 312 days till August 29, 2009.	• It involves an orbiter, a lander named Vikram and a rover named Pragyaan. • It was India's 1st to attempt a soft landing near the south pole of the Moon. Its lander crashed into the lunar surface.

More About Moon Mission

- The spot where the Chandrayaan-3 Vikram lander made a soft landing, named **Shiv Shakti Point.**
- The site where the Chandrayaan-2 lander crash-landed on the Moon's surface in 2019 named as **Tiranga Point**.
- The date of the Chandrayaan-3 lander's lunar landing, August 23, would be observed as **"National Space Day**."

Major Findings by Chandrayaan-3

- Chandra's ChaSTE payload **measured lunar topsoil temperature**, revealing it to be 70 degrees centigrade, contrary to initial predictions.

- Laser-induced breakdown on **'Pragyan' rover confirmed the presence of sulphur**, along with other elements like Aluminum, Calcium, Iron, Chromium, Titanium, Manganese, Silicon, and Oxygen.
- **'Langmuir probe' found thin plasma on moon's surface**, indicating easy radio wave transmission through space.
- Recording from ILSA payload **suggests a possible lunar earthquake**, but exact nature is under investigation.
- Chandrayaan-3 **Rover identified a 4-meter diameter crater** on the moon's surface.

ChaSTE Probe

- ISRO released a graph of the temperature variation between the moon's surface and a point around 8 cm below its surface. It was measured by an instrument named ChaSTE on board the **lander module of the Chandrayaan-3 mission**.
- **ChaSTE** aims at in-situ measurements of **thermal conductivity and temperature profile** on the lunar surface to derive the vertical temperature gradient up to a depth of 100 mm at the site of landing.
- This is carried out by means of inserting a probe consisting of thermal sensors into the lunar regolith using a motor-based mechanism. ChaSTE provides thermophysical properties of a high latitude region on the Moon for the first time.
- It was developed by a team led by **the Space Physics Laboratory of ISRO's Vikram Sarabhai Space Centre (VSSC),** together with the Physical Research Laboratory (PRL), Ahmedabad.
- It measured the temperature profile of the lunar topsoil around the South Pole to understand its thermal behaviour.

RAMBHA-LP Payload

- The Radio Anatomy of Moon Bound Hypersensitive ionosphere and **Atmosphere-Langmuir Probe (RAMBHA-LP)** payload on board the **Chandrayaan-3 lander** conducted the measurements.
- The payload, named after **American chemist Irving Langmuir**, was awarded the Nobel Prize in Chemistry.
- **RAMBHA-LP Payload** is a device used for **characterizing plasma (ionized gas), a state of matter**.
- **Key Features:** The Chandrayaan-3 Lander's upper deck houses the 5 cm metallic probe, continuously operating to study lunar day changes in near-surface plasma environment..
- **Key Findings of Langmuir Probe: I**t indicates that the plasma encompassing the lunar surface is relatively sparse (thin). The thinness of lunar plasma is important because it affects the **way radio waves propagate** through space. It is characterised by a number density ranging from approximately 5 to 30 million electrons per cubic meter.

Aditya-L1: India's First Solar Mission

- **Launched:** September 2, 2023
- **Mission objective:** Study the Sun from a halo orbit around L1
- **Launch vehicle**: PSLV XL

Remote Sensing Payloads

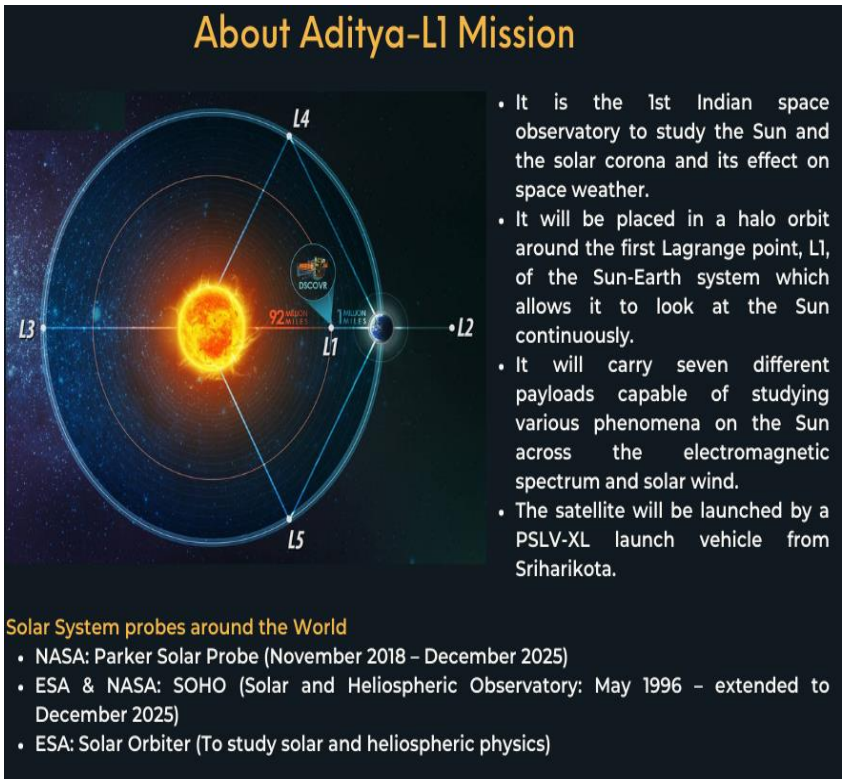
- Solar Ultraviolet Imaging Telescope (SUIT)
- Solar Low Energy X-ray Spectrometer (SoLEXS)
- Visible Emission Line Coronograph (VELC)
- High Energy L1 Orbiting X-ray Spectrometer (HEL1OS)

In-situ payloads

- Plasma Analyser Package For Aditya (PAPA)
- Aditya Solar wind Particle Experiment (ASPEX)
- Advanced Tri-axial High Resolution Digital Magnetometers

The Mission's Science Goals

- Investigation of dynamics in the **solar upper atmosphere** (corona and chromosphere).
- Investigation of solar flares, chromospheric and coronal heating, physics of partly ionised plasma, and the start of **coronal mass ejections (CMEs**).
- **Monitor the in-situ plasma and particle** environment, which offers information for researching the dynamics of solar particle particles.
- **Determine the series of events that** take place at the base, extended corona, and chromosphere and eventually result in solar eruptions.
- Space weather drivers (solar wind dynamics, composition, and origin).



The Mission's Uniqueness

- It will offer spatially **resolved solar disc in the near UV spectrum** for the first time.
- It will **offer data in the CME acceleration regime,** which is not continuously observed.
  - **On-board AI to identify solar flares** and CMEs for optimal data volume and observations.
- Solar **wind energy and direction anisotropy** as determined by multi-direction measurements.

Understanding Lagrangian Points

- The Lagrange Points in **a two-body gravitational system** are the locations in space where a small object, if placed there, tends to stay.
- There are five Lagrange points **in total for two-body gravitational systems**, which are designated L1, L2, L3, L4, and L5. The figure displays the Sun-Earth system's Lagrange points.
- Of these five Lagrange points, two are stable (L4, L5) and three are unstable (L1, L2, L3).

Solar Ultraviolet Imaging Telescope (SUIT)

- **It is one of the payloads on the Aaditya- L1 Mission**
- It is developed by **Pune's Inter-University Center for Astronomy and Astrophysics (IUCAA).**
- It is expected to **last five years.**

Features

- Provides **full disk images** of the Sun in the 2000 - 4000 A wavelength range.
- Recorded images crucial for maintaining Earth's **Ozone and Oxygen content.**
- Measures **UV radiation** hazardous for skin cancer.
- Addresses fundamental questions about higher temperature atmosphere and near-ultraviolet radiation.
- Measures solar radiation from Hard X-ray to Infrared and in-situ measurements of solar wind particles.

Liquid Apogee Motor (LAM)

- For the **Aditya-L1 mission**, ISRO will be using **Liquid Apogee Motor (LAM)** identical to the one used in the Mars and Moon missions. The term **"apogee"** refers to the point in an orbit where the spacecraft is farthest

from the Earth, and a LAM is designed to perform thrusting manoeuvres at or near this point in order to change the spacecraft's orbit.

- Liquid Apogee Motor (LAM) is type of **rocket engine that is specifically designed to provide the final boost to a satellite's orbit.**
- **Propellants:** The LAM engine uses mono-methyl hydrazine (MMH) and **mixed oxides of nitrogen (MON3)** as propellants.
- Developed by the **Liquid Propulsion Systems Centre (LPSC),** the ISRO Centre for Liquid **and Cryogenic Propulsion in Thiruvananthapuram**
- **Applications:** LAM's successful operation is crucial for ISRO's Aditya spacecraft's halo orbit at Lagrangian point L1, and is frequently utilized in satellite missions to maintain satellite position and trajectory.

GSAT-24

- It is **built by ISRO** with a lifespan of around 15 years **for New Space India Limited (NSIL**).
- It was launched by **French company Arianespace**.
- It is a **24-Ku band communication satellite** weighing 4180 kg with Pan India coverage for meeting DTH application needs.
- It was the **1st demand driven communication satellite** mission undertaken by NSIL post space sector reforms.

NVS-01

- The ISRO will launch the **NVS-01 navigation satellite** onboard it's Geosynchronous Satellite Launch Vehicle **(GSLV).**
- **NVS-01** is the 1st of the **2nd generation satellites** envisaged for the NavIC (Navigation with Indian Constellation) services.
- This series **incorporates L1 band signals** additionally to widen the services.
- For the 1st time, **an indigenous atomic clock** will be flown in NVS-01.

Countries with own Navigation Satellite System

- **Global Positioning System (GPS) - United States**
- **GLONASS - Russia**
- **BeiDou Navigation Satellite System (BDS) - China: BDS, also known as COMPASS. It consists of a constellation of satellites providing navigation and positioning services in the Asia-Pacific region. China has been expanding BDS into a global system to rival GPS.**
- **Galileo - European Union**
- **Quasi-Zenith Satellite System (QZSS) - Japan**
- **South African National Space Agency (SANSA) Navigation Satellite System (SANSS) - South Africa: SANSS is a proposed navigation satellite system**
- **Satellite Navigation System (SatNav) - Iran: Iran is working on developing its own satellite navigation system**

Navigation with Indian Constellation (NavIC) (Set up by ISRO)

- It was earlier known as **Indian Regional Navigation Satellite System (IRNSS).** It is a constellation of **7 satellites** and a network of ground stations **operating 24 x 7**(There are a total of eight satellites however only seven remain active).
- **Three satellites** of the constellation are placed in **geostationary orbit** and **four satellites** are placed in inclined geosynchronous orbit. Its coverage area includes India and a region **up to 1500 km** from the country's border.
- It offers two services: **Standard Position Service (SPS**) for civilian users **and Restricted Service (RS**) for strategic users.

XPoSat

- The **ISRO** is collaborating with the Raman Research Institute (RRI), Bengaluru to build the **X-Ray Polarimeter Satellite (XPoSat).**

- It is **India's 1st dedicated polarimetry mission** to study various dynamics of bright astronomical X-ray sources in extreme conditions.
- The spacecraft will carry **two scientific payloads in a low earth orbit.**
- The primary payload **POLIX (Polarimeter Instrument in X-rays**) will measure the polarimetry parameters (degree and angle of polarization).
- The **XSPECT (X-ray Spectroscopy and Timing) payload** will give spectroscopic information.
- Polarization refers to the orientation of the electric field in an electromagnetic wave, and studying the polarization of X-rays can provide valuable information about the physical processes occurring in extreme environments, such as around black holes and neutron stars.

About X-Ray & How X Rays are produced?

- **X rays are a type of radiation that lies between ultraviolet light and gamma rays in the electromagnetic spectrum.**
- **It is a type of electromagnetic radiation that has higher energy and shorter wavelength than visible light.**

X-rays are produced in various astrophysical processes, including:

- **Accretion onto Black Holes: X-rays are emitted when matter falls into black holes. As material spirals into the intense gravitational field of a black hole, it heats up and emits X-rays before disappearing beyond the event horizon.**
- **Neutron Stars and Pulsars: Neutron stars, which are the dense remnants of massive stars, can emit X-rays due to their extremely strong magnetic fields. Pulsars, a type of rapidly rotating neutron star, also emit X-rays as their magnetic fields interact with surrounding material.**
- **Supernova Remnants: When a massive star explodes in a supernova, it leaves behind a rapidly expanding shell of gas and dust called a supernova remnant. These remnants can produce X-rays as the shock waves generated in the explosion heat the surrounding gas.**
- **Hot Gas in Galaxy Clusters: Galaxy clusters, which are large groups of galaxies bound together by gravity, contain vast amounts of hot, ionized gas. This gas emits X-rays as it interacts with the cluster's magnetic fields and cosmic rays.**

- It is **only the world's 2nd polarimetry mission** after NASA's **Imaging X-ray Polarimetry Explorer (IXPE)** that was launched in 2021.
- XPoSat will help in Studying Black Holes, Exploring Neutron Stars, and Probing Active Galactic Nuclei (AGN).

CarbSar

- British companies are teaming up to launch a low-cost **radar satellite** next year called **CarbSar.**
- It is an innovative deployable X-band **Synthetic aperture radar (SAR)** to provide high resolution imaging capabilities night and day, whatever the weather.

About Synthetic Aperture Radar (SAR)

- **Principle of Operation:** Emits microwave pulses towards Earth's surface, receives signals reflected back from target area and Measures signal return time and analyzes properties for detailed images.
- **Aperture Synthesis:** SAR employs aperture synthesis to simulate a large antenna by combining data from multiple smaller radar antennas, enhancing resolution and image quality.
- **Resolution and Image Quality:** SAR technology offers high spatial resolution images, detecting and distinguishing fine details on Earth's surface, influenced by radar signal wavelength and target area distance.
- **Applications:** SAR is utilized in various fields such as Earth observation, environmental monitoring, maritime surveillance, oil spill detection, agriculture, and military applications to study land cover changes, detect deforestation, and assess natural disasters.
- **Satellites and Platforms:** SAR data, collected from various sources like satellites, aircraft, and ground-based systems, offers global coverage and valuable data for various applications across various countries and space agencies.

Space Science and Technology Awareness Training (START)

ISRO has announced a new **Space Science and Technology Awareness Training (START)**

About START Programme

- **Aim & Objective:** To provide **introductory-level training** in Space Science and Technology to build human capacity for future Space Science and research.
- **Target Group:** Post-graduate and final-year undergraduate students of physical sciences and technology
- **Field Coverage:** Various domains of space science, including Astronomy & Astrophysics, Heliophysics & Sun-Earth interaction, Instrumentation, and Aeronomy.
- **Delivery Mode:** Online training programme through the **Jigyasa portal.**
- **Other Programmes:**
  - The ISRO's **National Remote Sensing Centre (NRSC)** has also announced two short courses- Remote Sensing Data Acquisition and Remote Sensing Data Processing.
  - The courses are conducted through the **Centre for Space Science and Technology Education in Asia and the Pacific (CSSTEAP).**
- The CSSTEAP is an educational institution affiliated with the United Nations.

Millisecond Pulsars (MSP)

- **Millisecond pulsars** are **dense neutron stars formed from massive star collapse**. When a big star, like the Sun, collapses, dense, small neutron stars called MSPs are created because they periodically release radiation pulses, they are known by the term pulsars. Every few milliseconds, millisecond pulsars release radiation.
- **Neutron stars** are the densest objects in the universe, **formed when massive stars collapse due to exhaustion of fuel.** Gravitational waves are more likely to be detected in these stars.

- **Pulsar:** Pulsars are rotating neutron stars with pulses of radiation, strong magnetic fields, and powerful beams of light. They are formed from the explosive deaths of their parent star and have a mass 1.4 times the sun.
- **Magnetars:** Another type of neutron star is called a magnetar. In a typical neutron star, the magnetic field is trillions of times that of the Earth's magnetic field; however, in a magnetar, the magnetic field is another 1000 times stronger.

Betelgeuse

- Betelgeuse is a **red supergiant star** located in the constellation of Orion. It is **one of the largest and brightest stars visible to the naked eye** and holds significant astronomical interest.
- **Supernova Potential:** Betelgeuse has drawn attention due to its potential to undergo a supernova explosion. As a red supergiant, it is approaching the end of its life cycle and is expected to explode as a Type II supernova at some point in the future.
- **Variability:** Betelgeuse is known to be a semi-regular variable star, meaning its brightness fluctuates over time.
- Apart from the brightness, the size of the star has also been changing. The star now appears to be "crushed into an ovum" instead of appearing round.

Long March 10 Rocket

- China has completed a trial test of the main engine for the Long March-10, a heavy-lift launch vehicle designed for manned moon landing missions.
- Developed by the China Academy of Launch Vehicle Technology, it uses liquid hydrogen and oxygen for fuel and is reusable for vertical landing at sea.

Tiangong Space Station (first space station built by China)
• Tiangong (Chinese for "Heavenly Palace") is a modular space station being constructed by the China National Space Administration (CNSA). • Tiangong is currently in low Earth orbit (LEO), and it is expected to be operational until 2028. • The station is about the size of the International Space Station (ISS), and it can accommodate up to three astronauts. • China is only the third country to have put both astronauts into space and to build a space station, after the Soviet Union (now Russia) and the US.

STARFIRE Algorithm

- Scientists **at Raman Research Institute (RRI**), an autonomous institute of the Department of Science and Technology, have developed an algorithm called STARFIRE.
- STARFIRE stands for **Simulation of Terrestrial Radio Frequency Interference in orbits** around Earth.
- It can estimate the **Radio Frequency Interference emitted by FM** radio stations, Wi-Fi networks, mobile towers, radar, satellites, and communication devices, and use this calculation for designing and fine-tuning the antennas.
- It can **help design instruments** that can offer optimal operations in the presence of RFI and thereby, enriches the data obtained from the future space-based Astronomy missions.
- To develop this algorithm, scientists utilized data on FM transmitter stations from six countries, including Canada, the USA, Japan, Australia, Germany, and South Africa.

Radio Frequency Interference (RFI)	Radio Frequency Identification (RFID)
• Conduction or radiation of radio frequency energy. • Produces noise that interferes with the adjacent device's function. • Emitted by most electronic devices.	• Allows tracking or matching of items or individuals. • Approved before the 1970s, it is increasingly prevalent in global supply chain management and pet micro chipping.

Mars Oxygen In-Situ Resource Utilization Experiment (MOXIE)

NASA said that MOXIE, an oxygen-producing instrument on Perseverance Mars Rover has successfully completed its Mars mission.

MOXIE: Technology demonstrator of NASA's Mars 2020 Rover Perseverance

- It produced oxygen from **carbon dioxide in the Martian atmosphere** by using solid oxide electrolysis.
- Its objective is to **produce oxygen of at least 98%** purity at a rate of 6–10 grams per hour.
- It is the **1st experimental extraction** of a natural resource from another planet for human use.

About Perseverance Rover

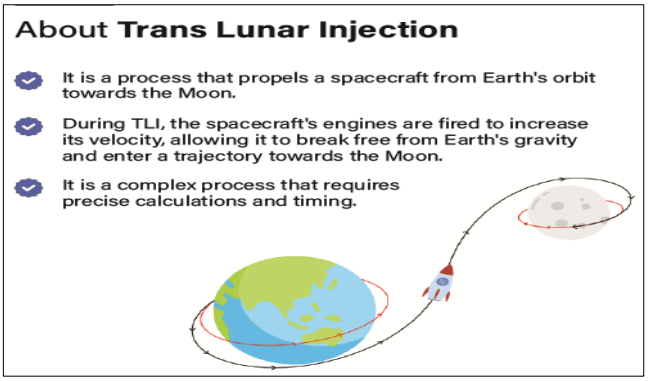
- The Perseverance Rover, **launched in July 2020 and touching on the Martian surface in February 2021**, has undertaken **exploration of Jezero Crater**, where a lake and river delta are believed to exist.
- This mission has presented opportunities to showcase technologies crucial for future Mars missions.
- Additionally, the rover transported **Ingenuity, the first helicopter to take flight on Mars**, and maintains communication with Earth through NASA's **Deep Space Network**.

Trans Lunar Injection (TLI)

- ISRO performed the Trans Lunar Injection (TLI) to slingshot Chandrayaan-3 towards the moon.
- The TLI is performed when the spacecraft is **at a specific point** in its orbit known as the **'perigee'** or the closest point to Earth.

Challenges in Trans Lunar Injection

- Calculating the **precise timing and trajectory** (careful planning and coordination) for the spacecraft to leave Earth's orbit and enter a trajectory towards the Moon.
- Also, ensuring that the spacecraft's engines are powerful enough to achieve the necessary velocity to break free from Earth's gravity.



Comet Nishimura

- Comet Nishimura, **discovered by Hideo Nishimura in August 2023**, will **pass by Earth for the first time in over 400 years.**
- Located in the **constellation Leo**, it will not leave the Solar System, reach aphelion in 2227, and return around 2430.
- As it dives towards the Sun, it will intensify and possibly become a naked-eyed object in early September.

- **Comets** are small celestial bodies orbiting the Sun, composed of dust, rock, and ice.
- They can be distinguished from stars by dust streaking tails, energized particles, and a glowing green coma surrounding them.

Wasp-107b

NASA's James Webb Space Telescope has discovered a new exoplanet named Wasp-107b (a super- Neptune ice giant), which is the size of Jupiter.

Wasp 107b

- **Location:** It is situated 200 light-years away in the Virgo constellation. It orbits a sun but exists beyond our solar system. Dubbed "candy floss".
- **Size:** Same as Jupiter but possesses the mass of Neptune, making it less dense than other gasgiants (composed mostly of gases, such as hydrogen and helium)
- **Atmosphere:** Helium & sand clouds (a weird exoplanet where it rains sand instead of water)

James Webb Space Telescope (JWST)

- JWST (the largest and most powerful infrared telescope ever built) was built in collaboration with **NASA, the European Space Agency (ESA), and the Canadian Space Agency** and was launched in December 2021.
- It is currently located in space at the Sun-Earth **L2 Lagrange point**, approximately 1.5 million kilometres beyond Earth's orbit.

Key Achievements of JWST

- **WASP-80 b** detected water and methane in Jupiter's atmosphere.
- Captured images **of SN1987A & Cassiopeia A supernova**.
- Captured exoplanets with unprecedented resolution.
- Detected earliest known carbon dust in **a galaxy 1 billion years after Big Bang.**
- JWST expected **to understand Hycean planets**, a potentially habitable category in extraterrestrial life search.

Gravitational Wave

- The **North American Nanohertz Observatory for Gravitational Waves** (NANOGrav) is a collaboration of scientists using **radio telescopes to detect gravitational waves in the low frequency (long wavelength) range**. Long-wavelength gravitational wave signal is believed to have resulted from the merger of supermassive black holes.

- It has found that the gravitational waves that they are detecting have a frequency of about 100 nanohertz (Low frequency & Long Wavelength).

Gravitational Waves (GWs)
• Gravitational waves are faint ripples in space-time caused by massive objects like black holes, neutron stars, or supernovae. They propagate through the universe at the speed of light and can be detected using sensitive equipment. • Einstein's theory of general relativity suggests these waves are caused by mass and energy distortion. • **Significance of Gravitational Waves:** New Window into the Universe, Probing Extreme Astrophysical Events, Cosmology and the Early Universe, and Multi-Messenger Astronomy

Oldest Black Hole Discovery & Concept of White Hole

Scientists have discovered the oldest (13.2 billion years old) and largest black hole (10 times larger than the black hole residing at the center of our own Milky Way galaxy).

About the Discovery

- Conducted by **NASA's James Webb Space Telescope** and Chandra X-Ray Observatory.
- X-ray emission in galaxy signifies **growing supermassive black hole**.
- **Light and X-rays magnified** by 4X due to gravitational lensing in Abell 2744.
- **Enhances infrared signal detected by Webb** and enables Chandra to detect faint X-ray source.

Understanding Black and White Hole Concepts	
Black Hole	**White Hole**
• First **identified in 1964**, a gravitational object with no escape. • Created **when a massive star collapses**, compressing its mass into a singularity. • The event horizon surrounds the **singularity, trapping objects** by gravity. • Matter **and radiation fall in** but cannot escape. • Crucial to the structure and evolution of galaxies. • Predicted by **Einstein's theory of general** relativity.	• Concept explored **by Carlo Rovelli** in his work "White Holes: Inside the Horizon." • Theory of cosmic regions that **function in opposite way to black holes**. • Matter and light **only emerge from white holes**. • Both black and white holes **are solutions to Einstein's field equations**. • Both are solutions to **Einstein's field equations**, but white holes have never been directly observed.

Euclid Mission

- The **European Space Agency's (ESA) Euclid mission**, who launched in July 2023 to investigate the mystery ofdark matter and dark energy, released its first five science images.
- They include views of large clusters with thousands of distant galaxies, close-ups of two nearby galaxies, a nebula, and a gravitationally bound group of stars called a globular cluster.
- **About Euclid Mission**: SpaceX Falcon 9 space telescope aims to create a 3D universe map by observing galaxies up to 10 billion light-years away, studying dark matter and dark energy, and scheduled for six years with potential extension.

Difference between Dark Matter & Dark Energy		
Basis	**Dark Matter**	**Dark Energy**
Nature	It is the mysterious stuff that fills the universe, but no one has ever seen.	The mysterious form of energy that makes up about 68% of the universe

Composition	Exotic particles that interact weakly with electromagnetic forces	Not yet understood. It is often associated with the vacuum energy
Role	Acts as a form of "invisible" matter, influencing the behavior of visible matter via gravitational interactions.	The dominant component of the universe's energy density, responsible for the observed accelerated expansion.

Atmospheric Perturbations around Eclipse Path (APEP)

- **NASA** is set to launch the APEP mission **to study the impact of a solar eclipse on the upper atmosphere.**
- The mission aims to **understand how the upper atmosphere reacts during a solar eclipse**, particularly during the pivotal moments of sudden light reduction.
- The mission will launch three rockets, one before, one during, and one after the peak eclipse, each deploying four small scientific instruments to measure changes in density, temperature, and electric and magnetic fields.

Spaceport

- The Central Government has approved the establishment of a new spaceport in **Kulasekarapattinam, Tamil Nadu.**
- A **spaceport, also known as a cosmodrome or launch facility**, is a specialized site designed for launching spacecraft, rockets, and satellites into space. It serves as a **base for spacecraft operations, including launch, landing, and maintenance.**
- ISRO Small Satellite Launch Vehicles (**SSLV**), which is intended to provide small satellites with flexible and affordable access to orbit, **will be launched from the space port**.
- According to the Indian Space Policy 2023, Non-Governmental Entities (NGEs) may also utilise the spaceport as long as they meet certain technical and safety conditions.
- **Components of a Spaceport:** Launch Pads, Vertical Integration Buildings & Assembly, Fueling and Storage Facilities, Control Centers, Tracking and Telemetry Stations
- The most popular spaceport in India is the **Satish Dhawan Space Centre, located in Sriharikota, Andhra Pradesh.**

Orionid Meteor Shower

- It is **an incredible celestial** event that occurs every October.
- It is associated **with Halley's Comet**, which leaves behind a trail of debris as it orbits the Sun.
- This debris creates a trail that Earth intercepts, resulting in the **Orionid meteor shower**.
- Orionids are particularly special because they are fast-moving meteors, traveling at a speed of about 66 kilometers per second.

What Causes Meteor Showers?

- Meteors come **from leftover comet particles** and bits from asteroids.
- As they enter the **Earth's atmosphere at high speed**, they burn up, creating a spectacular shower.

CALIPSO Mission

NASA announced that the CALIPSO mission ended on August 1 after 17 years of operations.

CALIPSO Mission (Cloud-Aerosol LIDAR and Infrared Pathfinder Satellite Observations)

- The mission is dedicated to studying how clouds and aerosols impact the Earth's climate, Atmospheric processes (using data from CALIPSO to construct 3D models)
- Launched in **2006**, CALIPSO is **a satellite-based observatory.**

- The mission measures the altitude of clouds and layers of airborne particles like: Dust, Sea salt, Ash, Soot.
- The mission involved two satellites, **CALIPSO and CloudSat**, which were launched in 2003 and orbited the Earth in a Sun-synchronous orbit.
- **Launched by: NASA and France space agency CNES** (Centre National d'Etudes Spatiales).

Siena Galaxy Atlas (SGA)

- **Siena Galaxy Atlas (SGA)** is a digital atlas, features detailed **images of 400,000 galaxies** in the cosmic neighbourhood of Milky Way.
- **Features:** It was created to get to know our universe better through several of the known galaxies. It was created using data **from three astronomical surveys** collected between 2014 and 2017 at **Cerro Tololo Inter-American Observatory (CTIO)** and **Kitt Peak National Observatory (KPNO)**. Together these surveys are known as the DESI Legacy Surveys.
- The SGA is dependent on **state-of-the-art digital images** captured by advanced technology, unlike previous atlases which relied on antiquated equipment and photographic plates.
- As it is built on the images captured with **highly sensitive instruments**, it boasts of having the most accurate data.
- It is also the 1st cosmic atlas to feature the light profiles of galaxies - a curve that describes how the brightness of the galaxy changes from its brightest point to its dimmest.

Bright Transient Survey Bot (BTSbot)

- Artificial intelligence (AI) system named Bright Transient Survey Bot (BTSbot) **autonomously detected (with no human intervention), identified, and classified its 1st supernova**.
- It detected the newly discovered supernova named SN2023tyk in data from the Zwicky Transient Facility (ZTF)
- **The system, developed by Northwestern University, USA,** was trained on **a massive dataset of images of supernovas** and other celestial objects. This dataset included over 1.4 million images from nearly 16,000 sources.
- This innovative **system not only automates the entire process** of searching for new supernovae across the night sky but also eliminates the potential for human error, significantly enhancing the speed of detection.

Continuously Operating Reference Stations (CORS) Network

- A Continuously Operating Reference Station (CORS) network is a **system of stations that record GPS signals and provide the data to GPS users over the internet.**
- CORS provides **precise location-based services**, which are capable of providing centimetre-level positioning services in real-time
- More than 1,000 CORS stations will be operated by the Survey of India.
- It will **boost auto navigation** and machine control-based solution in Agriculture, Mining, Construction, Transport and Civil Aviation sector.

Asteroid Dinkinesh

NASA's Lucy spacecraft, studying Jupiter's Trojan asteroids, made a surprising discovery of the main belt asteroid Dinkinesh.

About the Dinkinesh asteroid (discovered in 1999 by the LINEAR survey)

- It is an S-type asteroid, which means it is composed mainly of silicates and some metal.
- It is the first fly-by target of the Lucy mission during its cruise to the Trojan Clouds.

About the Lucy Mission (launched by NASA in 2021)

- It is a **12-year mission** which will take close observations of nine of Jupiter's Trojans and two main belt asteroids.

- It is the **first spacecraft sent to study the Trojan asteroids**, which orbit the Sun in the same path that the planet Jupiter takes.

Hycean Planets

- **Hycean Planets** are a **class of exoplanets that represent a potentially habitable category in the search for extraterrestrial life.** ("hycean" = "hydrogen" + "ocean").
- **Atmospheric Composition**: presence of a substantial hydrogen-rich atmosphere as part of compounds containing hydrogen, such as water vapor (H2O)
- **Habitability:** The combination of liquid water and a hydrogen-rich atmosphere creates conditions conducive to life. Hydrogen is an essential element for life, and the presence of water offers a potential solvent for biochemical processes.
- **Missions:** James Webb Space Telescope (JWST) is expected to play a significant role in understanding of Hycean planets.

Ejecta Halo

- Recently, ISRO revealed that the "Chandrayaan-3 Lander Module generated a spectacular 'ejecta halo' of lunar material.
- **Ejecta Halo** refers to a distinctive feature observed around **the rim of an impact crater**.
- **Cause**: It is caused by the **material ejected from the surface d**uring the impact event and subsequently deposited in a circular or semi-circular pattern around the crater.
- Ejecta halos provide **valuable information about the formation and dynamics** of impact craters.
- During Chandrayaan-3 about 2.06 tonnes of **lunar epi regolith were ejected** and displaced over an area of 108.4 m^2 around the landing site
- **Epi regolith** is the top layer of the lunar surface, which is made out of lunar rocks and soil, commonly known as moon dust.

Bortle Scale

- **Bortle scale** is a **nine-level numeric classification** system that quantifies the darkness of the night sky and the visibility of celestial objects, such as stars, planets, and deep-sky objects, in a particular location.
- **Meaning**: The scale **ranges from Class 1**, (representing the darkest skies with minimal light pollution), **to Class 9,** (indicating the most light-polluted urban areas with very limited celestial visibility).

Coronal Holes or Solar Corona

Coronal holes **are areas in the Sun's outer atmosphere**, known as the solar corona, where themagnetic field allows high-speed solar wind particles to escape into space.

Key Features of Coronal Holes

- **Solar Wind Source:** Coronal holes are **primary sources of solar wind**, a continuous stream of charged particles that flows outward from the Sun into the solar system. When the Sun's magnetic field in these areas opens, it enables solar wind to stream out more freely.
- **Appearance:** In images of the Sun taken in extreme ultraviolet or X-ray wavelengths, coronal holes often **appear as dark regions**, in contrast to the brighter surrounding areas.
- **Effects on Earth:** When the solar wind from coronal holes reaches Earth, it can interact with the Earth's magnetic field, potentially **causing geomagnetic storms**. These storms can lead to auroras and impact satellite communications and power grids.
- **Varied Sizes and Locations:** Coronal holes **can vary in size and location** on Sun's surface. They are not static and can change shape and position as the Sun's magnetic activity evolves during its 11-year solar cycle.

Deep Space Optical Communications

NASA's Deep Space Optical Communications (DSOC) experiment has successfully transmitted data via laser for the first time beyond the moon.

Concept of DSOC

- **DSOC refers to the use of optical (or laser) communication systems for transmitting data over long distances in deep space.** It encodes data in photons at near-infrared wavelengths (rather than radio waves) to communicate between a probe in deep space and Earth.
- This communication technology **represents an alternative to traditional radio frequency (RF)** communication systems, offering potential advantages in terms of data transfer rates, power efficiency, and signal fidelity.
- It's similar to fiber optics replacing old telephone lines on Earth. ISRO is developing Deep Space Optical Communications (DSOC).

Key Aspects of DSOC

- **Utilizes lasers for information transmission**, operating in the optical or near-infrared part of the electromagnetic spectrum.
- Reduces **signal degradation** and offers higher data transfer rates compared to traditional RF communication.
- Considered for various space missions, including **interplanetary missions and exploring** the outer reaches of the solar system.
- Holds promise **for improving communication systems** in deep space exploration**.**

NASA & DSOC

- NASA achieved its **first optical communication demonstration** beyond the Earth-Moon system.
- The project was overseen by **NASA's Jet Propulsion Laboratory** in Southern California.
- The demonstration **involved the Psyche spacecraft,** which was launched in 2023.
- Positioned in the **main asteroid belt between Mars and Jupiter**, Psyche is dedicated to studying a metal-rich asteroid.
- The spacecraft successfully **transmitted a laser-beamed message** from a distance of 16 million kilometers.
- This **accomplishment showcased Psyche's capability** to send high-bandwidth test data back to Earth.

Psyche Mission

- NASA's Psyche spacecraft is set to embark on a groundbreaking mission to explore a metal-rich asteroid named Psyche.
- **Psyche Mission** will explore, for the **1st time ever, a giant metal asteroid** called Psyche.
- The Psyche asteroid orbits the sun in the main asteroid belt, between Mars and Jupiter.
- Mission management, navigation and its operations will be looked upon by NASA's Jet Propulsion Laboratory (JPL).
- Psyche is the **14th mission selected as part of NASA's Discovery Program**. It will also test a sophisticated new laser communication technology called Deep Space Optical Communications (DSOC).

Saturn's Rings

- Recent study observes that Saturn's rings will temporarily disappear in 2025.
- This is because the rings are being pulled into the planet by its gravity as a dusty rain of ice particles under the influence of Saturn's magnetic field.
- Saturn's Ring are the most extensive ring system of any planet in the Solar System.
- **Composition:** Comprises of bits of ice, dust and rocks
- **Structure:** The ring system is divided into several major ring groups and smaller ringlets.
- **Size:** Incredibly wide but very thin, with a thickness of only a few meters

- **Visibility:** Easily visible from Earth using even small telescopes. They were first observed by Galileo Galilei in 1610.
- **Exploration:** The Cassini spacecraft (orbited Saturn from 2004 to 2017) provided extensive data about Saturn's ring system.

Markarian 421

- It is a blazar, located about **400 million light-years away from Earth**, in the constellation Ursa Major. It is one of the brightest sources of gamma rays and X-rays in the sky because it has a powerful jet of high-energy particles that is pointing directly towards Earth.
- **Blazar** is a type of **active galactic nucleus (AGN**) that emits high-energy radiation. It is powered by a **supermassive black hole** that is actively accreting matter. It is characterized by their intense and variable emission across the **electromagnetic spectrum,** from radio waves to gamma rays.
- **Supermassive Black Hole:** It is a very massive object whose **gravitational pull is so strong** that nothing, **not even light, can escape** from it. It is commonly found in the centers of galaxies, where they can grow by swallowing up gas, dust, stars and planets. Their mass can be millions or billions of times more than our Sun.

BepiColombo

- It is an international mission consisting of two spacecraft. Each by The **European Space Agency (ESA) and The Japan Aerospace Exploration Agency** (JAXA)) riding together to Mercury to orbit and to study the planet from unique vantage points.
- It **was launched in October 2018** and is scheduled to begin orbiting Mercury in 2025.
- ESA's **Mercury Planetary Orbiter (MPO)** will study the planet's surface and interior.
- JAXA's **Mercury Magnetospheric Orbiter (MIO)** will study the planet's magnetic field.

Auroras on Mercury

- BepiColombo mission unraveled the **mystery of Mercury's X-ray auroras**.
- Electrons from the **solar wind collide** directly with the planet's surface, initiating the phenomenon called Aurora.
- Unlike Earth, where **auroras dance in the atmosphere**, Mercury's sparse exosphere allows for this direct interaction.

Cosmic Diamond

- Cosmic diamonds, often referred to as "**stellar diamonds**" or "**carbon stars,"** are a fascinating phenomenon in astronomy. They are not literal diamonds like the ones found on Earth; they are thought to be **formed from carbon-rich** materials that are present in certain types of stars, such as **white dwarfs**.
- **Formation:** When these stars reach the end of their life cycle, they **can explode in a supernova,** and the intense heat and pressure can cause the carbon atoms to form into diamond crystals.

Carbon-Enhanced Metal-Poor (CEMP) Star

- Scientists at the Indian Institute of Astrophysics, Bangalore have discovered a unique star named **HE 1005-1439** classified as a carbon-enhanced metal-poor (CEMP) star.
- CEMP stars are **celestial time capsules**, classified into dwarf, sub-giant, giant, and stars.
- Characterized by high carbon levels and low metal levels, offering insight into early cosmos development.
- Despite not producing heavy elements at the evolutionary stages, stars' surface chemical composition shows **abundances 100 to 1000 times** higher than the Sun.
- Analysis of stars using high-quality, high-resolution spectra using various telescopes was conducted.

Crew-7 Mission

- NASA and SpaceX have launched the Crew-7 Mission, a 7th routine mission to the International Space Station.

- The mission will use the Falcon 9 rocket to propel the Dragon spacecraft, Endurance, into space.
- The mission will replace four astronauts on the ISS since March, conduct over 200 science experiments, collect microbial samples, analyze sleep differences in microgravity, and examine biofilm formation in wastewater for better water recycling and hygiene.

ExoMars Trace Gas Orbiter (TGO)

- It is the 1st in a series of Mars missions to be undertaken jointly by the two space agencies, **ESA and Roscosmos,** the Russian space agency.
- It is designed to search for trace gases in the Martian atmosphere such as methane, water vapor, nitrogen oxides and acetylene.
- Trace gases are gases present in very low concentrations but can be significant indicators of potential biological or geological activity on Mars.
- TGO orbits Mars for close **vantage point study.**
- Carries scientific instruments like (**Nadir and Occultation for Mars Discovery) NOMAD** for detecting and characterizing trace gases.
- Aims to **map methane distribution** and variability for insights into sources and sinks.
- Serves as a technology demonstration platform for the Entry, Descent, and Landing Demonstrator Module (EDM), carrying the Schiaparelli lander.

Silent Barker

- The US Space Force, in collaboration with **the National Reconnaissance Office (NRO),** is set to launch a satellite constellation named Silent Barker.
- **Aim:** To observe **and supervise Chinese or Russian space** vehicles that may pose a risk to vital orbiting objects.
    - To identify, detect, and monitor potential dangers targeting valuable US systems in space. (Satellite threat intelligence and space situational awareness)
- **Position:** The satellites of this constellation will be positioned in **geosynchronous orbit** about 22,000 miles (35,400 kilometres) above the earth. This orbit allows the satellites to match the Earth's rotational speed, ensuring continuous coverage and effective monitoring capabilities.
- **Features:** Silent Barker **addresses the limitations of ground or lower-orbit surveillance systems** and allows it to "really figure out what is going on up there in space."

International Conference on Spacecraft Mission Operations (SMOPS-2023)

- **ISRO organised** the International Conference on Spacecraft Mission Operations (SMOPS-2023) in Bengaluru.
- **About SMOPS:** It was organised in collaboration with **the Italian Space Agency (ASI)** and the **International Academy of Astronautics (IAA)** and in association with industry partners.
- **Objective:** To bring together Space agencies, start-ups, industry, and academia to discuss emerging technologies and automation in Space mission operations and ground segment.
- **Theme:** "Emerging Technologies for Automation in **Ground** and **Space Segment** in satellite mission operations."

Scary Barbie

- Astronomers have identified the **biggest cosmic explosion ever observed**, the giant ball of fire that has been affectionately **nicknamed Scary Barbie.**
- Comparisons indicate that the **fireball is a staggering 100 times larger than our Solar System**.
- While most supernovae last only a few months before disappearing, but it has lasted more than three years, defying conventional expectations.

- The researchers discovered it using an AI engine called **REFITT (Recommender Engine For Intelligent Transient Tracking).**

Reason Behind This Biggest Cosmic Explosion

- Scientists think that a supermassive black hole pulled a star and ripped it apart.
- The force around a black hole, called tidal disruption, separates other objects in a process called **spaghettification.**

Aeolus Satellite

- **Launched By** Part of the **Copernicus project**, a joint initiative of the European Union (EU) and ESA to track environmental damage and aid disaster relief operations.
- The primary goal of Aeolus was to provide accurate and **detailed global wind measurements**, including both horizontal and vertical wind profiles.
- Aeolus carried a **single instrument called ALADDIN (Atmospheric Laser Doppler Instrument),** which is the first space-based lidar (light detection and ranging) system designed specifically to measure wind profiles from space.
- **ALADDIN emits ultraviolet laser pulses and measures the Doppler shift** of the backscattered light to determine wind speed and direction at different altitudes.

Spitzer Telescope Resurrector Mission

- It is designed to restart the Spitzer telescope which has been orbiting the Sun in safe mode for three years following its retirement.
- The telerobotic Spitzer-Resurrector spacecraft would travel around 300 million kilometres to the telescope to restore its service to its full efficiency.

About Spitzer Telescope

- It was **launched by NASA in 2003** to study the universe in the infrared.
- Unlike visible light, which our eyes can detect, infrared light is not visible to the human eye but can reveal important information about celestial objects and phenomena.
- It was the **final mission of the NASA Great Observatory program**, which launched four specialized telescopes (including the Hubble Space Telescope) between 1990 and 2003.
- It spent more than 16 years gathering information on the origin, evolution, and composition of planets and smaller bodies, stars, galaxies, and the universe as a whole. It's most iconic work was characterizing the seven exoplanets orbiting the star called **TRAPPIST-1.**

Agnibaan SubOrbital Technological Demonstrator (SOrTeD)

- **The Agnibaan SOrTeD is a customisable single-stage launch vehicle** powered by Agnikul's patented Agnilet engine, a 3D-printed, single-piece, 6 kilonewton semi-cryogenic engine. It can be launched in one or two stages and performs precise manoeuvres. Located at the Satish Dhawan Space Centre in Sriharikota, Andhra Pradesh, it lifts off vertically.
- It can **carry payloads up to 100 kg to** an altitude of 700 km in five different configurations.
- The rocket stands 18 metres tall and has a mass of 14,000 kg.
- The rocket's **first stage could have up to seven Agnilet engines**, depending on the mission, which are powered by Liquid Oxygen and Kerosene.
- The rocket is also designed for launch **from more than 10 different launch ports**.
- AgniKul has built **a launch pedestal named 'Dhanush'** that will support the rocket's mobility across all its configurations.
- The Agnilet engine, which powers the entire operation, is the world's sole **single-piece 3D-printed engine.**

Solar Terrestrial Relations Observatory (STEREO-A) Spacecraft

- NASA's Solar Terrestrial Relations Observatory (STEREO-A) spacecraft underwent its first Earth flyby, nearly 17 years after its initial launch. It will allow scientists to understand how coronal mass ejection's (CME) magnetic field evolves on its way to Earth.
- **STEREO-A Spacecraft was launched by NASA in 2006 (**Sun was in its Solar Minimum phase) **to study the Sun and its effects on space weather.**
- It consists of two identical observatories that orbit the Sun, **one ahead of Earth (STEREO-A)** and **one behind (STEREO-B).**
- On February 6, 2011, another significant milestone was achieved as both STEREO-A and -B reached a remarkable 180-degree separation in their orbits, which gave us the full sphere image of the Sun.
- However, **STEREO-B** broke contact with mission control in 2014 after a planned reset (B's mission officially ended in 2018).

15 Minutes of Terror

- After the failed attempt of the soft-landing mission of Chandrayaan-2, then chairman of ISRO, K Sivan described the landing process as '15 minutes of terror'.
- **Rough Braking phase**: It includes **reducing the lander's horizontal velocity** from a range of 1.68 km/sec to a height of 30 km from the lunar surface, to almost zero for a soft landing at the designated site.
- **Attitude hold phase**: At a height of 7.42 km from the surface, the lander should tilt from a horizontal to a vertical position while covering a distance of 3.48 km, it lasts around 10 seconds.
- **Fine braking phase**: It lasts around 175 seconds, during which the lander is to move fully into a vertical position, and it would reach a nominal speed of 0 m/sec. It was between the **"attitude hold phase" and the "fine braking phase"** that Chandrayaan-2 lost control and crashed.
- **Terminal descent phase**: It is the final stage, when the spacecraft is supposed to descend totally vertically onto the surface.

Next-Generation Photonic Analog to Digital Converters (NG-PADC) Project

- It was developed **by IIT Madras with support from the IMPRINT programme**.
- It can carry out **instantaneous frequency measurement**, generation and transport of Radio Frequency (RF) through optical methods.
- It could revolutionize various sectors, enabling faster digital communication**, improved satellite communication, better medical imaging,** and Photonic radars.

About Analog-to-digital Converters (ADCs)

- Converts **continuous analogue signals** into discrete digital data.
- Enables processing, storage, and manipulation **of real-world information in digital systems**.
- Works by sampling analogue signals and assigning digital values.
- Accuracy determined by resolution, allowing for more precise measurements and smaller analogue signal changes.

Applications of ADCs

- Audio recording, sensor data acquisition, and communication systems.
- They enable the conversion of real-world phenomena, such as sound, temperature, and pressure, into digital information that can be processed, stored, and transmitted by digital devices.

Nabhmitra Device

- The **ISRO-Space Applications Centre** (Ahmedabad) successfully tested the Nabhmitra device at Neendakara (Kerala).

- Nabhmitra Device is a **satellite-based communication system developed for the safety of fishermen.**
- It enables **two-way messaging services from/to sea**. The weather and cyclone warnings will be communicated in the local language, the boats can also send distress messages to the authorities.
- While the control centre will receive the alert including the location of the boat, the crew on the boat will get a response message from the control centre.
- Apart from providing information about shipping channels and maritime boundaries, the device will **also help to identify fishing fields.**

ZARTH Application

- The new app, called ZARTH, **('ZTF Augmented Reality Transient Hunter')**, is built on the lines of augmented reality mobile games.
- It uses **open-source sky maps** and adds data daily from **the Zwicky Transient Facility (ZTF) robotic telescope at Palomar Observatory in California.**
- The ZTF scans the entire northern **sky every two days** and uses the data to create large-area sky maps that have important applications in tracking **near-Earth asteroids** and studying supernovae.
- To ensure users have access to fresh and exciting data, ZARTH is **updated daily** with new transient information detected by ZTF.
- The app ranks transients by their rarity and importance, and players can compete with each other to **score points and earn daily credits**, which are duly listed on the leaderboards.

- **Transients** refer to astronomical phenomena with durations of fractions of a second to weeks or years. Typically, they are extreme, short-lived events associated with the total or partial destruction of an astrophysical object.
- Apart from **supernovae**, the transients include, **flaring stars** (variable stars that flare up for a short while), white **dwarf binaries** (burnt remains of dead stars that orbit one another and often merge and explode in supernovae), **active galactic nuclei.**

Wide Field Survey Telescope (WFST)

- China is set to launch the Wide Field Survey Telescope (WFST).
- **Wide Field Survey Telescope (WFST)** is the largest **time-domain survey facility** in the Northern Hemisphere (**Time-Domain Survey Facility:** A specialized observatory equipped to monitor and study dynamic astronomical events over time, providing insights into the changing universe.)
- **Location:** At the Lenghu astronomical observation base in northwest China's Qinghai Province
- **Aim:** To explore & conduct time-domain dynamic astronomical events
- It has set out to find and track 10 lakh solar system objects for a comprehensive view of the solar system and its evolution.

Features:

- It has a 2.5-meter primary mirror and prime-focus camera will detect faint celestial signals from distant galaxies and galaxy clusters.
- It will also search for planets and moons in the Kuiper Belt.

Coronal Mass Ejections (CMEs)

CMEs are large explosions of plasma and magnetic fields from the Sun's corona. Caused by instabilities in the Sun's magnetic field

Features:

- The blast of a CME carries about **a billion tons of material** out from the Sun at very high speeds of hundreds of kms per second.

- It contains **particle radiation, mostly protons and** electrons and powerful magnetic fields stronger than what is normally present in the solar wind.

SN1987A Supernova

- Recently, James Webb Space Telescope captured stunning image of SN1987A supernova.
- **Discovery:** Discovered in 1987, It was the closest observed supernova since the invention of the telescope.
- **Location:** The supernova is located in **the Large Magellanic Cloud (LMC**), a satellite galaxy of the Milky Way, about 1,70,000 light-years away from Earth. This proximity made it an ideal target for detailed study.

Key Features

- It is often referred to as a "**string of pearls**," showcases a series of luminous rings composed of gases and dust expelled by the dying star in its various phases of collapse and explosion.
- **Progenitor Star:** The progenitor star that led to SN 1987A was identified as a blue supergiant star known as Sanduleak -69° 202. It had a mass estimated to be about 20 times that of the Sun.
- **Neutrino Detection:** SN 1987A was notable for another reason—it was the first supernova for which neutrinos were detected. Neutrinos are elusive subatomic particles that are produced in vast quantities during supernova explosions.

Galactic Tides

- Galactic Tides refers to tidal forces experienced by objects **within the gravitational field of a galaxy**, such as the Milky Way.
- It is similar to the tides in Earth's oceans but on a much larger scale. These are generated by gravitational interactions among celestial objects within a galaxy, including stars and gas clouds.
- **Impact:** Reshaping Galaxy Structure, Promoting Star Formation, Disrupting Smaller Systems, Orbital Changes, Interactions between Proximate Galaxies, Observations in Andromeda and Effects on Supermassive Black Holes.

Japan's Private Moon Lander

- Japan's **ispace** (a private lunar robotic exploration company) has **reported a setback** in its quest for the first private moon landing, citing a loss of contact with its **Hakuto-R Mission 1 (M1).**
- The Hakuto-R Mission 1 involved the launch of the **Hakuto lander atop a SpaceX rocket** from Cape Canaveral, Florida.
- Notably, the lander also carried a rover **developed in the United Arab Emirates, named the Rashid rover**. The Rashid rover was designed to explore the **Atlas Crater** located on the northeast side of the Moon.
- The overall mission had a target landing site at **the edge of Mare Frigoris in the moon's northern hemisphere.**

Project Taara

- Alphabet, Google's parent company, is deploying Project Taara, **a novel internet technology using Free Space Optical Communication (FSOC).**
- FSOC uses beams of light to transmit data at high speeds over long distances.
- **Benefits: cost-effectiveness, high-speed data transmission**, and accessibility in remote areas.
- Previous project, **Project Loon, used high-altitude balloons in the stratosphere**, faced technological and economic challenges.
- Project **Taara has potential to bridge the digital divide and provide high-speed internet** access to underserved communities.

Quasi-Moon

- Astronomers have recently identified a new asteroid, **named 2023 FW13.**

- This asteroid is observed to **be orbiting the Sun i**n a manner that gives it the appearance of a **companion to Earth**, earning it the designation of a "quasi-moon."
- Unlike traditional moons, this quasi-moon, 2023 FW13, has been in orbit around Earth for centuries and exhibits only minimal influence from Earth's gravitational forces.
- This discovery follows the identification of another **quasi-satellite called Kamo'oalewa** in 2016.
- The presence of these quasi-moons suggests that Earth may have more celestial companions than previously known.
- The term **"quasi-moon**" is used to describe celestial objects that, while not true moons, share an orbit with a larger body, such as Earth.
- These quasi-moons provide **valuable insights into the dynamics of celestial bodies** within our solar system and add to our understanding of Earth's cosmic neighborhood.

Sagar Sampark

- Sagar Sampark is developed by the **Ministry of Ports**, Shipping, and Waterways (MoPSW) to rectify errors in the **Global Navigation Satellite System (GNSS).**
- It utilizes reference stations strategically positioned at known locations for real-time corrections for GNSS signals.
- Sagar Sampark enhances the accuracy of positioning information received from **GNSS, including GPS, GLONASS, Galileo, BeiDou, and NAVIC.**
- It provides **shore-to-ship services**, playing a vital role in maritime navigation.
- Aligns with international navigation obligations set by organizations **like IMO, SOLAS, and IALA.**
- It leads to significant improvement in **GPS error correction accuracy**, reducing it from 5 to 10 meters to less than 5 meters for areas within 100 Nautical Miles from Indian coastlines.
- It enhances the capabilities of **the Directorate General of Lighthouses and Lightships (DGLL)** in providing General Aids to Marine Navigation.

Solar Flare

- Solar flares are **colossal explosions on the sun**, emit energy, light, and high-speed particles into space.
- Classified based **on strength, ranging from A (weakest) to X (strongest**).
  - **X-class flares** can trigger planet-wide radio blackouts and long-lasting radiation storms.
  - **M-class flares** can cause brief radio blackouts, particularly affecting Earth's polar regions.
  - **C-class flares** have minimal consequences on Earth.
  - **B-class flares** are too small to pose any harm.
  - **A-class flares** are hardly noticed and do not cause any harm.
- Understanding solar flares is crucial for assessing their **effects on communication systems** and satellite operations.

The Liability Convention

- The Liability Convention ensures international responsibility for peaceful space exploration and protects space assets and Earth from falling objects.
- As of January 1, 2023, 98 nations, **including India, have ratified the Convention.**
- The Liability Convention **reinforces the Outer Space Treaty (OST)**, providing a legal framework for addressing potential damages from space activities.
- Key aspects of the OST include **peaceful use of space,** equal rights to exploration, and environmental protection.

- Together, **the Liability Convention and the OST** form the cornerstone of international space law, safeguarding Earth and space assets from harm and promoting responsible exploration.

Lunar Codex: A Time Capsule to the Moon

- The Lunar Codex is a digitized archive curated by 30,000 artists from 157 countries.
- It consists of four-time capsules: Orion, Nova, Peregrine, and Polaris Collections.
- Launched and returned via NASA's Artemis 1 mission in 2022, it aims to showcase human creativity to future generations, emphasizing our shared humanity and interconnectedness on Earth.

Galaxy ESO 300-16

- **Hubble Space Telescope (HST),** a joint project between **NASA and the European Space Agency,** captured an image of **the irregular galaxy ESO 300-16.**
- ESO 300-16, located 28.7 million light-years away in the constellation Eridanus, defies traditional galaxie shapes with its cloud-like form.
- The galaxy's irregular **morphology raises questions** about its formation and evolution.
- Hubble, launched in 1990, **captures images** with exceptional clarity and detail, revealing celestial objects and phenomena beyond ground-based telescopes.
- **Hubble's three decades of operation** have revolutionized our understanding of the universe, capturing the first light from the earliest stars and uncovering mysteries of dark matter and dark energy.

Demonstration Rocket for Agile Cislunar Operations (Draco) Program

- NASA and DARPA (Defense Advanced Research Projects Agency, US Defence) are developing **a nuclear-powered space propulsion system to reduce travel time to Mars and beyond.**
- **Nuclear propulsion, utilizing energy from nuclear fission**, could shorten travel time to Mars by half, increase payload capacity, and expand exploration.
- DRACO's nuclear engine will **use less-enriched uranium,** ensuring safety and reducing proliferation risks.
- The team is targeting a 2027 launch **date for the DRACO engine test flight**.
- The DRACO program could **revolutionize space exploration**, enabling human missions to Mars, exploration of deep space, and commercial space initiatives.

Tidal Locking

- Tidal locking is **a celestial phenomenon** where a celestial body's rotation period synchronizes with its orbital period around another body.
- These results in two distinct regions: **the Near Side (60%) and the Far Side (40%)** of the Moon's surface.
- The **strong gravitational pull between Earth and Moon** creates tidal bulges, causing the Moon to become slightly squashed at the poles and the Earth to experience alternating high and low tides.
- Tidal forces **slow down the bodies' rotation**, causing the Moon to spin slower than it does today.
- The **extreme temperature difference** between the Moons's day and night sides impacts its potential for life.
- The **'far side' of the Moon** receives sunlight during the 'new moon' phase and remains illuminated for about two weeks.

SLIM And XRISM

- **SLIM (Smart Lander for Investigating Moon) and XRISM (X-Ray Imaging and Spectroscopy Mission)** represent a collaborative effort between **JAXA and NASA.**
- Their mission is to **observe X-rays from deep space and identify their wavelengths precisely**.
- Equipped with advanced spectroscopy, they measure changes in celestial object brightness at various wavelengths, detecting X-rays with energies from 400 to 12,000 electron volts.

- Onboard instruments Resolve and Xtend provide high-resolution spectroscopic data.
- Additionally, **SLIM, a compact robotic moon lander, aims to demonstrate precise lunar landing techniques.**

K2-18 B Exoplanet

- NASA's James Webb Space Telescope has identified the existence of carbon dioxide and methane on the exoplanet K2-18 b.
- **K2-18 B Characteristics**: K2-18 b is situated 120 light years away from Earth.
- **Exoplanets, short for extrasolar planets**, are worlds orbiting stars outside our own solar system. These distant cousins of our planets come in all shapes and sizes, from gas giants larger than Jupiter to rocky worlds as small as Mars.
- **James Webb Telescope** is a specialized space telescope designed for infrared astronomy.
- **JWT's Capabilities**:
  - Equipped with high-resolution and high-sensitivity instruments.
  - Enables the observation of objects that are too old, distant, or faint for the Hubble Space Telescope.

Juno Mission

- **NASA's** Juno mission has recently completed its 53rd close flyby of Jupiter.
- **Launched in 2011** with an initial plan for a 5-year journey, the Juno mission has several objectives.
- It aims to **probe beneath Jupiter's dense clouds**, investigate the origin and evolution of Jupiter, study the solar system, and explore giant planets across the cosmos.
- Additionally, the mission includes a **scientific study of Jupiter's faint rings.**
- In terms of its timeline, the Juno mission's extended phase is ongoing, with investigations of Jupiter scheduled to continue through September 2025 or until the end of the spacecraft's operational life.

Super Blue Moon

- **Super Blue Moon**: A Super Blue Moon is the **simultaneous occurrence of three lunar phenomena: a full Moon, a Supermoon, and a blue Moon.**
- **Blue Moon**: Refers to the **second full moon within a single month**, which is a rare event since full moons typically occur once a month. If a season witnesses four full moons, the third full moon is designated as the blue moon.
- **Supermoon:** A Supermoon occurs when the **moon is passing through or is in close proximity to its perigee, coinciding with a full moon**.
- **Comparative Brightness and Size:** A full moon at perigee (Supermoon) appears approximately 14% larger and 30% brighter than a full moon at apogee, which is termed a "micro moon."

Osiris Rex

- It is **a NASA spacecraft mission** designed to study the **near-Earth asteroid called Bennu**.
- The **name OSIRIS-REx** stands **for "Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer."**
- **Goal:** To collect a sample weighing at least 2.1 ounces (59.5 grams) from asteroid 101955 Bennu (formerly known as 1999 RQ36) and then bring the sample to Earth.
- The mission will **help scientists investigate** how planets formed and how life began, as well as improve our understanding of asteroids that could impact Earth.
- It is the **first U.S. spacecraft** to collect a sample from an asteroid.
- It was launched on Sept. 8, 2016.
- It reached its **asteroid target in 2018** and is bringing a small sample to Earth for study.

- The samples will arrive on Earth in 2023. **An extended mission** will take the spacecraft into orbit around near-Earth asteroid Apophis in 2029.

Indian Space Association (ISpA)

- Indian Space Association is the **Premier Industry Association of Space and Satellite** companies, which aspires to be the collective voice of the Indian Space industry.
- It will undertake **policy advocacy and engage** with all stakeholders in the Indian Space domain, including the Government and its agencies.
- ISpA is represented **by leading home grown and global corporations** with advanced capabilities in space and satellite technologies.
- Its founding members include **Larson and Toubro, Nelco, OneWeb, Bharti Airtel, Mapmyindia, Walchandnagar Industries and Ananth Technology Limited**.

Project Kuiper

- Amazon's Project Kuiper completes successful tests of optical mesh network in low Earth orbit (LEO). Amazon recently signed an agreement with SpaceX to launch three of Elon Musk's Falcon 9 rockets to support deployment plans for its Project Kuiper.
- **Aim:** To build a network of 3,236 satellites in low Earth orbit, to provide high-speed internet to unserved and underserved communities around the world.
- **Project Kuiper has three main parts:**
  a. **Ground infrastructure:** It includes gateway antennas that securely send and receive customer data to and from satellites, along with telemetry, tracking, and control (TT&C) antennas that keep the satellites properly operating. Global networking connects those gateway antennas to the internet, public cloud, or private networks.
  b. **Satellites:** They operate in low Earth orbit (LEO) and relay data traffic to and from gateway antennas and customers. LEO is an area of space that extends up to 2,000 kilometers (about 1,243 miles) above Earth.
  c. **Customer terminals:** This is the technology that Project Kuiper customers use to receive broadband service. The terminals combine antennas and processors into a single, compact system to deliver connectivity.

Space Internet- Other Initiatives

Starlink: SpaceX's Starlink project aims to offer high-speed internet access to any location on Earth using a constellation of thousands of satellites. Unlike traditional satellite internet, Starlink satellites fly closer to the surface, reducing latency and increasing connection bandwidth.

Jio Space Fiber: India's first satellite-based giga fiber service to provide high-speed broadband to previously inaccessible geographies within the country. It will further enhance the availability and scale of Jio True5G in the remotest parts of the country at highly affordable prices

One Web: One Web, backed by Airtel, is a low-Earth orbit satellite network provider that offers high-speed internet to vessels at sea. Launched 40 satellites in January 2023, it now has 542 in its LEO constellation. In November 2023, it received regulatory approval from IN-SPACe for commercial broadband services in India,

Solar Orbiter (SolO)

- The European Space Agency's Solar Orbiter recently captured the most detailed image of the Sun's full disc and outer atmosphere, the corona, to date.
- **Solar Orbiter** (joint mission of the European Space Agency (ESA) and NASA) is a Sun-observing satellite with 10 science instruments, all designed to provide unprecedented insight into how the sun works.
- The mission also examines the magnetic surroundings near the Sun, offering insights into the Sun's 11-year solar cycle and its recurrent release of solar storms.

- Solar Orbiter will be the first satellite to provide close-up views of the Sun's polar regions, which are very difficult to see from Earth, providing images from high latitudes.
- The mission was launched in 2020 and is scheduled to last till 2027.

Before SolO	After SolO
All solar imaging instruments have been within the ecliptic plane, in which all planets orbit and which is aligned with the sun's equator.	The new spacecraft will use the gravity of Venus and Earth to swing itself out of the ecliptic plane, passing inside the orbit of Mercury, and will be able to get a bird's eye view of the sun's poles for the first time.

Extra Mile: Other Country's Missions related to Sun

- **NASA's Parker Solar Probe:** It is a spacecraft that launched in 2018 to study the Sun's upper atmosphere and solar wind.
- **Kuafu-1:** China launched its first space-based solar observatory- Advanced Space-based Solar Observatory (ASO-S), nicknamed Kuafu-1, to solve the mystery of the Sun's eruptions. It will provide insights into how the Sun's magnetic field causes coronal mass ejections (CMEs) and other eruptions.

Red SPRITE

- A **European Space Agency (ESA)** astronaut recently captured a rare occurrence known as a red sprite, also known as **Stratospheric/mesospheric Perturbations resulting from Intense Thunderstorm Electrification.**
- **Red sprites are transient luminous events that appear high above thunderstorms, reaching into the Earth's ionosphere.** They are characterized by their red or orange glow and typically occur at altitudes of 40 to 100 kilometers above the Earth's surface.
- Sprites can take various shapes, including jellyfish-like forms and columnar shapes called "carrot sprites."
- The cause is the discharge of electrical energy during thunderstorms due to ionization of atmospheric gases like nitrogen and oxygen.
- The event is extremely brief, lasting only a few milliseconds, and is a global phenomenon, most frequently observed in tropical regions.

PACE Mission

- NASA is gearing up to enhance our understanding of Earth's atmosphere with the upcoming Plankton, Aerosol, Cloud, Ocean Ecosystem (PACE) mission, scheduled for launch in early 2024 (with a planned End of Life in March 2027).
- Aerosols refer to a system of liquid or solid particles suspended in a gas.

About PACE Mission

- It's an endeavor by NASA aimed at expanding our understanding of our planet's delicate interplay between oceans, atmosphere, and climate.
- The mission is also used to clarify the exchange of carbon dioxide between the ocean and atmosphere, a crucial factor in understanding climate change.

Key Instruments

- **Ocean Color Instrument (OCI)**: Measures the color of ocean water to determine the abundance and type of phytoplankton, tiny marine plants that form the base of the ocean food web.
- **Polarization and Spectral Exposure Corrected Sensor (SPEXone)**: Provides additional information on aerosols and clouds, enhancing atmospheric data collection.
- **Hyper Angular Rainbow Polarimeter-2 (HARP-2)**: Delivers even more detailed data on aerosols and clouds, particularly their three-dimensional structure and properties.

Pangenome Map

- The term "Pangenome Map" refers to **a representation or visualization** of the pangenome of a species. The pangenome is the **complete set of genes present in all the individuals** of a particular species, including both the core genome (genes shared by all individuals) and the dispensable genome (genes present in some individuals but not in others).
- It is represented as a **graph,** in contrast to the previous **linear** reference genome.

- A genome refers to the **complete set of genetic material,** including all the genes, DNA sequences, and non-coding regions, within an organism. It represents the entire hereditary information that an organism inherits from its parents.
- Genome sequencing is the process of determining the *precise order of nucleotides* that make up an organism's DNA. It involves reading and decoding the genetic information contained in the genome. The goal of genome sequencing is to obtain a complete and accurate representation of an organism's DNA sequence.

Three Parent Baby

- A **"three-parent baby"** is a human offspring conceived through assisted reproductive technologies that involve genetic material from three people:
  - **The biological mother:** contributes the nuclear DNA, which determines the vast majority of the child's physical and genetic traits.
  - **The biological father:** contributes the sperm, providing half of the child's nuclear DNA.
  - **A donor:** provide healthy mitochondrial DNA, which is located outside the nucleus and is responsible for energy production in cells.
- There are **two main techniques** used to create three-parent babies:
  - **Mitochondrial Replacement Therapy (MRT):** Removes nucleus from mother's egg and places it into a healthy donor egg cell. Resulting embryo contains nuclear and mitochondrial DNA.
  - **Pronuclear Transfer (PNT):** Removes pro nuclei from sperm and egg, transferring them into an enucleated egg.
  - Aims **to prevent transmission of mitochondrial diseases** from mother to child, leading to serious health problems.

Arexvy

- US FDA Approved Arexvy: **World's First Respiratory Syncytial Virus Vaccine** It is made by GSK (a private company), approved for individuals aged 60 and above.
- Arexvy is an adjuvant **respiratory syncytial virus vaccine**, aimed at preventing lower respiratory tract illness.
- Clinical trials show 82.6% reduction in **RSV-induced lower respiratory tract disease** risk in individuals aged 60 and above.

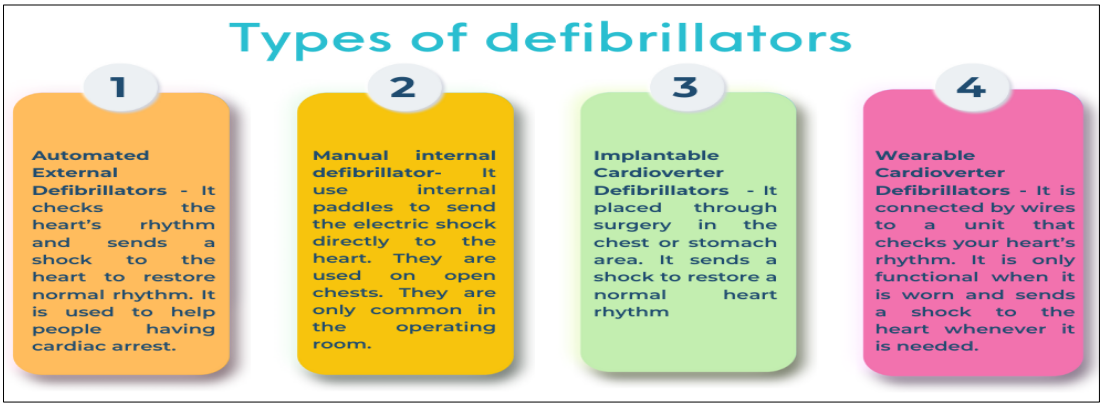
About Respiratory syncytial virus (RSV)

- Highly contagious virus causing lungs and breathing passage infections.
- Elder adults, with underlying conditions, at higher risk.
- Treatments include OTC pain relievers, hydration, hospitalization, and oxygen support.

Defibrillator

- Defibrillator is a device that **send an electric energy** or shock to the heart to restore a normal heartbeat.
- If the heart suddenly stops, defibrillator can also help it beat again.
- It used to prevent or **correct an arrhythmia**, an uneven heartbeat that is too slow or too fast.

- The procedure used to **treat life threatening conditions** that affect the rhythm of the heart is known as Defibrillation.



Generic Drugs for Rare Diseases

The Union Health Ministry has made available generic drugs to support the care and treatment of four ailments: Tyrosinemia-Type 1, Gauchers Disease, Wilson's Disease, and the Dravet-Lennox Gastaut Syndrome.

Generic Drug

- It is a medication that has exactly the same active ingredient as the brand-name drug and yields the same therapeutic effect (bioequivalence).
- A generic drug can only be marketed after the brand name drug's patent has expired.
- Generic drugs are usually much less expensive than brand-name drugs.

Concept of Rare Diseases

- **Defined by WHO** as lifelong conditions affecting 1-8% of India's population.
- Treatments include **antibody therapy, enzyme replacement therapy**, gene therapy, stem cell therapy, drug repositioning, and orphan drugs.
- In the U.S., Orphan Drug Act incentivizes orphan drug development.
- In India**, 2021 National Policy for Rare Diseases** provides financial assistance and exemptions from Basic Customs Duty.
- National Rare Diseases Committee ensures timely treatment and policy benefits for patients.

Rare Disease	About	Effect on Body
Tyrosinemia-Type 1	A rare genetic disorder caused by a deficiency of the enzyme FAH.	Liver Damage Jaundice Renal tubular dysfunction in the kidneys Intellectual disability and developmental delays
Gaucher's Disease	A rare genetic disorder characterized by a deficiency of glucocerebrosidase.	Accumulation of glucocerebroside in various organs and tissues Anemia Thrombocytopenia Leukopenia
Wilson's Disease	Characterized by the abnormal accumulation of copper, primarily in the liver and brain.	Tremors Difficulty with coordination and balance (ataxia) Stiffness Slurred speech
Dravet-Lennox Gastaut	Severe epileptic encephalopathies that manifest during early childhood.	Severe neurologic, intellectual, and behavioral disorders that progressively worsen

Scientists Develop Synthetic Embryo Using Stem Cells

- This move will help understanding the **impact of genetic disorders** and the biological reasons behind recurrent miscarriages and could provide opportunities to **study human embryonic development** at later stages than ever before.
- Stem cells are undifferentiated, self-renewing cells. They are characterized by their ability to undergo self-renewal and differentiation into specialized cell types.
- Stem cells hold the potential to treat a variety of diseases, including neurodegenerative disorders, heart disease, diabetes, spinal cord injuries, and certain cancers.

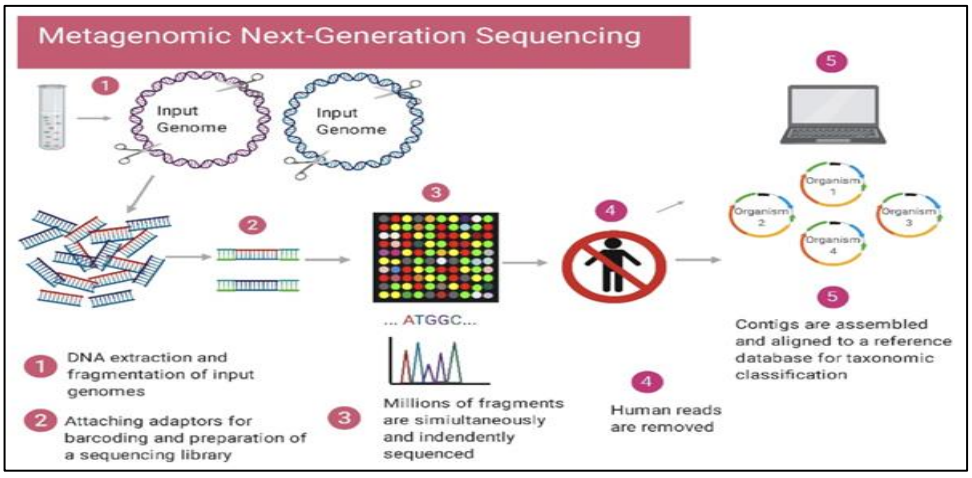
Embryonic Stage in Human Reproduction & its importance

- In human reproduction, an embryo is formed when a sperm fertilizes an egg, resulting in the formation of a single-celled zygote.
- An embryo is the early developmental stage of a multi-cellular organism. In humans, an embryo refers specifically to the stage of development from fertilization until the eighth week of pregnancy.
- During this period, the embryo undergoes critical processes such as cell division, differentiation, and the formation of organ systems.
- During the embryonic stage, the developing organism is highly vulnerable and susceptible to external influences, and this is a critical period for organogenesis and the establishment of the basic body plan.

Embryonic stem cells (ESCs)	Adult stem cells (Somatic or tissue-specific stem cells)
• Derived from in vitro fertilization (IVF) embryos. • Pluripotent, capable of differentiation into any cell type. • Valuable in research and medical applications. • Ethical concerns arise due to embryo destruction during extraction.	• Found in various tissues and organs. • Multipotent cells can differentiate into limited cell types. • Hematopoietic stem cells in bone marrow differentiate into blood cells. • Crucial in tissue repair, regeneration, and organ function maintenance.

Metagenome Sequencing

- Metagenomics is a field of molecular biology and genomics. This powerful tool **enables scientists to study genetic material from complex microorganism mixtures in various environments**, providing a comprehensive view of the microbial community.
- It aids in understanding their diversity and functional potential of the community.



Genome	Metagenome
Refers to the complete set of genetic material (DNA or RNA) of an organism.	Refers to the collective genetic material of all the microorganisms present in a particular environment.

Can vary in size from small viruses to complex organisms like humans.	Includes the genomes of bacteria, archaea, viruses, and other microorganisms.
Focuses on the genetic material of a single organism.	Provides a broader perspective by capturing the genetic information of multiple organisms within a specific environment.

Foot and Mouth Disease (FMD)

- It is a viral disease affecting **cloven-hoofed animals, s**uch as cattle, sheep, goats, and pigs. It poses a significant threat to the livestock industry. The disease is estimated to circulate in 77% of the global livestock population.
- **Cause:** It is caused by an Aphthovirus of the family Picornaviridae, seven strains (A, O, C, SAT1, SAT2, SAT3, and Asia1).
- **Treatment:** Each strain requires a specific vaccine to provide immunity to a vaccinated animal. Its prevention is based on the presence of early detection and warning systems and the implementation of effective surveillance among other measures.
- **National Animal Disease Control Programme (NADCP) for FMD:** It is a **100% centrally funded programme**, from 2019 to 2024. It aims to control FMD and Brucellosis by 2025 with vaccination and eventual eradication by 2030.

- **Hand, Foot, and Mouth Disease** is common in children under the age of 5, but anyone can get it. The illness is usually not serious but is very contagious. It spreads through person-to-person contact.
- **Cause:** It is caused by a coxsackievirus, which belongs to a group of viruses called nonpolio enteroviruses.
- **Symptoms:** Symptoms include fever, sore throat, painful blister-like lesions on the tongue, gums and ulcers inside their mouth rashes on the palms and soles.
- **Treatment:** It is mostly treated with anti-allergic medicines and ointments.

Chimaeras

In a recent landmark study, scientists reported successfully generating a live monkey of the species Long-tailed macaques in non-human primates.

About Chimera

In biology, a "**chimera" refers to an organism that contains cells or tissues from different sources, often of genetically distinct individuals**. Chimeras can occur naturally or be created artificially for various purposes, including scientific research.

Key Aspects of Biological Chimerism

- **Natural Chimerism**: Arises through early embryo fusion or cell exchange during pregnancy. It can also occur through fraternal twins.
- **Artificial Chimerism:** Scientists create chimeras for research purposes, combines cells or tissues from different organisms and useful for studying development, genetics, or organ function.
- **Medical Applications**: Involves introducing human cells into animals for organ transplantation and could address donor organ shortage.
- **Genetic Chimerism**: Individuals with two or more distinct cell lines, can occur due to various genetic and developmental processes and provides insights into genetics, developmental biology, and potential applications in medicine and biotechnology.

CAR T cell Therapy

- CDSCO granted **Market Authorization to NexCAR19, India's first indigenously developed CAR-T cell therapy,** developed **by ImmunoACT**, a company incubated at IIT Bombay.
- **It targets CD19**, a biomarker for B lymphocytes, used in leukemia immunotherapies.

About CAR T Cell Therapy

- **CAR T-cell therapy, or Chimeric Antigen Receptor T-cell therapy**, is an innovative form of immunotherapy used to treat certain types of cancer.
- The therapy involves modifying a patient's own T cells, which are a type of immune system cell, to enhance their ability to recognize and attack cancer cells.
- T-cells are cytotoxic cells that fight illness and infection. This Therapy involves genetic modification of T cells to equip them with synthetic receptors.

How CAR-T Cell Therapy Works?

- T cells extracted from patient's blood via **leukapheresis**.
- Genetic modification to express **Chimeric Antigen Receptors (CARs**) to target specific cancer antigens.
- Modified T cells **cultured and multiplied.**
- **Infusion of CAR T** cells back into patient's bloodstream.
- CAR T **cells bind to cancer cells**, leading to immune system destruction.

R21/Matrix-M Malaria Vaccine

- World Health Organisation **(WHO) recommended 2nd new vaccine,** R21/Matrix-M, for the prevention of malaria in children.
- 1st vaccine was RTS, S/AS01 vaccine, which received a WHO recommendation in 2021.
- **R21/Matrix-M is the first malaria vaccine** to reach the WHO's target of 75% efficacy.
- **Developed by:** University of Oxford, Serum Institute of India, European and Developing Countries Clinical Trials Partnership ('EDCTP'), Welcome Trust and European Investment Bank ('EIB').

Features

- R21/Matrix-M vaccine **has already been approved for use** in Burkina Faso, Ghana, and Nigeria.
- The vaccine will be rolled out in those African countries in early 2024 and will be available in mid-2024 in other countries.

Malaria

- Malaria, a mosquito-borne blood disease, has increased from 245 million cases in 2020 to over 45,000 in India in 2022.
- Children under five account for 80% of deaths in the WHO African Region.
- Genetic engineering technique, **Gene Drive**, could help eradicate malaria-causing mosquitoes.
- **WHO initiatives include the E-2025 Initiative** and the **Global Technical Strategy for Malaria 2016-2030.**
- The India launched a 5-year **National Strategic Plan for Malaria Elimination** in 2017.

Y–Chromosome

- The Y chromosome is **one of two sex chromosomes** in humans, determining biological sex.
- It carries the SRY gene, **crucial for male development**, and a significant portion, around 66%, is composed of repetitive DNA sequences, known as "junk DNA."
- The Y chromosome is **a valuable tool for tracing paternal ancestry**, as it is passed down from father to son.
- The information provided by the Y chromosome provides **a specific lineage of male ancestors.**

Characteristic	X Chromosome	Y Chromosome
Origination	Can be contributed by eggs or sperms	Always contributed by sperms
Size	Longer (Contains about 900 protein coding genes)	Smaller (Contains just around 100 protein coding genes)
Presence	Occurs paired in females and single in males	Normally occurs single in males only

Genomic Contribution	Represents 5% of entire human genome	Represents 2% of entire human genome
Genotype	Contains XX genotype	Contains XY genotype

Yellow Fever

- **Infection & Transmission:** Yellow fever is a viral disease caused by the yellow fever virus, which belongs to the Flaviviridae family. It is primarily transmitted through the bite of infected mosquitoes, particularly the Aedes aegypti species.
- **Symptoms:** Headache, jaundice (yellowing of the skin and eyes), muscle pain, nausea, vomiting and fatigue
- **Global Programme:** Eliminate yellow fever epidemics (EYE) 2017-2026 has been developed by a coalition of partners Gavi, UNICEF and WHO to end yellow fever epidemics by 2026

Artificial Sweeteners

- These are **sugar substitutes** that are used as a substitute for natural sugars. They are typically **many times sweeter than sugar**, so only small amounts are needed to achieve the desired level of sweetness.
- These sweeteners are **chemically synthesized** and provide a sweet taste without the high calorie content of regular sugar.
- Some examples of artificial sweeteners are **saccharin, aspartame, acesulfame potassium, sucralose, Neotame and Advantame.**

Vector Borne Diseases

- Vector-borne diseases are illnesses caused by pathogens (such as viruses, bacteria, or parasites) that are transmitted to humans or animals through the bites of infected arthropod vectors.
- Arthropods, including mosquitoes, ticks, flies, and fleas, are the most common vectors responsible for transmitting these diseases.

Types of Vector-Borne Diseases

- **Mosquito-borne diseases:** Malaria, dengue fever, Zika virus, West Nile virus, and yellow fever.
- **Tick-borne diseases:** Lyme disease, tick-borne encephalitis, and Rocky Mountain spotted fever.
- **Flea-borne diseases:** Plague (transmitted by fleas that infest rodents) and murine typhus.
- **Fly-borne diseases:** African trypanosomiasis (sleeping sickness) transmitted by tsetse flies and leishmaniasis transmitted by sandflies.

Protosterol Biota

- Fossilized Protosterol Biota Found in Australia
- Found in a rock near the Northern Territory, it belongs to the Eukaryotes family.

- **Prokaryotes** are single-celled or multicellular with a well-defined nucleus. Prokaryotes are represented by Bacteria and Archaea. Reproduce mainly through binary fission.
- **Eukaryotes** have diverse modes of reproduction. Eukaryotes belong to the domain Eukarya, showing higher cellular specialization and complexity.

Neurotoxins

- **Neurotoxins** are poisonous substances which can directly affect the nervous system (including the brain, spinal cord, and peripheral nerves).
- **Effect of Neurotoxins:** They can disrupt normal neurological processes by interfering with the transmission of signals between nerve cells or by damaging nerve cells themselves.
- **Examples:** There are numerous neurotoxins found in nature, as well as synthetic ones created by humans.
    - **Botulinum toxin:** Produced by the bacterium **Clostridium botulinum**, it is one of the most potent

neurotoxins known.

- **Lead & Mercury** are heavy metals that can have **neurotoxic effects**, especially in children. It can lead to cognitive impairments, learning disabilities, and behavioral problems.
- **Methane, hydrogen sulphide, carbon monoxide and carbon dioxide** are **common neurotoxic gases.**

Virgin Birth

- Scientists have documented the first-known instance of a **Facultative parthenogenesis** also referred as "virgin birth" by a **crocodile**.
- **Parthenogenesis** is a reproductive process where an **organism develops from an unfertilized egg**. It's **natural in certain invertebrates** but rare in mammals, including humans.
- **Facultative parthenogenesis (FP)** allows reproduction either sexually or asexually, depending on circumstances.
- Females can switch to asexual reproduction if mating opportunities are limited. FP has been documented in reptile species, fish, birds, and lizards.
- FP has implications for population dynamics and evolutionary biology, allowing females to reproduce and maintain genetic lineage.

Leptospirosis Disease

- Leptospirosis, a potentially fatal **zoonotic bacterial disease**, affects humans and animals and is primarily caused by Leptospira bacteria, often resulting in large outbreaks after **heavy rainfall or flooding**.
- **Signs & Symptoms:** This condition can cause mild to severe symptoms, including headaches, muscle pains, fevers, and meningitis, and without proper treatment, can lead to kidney damage, meningitis, liver failure, respiratory distress, and even death.
- **Diagnosis and Treatment:** Antibiotics like doxycycline or penicillin can reduce illness severity and duration, while severe cases may necessitate hospitalization for supportive care.

Deep Sequencing (Next-Generation Sequencing (NGS))

- It is a method **of DNA sequencing** that allows researchers to analyse large amounts of genetic information in a relatively short amount of time.
- This technique is based on the use of high-throughput sequencing technologies, which can generate millions of DNA sequences in a single experiment.
- In deep sequencing, DNA samples are fragmented into smaller pieces and then amplified using various techniques, such as **polymerase chain reaction (PCR) or library preparation protocols**.
- By analysing these sequences, researchers can **identify genetic variations**, **mutations**, and other changes that may be associated with disease or other biological processes.

Precision Fermentation

- Precision fermentation refers to a **technology that utilizes microbial fermentation** to produce specific compounds, ingredients, or products with high precision and control. It involves the **use of genetically engineered microorganisms**, such as bacteria, yeast, or fungi, to produce target molecules through fermentation processes.
- **Key Features:** It can be used to produce **specific proteins, enzymes, flavors, fragrances, vitamins, and other biomolecules** that have applications in food and beverages, pharmaceuticals, cosmetics, and other industries. Examples: plant-based meat alternatives, dairy-free milk, and medicines such as insulin.

Nilotinib

- It is a medication used **to treat chronic myeloid leukemia (**CML), a type of blood cancer that **affects the white blood cells**.

- It works by inhibiting the activity of an enzyme called **tyrosine kinase**, which is responsible for **the uncontrolled growth of cancer cells** in the body.

Mosaic Virus

- **Cucumber Mosaic Virus (CMV) and Tomato Mosaic Virus (ToMV)** are the two 'mosaic' viruses that hit tomato crop in Maharashtra and Karnataka.
- Both viruses can **cause almost 100% crop loss** unless properly treated on time.
- **Mosaic Virus** is a **parasite that destroys plants, gardens, and crops down to their molecular level.**
- It is characterized by leaves mottled with yellow, white, and light and dark green spots or streaks. (Resembles like Mosaic Pattern)
- It mostly spreads through infected seeds, saplings, agricultural tools, and nursery workers' hands.
- Infected plants can spread to other plants and affect entire harvests. It's not harmful to humans or pets as it's specific to plants.
- There is no cure or protection for infected plants. Best control is sanitation and remove infected plants, roots, and nearby plants.

Brucellosis

- Brucellosis is a **bacterial** infection caused by Brucella bacteria, affecting animals and humans.
- It's primarily **transmitted through contaminated animal products or direct contact.**
- Globally reported, it affects people of all ages and sexes, with rare person-to-person transmission.
- **Symptoms in Human:** The disease presents symptoms like fever, chills, sweats, weakness, headache, fatigue, joint and muscle pain, increased platelet count, and swollen face, potentially leading to complications**.**
- **Treatment:** Treatment typically involves the **use of antibiotics** and can last several weeks to months. The **Indian Veterinary Research Institute (IVRI),** a part of the Indian Council of Agricultural Research (ICAR), has developed the **Brucella abortus S19Δ per vaccine** specifically for the prevention of brucellosis in the dairy sector.
- **Extra Mile:** The World Health Organization (WHO) has identified Brucellosis as a **neglected zoonotic disease**. The WHO estimates that there are more than 500,000 new cases of Brucellosis in humans each year, with the majority of cases occurring in developing countries.

Picolinic Acid

- Recently, a new study by researchers at the **Indian Institute of Science (IISc)** and collaborators has revealed that **picolinic acid can block several viruses,** including those responsible for **SARS-CoV-2 and influenza A.**
- The study describes the compound's remarkable ability to inhibit the entry of the enveloped virus into the host's cell and prevent infection.
- **Picolinic acid, an organic compound with a carboxylic acid substituent**, is an isomer of nicotinic acid and a white solid soluble in water, but not widely used due to its specific properties.
- **Applications:** This compound has various applications in coordination chemistry, dietary supplements, neurotransmitter and brain health, analytical chemistry, and pharmaceuticals.
- It is effective against enveloped viruses like Zika and Japanese encephalitis.

CH3+ Molecule (Methyl Cation)

- Scientists have found **the fingerprints of a CH3+ molecule** in light coming from a rotating disk of dust and gas around a young star.
- It is a **very simple organic molecule**, only one carbon atom and 3 hydrogen atoms.
- It reacts with other molecules to form more complex molecules.
- Its presence in space tells us that **the basic infrastructure for life is** there.

Whole Genome Sequencing (WGS)

- **Whole Genome Sequencing (WGS)** is the process of determining the complete DNA sequence (including both coding and non-coding regions) of an organism's genome at a single time.
- It provides a high-resolution, base-by-base view of the genome.
- **Applications:** Personalized Medicine, Cancer Genomics, Rare Disease Diagnosis, Ancestry and Genealogy.

Naegleria Fowleri

- **Naegleria Fowleri is a single-cell organism** (brain-eating amoeba) found in warm freshwater environments such as lakes, hot springs, and poorly maintained swimming pools.
- **Infection: Contaminated water enters nasal passages**, posing a risk from activities like diving. It migrates via the olfactory nerve to the brain, causing inflammation and tissue destruction, not spreading.
- **Symptoms:** Initial symptoms can **include headache, fever, nausea, vomiting**, and a stiff neck. As the infection progresses, symptoms may worsen and can include confusion, seizures, hallucinations, coma, and death.
- **Treatment:** Even with treatment, the chances of surviving with this infection remain low with a recorded **death rate of 97 per cent**.

Watson Crick Interaction and Hoogsteen Interaction

- Both are a type of **hydrogen bonding** that occurs between nucleotides in DNA.
- Watson-Crick interactions occur between the **nitrogenous bases adenine and thymine**, as well as between guanine and cytosine.
- Hoogsteen interactions occur **between the nitrogenous bases in the minor groove** of DNA.
- Both interactions are **important for the stability and function of DNA**, and they play a key role in many biological processes, including DNA replication, transcription, and repair.

HeLa cells

- HeLa cells are remarkable for their ability to replicate rapidly and continuously in culture, making them a valuable tool for studying various aspects of cell biology, genetics, medicine, and virology.
- **Origin and Discovery: HeLa cells are named after Henrietta Lacks**, an African American woman who unknowingly contributed these cells during her treatment for cervical cancer in 1951. They were **the 1st human cells to be successfully cloned in 1953.**
- **Features:**
  - HeLa cells are **an immortal cell line**, meaning they can divide indefinitely under the right conditions.
  - This characteristic makes them invaluable for scientific research as they can be grown in large quantities over extended periods, providing a consistent and reproducible cellular model.
  - Normally, human cell cultures die within a few days after a set number of cell divisions via a process called senescence.
- **Contribution to Science:** Vaccine Development, Cancer Research, Genetics and Cell Biology, Virology, Drug Testing and so on.

Legionnaire's Disease (Legionellosis)

- **Legionnaire's Disease** is a severe **form of pneumonia**, lung inflammation usually caused by infection. It's caused by a bacterium known as legionella.
- **Infection:** Legionella, a bacterium found in freshwater settings, thrives in warm water and spreads through contaminated water systems. It is an airborne disease, found in water droplets like mist and vapour, which can be inhaled through steam from saunas or hot tubs. It also causes Pontiac fever, a milder illness similar to the flu, which usually resolves on its own.
- **Symptoms:** Fever, muscle and abdominal pain and shortness of breath.

- **Vaccine & Treatment:** There are **no vaccines** that can prevent Legionnaires' disease. It requires treatment with antibiotics and most cases of this **illness can be treated successfully**.

Meningococcal Disease

- Five people have died in Virginia from complications of a rare but serious illness following a statewide outbreak of meningococcal disease.
- **Meningococcal Disease** is a rare but serious bacterial infection, caused by bacteria called Neisseria meningitides. It causes **meningitis** (inflammation of the membranes surrounding the brain and spinal cord) and septicemia (bloodstream infection).
- **Transmission:**
  - Through respiratory droplets (e.g., through coughing, sneezing, or close contact)
  - Most commonly spread among people who live in close quarters, such as dormitories, military barracks, or households.
- **Symptoms**: A headache, fever, nausea or vomiting, brain fog, sensitivity to light, sleepiness, a stiff neck and possibly a skin rash
- **Treatment:** Vaccination with antibiotics is essential

Varicella Zoster Virus (VZV)

- Varicella-zoster is a herpes virus that cause**s chickenpox, a common childhood illness.**
- It is an exclusively human virus that belongs to the **α-herpesvirus family.**
- Primary infection of this virus leads to acute **varicella or "chickenpox".**
- The infections can progress to the central nervous system involvement and severe complications.

Key Facts About Chickenpox

- It is a **highly contagious disease.**
- **Symptoms**: It can cause an itchy, blister-like rash, among other symptoms. The rash first appears on the chest, back, and face and then spreads over the entire body.
- **The virus is spread by:**
  - **Coming in contact** with someone who has chickenpox.
  - **Breathing air from** an infected person who sneezes or coughs.
  - Coming in contact with fluids from an infected child's eyes, nose or mouth.
- The **incubation period of chickenpox is from 10 to 21 days**
- It can be serious, especially during pregnancy, in babies, adolescents, adults, and people with weakened immune systems (lowered ability to fight germs and sickness).

Xenotransplantation

- For the 1st time, Chinese scientists have grown humanized kidneys, which have human cells.
- **Xenotransplantation** is a process that **involves the transplantation** (works on active tissue), implantation, or infusion **into a human host of either live cells, tissues, or organs from a nonhuman animal source**, or Human body fluids, cells, tissues, or organs that have had ex vivo contact (outside of the living body) with live nonhuman animal cells, tissues, or organs.
- Such cells, tissues or organs are called xenografts or xenotransplants.

Why Are Pigs Used In This Process?

- Pigs are a popular source for xenotransplantation due to their **similar organs and large litter size**. They have **fewer ethical concerns than monkeys and apes**, and their large litter and **short gestation periods** make them suitable for transplantation.

- **Pig heart valves** have been successfully used in humans, and pig intestines produce blood thinner heparin. Pig skin grafts are used for burns.

Nipah Virus Infection (NiV)

- In Kerala, as many as 153 health workers have been found in the contact list of the confirmed cases of Nipah virus infection (NiV).
- **Nipah Virus** a zoonotic virus which means it is transmitted from animals to humans.
- **Host:** Fruit bats are the natural hosts of this virus and have a high mortality rate.
- **Areas:** Outbreaks occur almost annually in parts of Asia, primarily Bangladesh and India.
- **Symptoms:** Initially fever, headaches, muscle pain, vomiting and sore throat. Typical pneumonia and severe respiratory problems, including acute respiratory distress
- **Treatment:** Currently there are no licensed treatments available for Nipah virus (NiV) infection. Treatment is limited to supportive care, including rest, hydration, and symptoms as they occur.
- **Transmission:** Nipah virus (NiV) can spread to people from:
    - Direct contact with **infected animals**, such as bats or pigs, or their body fluids (such as blood, urine or saliva)
    - Consuming food products that have been **contaminated by body fluids** of infected animals (such as palm sap or fruit contaminated by an infected bat)
    - Close contact with a **person infected with NiV** or their body fluids (including nasal or respiratory droplets, urine, or blood)

Feline Panleukopenia Virus

- Seven leopard cubs have died at **Bannerghatta Biological Park in Bengaluru** after being infected by a highly contagious Feline panleukopenia virus.
- **Feline Panleukopenia Virus (FPV)** is also known as **Feline Distemper** (Kittens are most severely affected). It is a viral disease of cats caused by the **feline parvovirus.**
- **Transmission:** FPV is primarily transmitted through direct contact with an infected cat's bodily fluids, faeces, or contaminated environments.
- **Symptoms:** It includes severe lethargy, diarrhoea, vomiting, and dehydration, decreased to absent appetite, weight loss, rough or unkempt hair coat and fever. There is no specific treatment for this virus.
- **Treatment:** Dehydration is treated with aggressive intravenous fluid therapy, while clinical signs of vomiting and diarrhoea are treated with prescription medications. Antibiotic therapy is often instituted to help control any secondary bacterial infections due to low white blood cell counts.
- **Vaccination** is the most effective way **to prevent FPV infection**.

Aarogya Maitri Cube: World's 1st Portable Disaster Hospital

- The hospital can be airlifted and assembled into 72 cubes that contain essential medical equipment and supplies.
- It is a Part of Project BHISHM (Bharat Health Initiative for Sahyog Hita and Maitri)
- The cubes can **support 200 survivors** for 48 hours during natural disasters or crises.
- The hospital **includes Operation theatres, mini-ICUs, Ventilators**, Blood test equipment, an X-ray machine, a cooking station, Food, Water, a Shelter, Power generator.
- It is part of the **"Aarogya Maitri" project.** The project aims to provide essential medical supplies to any developing country affected by natural disasters or humanitarian crises.

Blue Button Movement

- A movement that allows **consumers to access t**heir health information.

- The **Blue Button logo** signifies that a consumer can download a single electronic file that contains their available health data.
- Patients can use the Blue Button to **download information** such as: Emergency contacts; military health history; Important Lab test results; Medications; Allergies etc.
- It can help **prevent medication errors**, and can improve care coordination.

Xpert MTB/RIF Test

- It is a new test that **is revolutionizing tuberculosis (TB)** control by contributing to the rapid diagnosis of TB disease and drug resistance to rifampicin.
- **Xpert MTB/RIF test:** Simultaneously detects Mycobacterium Tuberculosis complex (MTBC) and resistance to rifampin (RIF) in less than 2 hours.
- **Traditional Method:** Standard cultures can take 2 to 6 weeks for MTBC to grow and conventional drug resistance tests can add 3 more weeks.

GFATM (Global Fund to Fight AIDS, Tuberculosis, and Malaria)

- **GFATM is an international financing organisation** working with governments, civil society, and people affected by diseases.
- It was created in 2002 with secretariat at Geneva, Switzerland.
- **Objective:** To **end the epidemics** of AIDS, Tuberculosis and Malaria (To Achieve SDGs)

GFATM & Other Countries /Organisations

- The GFATM relies on organizations in each country known **as "Local Fund Agents".**
- The United States is the **Global Fund's largest single donor** and technical resource for supporting program delivery at the country level.
- G7 played a crucial role in setting up a **global fund to fight malaria** and Aids in 2002.
- India joined the **Global Fund as a donor in 2006**. India has partnered with the Global Fund to launch Joint Effort for Elimination of Tuberculosis (JEET).

Messenger RNA (mRNA)

Nobel Prize in Physiology or Medicine for the 2023 has been awarded to two scientists **Katalin Kariko and Drew Weissman**, for their work enabled the development of mRNA vaccines against Covid-19.

Understanding mRNA and mRNA Vaccines

- mRNA is a crucial molecule **in genetics and molecular biology**, serving as an intermediary between DNA and protein synthesis.
- It is a **single-stranded molecule composed of nucleotides**, synthesized through transcription.
- Its primary function is to carry **genetic instructions from DNA to ribosomes**, the cellular machinery responsible for protein synthesis.
- mRNA vaccines introduce **a piece of mRNA** that corresponds to a viral protein, allowing cells to produce the viral protein.
- The immune system recognizes the **foreign protein and produces antibodies**, which remain in the body even after the body has eliminated the pathogen.
- **Antibodies protect the body** against infection by recognizing individual viruses or other pathogens, attaching to them, and marking them for destruction.

Tilapia Parvovirus (TiPV)

- India's 1st tilapia parvovirus was reported in Tamil Nadu.
- **Tilapia Parvovirus** is a viral pathogen that **primarily affects tilapia** (a freshwater fish species). TiPV has caused **high mortality rates** in Tilapia Fish.

- **Feature:** It belongs to the **Parvoviridae family**, known for its small, non-enveloped, single-stranded DNA viruses. The discovery of TiPV in India is the 3rd known occurrence after China (2019) and Thailand (2021).
- **Effect:** It can pose **a threat to the biodiversity** and **ecology** of freshwater bodies. It can also affect the food security and nutrition of the people who depend on tilapia as a source of protein and income.
- **Treatment:** Currently **no vaccine** is available against TiPV.
- **Transmission:** TiPV spreads through **direct contact with infected fish** or contaminated water sources. Rapid transmission is **common in densely** populated fish ponds within aquaculture environments. The introduction of infected fish or contaminated equipment accelerates the virus's dissemination.

DANGER (Deleterious and Anticipatable Guides Evaluated by RNA-sequencing)

- It is **a new software tool** that makes genome editing safer by overcoming limitations in current CRISPR technology. Unlike traditional methods that rely on a reference genome, it works by **conducting risk-averse on- and off-target assessments** using RNA-sequencing data.
- DANGER refers **to a strategy or approach that uses RNA-sequencing** (RNA-seq) technology to evaluate the effectiveness and potential off-target effects of guide RNAs (gRNAs) used in CRISPR-Cas9 gene editing. Guide RNAs are short RNA sequences that guide the Cas9 nuclease to a specific target DNA sequence for editing.

About Genome Editing

- It is also called **gene editing is a group of technologies** that give scientists the ability to change an organism's DNA. It allows genetic material to be added, removed, or altered at particular
- It could potentially decrease, or even eliminate, the incidence of many serious genetic diseases, reducing human suffering worldwide.

Commonly Used Genome Editing Techniques:

CRISPR-Cas9, TALENs (Transcription Activator-Like Effector Nucleases), ZFNs (Zinc Finger Nucleases), HDR (Homology-Directed Repair), Prime Editing

Calixcoca

- A team of Brazilian engineers and vaccine specialists have **developed a vaccine that kills addiction** and other substance abuse related issues, called calixcoca.
- **Calixcoca** generates antibodies **that bind to cocaine molecules** in the blood stream obstructing cocaine from reaching the brain.
- The binding process **results in the enlargement of cocaine molecules**, rendering them too large to enter the brain's mesolimbic system.
- This area of the brain is typically stimulated by cocaine to release dopamine, the pleasure-inducing neurotransmitter.
- Consequently, individuals who receive the **vaccine will not experience** the desired euphoric effects of cocaine, potentially assisting **them in breaking the cycle of addiction**.
- The vaccine is now moving into the final phase of trials, with testing on human subjects.

Inverse Vaccine

- A vaccine that **teaches the immune system not** to attack a specific target.
- It works **by directing a self-antigen to the liver**, which can signal the immune system to leave certain cells alone.
- Conventional vaccines work by training the immune system to combat infectious agents.

Chondrocytes

A new study reported that **chondrocytes-cells** that make cartilage (connecting tissue between bones) also make haemoglobin. Previously, it was understood that haemoglobin was used only by Red Blood Cells (RBCs).

About Chondrocytes (Primarily Comprises Proteoglycans and Collagen)

- These are the **cells making up the cartilage** and surrounded by collagenous fibres. Cartilage is a **type of connective tissue** that is tough, flexible, and avascular (lacks blood vessels). Chondrocytes play a fundamental role in the formation, maintenance, and repair of cartilage.
- **Location:** Chondrocytes are primarily found within cartilage, **residing in small spaces called lacunae**. These spaces are dispersed throughout the cartilage matrix. Haemoglobin in Chondrocytes carries oxygen and is essential for their survival.
- **Extracellular Matrix Production:** Chondrocytes are **responsible for synthesizing and maintaining the extracellular matrix** of cartilage. This matrix is composed of collagen fibers, proteoglycans, and water.
- **Function in Cartilage:** Chondrocytes contribute to the strength and resilience of cartilage tissue.

Hemochromatosis

- **Hemochromatosis** is a **hereditary or rare genetic disorder characterized by the excessive accumulation of iron in the body.**
- **Caused By:** Genetic mutations that affect the body's ability to regulate iron absorption from the diet.
- **Symptoms:** Fatigue, joint pain, abdominal pain, diabetes, liver disease, heart problems, and skin pigmentation changes ("bronze diabetes")
- **Effect:** Infiltrates the vital organs, such as the liver, heart, and pancreas
- **Treatment**: Therapeutic phlebotomy, which involves regular blood removal to reduce iron levels and iron-chelating medications to help manage iron overload

Glucagon-like Peptide-1 (GLP-1) Hormone

- GLP-1 plays a crucial **role in regulating blood sugar levels** and satiety (the feeling of fullness) by influencing various physiological processes in the body.
- **Secretion** produced **in the gastro-intestinal tract**, specifically in the intestinal L cells, in response to the ingestion of food.
- This hormone has become really significant in the treatment of type 2 diabetes and obesity.

Monoclonal Antibodies (mAbs)

- **Monoclonal Antibodies** are a type of laboratory-produced molecules that are designed to mimic the immune system's ability to fight off harmful pathogens, such as viruses and bacteria.
- These antibodies are engineered to target specific antigens or proteins on the surface of cells, pathogens, or other foreign substances.
- **Origin:** Derived from an immune cell, typically a B cell, that produces a specific antibody.
- **Applications:** Cancer Treatment, Immune Disorders, Infectious Diseases, Transplantation, Allergies and so on.

Thalidomide

- The Australian government has issued a formal apology to people affected by **thalidomide, the morning sickness drug** that caused significant birth defects in babies during the 1950s and 1960s.
- **Thalidomide** was marketed **as a sedative and anti-nausea drug** for pregnant women in the 1950s but caused birth defects including "shortened or absent limbs (phocomelia), blindness, deafness or malformed internal organs.
- **Present Status about Thalidomide:** Despite its dark history, thalidomide has **demonstrated efficacy** in managing conditions such as **leprosy** (Hansen's disease) **and multiple myeloma** (a type of blood cancer). However, its use is highly controlled.

Lycopene Sensors

- A team of researchers from the **Institute of Nano Science and Technology (INST),** Mohali, has developed a

nano-biosensor for detecting 'lycopene'.

- **LycopeneSensors:** The sensor uses a **reusable, portable, smartphone-based up converting fluorescent paperstrip**. The sensor can detect lycopene in tomatoes.
- **Lycopene is a non-provitamin a carotenoid that gives color to foods.** It is a carotenoid foundin tomatoes, grapefruit, watermelons and papaya.
- It is also synthesized by plants and microorganisms but can't be synthesized by human body and can only be obtained via diet.
- It is **a potent antioxidant** that helps prevent cancer and heart diseases.

Germicidal UV lights (UV-C lights)

- It is a type of light that **is capable of killing or inactivating bacteria**, viruses, and fungi by disrupting their DNA and RNA, preventing them from reproducing & causing infections
- **Uses:** The use of germicidal UV light has become increasingly popular in various settings, including healthcare facilities, laboratories, and water treatment plants.

Anti-Bacterial Resistance (AMR)

- Antimicrobial resistance (AMR) occurs when microorganisms, such as bacteria, viruses, fungi, and parasites, evolve and become resistant to the drugs designed to kill them. When this happens, **the drugs become less effective** or even ineffective, **making it harder to treat infections** and increasing the risk of serious illness, death, and the spread of diseases.
- There are several **factors that contribute** to the development of AMR, including: Overuse and misuse of antimicrobial drugs, Poor hygiene and sanitation, Lack of access to clean water and sanitation and Lack of new antimicrobials.
- AMR is **a natural phenomenon**, but it is being accelerated by human activities.

Initiatives to Control AMR

- **National Action Plan on AMR (NAP-AMR):** Launched in 2017, the NAP-AMR aims to strengthen surveillance, promote responsible use of antibiotics, and develop new diagnostics and treatment options.
- **One Health approach**: Recognizing the interconnectedness of human, animal, and environmental health, India has adopted a One Health approach to address AMR.

Generic Drugs

- It is a medication that **has exactly the same active ingredient** as the brand-name drug and yields the same therapeutic effect.
- It is the same in dosing, safety, strength, quality, the way it works, the way it is taken, and the way it should be used.
- These similarities **help to demonstrate bioequivalence**, which means that a generic medicine works in the same way and provides the same clinical benefit as the brand-name medicine.
- They also have **the same risks and benefits** as their brand-name counterparts.
- Generic drugs **do not need to contain the same inactive ingredients** as the brand-name product.
- A generic drug can **only be marketed after the brand name drug's patent has expired**.
- Generic drugs are usually much **less expensive** than brand-name drugs.
- India is a leading player in the global generic drug market, earning the nickname **"The Pharmacy of the World."**

Sickle Cell Anaemia

Sickle Cell Disease (SCD) stands as a distinctive hemoglobin disorder, falling within the spectrum of inherited blood diseases that impact the transportation of oxygen throughout the body.

Characteristics of SCD

- SCD manifests as a transformation in the **shape of red blood cells**, transitioning from a smooth, doughnut shape to a crescent or half-moon configuration (refer to the image).
- The altered shape compromises the cells' plasticity, leading to **potential blockages** in small blood vessels and subsequent impairment of blood flow.
- This vascular obstruction contributes to **the shortened survival of Red Blood Cells (RBCs**), resulting in a form of anemia known as **Sickle-Cell Anaemia (SCA)**.
- Common **symptoms include jaundice**, as well as enlargement of the liver and spleen.

Genetic Engineering Appraisal Committee (GEAC)

- Operates under the **Ministry of Environment, Forest and Climate Change** in New Delhi, India.
- Oversees genetic engineering activities from an environmental perspective.

Key Functions Include

- **Approval of Hazardous Microorganisms and Recombinants**: Grants approval for large-scale use of hazardous microorganisms and recombinants.
- **Release of Genetically Engineered Organisms**: Approves the release of genetically engineered organisms and products into the environment.
- **Enforcement under the Environment (Protection) Act 1986**: Ensures adherence to environmental protection regulations.
- **Comprises 24 members**, convening monthly to deliberate on genetic engineering oversight.

Cell-Cultivated Meat

- The US has **granted approval for the production and sale of cell-cultivated chicken**, marking a significant milestone in cellular agriculture.
- Cellular agriculture or cell cultivated meat involves producing **animal-based products directly from cell cultures**, eliminating the need for traditional livestock farming.
- Singapore was the first country to green light the sale of cell-cultivated meat in 2020.
- Benefits of cell-cultivated meat include **reduced GHG emissions**, **animal rights advocacy, nutritional security, health customization, and energy efficiency**.
- Challenges include **high production costs, resource constraints**, difficulty in replicating traditional meat's taste and texture, and lack of consumer awareness.

Phage Therapy

- Phage therapy is **a medical treatment using viruses** (phages) to target and destroy harmful bacteria, offering a potential alternative to antibiotics.
- Phages infect and kill specific bacteria, leaving beneficial ones untouched, potentially combating antibiotic resistance.
- Public acceptance of bacteriophage therapy as a viable alternative to conventional antibiotics.
- Rise of antimicrobial resistance due to misuse of antibiotics has prompted a search for alternative treatments.

Understanding Bacteriophages and Phage Therapy:

- **Bacteriophages** are viruses designed to infect and replicate within bacterial cells.
- **Phage therapy** dates back to the discovery of bacteriophages by Frederick William Twort and Felix d'Herelle in 1917.
- **Significance of Phage Therapy**: Phages exhibit remarkable specificity, minimizing the likelihood of damaging human cells, Phages' ability to replicate allows for small initial dosages, Phage therapy is inherently non-toxic and composed of nucleic acids and proteins.

Captagon Pills

Captagon, **an amphetamine-type drug** with a high potential for addiction, has emerged as a significant concern, primarily manufactured in Syria.

Key Characteristics of Captagon:

- Formulated as pills, **serving as a potent stimulant** for the central nervous system.
- Consumption results in heightened energy levels, increased focus, extended wakefulness, and a euphoric sensation.
- Widely used among Islamic State and Syrian fighters to enhance combat performance.

Counterfeit Origins of Captagon:

- Captagon be traced back to its **initial status as a legitimate medication with the same brand name.**
- Introduced in the 1960s, it originally contained **fenetylline**, a synthetic drug similar to amphetamine.
- However, facing prohibition in the 1980s, Captagon experienced counterfeit production for illicit purposes.
- This transformation from a pharmaceutical product to an illicit substance underscores the complex landscape of drug production and trafficking.

Centralized Laboratory Network

- Indian Council of Medical Research National Institute of Virology Joins CLN
- CLN is **a global consortium evaluating vaccines for pandemics** or epidemic disease outbreaks.
- It operates within **the Coalition for Epidemic Preparedness Innovations** (CEPI).
- CLN members contribute to the development of innovative vaccines for potential future Disease X outbreaks.
- During interepidemic periods, facilities aid in vaccine development against prioritized diseases like Chikungunya, Lassa virus, MERS, Nipah.

UNAIDS Global Aids Update 2023

- **UNAIDS Mission**: Global initiative to eradicate HIV/AIDS as a public health concern. Led by the United Nations Economic and Social Council **(ECOSOC).**
- **Coordination:** Maintains the sole coordinated joint program within the United Nations system.
- **Global Presence**: **UNAIDS secretariat** operates in 70 countries worldwide.

Low-Pungent Mustard

- Indian researchers have **developed the first low-pungent mustard** variety using genome editing.
- The new variety has **significantly lower pungency** due to reduced levels of glucosinolates, a group of sulfur and nitrogen-containing compounds.
- Glucosinolates contribute to the unique flavor and aroma of mustard, but high levels can make it unpalatable and cause health issues in livestock.
- **Benefits of low-pungent mustard**: Enhanced palatability, improved nutritional value, and reduced goitrogenicity.
- **Genome editing** is a more precise and targeted method than genetic modification, offering quicker and more efficient development.
- In India, genome-edited crops require clearance from the **Institutional Biosafety Committee (IBSC)** of the concerned institution, unlike GM crops **which require approval from the Genetic Engineering Appraisal Committee under the Ministry of Environment, Forest, and Climate Change.**

100 Microsites Project

- Launched by the **National Health Authority (NHA**), the project aims to boost digital health adoption nationwide by establishing small ecosystems with **complete ABDM integration**.
- Microsites are **clusters of interconnected healthcare stakeholders** within a defined geographic area.

- The project **addresses adoption challenges and encourages** private sector participation in healthcare penetration.
- NHA **provides financial resources and guidance for Microsite development**.
- Previous implementations include **Mumbai (2022) and Ahmedabad and Surat (2023**).
- The project **aims to create a seamless online platform** for interoperability within the digital healthcare ecosystem.
- **Benefits: improved efficiency, transparency, data access**, evidence-based decision making, and enhanced patient experience.

BPal Regimen Trial

- BPaL, **a six-month, all-oral regimen**, has shown an impressive cure rate of over 85% in treating **highly drug-resistant tuberculosis (TB), particularly XDR TB**.
- XDR TB is **a mutant strain of MDR TB** that is resistant to the most powerful antibiotics.
- BPaL's **shorter treatment duration** and all-oral administration make it more convenient and accessible for patients.
- BPaL is associated with **fewer and less severe side effects** compared to older MDR TB treatments, improving patient experience and adherence.
- The BPaL regimen holds **great promise for improving the lives of individuals** suffering from XDR TB.

Zombie Drug

- Xylazine, **a veterinary sedative**, is a significant threat to public health due to its dangerous side effects and potential for fatal overdoses.
- Its effects include extreme sleepiness, a **"zombie" state, severe skin damage**, and increased risk of overdose when combined with opioids.
- Xylazine's hidden presence, lack of awareness, and difficulty in **reversing overdoses contribute** to its danger.
- Solutions to address the xylazine crisis include raising awareness, improving access to treatment, and strengthening drug regulations.
- The crisis underscores the need for **community collaboration** to raise awareness, improve treatment access, and implement effective prevention measures.

Global Food Regulators Summit 2023

- The Food Safety and Standards Authority of India **(FSSAI)** launched the Global Food Regulators Summit (GFRS) to strengthen global food safety.
- Key initiatives include **Food-o-Copoeia**, a comprehensive resource for food standards and regulations, and **SaNGRAH**, an online platform for information on food regulatory authorities from 76 countries.
- The GFRS aims **to promote global collaboration**, harmonize food safety standards, facilitate capacity building, and ensure a safe and secure food supply.
- The global effort **towards food safety** could significantly improve public health and promote sustainable food systems.

G 20 Pandemic Fund

- India's **Department of Animal Husbandry & Dairying** received a $25 million grant from the G20 Pandemic Fund to strengthen its animal health system.
- The grant will support the initiative **"Animal Health Security Strengthening in India for Pandemic Preparedness and Response."**
- The **G20 Pandemic Fund**, established in 2022, aims to finance investments in pandemic prevention, preparedness, and response.

- The grant will enhance India's animal health system, a crucial aspect of the **One Health approach to pandemic** prevention.
- The investment reflects **India's leadership** in the fight against infectious diseases and underscores the importance of international collaboration.

Scrub Typhus Disease

- It is **a life-threatening infection** caused by Orientia tsutsugamushi bacteria which is a major public health threat in South and Southeast Asia.
- It spreads to people through bites of infected chiggers (larval mites).
- **Symptoms:** The most common symptoms of scrub typhus include fever, headache, body aches, and sometimes rash.
- **Treatment:** Scrub typhus should be treated with the antibiotic doxycycline. Doxycycline can be used in persons of any age.
- There is **no vaccine available** for this disease.
- It will not spread from person to person.
- India is one of the hotspots with at least 25% of the disease burden.

Gene-Drive Technology (GDT)

- Gene drive is **a genetic engineering technique** that alters traditional Mendelian inheritance rules.
- It **can bias inheritance**, spreading a specific gene faster.
- Components of a gene drive include the **target gene, the Cas9 enzyme, and CRISPR** (guide RNA).
- The Cas9 enzyme cuts **the target gene in the parent organism's chromosome**.
- During DNA repair, the **gene drive copies itself**, "writing over" the non-drive version of the gene.
- The modified gene is **passed on to offspring with a higher than 50% probability,** potentially reaching all individuals in the population over generations.

Ayushman Bhav Campaign

- It is a Healthcare Extension Initiative by **Ministry of Health and Family Welfare**
- **Ayushman Apke Dwar 3.0:** Distribute Ayushman cards to eligible beneficiaries under PM-JAY scheme.
- **Ayushman Melas**: Facilitate creation of Health IDs and issuance of Ayushman Bharat Cards.
- **Ayushman Sabhas**: Raise awareness about crucial health schemes and prevalent disease conditions.
- Participation from various entities including **NGOs, SHGs, PRIs, Youth groups**, Primary Cooperative Societies, Indian Medical Association, and companies using CSR funds.
- The initiative aims to **provide comprehensive healthcare** coverage to every village and town.

Neanderthals

- Recent research reveals **modern humans contain DNA inherited** from ancient Neanderthals.
- Neanderthals, classified as **Homo neanderthalensis**, were a unique human species that thrived in Europe, **southwest, and central Asia** during the middle to late Pleistocene Epoch.
- Neanderthals had a **long, low skull, brow ridge**, and short, robust stature, adapted to cold environments.
- Neanderthals engaged in **the Mousterian culture,** creating diverse stone tools.
- The discovery provides **insights into human evolution** and the complex interplay of genetic influences.

Protein Binders

- FSSAI has banned the **use of protein binders** or other additives in dairy products.
- Protein binders, **biological research reagents**, enhance or diminish performance attributes in new food products.
- Protein binding affects the **digestibility of protein-bond**, affecting the nutritional value of milk protein.

- Milk protein, a key source of essential amino acids, is a commendable dairy protein due to its easy digestibility and lack of anti-nutritional factors.
- FSSAI's regulations **aim to uphold the integrity** and nutritional value of dairy components.

Indian Pharmacopoeia Commission (IPC)

- The term **"Pharmacopoeia**" refers to books or monographs providing standards of strength and purity for therapeutic drugs.
- The IPC's primary function is the **publication of the Indian Pharmacopoeia** (IP), which maintains and refines standards for drugs in India.
- IPC, established in 2009, operates as an autonomous institution under **the Ministry of Health and Family Welfare.**
- Indian pharmacopoeia commission becomes the member of **Pharmacopoeial Discussion Group (PDG)**

About PDG

- It was **formed in 1989** by the US, EU, and Japan.
- It was joined by the World Health Organization in 2001.
- It **aims to harmonize d**rug standards and quality control procedures globally.
- The **benefits of PDG membership includes** reduced burden for manufacturers, increased global access to medicines, and improved public health.
- **India will get benefits** like international recognition, enhanced market access, and improved public health through this membership of PDG.

Chromodomain Helicase DNA Binding Protein 1 Like (Chd1l)

- CHD1L**, a gene variant found in Africans,** has shown **potential in controlling HIV.**
- Individuals carrying the **CHD1L variant have lower HIV-1 viral load,** slower disease progression, and reduced risk of virus transmission.
- The study offers **a genetic explanation for HIV progression** differences between African and non-African populations.
- Understanding CHD1L's role could lead to new HIV therapies targeting specific genetic profiles.
- The discovery opens new avenues for personalized HIV treatment.
- Further **research needed to understand CHD1L's interaction with HIV** and its impact on disease progression.

Biotechnology Research and Innovation Council (BRIC)

- The first-ever meeting of the BRIC Society after its registration was held recently. The Union Minister of Science and Technology launched the '**Zero Waste Life on Campus'** program in this background.
- BRIC is an **apex body** formed after merging of 14 top Science autonomous institutions (AIs) under department of Biotechnology (Ministry of Science and Technology).
- Each of the 14 subsumed BRIC Institutions will maintain their distinct research mandates, governed by one Governing Body, at BRIC.

About Zero Waste Life on Campus Program

- It is aimed at achieving sustainability through application and adoption of knowledge and technologies focused on co-responsibility, on each BRIC campus.

INFORMATION TECHNOLOGY

AIRAWAT

India's AI **Supercomputer AIRAWAT has been ranked at No. 75** (Top 500 lists) in the world at the International Supercomputing Conference (ISC 2023) in Germany.

About Supercomputer AIRAWAT (AI Research, Analytics and knowledge Assimilation)

- AIRAWAT is **an AI-based cloud computing infrastructure** installed (under National Program on AI) at C-DAC, Pune.
- It is manufactured by Netweb Technologies, runs on the Ubuntu 20.04.2 LTS (Long Term Support) operating system.
- **AIRAWAT** has the potential to revolutionize various sectors, including weather forecasting, drug discovery, climate modelling, and artificial intelligence research.

What is Top 500 list?

- The Top 500 lists the 500 fastest computer systems being used today. In 1993 the collection was started and has been updated every 6 months since then.
- **The best *Linpack benchmark performance*** achieved is used as a performance measure in ranking the computers. The Linpack Benchmark is a measure of a computer's floating-point rate of execution.

Other Indian Supercomputers In The Top 500 List

- **PARAM Siddhi-AI supercomputer** ranked at No. 131: Installed at Center for Development of Advanced Computing (C-DAC), Pune.
- **Pratyush supercomputer** ranked at No. 169: Indian Institute of Tropical Meteorology.
- **Mihir** supercomputer at No. 316: National Centre for Medium Range Weather Forecasting.

Hiroshima AI (Artificial Intelligence) Process

- During the annual Group of Seven (G-7) Summit, held in Hiroshima, Leaders introduced the Hiroshima AI Process (HAP). It will help regulate AI amid growing concern over its misuse.
- **Hiroshima AI process:** It focuses on Fostering International AI Governance and launches the " AI Process" to set AI governance rules. It plans to protect copyright and combat AI-generated false information.
- **Aim:** To govern AI in a way that upholds democratic values ensures fairness and accountability, promotes transparency, and prioritizes the protection of AI technologies.
- **Features:**
  - Collaboration with OECD and GPAI
  - Recognizes the growing prominence of generative AI.
  - Addresses the opportunities and challenges of GAI.
  - Differentiates machine-learning use from AI-related copyrighted materials.

India & Artificial Intelligence

India & Global Partnership on AI (GPAI):

- Congregation of 25 member countries: India, US, UK, EU, Australia, Canada, France, Germany, Italy, Japan, Mexico, New Zealand, Republic of Korea, Singapore.
- India joined in 2020 as a founding member.
- India assumed the presidency for 2022–23 in November 2022**.**

RAISE 2020 ('Responsible AI for Social Empowerment 2020):

- It is a first of its kind, global meeting of minds on Artificial Intelligence to drive India's vision and roadmap for social transformation, inclusion and empowerment through responsible AI.

Bluebugging

- Bluebugging is a technique allowing **unauthorized access to devices with discoverable Bluetooth connections.**
- Once exploited, attackers gain full control, enabling them to read and send messages, access the victim's phonebook, and eavesdrop on calls.

- Initially targeting Bluetooth-enabled computers, it has now shifted focus to mobile phones due to their widespread use.
- The attack is often restricted due to the limited Bluetooth connection range of up to 10 meters.

Related Terms

- **Bluejacking**: Pranks device owners by sending harmless messages.
- **Bluesnarfing:** Hackers access devices without owners' permission to download sensitive data.
- **Juice jacking**: Involves accessing sensitive data or installing malware via USB charging port.

Akira Ransomware

- Akira is a **ransomware family targeting Windows and Linux devices**, demanding double ransom for decryption and recovery. It targets users and threatens to **release their data on the dark web** if they refuse to pay.
- **Features:** It is designed to **close processes or shut down Windows services** that may keep it from encrypting files on the affected system.
- **Mode of Operation:** It is typically **spread through spear phishing emails** that contain malicious attachments in the form of archived content files

- **Ransomware** is a type of malware that **denies access to files on a computer by encrypting them and demanding a ransom** for the decryption key.
- Cyber attackers use this method to **force organizations or individuals to pay the ransom** to regain access to their files.
- Some variants may also include additional functionality, such as **data theft, to further incentivize victims to pay the ransom.**

Indian Computer Emergency Response Team (CERT-IN)

- It is an **organisation of the Ministry of Electronics and Information Technology** with the objective of securing Indian cyberspace.
- It is empowered under **Section 70B of the Information Technology Act, 2000 to** collect, analyse and disseminate information on cyber incidents (like hacking and phishing), and issues alert on cybersecurity incidents.

National Automated Fingerprint Identification System (NAFIS)

- India has inaugurated a National Automated Fingerprint Identification System (NAFIS).
- **NAFIS is a country-wide searchable database of crime- and criminal-related fingerprints.**
- It assigns a unique 10-digit National Fingerprint Number (NFN) to each person arrested for a crime.
- It facilitates integrated palm print, fingerprint enrolment, portrait capture, storage, and matching fingerprints.
- It is **managed by the National Crime Records Bureau (NCRB)** at the Central fingerprint bureau, based in New Delhi.

Working Process of NAFIS

- NCRB enables law enforcement agencies to upload, trace, and retrieve data from the database.
- Within 24 hours, NAFIS provides **a unique 10-digit National Fingerprint Number (NFN)** to each criminal who is arrested for the crime.
- The **unique ID** will be used for a lifetime of an offender. Different crimes registered under different FIRs will be logged as incidents belonging to the same NFN.
- The first two digits of the ID will be the **state code** of the state where the criminal is registered, followed by a **sequence number**.

Smishing

- The Indian government has issued a warning about a **new scam known as Smishing.**

- **Smishing** is a **phishing scam that uses text messages instead of email** to trick individuals into giving away sensitive information, often appearing to be from legitimate sources like banks, government agencies, or well-known companies, posing as a combination of SMS and phishing.
- Text messages often contain links to fraudulent websites, which are designed to resemble legitimate ones. Victims are taken to these fake websites, where they are asked to input sensitive information like usernames, passwords, and social security numbers.
- The attacker may steal this information for personal gain or compromise the victim's device by installing malware.
- **Examples of smishing scams:** Pretending to be a financial institution, pretending to be the government, pretending to be customer support and pretending to offer free apps.

Types of Cyber Fraudulent

- **Phishing:** email scams requiring personal information from a recognised company.
- **Spear Phishing:** scams targeted at specific individuals, organisations, or businesses.
- **Voice Phishing:** a telephone version of phishing involving social engineering techniques to extract personal information.
- **Pharming:** Uses malicious code to redirect individuals to the criminal's site without consent or knowledge, making it harder to detect.

TrailGuard AI Camera

Wildlife officials in Madhya Pradesh are testing TrailGuard AI camera-alert system, an artificial intelligence-based camera system to monitor movements of tigers and other animals. It has been installed at the Kanha-Pench corridor in Madhya Pradesh.

About TrailGuard AI Camera

- It is used as **a security system** for national parks to detect, stop, and arrest poachers. **Unlike traditional camera traps**, these devices are **slim and inconspicuous**, shaped like a pen, measuring 13.8 cm long and 1.4 cm wide.
- It uses **artificial intelligence to detect humans within the images and relays pictures** containing humans back to park headquarters via GSM, long-range radio, or satellite networks.
- The product was **developed by RESOLVE, an international non-profit organization.** The operative AI processor used is Intel's Myriad chip.

Specific Species Targeting

- It is equipped with **embedded software** that allows it to be programmed to take photographs of specific species of interest.
- This feature **helps reduce the possibility** of capturing irrelevant images such as leaves or non-target animals.
- The system can **be instructed to capture images** of humans or specific species such as lion, tiger or cheetah.

Generative Artificial Intelligence (Gen AI)

- Generative AI is **a type of artificial intelligence technology** that can produce various types of content, including text, imagery, audio and synthetic data.
- It works by training a model on **a large dataset** and then using that model to generate new, previously unseen content that is similar to the training data. This can be done through techniques such as neural machine translation, image generation, and music generation.
- **Example: DALL.E**, a generative image generation service, can generate original imagery to align with the branding.
- **Applications of Generative AI:** Revenue Generation, Blogging and Reach (Data Synthesis & Summary, Coding, Wide usage in various industries, etc.

Storm-0558

- According to Microsoft Threat Intelligence, a **China-based hacking group identified as Storm-0558** breached U.S. government linked email accounts.
- Storm-0558 acquired the Managed Service Account (MSA) key which is used by a service to validate authentication tokens for the service.
- The group breached email accounts linked to the US government. They stole an MSA consumer signing key from Microsoft's environment. The breach led to the theft of 60,000 US State Department emails.

RISC-V Technology

- Chip designer Qualcomm said that it is partnering with Alphabet's Google to make wearable devices like smartwatches using chips based on RISC-V technology.
- **RISC-V technology** is an open-**source instruction set architecture (ISA) that allows for the design & implementation of processors.**
- **'V'** stands for **the 5th generation** of processors built on the **concept of the Reduced Instruction Set Computer (RISC)** which simplifies the instruction set for improved performance and efficiency.
- **Applications:** Wearables, Industrial, IoT, and Home Appliances, Smartphones, Automotive, High-Performance Computing (HPC), and Data Centers.

Extra Mile: Digital India RISC-V (DIR-V) Program

- Digital India RISC-V Microprocessor Program Announced
- Aims to **create future microprocessors** in India and globally.
- **Promotes indigenous microprocessor** innovation for self-reliance.
- Applicable across various domains including cloud services, IoT, and sensor technologies.
- Blueprint includes **SHAKTI Processor by IIT Madras and VEGA Processor** by C-DAC.

Machines Can See 2023 Summit

The UAE government launched an international conference on Artificial Intelligence (AI) in the region called the **Machines Can See 2023 Summit.**

Artificial intelligence (AI)

- **Creates and applies algorithms in dynamic computing environment**.
- Enables computer systems to **perform tasks without human intelligence**.
- **Importance of AI:** AI, trained to avoid human errors, integrates with scalable systems, performs complex tasks in healthcare, education, and e-commerce, improving accuracy, efficiency, and quality.

Steps Taken for AI By Indian Government

- Budget 2019-20 proposed **National Research Foundation for AI research and innovation**.
- National Informatics Centre (NIC) establishes **Centre of Excellence in AI** for innovative AI solutions.
- **AI pilot** use for crop cutting and yield estimation under Pradhan Mantri Fasal Bima Yoajana.
- NITI Aayog publishes **National AI Strategy roadmap**.
- Five priority AI sectors identified: health, education, agriculture, smart cities, and smart mobility**.**

AI Regulation Summit London 2023

Summit's main focus is to guarantee the **safe use of AI,** acknowledging its potential advantages but also being aware of the risks involved. It will discuss the establishment of:

- **International register of frontier AI models** that will allow governments to assess the risks involved withAI.
- **The AI Safety Research Institute** will examine, evaluate and test new types to understand what each new model is capable of and its risks.

AI Regulation Around the World

- G7 Digital Ministers Adopt **"Risk-Based"** AI Regulation
- G7 digital ministers agree on "risk-based" AI regulation, addressing privacy and security risks.
- Leaders **introduce Hiroshima AI Process (HAP) at G-7 Summit**, focusing on AI governance and interoperability.
- **Global Partnership on AI (GPAI)** aims to understand AI challenges and opportunities.
- European Parliament drafts AI Act **aimed at promoting transparency, trust, and accountability**.

Advanced Driver Assistance Systems (ADAS) Technology

- **ADAS is an electronic system of automated vehicle safety features.**
- ADAS technologies use sensors, cameras, radar, and other components to gather information about the vehicle's surroundings and provide **real-time feedback** and **warnings to the driver.**
- The role is to prevent deaths and injuries by reducing the number of car accidents and the serious impact of those that cannot be avoided.

Features and Components of ADAS Technology

- Lane Departure Warning (LDW) and Lane Keeping Assist (LKA)
- Forward Collision Warning (FCW) and Autonomous Emergency Braking (AEB)
- Blind Spot Detection (BSD), Parking Assistance Systems and Driver Monitoring Systems (DMS)

AI for Good Global Summit

- It is the leading action-oriented **United Nations platform promoting AI.**
- It is organized by the **International Telecommunication Union (ITU**) in partnership with 40 UN sister agencies and co-convened with the government of Switzerland.
- It aims to **identify practical applications of artificial intelligence** (AI) to accelerate progress towards the SDGs by connecting AI innovators from the public and private sector.

OpenKylin

- **China** has launched **1st open-source computer** desktop operating system, named OpenKylin.
- **OpenKylin** is **based on the existing open-source Linux operating system,** it was built by a community of about 4,000 developers

About Open-source Operating System (OS)

- **Source Code Access**: public access to code for viewing, modification, and distribution.
- **Collaboration:** encourages bug fixes, feature enhancements, and knowledge sharing through online communities, forums, mailing lists, and version control systems.
- **Transparency**: publicly accessible development processes, decision-making, and discussions.

Flu Horse

- A **new Android malware** called Flu Horse has been discovered, targeting **users in Eastern Asia** with malicious apps that imitate legitimate versions.
- It is being deployed **using targeted phishing techniques through emails**. It is designed to extract sensitive information, including user credentials and Two-Factor Authentication (2FA) codes.
- It can **remain undetected** for long periods of time, making it a persistent and dangerous threat

Passkeys

- Passkeys are **a type of security feature** that allows users to access their online accounts without using passwords.
- **Purpose:** To avoid the hassle of remembering and typing complex passwords, and also to protect their accounts from hackers

Methodology

- It works by **using public-key cryptography**, a technique that involves two related keys: a public key and a private key.
- The public key is stored **on the web server,** while the private key is stored on your device.
- Instead of typing a password, users can **simply enter a passkey** that is sent to their email or phone as a one-time code.

Cryptomining

- In simple terms, cryptomining is like solving puzzles to earn rewards. Miners use powerful computers to **solve complex mathematical problems** that verify cryptocurrency transactions. W
- hen a miner successfully solves a problem, they are rewarded with a small amount of cryptocurrency, such as **Bitcoin or Ethereum**.

How Does Cryptomining Work?

- **Transactions are broadcast**: When a cryptocurrency transaction occurs, it's broadcast to the entire network.
- **Miners collect transactions:** Miners collect these transactions and group them into blocks.
- **Miners solve mathematical problems**: Miners then compete to solve complex mathematical problems that verify the block of transactions.
- **Valid blocks are added to the blockchain:** The first miner to solve the problem broadcasts the solution to the network. If the solution is valid, the block of transactions is added to the blockchain, a permanent and publicly-accessible ledger.
- **Miners are rewarded:** The miner who solved the problem is rewarded with a small amount of cryptocurrency.

Brain–Computer Interface (BCI)

- BCIs are designed to **detect functional intent**, enabling control of applications or devices through mental processes.
- BCIs consist of **a device, a computer**, and an application or device.
- Feedback is integral to **BCI functionality**, allowing users to understand how their mental processes translate into actionable control.
- Techniques **used to gauge brain activity** for BCIs include Electroencephalography (EEG) and Functional **Magnetic Resonance Imaging (fMRI**).
- EEG captures **real-time electrical signals**, while fMRI monitors changes in blood oxygenation and flow triggered by neural activity.
- These techniques contribute to the **development of BCIs**, providing data to decode and interpret brain function.

Finger Minutiae Record – Finger Image Record Modality

- **Unique Identification Authority of India (UIDAI) uses FMR-FIR**, an AI/ML tool, to combat fraudulent activities within AePS.
- FMR-FIR uses **two unique identifiers**: finger minutiae and finger image.
- It can verify the liveness of a fingerprint and **detect the use of cloned fingerprints**, enhancing security of AePS transactions.
- The tool strengthens **authentication, provides real-time verification**, and enhances security by deterring the use of cloned fingerprints.

Project Q*

- Project Q*, a groundbreaking development in AI (Artificial Intelligence) by OpenAI, has generated controversy and raised apprehensions regarding its potential risks to humanity.

- Q* is essentially an algorithm that is capable of solving elementary mathematical problems by itself, including those that are not part of its training data.
- This makes it a leap towards the much-anticipated Artificial General Intelligence (AGI). AGI is a hypothetical capability of AI that makes it perform any intellectual task that the human brain can do.

Anthrobots

- Scientists have developed tiny robots (termed as Anthrobots) made of human cells that are able to repair damaged neural tissue.
- Anthrobots are self-assembling biological robots made from human tracheal cells without any genetic modification, making them a potential patient-specific therapeutic tool, with life of 45-60 days.
- **Self-assembly:** Anthrobots self-construct in vitro, via a fully scalable method that requires no external form-giving machinery, manual sculpting, or embryonic tissues.
- **Superbot:** These are capable of both movement and healing neurons within a laboratory setting. They can spontaneously fuse together to form a larger structure called a superbot, which was able to encourage the growth of neurons.
- **Environment:** Anthrobots can only survive in very specific laboratory conditions.
- **Size:** With the smallest no wider than a human hair and the largest about the size of a pencil tip.

Features	Xenobots	Anthrobots
Source	Embryonic stem cells of frogs	Human tracheal cells
Self-organization	Capable of self-organizing cells for tasks	Spontaneous fusion to form superbots
Applications	Drug delivery, environmental cleanup, medical procedures	Regenerative medicine, wound healing, disease treatment

Gemini AI Model

- Recently, Google announced the launch of its latest, most powerful AI model, Gemini
- Gemini is the first model to outperform human experts (**State-of-the-Art Performance**) on MMLU (Massive Multitask Language Understanding), one of the most popular methods to test the knowledge and problem-solving abilities of AI models.
- MMLU uses a combination of 57 subjects such as math, physics, history, law, medicine, and ethics for testing both world knowledge and problem-solving abilities.
- Gemini is a family of multimodal AI models developed by **Alphabet's Google DeepMind.**

MISCELLANEOUS

Methanol

- Methanol, also known as **methyl alcohol or wood alcohol**, is a **colorless, volatile liquid** that boils at 64.96 °C and solidifies at −93.9 °C.
- **Production:** Methanol can be produced through several methods, including the catalytic reaction of carbon monoxide and hydrogen (known as the **"syngas"** process- largest source of industrial methanol), **the fermentation of biomass**, and the distillation of wood.
- **Environmental Impact:** Methanol is considered to have a lower impact on air pollution compared to conventional fuels.
- **Methanol as a fuel:** Methanol has been used as a fuel for internal combustion engines, particularly in racing and marine applications.
- **NITI Aayog's 'Methanol Economy' programme** is aimed at reducing India's oil import bill, greenhouse gas

(GHG) emissions, and converting coal reserves and municipal solid waste into methanol.

- Additionally, Rs 6000 crore can be saved annually **by blending 20% DME (Di-methyl Ether**, a derivative of methanol) in LPG.

Foucault Pendulum

The Foucault pendulum device has been **installed in the new Parliament building in New Delhi**. It was designed and **installed by the National Council of Science Museums (NCSM), Kolkata.**

About National Council of Science Museums (NCSM)

- **It is an autonomous organization under the Ministry of Culture. It is responsible for the development and promotion of science centers and museums throughout the country.**
- **It has 24 science centres or museums of its own and one R&D laboratory and training centre.**
- **Innovation Hubs set up by NCSM, provide expert guidance and professional lab equipment facilities to young students to nurture creativity, innovation and engagement in science.**

About Foucault Pendulum

- It is a deceptively simple **device used to illustrate the earth's rotation.**
- The original Foucault's pendulum, named after 19th century French scientist Leon Foucault.
- Once set in to-and-fro motion, the pendulum is seen to change its **orientation slowly over time**.
- For example, if the initial motion imparted to it was in the north-south direction, after a few hours it could be seen moving in the east-west direction.
- **The Key Principles Behind Foucault Pendulum Are:**
- **Coriolis Effect:** The Coriolis effect causes the pendulum to appear to rotate clockwise or counterclockwise, depending on its latitude, as it swings back and forth.
- **Conservation of Angular Momentum:** The pendulum's angular momentum remains constant during its motion, and as Earth rotates, the pendulum's oscillation plane rotates to conserve this momentum.

Freemartins

- In agricultural settings, Freemartins are **generally culled because** freemartins can't reproduce; farmers often identify them through physical and/or behavioural traits.
- **Freemartins:** In animal husbandry, cattle that are born **exhibiting characteristics of both sexes are called freemartins**.
- Freemartins are sterile female cattle that result from the twinning of a male and a female within the same uterus. This phenomenon occurs in approximately 90% of such twin pregnancies in cattle.

Scientific Analysis of the Concept of Freemartin

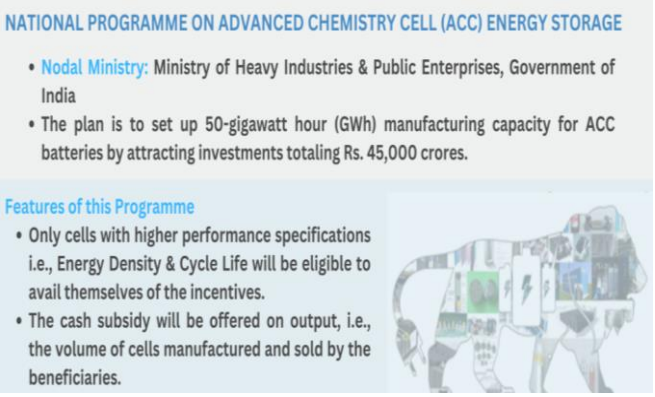
- **Cause:** The key reason is the exchange of blood between the male and female foetuses during gestation (anastomosis). Genetically, freemartins are attributed to the sharing of cells carrying the Y chromosome from the male twin with the female twin.
- **Hormonal Influence & Course of Action:** This chromosome triggers the development of male reproductive organs in the male foetus, while the female foetus, affected by the presence of male hormones (anti-Müllerian hormones).
- **Impact on Female:** The female receives masculinizing hormones produced by the male, which alters her female reproductive development.
- **Characteristics of freemartins:** Non-functioning ovaries, Masculinized behavior, small ovaries etc.
- **Final Impact:** The end result is that freemartin has an underdeveloped or non-functional reproductive tract.

Advanced Chemistry Cell

The Ministry of Heavy Industries (MHI) has announced the re-bidding of performance linked incentives (PLI) for 20 GWh Advanced Chemistry Cell (ACC) manufacturing.

About Advanced Chemistry Cell (ACC) Battery

- It can **store electric energy either as electrochemical or as chemical energy** and convert it back to electric energy as and when required.
- These have major applications in the **electric vehicles**, maintaining **grid stability**, solar rooftop, consumer electronics etc.



A.K. Raychaudhuri

- 2023 is Amal Kumar Raychaudhuri's birth centenary (1923-2005). Raychaudhuri revolutionized physics and was alegendary teacher.
- He had significant works in the field of general relativity and cosmology. Despite his groundbreaking work, Raychaudhuri received limited recognition in India.

Contribution in Science

- Developed the **eponymous Raychaudhuri equation**, demonstrating singularities in general relativity.
- **Used by Stephen Hawking and Roger Penrose** to develop mathematical models of Black Hole.
- **Hawking's area theorem**, proving black hole surface area never decreases, relied on Raychaudhuri equation.

About Singularity

- In physics and mathematics, **a singularity refers** to a point or region in space-time where certain quantities become infinite or undefined.
- Singularities often arise in the study of physical theories, such as general relativity, which describes the gravitational force, and quantum mechanics, which **deals with the behavior of matter and energy at the smallest scales.**

- **Black Hole Singularity:** In the theory of general relativity, black holes are often associated with singularities. At the center of a black hole, the density becomes infinite, and the curvature of space-time is so extreme that our current understanding of physics breaks down. This point of infinite density is considered a singularity.
- **Big Bang Singularity:** The Big Bang theory describes the origin of the universe as a singularity. At the beginning of the universe, the entire cosmos was concentrated at a single point of infinite density and temperature.

Unusual Nitrogen-9 Isotope

Concept of Isotope

- Isotopes of an element have the same number of protons but different numbers of neutrons. For example, nitrogen-14 has 7 protons and 7 neutrons, giving it an atomic mass of 14.
- Isotopes are different forms of an element with the same atomic number but different atomic masses.
- Nitrogen typically exists in several isotopes, with nitrogen-14 (N14) being the most abundant and stable isotope. Nitrogen-15 (N15) is another stable isotope, and there are also radioactive isotopes, such as N13.
- Isotopes often exhibit similar chemical properties but may have distinct physical properties, such as varying atomic masses.

Nitrogen-9 Nucleus

- It is characterized **by seven protons and two neutrons**. Nitrogen-9 stands out due to its distinctive configuration of seven protons and two neutrons within its atomic nucleus.
- Most elements **exhibit a proportional number of protons and neutrons for stability**, but Nitrogen-9's heightened proton count renders it less stable, defying conventional stability norms.
- The presence of Nitrogen-9 in this **state prompts inquiries into the mechanisms maintaining its stability**,

adding intricacy to our comprehension of atomic nuclei.

Small Modular Reactors (SMRs)

- It is **advanced nuclear reactors** that have **a power capacity of up to 300 MW per unit**, which is about one-third of the generating capacity of traditional nuclear power reactors.
- SMRs, which can produce a large amount of low-carbon electricity, are:
  - Small – physically a fraction of the size of a conventional nuclear power reactor.
  - Modular – making it possible for systems and components to be **factory-assembled** and transported as a unit to a location for installation.
  - Reactors – harnessing nuclear **fission** to generate heat to produce energy.
- **Advantages of SMRs**
  - SMRs enhance safety, flexibility, and grid resilience by incorporating advanced features like passive cooling systems.
  - Their modular design allows for greater power **generation flexibility**, making them **suitable for remote communities and renewable energy sources**.
  - SMRs contribute to energy security by providing low-carbon electricity, reducing environmental impact, and driving technological innovation in nuclear technology.

Graphene-Aurora program

- The Ministry of Electronics & Information Technology (MeitY) has launched the 'Graphene-Aurora program'. It aims to bridge the gap between graphene research and commercialization.
- The program is **funded jointly by MeitY, the Government of India**, the Government of Kerala, and industry partners, including Carborundum Pvt Limited.
- **Features**: The initiative aims to foster a thriving graphene technology and innovation ecosystem, enabling SMEs and startups to commercialise and scale up their graphene technologies, thus enhancing India's position in the global new material market.

About Graphene

- Discovered in 2004 by Andre Geim and Konstantin Novoselov. They received the Nobel Prize in Physics in 2010.
- Stronger than steel, stretchable, and flexible conductors.
- High thermal **conductivity** compared to silver.
- Used in **electronics, materials science, energy storage, touch screens, DNA sequencing,** medical fields, light panels, and solar cells, among others.

Quantum Dots

Nobel Prize in chemistry for the 2023 has been awarded to three scientists for the discovery and synthesis of quantum dots. 3 scientists are **Moungi Bawendi, Louis E. Brus and Aleksey Ekimov**.

What are Quantum Dots?

- The properties of any element depend on how many electrons it has. However, when matter is tiny, of nano-dimensions, its properties depend on its size.
- The smaller a particle, the **more its electrons are squeezed together**, and that affects its properties. Such particles, whose size determines their behaviour, are called quantum dots.
- They are typically made from materials like **cadmium selenide, lead sulfide**, or indium arsenide.

Scientists And Their Individual Contributions

- **Dr. Ekimov**: In the early 1980s, he succeeded in creating size-dependent quantum effects in coloured glass. He found that different ways of preparing this glass led to it absorbing light differently. It happened because it had crystals of different sizes.

- **Dr. Brus:** In 1983, Dr. Brus and his colleagues went a step ahead and prepared similar crystals in a liquid solution, rather than in a glass.
- **Dr.Bawendi:** Finally, in 1993, Dr.Bawendi developed a technique to make these peculiar crystalsi.e. the quantum dotsof well-defined sizes and with high optical quality.
- **Applications:** Quantum Dot Televisions, Biomedical and Biotechnology, Solar Energy, Medical Imaging, Security Markers and so on.

Paper-based Super Capacitor

- It is created by leveraging **cellulose Nano fibres** derived from seaweed. It can fully charge a device within 10 seconds.
- **Applications:** It can be integrated into electronics, memory backup systems, airbags, heavy machines, electric vehicles, and more.
- **Significance:** lightweight, flexibility, low cost, and environmental friendliness.
- **Supercapacitor or Ultracapacitors:** It is an **electrochemical charge storage device** with a fast charging/discharging cycle, high power density and a longer lifecycle. These electrochemical charge storage devices provide efficient and reliable energy storage solutions.
- **Seaweeds** : Marine algae, classified as chlorophyta (green), rhodophyta (red), and phaeophyta (brown), are primitive, non-flowering marine algae found in coastal areas attached to rocks or substratas.
- **Significance of Sea weed:** Marine ecosystem bioindicator, source of vitamins, minerals, and fiber, with anti-inflammatory and anti-microbial properties. Used in toothpaste, fruit jelly, organic cosmetics, and skin care products, iron sequester

Higgs Boson

- The Higgs boson, **a subatomic particle** discovered in 2012 at the **Large Hadron Collider (LHC),** is a fundamental component of the Standard Model of particle physics.
- The Higgs field, a field of energy permeating the universe, gives elementary particles their masses.
- The Higgs field's resistance to motion, similar to wading through a medium, translates into the particle's mass.
- The discovery was confirmed through **ATLAS and CMS experiments at the LHC**, leading to the 2013 Nobel Prize in Physics awarded to Higgs and Englert.
- The Higgs boson **has a mass of approximately 125 giga-electronvolts** (GeV) and a short lifetime.
- Its discovery was crucial in **understanding the origin of mass** and the fundamental forces governing matter's behaviour

4th Dimension (Time) in 4D Printing

- 4D printing is conventional 3D printing combined with the additional element of time as the 4th dimension. (4D Printing = 3D Printing + Time)
- The 4^{th} dimension in 4D printing refers to materials that are capable of changing and changing over time when exposed to water, temperature changes and/or air to self-assemble.
- The 4D printed objects can re-shape or self-assemble themselves over time with external stimuli, such as mechanical force, temperature, or a magnetic field.

Optical Tweezers (Laser Tweezers)

- **Optical Tweezers** are scientific instruments that use the forces exerted by **laser beams to manipulate and trap microscopic objects**. They use light to manipulate microscopic objects as small as a single atom.
- **Basic Principle of Momentum Transfer:** Light carries momentum that is proportional to its energy and in the direction of propagation. Any change in the direction of light, by reflection or refraction, will result in a change of the momentum of the light.

- **Applications:** They have been used to trap dielectric regions, viruses, bacteria, living cells, organelles, small metal particles, and even strands of DNA without damaging them.

Solar Photovoltaic Modules

- **Solar Photovoltaic Modules or Solar panels** are made by connecting together photovoltaic (PV) cells or solar cells from semiconductor materials like crystalline silicon.
- **Principle of Photovoltaic Effect:** Solar modules convert the light energy captured from the sun into electric energy (Direct Current). This direct current (DC) is then converted into alternating current (AC) through an inverter for different use applications.
- **Application:** The electric energy produced is used for lighting residential and commercial establishments.

Perovskite Crystals

- It is a material that has the **same crystal structure** as the mineral **calcium titanium oxide (CaTiO3).**
- A large number of different elements can be combined together to form perovskite
- They have applications in various fields of optoelectronics, including photovoltaic solar cells, photodetectors, light-emitting devices, etc.

LiDAR

- **LiDAR** is a remote sensing method that uses light in the form of a pulsed laser (near-infrared spectrum.) to measure ranges (variable distances) to the Earth. It consists primary three components — the scanner, laser and GPS receiver.
- It works by emitting a laser beam and measuring the time it takes for the beam to bounce back after hitting an object. By repeating this process many times per second, it can create a detailed map of the environment, including the location and shape of objects within it.
- **Applications of LiDAR:** Topographic Mapping, Autonomous vehicles, Archaeology, Agriculture, Forest management, Urban planning.

Solar Mean Magnetic Field (SMMF)

- **SMMF** is a **measure of the average magnetic field** of the Sun over a period.
- **How SMMF is analysed?** Observing the sun's magnetic field at its poles, areas less affected by rotation, allows for estimation of the solar mean magnetic field's strength and direction and tracking of changes over time.
- **Significance of SMMF:** Studying the sun's magnetic activity is crucial for **understanding solar phenomena like sunspots, flares, and coronal mass ejections (CMEs).**
- **Sun's Magnetic Field:** The sun's magnetic field is a complex and dynamic process influenced by charged particles, generating electric currents and magnetic fields. This dynamic interaction can lead to the formation of sunspots and solar flares, making sunspots a key feature.

Chiral Bose Liquid State

- **Chiral Bose liquid state** refers to a **theoretical state of matter that can arise in certain quantum systems.**
- **Formation:** The chiral bose-liquid state is formed **when two layers of a material, one with an abundance of electrons and the other with holes, are brought together at extremely low temperatures**, creating a local imbalance that prevents electrons from filling the holes**.**
- **Importance:** Research on chiral Bose liquids in condensed matter physics offers insights into the fundamental principles of quantum mechanics, topology, and the collective behaviour of quantum systems.

Majorana Zero Modes (MZMs)

- These are a type of particle that exhibit **unique behavior** in the world matter physics and quantum computing.
- They are formed when two Majorana particles come into close proximity and combine to create a special particle known as a **Majorana zero mode.**

- MZMs are unique because they are their own antiparticles, and they exhibit properties that could make them useful for building robust and fault-tolerant quantum computers.
- **Microsoft** unveiled Majorana Zero Modes for **Quantum Computing**
- Quantum computing is **a multidisciplinary field using quantum mechanics** to solve complex problems faster than classical computers.

The Hubble Constant (H_o)

- It is the **rate at which the universe is expanding**. It tells us how quickly galaxies are moving away (**Red Shift**) from us as the universe expands.
- It is named **after Edwin Hubble**, who discovered that the universe was expanding in the 1920s.
- The value of the Hubble Constant is currently estimated to be around **70 km/s/Mpc (megaparsec),** which means that for every megaparsec of distance between two galaxies, the distance between them will increase by about 70 kilometers per second.
- It is an important tool for astronomers studying the evolution of the universe, and it is used to **estimate the age of the universe** and the **amount of dark energy** that is present.

Nanoflakes

- **Nanoflakes** are thin, flat structures or particles with nanoscale dimensions.
- **Formation:** Made from various materials, including metals, semiconductors, oxides, and polymers. They are often made from graphene.
- **Applications:** In batteries, solar cells, and electronic devices, water purification, as their large surface area makes them effective at removing pollutants from water, **sensor applications** and in solar cells, nanoflakes can be utilized to **increase light absorption** and enhance electron mobility, potentially leading to more efficient energy conversion.

Hygroelectricity

- It is **a type of static electricity** that forms on water droplets (the humidity of the air) and can be transferred from droplets to small dust particles.
- The phenomenon is **common in the earth's atmosphere** but has also been observed in the steam escaping from boilers.
- It is a type of **renewable energy** that has the potential to be a major source of power in the future.

Fluorochemicals

- Fluorochemicals are a class of **chemical compounds** that contain fluorine atoms.
- **Properties:** They exhibit **unique properties** due to the strong carbon-fluorine bonds, which impart traits such as **high thermal and chemical stability**, water and oil repellence, and electrical insulation.

IMPRINT (IMPacting Research, INnovation and Technology) Program

- It is a joint initiative of **the Ministry of Education and the Department of Science & Technology (DST).**
- It aims to address **societal challenges** and enhance the country's technological capabilities.
- It focuses on **collaborative research projects** between academia and industry, with an emphasis on developing solutions that have real-world impact.
- Through the IMPRINT Program, funding is provided for research projects in areas such as healthcare, energy, infrastructure, manufacturing, and sustainable development.

Attosecond

- Nobel Prize in Physics for the 2023 has been awarded to three physicists for their research related to attosecond pulses of light. Three physicists are **Pierre Agostini, Ferenc Krausz, and Anne L'Huillier.**
- **Attosecond pulses are short bursts of light lasting for a billionth of a billionth of a second.**

- These ultra-short pulses allow the capture of the fastest events with a time resolution of attoseconds.
- They are generated through the high harmonic generation process, where interaction with a gas target produces a broad spectrum of harmonics, including attosecond pulses.
- **Applications:** Ultrafast Electron Dynamics, Probing Materials, Controlling Electron Behaviour, Imaging Molecular Structure so on.

Quantum Engine

Researchers have made a groundbreaking **discovery by developing a quantum engine**, referred to as the Pauli engine.

Quantum Engine

- This Quantum Engine is constructed based on the distinctive characteristics of bosons and fermions, enabling it to convert the energy difference between two quantum states into useful work.
- Comprising lithium-6 atoms held in an optical and magnetic trap, the engine's behavior can be adjusted to mimic either bosonic or fermionic characteristics. This adaptability stems from the atoms' capability to form pairs or dissociate.
- The creation of this Quantum Engine opens up new avenues for the exploration of quantum thermodynamics and potential applications in physics.

Quantum State

- Quantum states are described by a mathematical wavefunction.
- Wavefunction contains probabilities of outcomes in system measurements.
- Properties include **superposition and entanglement**.
- **Study of quantum states** is crucial for understanding quantum mechanics and applications in quantum computing and communication.

Lysergic Acid Diethylamide (LSD)

- In recent years, there has been renewed interest in the use of LSD as Psychedelics in the clinical and research domain of Psychiatry.
- **LSD** is a **semi-synthetic drug** that combines natural and manufactured substances
- It is made from ergot, a fungus that grows on certain grains, and a non-organic chemical called diethylamide
- **Effects:** LSD is a potent psychoactive substance that primarily **affects the serotonin system** in the brain. Its effects can include alterations in perception, mood, & consciousness.

Deep Ocean Mission (DOM)

- India's Deep Ocean Mission **(Samudrayaan project**) aims to explore ocean depths.
- Initiated in 2021 by **the Minister of Earth Sciences**, the mission will reach 6,000 meters using an indigenously developed submersible **(Matsya 6000**).
- The mission will study deep ocean resources and extract key materials from "**polymetallic nodules"** (PMN) and biodiversity in the Central Indian Ocean Basin (CIOB).
- The mission supports the **Blue Economy Initiatives** of the Government of India.
- The Matsya-6000 is India's **first manned submersible**, being built by the **National Institute of Ocean Technology (NIOT).**
- Thematic areas include deep sea mining, manned and underwater robotics, ocean climate change advisory services submersible, and technological innovations for deep-sea biodiversity conservation.

Lab Grown Diamond

- Lab grown diamonds (LGD) are artificially manufactured diamonds **with similar physical and chemical properties** to natural diamonds.

- The **first LGD was created in 1954** by General Electric scientists.
- Used for industrial applications **due to their hardness and strength.**
- Used in electronics as heat spreaders for **high-power laser diodes**, arrays, and transistors.
- India produces over **3 million lab-grown diamonds**, contributing to 15% of global production.
- Government measures include eliminating the 5% tax on LGDs and establishing the India Centre for **Lab-grown Diamond at IIT Madras.**

Phonons

- Phonons are the **elementary particles representing sound waves**, demonstrating quantum potential.
- Phonons **offer compatibility with existing technologies**, facilitating faster and cost-effective quantum technology implementation.
- Phonons are **less susceptible to environmental noise**, ensuring more stable quantum operations.
- Phonons are **scalable, suitable for large-scale quantum devices**, making them suitable for bulk materials.
- The breakthrough represents a significant step forward in overcoming limitations in noise, scalability, and detection in quantum computing.

Li-Ion Battery

- Nobel laureate John Bannister Goodenough Died. Goodenough, along with M. Stanley Whittingham and Akira Yoshino, received the 2019 **Nobel Prize in Chemistry for their pioneering work in Lithium-ion (Li-ion) batteries**.
- Li-ion batteries, rechargeable batteries, **move lithium ions** from the negative electrode to the positive during discharge and vice versa during charging.
- Goodenough developed a lithium battery **with a cobalt oxide cathode**, providing higher voltage.
- Li-ion batteries typically **use ether as an electrolyte**.
- Advantages **include lightweight nature**, high energy density, longevity, low maintenance, and low self-discharge rate.
- Disadvantages include **high cost, susceptibility to overheating**, thermal runaway and combustion, and need for safety mechanisms.

Neutrino Particles

- Neutrino particles are **fundamental particles,** distinct from atoms and indivisible into smaller components.
- They have **minimal mass, lack of charge, and half spin**, travel at nearly the speed of light, and have infrequent interactions with other matter.
- Outnumber all atoms in the universe and are solely influenced by gravity and the weak force.
- Exist in three types: **electron neutrino, tau neutrino, and muon neutrino.**
- Neutrinos can **undergo neutrino oscillation**, changing from one type to another during their journey.
- Neutrinos are emitted from our galaxy during **collisions between cosmic rays and interstellar matter,** and are generated by celestial bodies like the Sun, exploding stars, supernovas, gamma-ray bursts, and quasars.
- On Earth, neutrinos are produced through **the decay of unstable atoms,** nuclear reactors, particle accelerators, high-speed particle collisions in the atmosphere, and natural radioactivity in bananas.

Robomapper

- RoboMapper, **a US-developed robo**t, aids in identifying **perovskite** materials for solar cells.
- It expedites materials testing, allowing **quicker experimentation**.
- The robot performs **data collection concurrently** for multiple materials, saving time and energy.
- Its parallel processing **approach reduces** greenhouse gas emissions by tenfold.
- RoboMapper contributes to **a more sustainable and environmentally friendly** approach to materials testing.

R&D Roadmap for the Green Hydrogen Ecosystem

The Indian government has unveiled a **draft R&D roadmap** for the green hydrogen ecosystem.

The roadmap outlines three key approaches:

- **Mission Mode Projects (0-5 Years):** Focus on short-term impact to address immediate challenges and lay the foundation for future advancements.
- **Grand Challenge Projects (0-8 Years):** Bridge the gap between research and commercialization, encouraging startup participation and facilitating the transition from research to practical application.
- **Blue Sky Projects (0-15 Years):** Secure global intellectual property and establish India as a leader in the green hydrogen industry. Develop cutting-edge capabilities in areas like 3rd Generation Electrocatalysts, Reversible Solid Oxide Electrolysers, and Thermochemical Water Splitting.

Direct Methanol Fuel Cells (DMFC)

- Cobalt and platinum doped with manganese alloy **enhances performance of DMFCs.**
- DMFCs are electrochemical devices that **convert methanol into electricity**.
- **Advantages**: **high energy density, high efficiency, low operating** temperature, and safety.
- **Cobalt-platinum-manganese alloy** can address methanol oxidation reaction sluggishness, improving performance and cost-effectiveness.
- **Applications: portable power sources, small vehicles,** and backup power for critical infrastructure.
- The discovery of the **cobalt-platinum-manganese alloy** is a significant step forward in DMFC development, paving the way for cleaner, more sustainable energy solutions.

Superconductivity

- Superconductivity is **a phenomenon** in materials with two extraordinary properties: **zero electrical resistance** and **expulsion of magnetic fields.**
- Achieving superconductivity requires **extremely low temperatures**, often exceeding 250 degrees Celsius below zero.
- Different materials, including **Mercury, Lead, Aluminum**, Tin, Niobium, exhibit superconductivity at their respective critical temperatures.
- Researchers are **actively searching for materials** that can demonstrate superconductivity at room temperature.
- The **mechanism behind zero resistance** involves normal conductivity, cooper pairs, enhanced mobility, and zero resistance and superconductivity.
- Superconducting materials have **potential applications in energy infrastructure**, high-speed transportation, advanced medical technologies, and quantum computing.

Einstein Cross

- Einstein's theory of general relativity predicts the formation **of an "Einstein Cross**," a unique form of gravitational lensing.
- The **cross occurs when** the foreground and background objects are perfectly aligned, causing light from **the background to split into four separate images**.
- This lensing effect can **magnify faint objects**, enabling astronomers to observe distant galaxies with unprecedented clarity.

- **Gravitational lensing**, as explained by Einstein's theory, is a curvature in spacetime caused by mass and energy.
- Examples of gravitational lensing include **"Einstein Rings" and "Einstein Crosses**," which require perfect alignment of the foreground and background objects.

- The discovery of the Einstein Cross provides **insights into the distribution of matter** in the universe, allowing for the mapping of the mass distribution of galaxies and clusters.

Neerakshi

- India's **first autonomous underwater** vehicle, Neerakshi, has been launched, marking a significant advancement in maritime capabilities.
- Neerakshi's capabilities include:
  - **Mine Detection and Disposal:** Equipped with advanced sensors and detection systems, it can identify and locate underwater mines, enhancing maritime security and safety.
  - **Underwater Surveys**: Operates autonomously at depths of up to 300 meters, enabling detailed underwater environment surveys.
  - **Endurance and Efficiency:** With an endurance of four hours, it can carry out extended underwater missions without constant surface control.
- Neerakshi is a **collaborative achievement** between **Garden Reach Shipbuilders and Engineers Ltd and Aerospace Engineering Private Ltd.**
- Neerakshi's applications include:
  - Enhancing **maritime surveillance** and coastal infrastructure protection.
  - **Supporting offshore energy exploration**.
  - Conducting scientific research on underwater environments.
  - Tracking pollution levels and monitoring marine ecosystem health.

Net Energy Gain (NEG)

- US scientists have achieved Net Energy Gain (NEG) in **a nuclear fusion reaction** for the second time, marking a significant milestone towards clean and limitless energy.
- Nuclear fusion **replicates the process that powers the sun and stars**, combining two light atomic nuclei to form a heavier one.
- Overcoming the **Coulomb Barrier, the repulsive force between positively charged nuclei**, is a significant challenge in fusion.
- NEG signifies that the energy generated from the fusion reaction exceeds the energy required to initiate it, demonstrating the possibility of generating a surplus of energy.
- **India is actively involved in fusion research**, contributing to the construction of the world's **largest tokamak and developing its own indigenous tokamak, ADITYA**.

Demon Particle

- Physicist David Pines first **predicted** the Demon particle in 1956. **Pines's theory suggests** electrons behave differently in solid mediums, forming plasmons with high energy requirements.
- Pines's demon particle, massless, **lacks charge, and doesn't interact with light**, stands out as an exception to energy constraints in plasmon formation.
- This unique **particle requires no additional energy**, highlighting its unique characteristics.

Shanti Swaroop Bhatnagar Awards

- After a nearly year-long delay, the Council of Scientific and Industrial Research (CSIR) has announced the recipients of the Shanti Swarup Bhatnagar (SSB) awards for 2022, one of India's prestigious science prizes.
- The SSB Awards **recognize outstanding research in seven scientific disciplines**: Biological Sciences, Chemical Sciences, Earth, Atmosphere, Ocean and Planetary Sciences, Engineering Sciences, Mathematical Sciences, Medical Sciences, and Physical Sciences.
- Eligibility for **the award is for a citizen of India**, **engaged in research, and up to 45 years old**.

- The awards are named after Dr. Shanti Swarup Bhatnagar, the founder director of the Council of Scientific & Industrial Research (CSIR).

Bhu-Vision (Krishi-Rastaa) Platform

ICAR and KrishiTantra have developed an IoT-based platform for automated soil testing and agronomy advice.

Key Features Include

- **Automated Soil Testing:** Conducts twelve key soil parameter tests.
- **Instantaneous Results:** Summarizes test results in a digital soil health card.
- **Deficit Identification:** Helps farmers identify nutrient deficiencies and other soil health issues.
- **Increased Efficiency:** Reduces manual effort and analysis time.
- **Potential Benefits**: Improved Soil Health, Enhanced Resource Management, Reduced Environmental Impact.

Battery Energy Storage System (BESS)

- BESS are electrochemical systems that store electricity using chemical reactions.
- They serve as batteries for the power grid, offering various applications.

Types of BESS

- **Standard (Non-Flow) Batteries**: Use pairs of plates in electrolyte separated by insulators. Common types include Lead-Acid (PbA), Nickel-Cadmium (Ni-Cd), Lithium-Ion (Li-Ion), and Sodium-Sulfur (Na-S).
- **Flow Batteries:** Use separate tanks of electrolyte and a membrane to control the flow of electrons. Advantages include scalability, safety, and long lifespan.
- Types include Redox Flow Battery (RFB) and Hybrid Flow Battery (HFB).
- **Benefits of BESS**: Grid stability, increased renewable energy integration, Improved power quality, Microgrid applications, etc.

Gravity Battery

- Gravity battery is **a unique form of electricity storage** that uses potential energy to charge and discharge a substantial weight.
- In times of **abundant green energy**, surplus power is used to elevate a weight or blocks.
- When electricity demand surges, the **blocks are lowered**, triggering the release of kinetic energy.
- This energy is harnessed to **set a motor in rotation**, which is then converted into electricity.
- The gravity battery **operates as a cyclical system**, balancing green energy sources' intermittency with fluctuating electricity demand.

Green Ammonia

- It is produced by **using hydrogen from water electrolysis and nitrogen** separated from the air.
- These are then fed into the **Haber process** (also known as Haber-Bosch) which is powered by sustainable electricity.
- In the **Haber process, hydrogen and nitrogen** are reacted together at high temperatures and pressures to produce ammonia, NH3.
- Green ammonia production is where the process of making ammonia is **100% renewable and carbon-free.**
- **It can be used in:** Fuel for engines such as locomotives and shipping, replacing diesel and marine fuel oil, Fuel source for electricity and power generation, building block to make fertilisers for use in agriculture; Feedstock for industrial and manufacturing applications ranging from water purification through to pharmaceuticals, etc.

India's 1st Arctic Winter Expedition

- Raman Research Institute (RRI) is participating in the first winter Indian expedition to the Arctic region.
    - RRI is an autonomous research institute engaged in research in basic sciences. It was founded in 1948 by the Indian physicist and Nobel Laureate Sir C V Raman.

- It was restructured in 1972 to become an aided autonomous institute receiving funds from the Department of Science and Technology, GoI.

- Now, India will have around-the-year manning of Arctic with launch of the **first-ever winter expedition in this region**. **India's Himadri** has become only the **4th research station in Arctic to be manned around the year**.

Key Highlights of The Expedition To Arctic

- The month-long scientific expedition is being **funded by the Ministry of Earth Sciences**. The **National Centre for Polar and Ocean Research (NCPOR), Goa,** is the nodal agency.
- RRI have been at the forefront of developing the **SARAS** (Shaped Antenna measurement of the background Radio Spectrum) series of experiments.
- SARAS focuses on studying the faint cosmological signal from hydrogen, known as the 21-cm signal, during the Cosmic Dawn and the Epoch of Reionization. **Cosmic Dawn** denotes the period when the *first stars and galaxies were born in the universe.*

India's Involvement in Arctic

- India's engagement with the Arctic starts in 1920 with the **signing of the Svalbard Treaty in Paris.**
- **Himadri research station**, located in Ny Alesund, Svalbard in Norway, was started in July 2008.
- In 2014, India deployed **IndArc,** a multisensory observatory in Kongsfjorden.
- **India is an observer in the Arctic Council** since 2013. Its membership as an observer was renewed in 2019 for another five years.
- Established by the **eight Arctic States** — the countries whose territories fall in the Arctic region — through the **Ottawa Declaration of 1996.**
- **Member Nations of Council** - Canada, Denmark, Finland, Iceland, Norway, Russian Federation, Sweden, US.
- In 2022, the India unveiled an Arctic policy. It envisages India's engagement in the Arctic region for climate research, environmental monitoring, maritime cooperation and energy security.
- The **National Centre for Polar and Ocean Research** (under the Ministry of Earth Sciences) will serve as the nodal agency in implementing the Arctic Policy.

JT-60SA (Nuclear Fusion reactor)

- The EU (European Union) and Japan have marked the start of operations of the biggest and most advanced tokamak-type fusion reactor in the world – JT-60SA located in Japan.
- A tokamak is a type of magnetic confinement device used in nuclear fusion research to contain hot plasma in the shape of a torus (doughnut).
- **The JT-60SA, (SA stands for "super advanced")**, a six-story-high tokamak, is designed to contain and control plasma heated to staggering 200 million degrees Celsius.
- **Objective:** To explore the viability of fusion as a secure, expansive, and carbon-neutral net energy source, where the energy produced surpasses more than the input required for its production.
- JT-60SA has been designed to support the operation of ITER.

International Thermonuclear Experimental Reactor (ITER) (Located in France)

- **Objective:** To investigate and demonstrate burning plasmas in which the energy of the helium nuclei produced by the fusion reactions is enough to maintain the temperature of the plasma, thereby reducing or eliminating the need for external heating. It is the world's largest tokamak, a magnetic fusion device that has been designed to prove the feasibility of fusion as a large-
- **Fusion Fuel:** ITER will use a mixture of deuterium & tritium as fuel for the fusion reactions.
- Deuterium and tritium are isotopes of hydrogen & their fusion releases large amounts of energy.
- **The ITER Members:** China, the European Union, India, Japan, Korea, Russia and the United States.

DEFENCE AND SECURITY

Special Protection Group (SPG)

- A new set of rules has been issued for the **Special Protection Group (SPG)** by the Ministry of Home Affairs under the Special Protection Group Act, 1988.
- **About:** The officers of **All India Services (AIS)** will be appointed to SPG on **deputation** by the central govt on the same terms and conditions as applicable to the *officers of the corresponding ranks* in central government.
- **Other members** of SPG (except AIS) will be appointed on deputation for an initial period of **6 years**.
    - **The appointment for the 2nd tenure** may be done with the prior approval of the central government for reasons to be recorded.
- Headquartered in **New Delhi** and **now be handled** by an officer not less than the rank of an **Additional Director-General** belonging to the Indian Police Service.
    - T**he general superintendence**, direction, command and control, supervision, training, discipline, and administration of the SPG will be vested in the **director**.

Special Protection Group (SPG)

- It is an **elite force, specifically raised** for the protection of the country's Prime Minister, former PMs and their immediate family.
- The force is currently 3,000 strong personnels (from CRPF, BSF and other Central and State forces). It was started in **1985** in the wake of the killing of PM Indira Gandhi in 1984.

SPG Act 1988

- The Act provides for the **constitution and regulation** of the SPG to provide security to -
    - **The PM** (both in India and abroad), as well as the PM's immediate family members.
    - **Former PMs**, and their immediate family members residing with them at their official residence.
- It provides security to former PMs and their immediate family members **for a period of 1 year from the date on which they cease to hold the office**.
- **Beyond this period**, the SPG security is provided based on the level of threat (must emanate from a military or terrorist organization and be of a grave and continuing nature) as decided by the central government.

SPG (Amendment) Act 2019

- The protection will be offered **only to the PM**, former PMs and their immediate family members residing with them at their official residence.
- The security to former PMs, and their immediate family members residing with them at their official residence **will be provided for a period of 5 years.**
- When the security is withdrawn from a former PM such security will also stand withdrawn from members of his immediate family.

Country's First Air Force Heritage Centre

- **Location:** Chandigarh.
- This is **the first heritage centre** of the IAF and is spread over 17,000 square feet.
- The heritage centre highlights the IAF's role in various wars, including in 1965 and 1971 and the Kargil War, and the Balakot air strike through murals and memorabilia.
- It **houses five vintage aircraft** and will provide visitors with cockpit exposure and an experience with flight simulators.
- It also houses the first IAF-made patent aircraft Air Force **'Kanpur-1 Vintage Prototype Aircraft'**, a single-engine indigenous flying machine designed and built by the late Air Vice Marshal Harjinder Singh in 1958 at Base Repair Depot Kanpur.

- The centre also showcases augmented reality, holograms, and virtual reality, and electro-mechanical enclosures, **interactive kiosks** highlighting various facets of the IAF.
- The centre also has **a special segment** which has been dedicated to women officers in the IAF for their contribution to the service of the nation.
- An **audio-visual gallery** will present the journey of the IAF through time, tracing its evolution from its inception to the modern day as well as promotional movies.
- There is a section where uniforms of the IAF will be shown, besides an enclosure for its ranks and badges.

Drug Menace & NCB

Aiming to make India drug-free by 2047, the Ministry of Home Affairs (MHA) plans to link recovery and usage of narcotics and banned substances in a particular area to the annual appraisal report of a District Superintendent of Police.

Narcotics Control Bureau

- Established in 1986 under the Narcotic Drugs and Psychotropic Substances Act of 1985
- **Control**: Agency under the Ministry of Home Affairs.
- The National Policy on Narcotic Drugs and Psychotropic Substances is rooted in **Article 47** of the Indian Constitution, which aims to prohibit the consumption of harmful intoxicating drugs for anything other than medicinal purposes.
- Responsibility for drug abuse control falls under the purview of the central government.

What is Golden Triangle?

The Golden Triangle is a region in Southeast Asia that encompasses parts of Myanmar, Laos, and Thailand. It is one of the world's largest producers of opium and heroin.

What is Golden crescent?

The Golden Crescent, on the other hand, is a region in South Asia that includes parts of Afghanistan, Pakistan, and Iran. Afghanistan is the largest producer of opium in the world.

Steps Taken By Government To Fight Against Drug Menace In India-

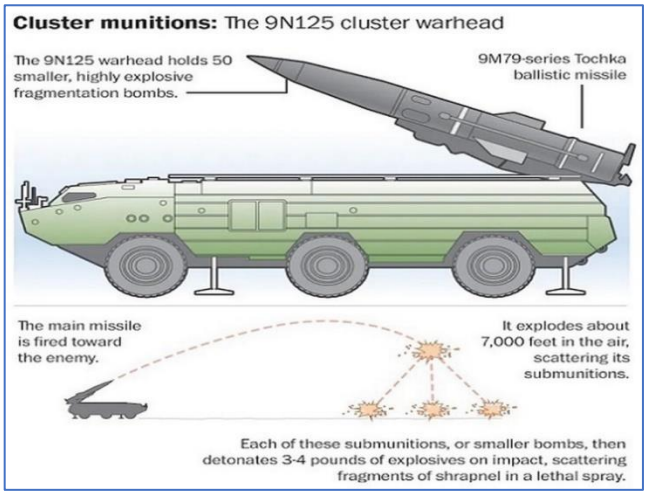
- India is **a signatory to**
  - the single Convention on Narcotic Drugs 1961, as amended by the 1972 Protocol,
  - the Conventions on Psychotropic Substances, 1971 and
  - the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988.
- **Legislative steps**:
  - Enacted Drugs and Cosmetics Act, 1940,
  - Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1985
  - The Prevention of Illicit Traffic in Narcotic Drugs and Psychotropic Substances Act, 1988.
- **Institutions involved**
  - The Narcotics Control Bureau was created in 1986 as a nodal agency to fight against this menace.
  - Ministry of Health and Family Welfare (MoHFW) and Ministry of Social Justice and Empowerment (MSJE) are involved with alcohol and drug demand reduction and drug de-addiction programme.

Cluster Munitions and Thermobaric Bomb

Human rights groups Amnesty International and Human Rights Watch accused Russia of using cluster bombs and vacuum bombs in the ongoing war.

Cluster Munitions

- According to the 2008 Convention on Cluster Munitions, a **cluster munition means** a "conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms, and includes those explosive submunitions".
- Essentially, cluster munitions are **non-precision weapons** that are designed to injure or kill human beings indiscriminately over a large area, and to destroy vehicles and infrastructure such as runways, railway or power transmission lines.



- Over 100 countries have ratified the **Convention on Cluster Munitions, but India** is **not a signatory** to this.

Thermobaric Weapon

- Thermobaric weapons — also known as **aerosol bombs**, fuel air explosives, or **vaccum bombs** — use oxygen from the air for a large, high-temperature blast. A thermobaric weapon causes significantly greater devastation than a conventional bomb of comparable size.
- Vacuum bombs are **not prohibited by any international law** or agreement, but their use against civilian populations in built-up areas, schools or hospitals, could attract action under the Hague Conventions of 1899 and 1907.

Khorramshahr-4 Ballistic Missile

- Recently, Iran **launched the Kheibar**, the fourth iteration of its liquid-fuelled Khorramshahr ballistic missile
- The Khorramshahr-4 is named after an Iranian city which was under heavy fighting during the Iran-Iraq War.
- Also **known as Kheibar** (named after a Jewish fortress conquered by the Muslims)
- **Range and Payload**: 2,000-kilometre range & 1,500-kilogram warhead.

Indian Naval Sailing Vessel (INSV) Tarini

The Indian Navy is all set to receive the six-member crew of INSV Tarini, including 2 women officers at the "flag in" ceremony on May 23 at the Indian Naval Watermanship Training Centre (INWTC), INS Mandovi, Goa.

- INSV Tarini is **returning home after** successfully completing the 17000-nautical miles trans-ocean inter-continental voyage **in seven months.**
- The current sailing expedition of INSV Tarini is **part of the run-up** towards the Navy's next big project to **send a woman to circumnavigate the globe solo.**
- The officers that participated in this expedition were shortlisted from volunteers after rigorous selection at the **Ocean Sailing Node (OSN).**
    - Ocean Sailing Node was established on 24 Aug **2016** with the **aim of promoting and undertaking ocean sailing activities** and is **located at INS Mandovi.**

INS Tarini- It is the second sailboat of Indian Navy after INSV Mhedi.

It is known for circumnavigating the globe with an all-women officer crew in the historic expedition titled **'Navika Sagar Parikrama' in 2017.**

Research And Analysis Wing (RAW)

Recently, the Appointments Committee of Cabinet has approved the appointment of senior IPS officer Ravi Sinha as the chief of India's external intelligence agency Research and Analysis Wing (R&AW) for a period of two years.

Research and Analysis Wing (R&AW)

- R&AW was established in 1968 to handle **the India's international intelligence affairs.**
- It came into force after the China-India War in 1962.
- At present, the intelligence arm operates **under the aegis of the Prime Minister's Office.**
- **Working mechanism**: It collects military, economic, scientific, and political intelligence through covert and overt operations.
- The agency is also charged with monitoring terrorist elements and smuggling rings that transport weapons and ammunition into India.

Genesis of RAW

- Until 1968, the **Intelligence Bureau** (IB) was responsible for India's internal intelligence and also handled external intelligence.
- However, after the 1962 China-India war and the Indo-Pakistani war in 1965, India established a separate and distinct external intelligence organization – the Research and Analysis Wing.

- In 1968, then India's Prime Minister Indira Gandhi appointed R. N. Kao as the first director of RAW.

Intelligence Bureau (IB) is an internal intelligence agency of India which is used to gather intelligence from within India and also execute counter-intelligence and counter-terrorism tasks.

- It comes under the administrative control of the Ministry of Home Affairs.

Functions: Another major activity of the IB is passing on intelligence information to other Indian intelligence agencies as well as the police.

- It is responsible for granting basic safety clearances to Indian diplomats and judges before their national oath.
- It is also authorized to carry out wiretapping without a warrant.

Composition: The Bureau comprises employees from law enforcement agencies, mostly from the Indian Police Service (IPS) or the Indian Revenue Service (IRS), and the military.

- The Director of Intelligence Bureau (DIB) has always been an IPS officer.

Assam Rifles

The Assam Rifles recently moved additional troops to secure a bridge on a national highway in south Manipur.

Assam Rifles

- **Assam Rifles is one of the central armed police forces,** is the leading **counter-insurgency force in the Northeast.**
- **Background**: It is the **oldest paramilitary force in India.**
  - The unit **can trace its lineage back to a paramilitary police force** that was formed **under the British in 1835 called Cachar Levy**.
  - Since then the Assam Rifles have **undergone a number of name changes**—the Assam Frontier Police (1883), the Assam Military Police (1891) and Eastern Bengal and Assam Military Police (1913), **before finally becoming the Assam Rifles in 1917.**
- **Role**: It is tasked with the **maintenance of law and order in the North East** along with the Indian Army and **also guards the Indo-Myanmar border in the region**.
- It is **also known as 'Sentinels of the Northeast'.**
- **HQ: Shillong, Meghalaya.**
- **Motto: Friends of the Hill People.**
- **Control**: It is the **only paramilitary force with a dual control** structure.
  - While the **administrative control of the force is with the Ministry of Home Affairs,** its **operational control is with the Indian Army**, which is **under the Ministry of Defence.**

Tapas Unmanned Aerial Vehicle (UAV)

Recently, a Tapas unmanned aerial vehicle (UAV) of the Defence Research and Development Organisation (DRDO) crashed in agriculture fields near a village in Karnataka's Chitradurga.

TAPAS

- **TAPAS (Tactical Airborne Platform for Aerial Surveillance) Beyond Horizon-201** or Tapas BH-201 is a long-endurance **unmanned aerial vehicle,** previously used to be referred **as Rustom-II.**
- **Features**: Formerly known as the Rustom-2, the drone has a 20.6-meter wingspan and a maximum speed of 225 kmph.
  - It can cover a **range of 250+ km using the C Band** frequency data link developed by Defence Electronics Application Laboratory (DEAL) at DRDO.
  - It can also cover 1000+ km via SATCOM using the K_u Band frequency and GAGAN system.
  - The **medium-altitude, long-endurance drone** has an impressive flight endurance of several hours and successfully completed its maiden flight in November 2016.
  - It has a range of over 18 hours and altitude **capabilities of up to 28,000 feet.**

- It is being developed in India by **Aeronautical Development Establishment**.

Agni Prime

The Agni Prime new generation ballistic missile was successfully test fired off the coast of Odisha.

About: Agni Prime is a two-stage canisterised solid-propellant missile with dual redundant navigation and guidance system.

- The nuclear-capable missile has been **designed and developed by the Defence Research and Development Organisation (DRDO).**
- The **surface-to-surface ballistic missile** has a range of 1000 to 2000 km.
- The Agni Prime missile, the smallest and lightest among the entire Agni series of ballistic missiles.
- It weighs 50 per cent less than the Agni 3 missile and has new guidance and propulsion systems.
- In addition, since it is canisterised, it can be launched from rail or road, be stored for longer periods and can be transported as per operational requirements.

List of Agni missiles

Agni-I: The Agni-I is a short to medium-range ballistic missile. Range: 700-800 Km

Agni-II: The Agni-II is a medium-range ballistic missile equipped with two solid fuel stages. Range: 2000 Km

Agni-III: The Agni-III is an intermediate-range ballistic missile equipped with two solid fuel stages. Range: 3000 Km

Agni-IV: The Agni-IV is an intermediate-range ballistic missile equipped with two solid fuel stages. Range: 4000 Km

Agni-V: The Agni-V is an intercontinental range ballistic missile with three solid fuel stages. Range: 5000 Km

Mh-60r Romeo Helicopter

The Indian Navy recently achieved a unique feat after an MH-60 'Romeo' multi-mission helicopter landed on the indigenously-built aircraft carrier INS Vikrant.

- **MH-60 Romeo Helicopter** is the **world's most advanced maritime helicopter** and is the **most capable naval helicopter** available today **designed to operate from frigates, destroyers**, cruisers and aircraft carriers **manufactured by US defence major Lockheed Martin**.
- It is an **all-weather helicopter** designed to **support multiple missions** with state-of-the-art avionics and sensors.
- **Main missions** of MH-60R Seahawk **are Anti-Submarine Warfare (ASW) and Anti-Surface Warfare (ASuW).**
- This **helicopter can detect and track submarines** and **surface ships** and **attack with torpedoes and missiles.**
- **Features**: This helicopter is **operated by a crew of 4** in **anti-submarine warfare** role and crew of **5 in anti-surface warfare role**. It **can also accommodate additional passengers.**
    - It carries **advanced airborne active sonar, multi-mode search radar** and nose-mounted forward-looking infrared (FLIR) turret.
    - The helicopter has an **integrated self-defense system.**
    - **Maximum Speed: 267 km/h** and **Range: 454 km**

Varunastra

Indigenously designed and developed heavy-weight torpedo (HWT) Varunastra was recently successfully test-fired with a live warhead against an undersea target by the Indian Navy.

- **Varunastra** is **ship launched, heavy weight, electrically-propelled anti-submarine torpedo** capable of **targeting quiet submarines**, **both in deep and shallow waters** in an intense countermeasures environment.
- It was **designed and developed by Vizag-based Naval Science and Technological Laboratory (NSTL) under the DRDO** and is **manufactured by Bharat Dynamics Ltd (BDL).**
- Varunastra can be **fired from all Anti-submarine warfare (ASW) ships** capable of firing heavy weight torpedoes.

- **Features:** It has a length of **7.78 meters (25.5 feet) and a diameter of 533.4 mm (21.00 in).**
  - It is capable of being **launched from surface ships and submarines.**
  - It can achieve **speeds in excess of 40 knots (74 km/h; 46 mph) and has a range of 40 km (25 mi).**
  - **Weighing around 1.5 tonnes**, it can c**arry a 250 kg (550 lb) high-explosive warhead** and has a **maximum operating depth of 600 metres** (2,000 ft). It has long range with multi maneuvering capabilities.
  - The torpedo's **guidance system uses active-passive acoustic homing**, wire **guidance, and GPS/NavIC satellite guidance.**
  - It has **conformal array transducers that allow it to look at wider angles** than most common torpedoes.

What is a Torpedo?

A torpedo is essentially a guided missile that happens to "fly" underwater. A torpedo therefore has a propulsion system, a guidance system and some sort of explosive device.

Brain Electrical Oscillation Signature Profiling (BEOSP)

The accused in Hathras rape case will undergo brain fingerprinting.

- Also known as **brain fingerprinting**. It is a neuro psychological method of interrogation in which the accused's participation in the crime is investigated by studying their brain's response.
- The BEOSP test is carried out via a process known as **electroencephalogram**, conducted to study the electrical behavior of the human brain.
- Under this test, the **consent of the accused is first taken** and they are then made to wear caps with dozens of electrodes attached to them.
- The accused are then shown visuals or played audio clips related to the crime to check if there is any triggering of neurons in their brains which then generate brainwaves. The test results are then studied to determine the participation of the accused in a crime

Zero Firs And FIR

Recently, in Manipur violence incidents nearly 30% of First Information Reports (FIRs) were 'zero FIRs', filed suo-motu by the police irrespective of jurisdiction.

Zero FIR

- It refers to an FIR that is registered **irrespective of the area** where the **offense is committed.**
- The police in such a case can no longer claim that they have no jurisdiction.
- Such an FIR is then later transferred to the police station that has the actual jurisdiction so that the investigation can begin.
- It was introduced on the **recommendation of the Justice Verma Committee** formed at the backdrop of the brutal Nirbhaya gang rape in Delhi in 2012.
- This puts a legal obligation on the police to begin an investigation and take quick action without the excuse of the absence of jurisdiction.

What is a First Information Report (FIR)?

- It is the **information given** to a police officer in writing as per the provisions of **Section 154 of the Code of Criminal Procedure (CrPC).**
- From the point of view of an informant, the main purpose of an FIR is to set criminal law into motion.
- While for the police, the main purpose of an FIR is to obtain information about alleged criminal activity and take necessary steps to produce the perpetrator(s) before a court.

Citizen Financial Cyber Fraud Reporting and Management System (CFCFRMS)

The Ministry of Home Affairs started the **national Helpline 155260** and Reporting Platform to prevent financial losses from cyber frauds

Cyber Security

- Cyber Security aims to safeguard cyber space, including critical information infrastructure, from various threats like attacks, damage, misuse, and economic espionage.
- **Critical Information Infrastructure (CII)** refers to computer resources whose destruction would significantly impact national security, economy, public health, or safety.
- **Cyber Fraud**, a crime committed through computers intending to corrupt personal and financial online information

Indian Cyber Crime Coordination Centre:

- **Started** in October 2018, I4C addresses diverse cybercrimes comprehensively through **seven components** and has received consent from 15 states and Union Territories to establish Regional Cyber Crime Coordination Centres.
- **I4C** is situated in New Delhi.

Other Initiatives to Tackle Cybercrime:

- **The Draft Personal Data Protection Bill**, 2018 aims to safeguard citizens' data based on the Justice BN Srikrishna Committee's recommendations.
- The **Cyber Swachhta Kendra**, a part of the Digital India initiative, deals with botnet cleaning and malware analysis.
- I**ndian Computer Emergency Response Team (CERT-IN)** is the nodal agency under MeitY, addressing cybersecurity threats like hacking and phishing.

Related International Convention (Budapest Convention):

- The Budapest Convention, a binding treaty on cybercrime, coordinates cybercrime investigations among nation-states and criminalizes specific cyber conducts.
- **India, not a party to the Budapest Convention**, recently supported a Russian-led UN resolution to establish new cyber norms, seen as an alternative to the US-backed Budapest Accord.

Railway Protection Force and Government Railway Police (GRP)

Recently, A constable of the Railway Protection Force (RPF) allegedly shot and killed four people on board the Mumbai-bound Superfast Express train.

Railway Protection Force

- The history of the **RPF dates back to 1882** when various Railway companies appointed their own guards for protection of Railway property.
- It was declared as **statutory force in the year 1957** by an enactment of Parliament and subsequently declared as an armed force of the Union of India in the year 1985.
- In 2003, the RPF partially took up the duties of escorting passenger trains and access control at the railway stations".
- It is led by a **director-general.**
- It is an armed force under the operational and **administrative control of the Union Ministry of Railways.**
- It is tasked with **protecting and securing railway property**, the passenger areas, and the passengers themselves.

What is the Government Railway Police (GRP)?

- The GRP is a **part of the district police force**, reporting to the state government.
- It works alongside the RPF, and should, under ideal circumstances, complement and strengthen its operations.
- They are responsible generally for the **prevention and detection of crime on railways**.

Mahendragiri (Y - 12654)

The wife of the Vice President will launch India's latest warship, Mahendragiri, at the Mazagon Dock Shipbuilders Limited, Mumbai.

Mahendragiri Frigate

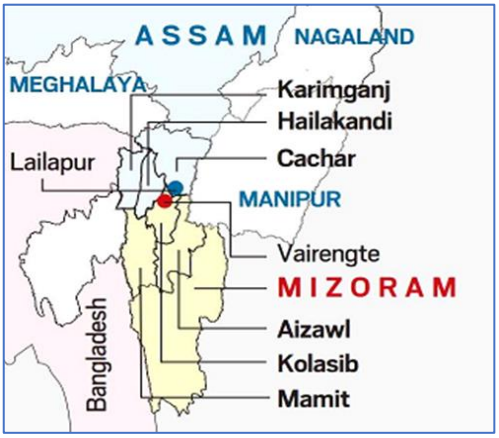
- **Mahendragiri Frigate** is the seventh and last stealth frigate of **Project 17A Frigates.**
- It is named after **a mountain peak in Eastern Ghats** located in Odisha.
- The ship is being built by the **Mazagon Dock Shipbuilders Limited** (MDL) in Mumbai.

What is Project 17A?

- The project was launched by the defence forces of India to construct a series of **stealth guided-missile frigates.**
- Under the Project 17A programme, four ships by Mumbai-based Mazagon Dock Shipbuilders Limited (MDL) and three by Garden Reach Shipbuilders and Engineers Limited (GRSE) are being built.
- These warships follow the Project 17 Class Frigates (Shivalik Class) and boast enhanced stealth features, advanced weapons, sensors, and platform management systems.
- Project 17A ships have been designed in-house by the Indian Navy's Warship Design Bureau WDB.
- As much as**75% of the orders for equipment and systems** of Project 17A ships are from indigenous firms, including MSMEs.
- The first six ships of the project have been launched so far by MDL & GRSE between 2019-2023.

Operation Jericho, Mizoram

The use of air power in Mizoram in 1966 has become a hot topic of discussion after the PM of India mentioned it in the Lok Sabha while replying to the no confidence motion.



Mizoram Of 1966: A Period Of Protests And Armed Insurgency Followed In The 1960s.

- **A separatist movement** (seeking independence from India) led by Mizo National Front (MNF) was gathering steam in the area now known as Mizoram, and then referred to as the Mizo Hills.
- Outraged by this, the MNF leadership decided to launch '**Operation Jericho**' to take control of Aizawl and overran Aizawl in a few days' time (in late February).
    - Operation Jericho had been described by a military writer as an **expression of confidence and clinical planning not witnessed before in the Indian subcontinent**.
    - A large number of volunteers who joined in the armed struggle were either **ex-servicemen or personnel of the Assam Regiment battalions** dismissed for lack of discipline.

What Followed after the Quelling of Operation Jericho?

- Like several other northeastern states of India, **Mizoram was previously part of Assam**.
- In 1971, the government agreed to convert the Mizo Hills into a **Union Territory (UT)**, which became UT of Mizoram in **1972**.
- **Following the Mizoram Peace Accord (1986)** between the Government and the MNF, the Indian Parliament adopted the 53rd amendment of the Indian Constitution in 1986.
- This allowed for the creation of the **State of Mizoram on 20 February 1987, as India's 23rd state.**

How can a new state be formed in India?

- Parliament may by law admit into the Union, or establish, new states on such terms and conditions as it thinks fit.

- Article 3 of the Constitution of India authorizes the Indian Parliament to form new states; alter the area, boundaries or names of existing states by legislation.

Defence Research and Development Organisation (DRDO)

The Central Government recently constituted a nine-member committee with a view to overhaul the Defence Research and Development Organization (DRDO).

Defence Research and Development Organisation (DRDO)

- It is the **R&D wing of the Ministry of Defence**, Govt of India, with a vision to empower India with cutting-edge defence technologies and a mission to achieve self-reliance in critical defence technologies and systems.
- It is **India's largest research organisation.**
- **Formation**: The organisation was **formed in 1958 from the amalgamation of** the then already functioning **Technical Development Establishment (TDEs) of the Indian Army and the Directorate of Technical Development & Production (DTDP) with the Defence Science Organisation (DSO).**
- **Headquarters:** New Delhi.
- **Major Projects:**
  - DRDO's **first projec**t for the Indian military **was in surface-to-air missiles (SAM) known as Project Indigo.** However, it received little success and was therefore discontinued.
  - **In 2016, It successfully tested its first indigenously developed heavy-duty drone, Rustom 2,** which is an unmanned armed combat vehicle developed on the lines of the US's Predator drone.
  - **DRDO co-developed INS Arihant**, **India's first nuclear ballistic missile submarin**e, which became operational in 2018.
  - **In March 2019, DRDO developed India's first anti-satellite system** that made India one of the space superpowers.

Central Armed Police Forces (CAPF)

According to data provided by the Ministry of Home Affairs (MHA) to Parliament recently, 432 personnel of the Central Armed Police Force (CAPF) died by suicide in the last three years.

About Central Armed Police Force (CAPF)

- Central Armed Police Forces is the collective name of central police organizations in India under the authority of **Ministry of Home Affairs**.
- These are technically paramilitary forces formerly known as "**Central Para-Military Forces (CPMF)**".
- Since 2011, India adopted the term "Central Armed Police Forces" to drop the word "paramilitary".
- These forces are responsible for internal security and guarding the borders.
- The Central Armed Police Forces refers to seven security forces, all functioning under the authority of **Ministry of Home Affairs**.
- These seven security forces are –Assam Rifles (AR), Border Security Force (BSF), Central Industrial Security Force (CISF), Central Reserve Police Force (CRPF), Indo Tibetan Border Police (ITBP), National Security Guard (NSG), Sashastra Seema Bal (SSB)
- Each of the seven has its own cadre of officers, but they are headed by officers of the **Indian Police Service**.

Assam Rifles (AR)

- Assam Rifles (AR) is a central police and paramilitary organisation responsible for border security, counter-insurgency, and law and order in Northeast India.
- Its primary role is **to guard the 1,643-kilometre-long Indo-Myanmar border**.
- The AR comes under the administration of the Ministry of Home Affairs (MHA), while its operational control is maintained by the Indian Army.

- The AR is often nicknamed "**Sentinels of the North East**" and "Friends of the Hill People".
- It is the **oldest paramilitary force** in India.

Border Security Force (BSF)

- The primary role of the Border Security Force is to guard the Indo-Pakistan and Indo-Bangladesh borders, it is deployed both on the international border and the Line of Control (LOC).
- The BSF has air wing, marine wing, an artillery regiment, and commando units.
- It currently stands as the world's largest border guarding force.
- BSF has been termed as the First Line of Defence of Indian Territories.

Central Industrial Security Force (CISF)

- CISF came into existence in **1969** to provide integrated security cover to certain sensitive public sector undertakings.
- The CISF security umbrella includes India's most critical infrastructure facilities like nuclear installations, space establishments, airports, seaports, power plants etc.

Central Reserve Police Force (CRPF)

- The primary role of **CRPF** lies in assisting the State/Union Territories in police operations to maintain law and order and counter-insurgency.
- The Central Reserve Police includes:
  - The **Rapid Action Force** (RAF), a 15-battalion anti-riot force trained to respond to sectarian violence.
  - The **Commando Battalion for Resolute Action** (COBRA), a 10-battalion strong anti-Naxalite/COIN force.
- It came into existence as the Crown Representative's Police in **1939**.
- Besides law and order and counter-insurgency duties, the CRPF has played an increasingly large role in India's general elections.

Indo Tibetan Border Police (ITBP)

- **ITBP** was established in 1962 in the aftermath of the Indo-China war.
- The ITBP is deployed for **guarding duties on the Indo-China border from Karakoram Pass in Ladakh to Diphu Pass in Arunachal Pradesh** covering a total distance of 3,488 km.
- It is a specialized mountain force and most of the officers and men are professionally trained mountaineers and skiers.

National Security Guard (NSG)

- NSG commonly known as Black Cats, is a counter-terrorism unit.
- It was founded under the **National Security Guard Act, 1986**.
- It was founded following **Operation Blue Star**, for combating terrorist activities and protect states against internal disturbances.

Sashastra Seema Bal (SSB)

- **SSB** is a border guarding force of India deployed along its borders with **Nepal** and **Bhutan**.
- The force was originally set up under the name **Special Service Bureau** in 1963 in the aftermath of the Indo-China War to strengthen India's border areas against enemy operations.

Acoustic Side Channel Attacks (ASCA)

A research paper titled "A Practical Deep Learning-Based Acoustic Side Channel Attack on Keyboards", revealed that Artificial Intelligence (AI) can be used to decode passwords by analysing the sound produced by keystrokes.

About Acoustic Side Channel Attack

- **Acoustic Side Channel Attack** uses the **sounds produced by typing on a keyboard** to determine what keys are being pressed.

- By analyzing these unique sounds, **hackers equipped with the right tools can decode** the precise letters and numbers being typed.
- Researchers investigated the use of audio recordings taken **from Zoom video conferencing calls, smartphone microphones,** and off-the-shelf equipment and algorithms to launch ASCA attacks.
- The study found that when trained on keystrokes by a nearby phone, the classifier **achieved an accuracy of 95%,** the highest accuracy seen without the use of a language model.

What are Side Channel Attacks (SCAs)?

- These are a method of **hacking a cryptographic algorithm** based on the analysis of auxiliary systems used in the encryption method.
- These can be performed using a collection of signals emitted by devices, including **electromagnetic waves, power consumption, mobile sensors** as well as sound from keyboards and printers to target devices.
- Once collected, these signals are used to interpret signals that can be then used to **compromise the security of a device.**

Spike Non-Line of Sight (NLOS) Anti-Tank Guided Missile

The Indian Air Force recently received Israel's Spike Non-Line of Sight (NLOS) anti-tank guided missiles.

Spike Non-Line of Sight (NLOS) Anti-tank Guided Missile (ATGM)

- **Spike Non-Line of Sight (NLOS) Anti-tank Guided Missile (ATGM)** is a **fire-and-forget anti-tank** and **anti-personnel missile** with a tandem-charge **high-explosive warhead.**
- It is **developed by Rafael Advanced Defense Systems**, a defence technology **company based in Israel.**
- It is **available in man-portable**, **vehicle-launched**, and **helicopter-launched** variants.
- Spike missiles are being **used by the defence forces of Israel and another 38 countries**, **including India,** Netherlands, Germany, Italy, Peru, Spain, Belgium, Brazil, Canada, UK, Philippines, and Singapore.
- **Features**:
  - It can **hit targets from distances of up to 30 kilometres.**
  - **Weight: 71 kg**
  - It **uses an electro-optical seeker that enables** the launch operator **to clearly see targets**, unlike missiles reliant on radar or infrared guidance.
  - The seeker is also **coupled to a datalink** that **enables the launch operator to control the missile in flight** to attack different parts of a tank or select another target, if not abort the strike.
  - **It can be armed with different types of warheads** suited to destroy tanks, air defence systems or for use in urban combat.

Swathi Weapon Locating Radar Mountains (WLR-M)

Indian Army inducted the lighter and more compact version of the indigenously developed Weapon Locating Radar (WLR-M) called "Swathi Mountains."

Swathi Mountain WLR

- **Swathi Mountain** WLR **is an advanced electronically scanned phased array radar.**
- It is specifically **designed for operations in mountainous** and high-altitude areas.
- It was d**eveloped by Bharat Electronics Limited (BEL) in Bengaluru.**

What is a Weapon Locating Radar?

- The WLR stands as a critical asset for modern militaries, **employing advanced signal processing techniques to autonomously detect and track hostile artillery,** mortars, and rocket launchers.
- It **even tracks friendly fire trajectories**, **enabling precise calculations** for more accurate artillery strikes.

- The radar's sophistication lies in its **ability to detect and track small projectiles across the battlefield** while factoring in environmental conditions for precise launch and impact point estimations.
- A hallmark of the WLR is its **high mobility and swift deployment capabilities**, allowing it to **adapt to changing operational requirements** efficiently.

Swathi Plains vs Swathi Mountains

- The Swathi radar comes in two versions: **the Swathi Plains (WLR) and the Swathi Mountains (WLR-M).**
- The **Swathi Plains version is primarily designed to locate hostile gun**s, **mortars, and rockets,** and it can also track the fall of shot from friendly weapons for corrective measures on flat terrains like Plains, as the name of the version suggests.
- **Swathi Mountains version** is a more **compact and mobile version** specifically designed **for operations in mountainous and high-altitude terrains.**
    - It is **capable of detecting mortar shells and rockets and tracking projectiles**.
    - It **classifies projectile and non-projectile targets**, rejecting unwanted signals like birds, clutter, and aircraft.
    - It o**ffers trajectory estimation and launch/impact point extrapolation,** automatically correcting for height to enhance accuracy.
    - The radar system is **equipped to store and display trajectory data** and maintain communication with higher echelons for better coordination.

3d-Printed Bombs

Ukraine is using 3D-printed bombs to address ammunition shortages in their counteroffensive efforts.

- Also known as "**candy bombs**," consist of 3D-printed casings filled with C4 explosives and shrapnel, developed by the Israeli company Rafael Advanced Defense Systems.
- They **belong to the 6th Generation of Spike missiles** with features like the ability to target hidden enemy locations behind mountains from distances of up to 25km.
- These lightweight, precision-guided missiles employ electro-optical and fiber optic technologies for effective deployment.

Free Movement Regime

The Manipur Chief Minister recently said that his government has urged the Union Home Ministry to cancel the free movement regime along the India-Myanmar border and complete its fencing.

- **Free Movement Regime: All the hill tribes, whether they are citizens of India or Myanmar, can travel within 16 km on either side of the Indo-Myanmar Border (IMB).**
- They **can cross the border by producing a border pass with a one-year validity** issued by the competent authority and **can stay up to two weeks per visit.**
- The FMR **was implemented in 2018 as part of the Central government's Act East policy.**
- FMR is **implemented by both governments for the people living along the IMB.**
- This **helps locals to get more culturally assimilated with trans-border village**s through weddings, celebrating common festivals together and trans-border trade.

UAPA And NIA

The Supreme Court of India recently ruled that mere membership in an unlawful association is sufficient to constitute an offense under the stringent provisions of the Unlawful Activities Prevention Act (UAPA), 1967.

Unlawful Activities Prevention Act (UAPA)

- **Unlawful Activities Prevention Act (UAPA)** was **enacted in 1967.** It **lays down** the definitions and **rules for designating an organization as an "unlawful association"** if it is engaged in certain types of activities.

- **'Unlawful activity' is defined** as any action taken by an individual or association – through an act, words, spoken or written, or by signs or visible representation – which is intended to, or supports a claim to, **bring about the cession of a part of the territory of India,** or the secession of a part of the territory of India from the Union, or **which incites any individual or group of individuals to bring about such cession** or secession.
- It **covers** activities which disclaim, question, disrupt or are intended **to disrupt the sovereignty and territorial integrity of India**, and which cause or intend to cause disaffection against India.
- In 2004, the **UAPA was amended**, and **'terrorist activities' were brought within its fold**, under which 34 outfits, including the Lashkar-e-Taiba and the Jaish-e-Mohammad, were banned.
- Under the Act, the central g**overnment may designate an organization as a terrorist organization** if it:
  - commits or **participates in acts of terrorism**;
  - **prepares for terrorism**;
  - **promotes terrorism**;
  - is otherwise **involved in terrorism**;
- The **2019 Amendment** gave the **Home Ministry the power to designate individuals as terrorists.** The **Act extends to the whole of India.**
- It also **applies to citizens of India who are abroad**, persons in service of the Indian government, and persons on ships and aircraft registered in India.

National Investigation Agency (NIA)

- National Investigation Agency (NIA) is the Central Counter Terrorism Law Enforcement Agency of India.
- **Parent agency:** Union Ministry of Home Affairs.
- **Establishment**: NIA was created after the 2008 Mumbai terror attacks with the enactment of the National Investigation Agency Act 2008.
- **Jurisdiction:** The agency is empowered to deal with terror related crimes across states without special permission from the states.
- A State Government may request the Central Government to hand over the investigation of a case to the NIA, provided the case has been registered for the offences as contained in the schedule to the NIA Act.
- **NIA special courts:** Various Special Courts have been notified by the Govt. of India for trial of the cases arising out of offences committed in various states of the Union.
- These are presided over by a judge appointed by the Central Government on the recommendation of the Chief Justice of the High Court with jurisdiction in that region.
- **Offices:** It is headquartered in Delhi.
- **Branches:** Hyderabad, Guwahati, Kochi, Lucknow, Mumbai, Kolkata, Raipur, Jammu, Chandigarh, Ranchi, Chennai and Imphal.

FICCI Cascade Report & Illicit Trade In India

- Recently, a report titled '**Hidden Streams: Linkages Between Illicit Markets, Financial Flows, Organised Crime and Terrorism**' was released by FICCI CASCADE.
- **FICCI CASCADE-** stands for the **Committee against Smuggling and Counterfeiting Activities Destroying the Economy** the Federation of Indian Chambers of Commerce and Industry (FICCI) established the forum in New Delhi in 2011.
- The platform has launched awareness campaigns and inter-school competitions. It has also urged the government to launch an international campaign against smuggling.
- **Some of the findings of FICCI CASCADE**
  - The government lost over 508% of tax revenue from the alcohol industry.
  - The government lost 201% of tax revenue from the FMCG packaged foods industry.

- The government lost 113% of tax revenue from the tobacco industry.
- Smuggling and counterfeiting could hinder India's goal of becoming a 40 trillion-dollar economy
- As per the report, the illegal economy in **India has an overall score of 6.3** in India, which is **higher than the average score of 5 of other 122 countries**.

C295

The first C295 for India has successfully completed its maiden flight, marking a significant milestone towards its delivery by the second half of 2023.

Airbus C295

- **Airbus C295** is a **new-generation tactical airlifter in the light and medium segment**.
- It was **designed and built by Airbus**, a European multinational aerospace corporation.
- It is robust and reliable but also **highly versatile in terms of the number of different missions it can perform.**
- The C295 **conducts multi-role operations worldwide under all weather conditions.**
- **Types of Missions**
  - It is known to be a **superior aircraft used for tactical transport** of up to 71 troops or 50 paratroopers.
  - **Air-to-Air refuelling:** It can be converted into an **air tanker that can deliver up to 6,000 kg of gasoline** to fixed and rotary wing receivers by adding a detachable refuelling kit.
  - **Airborne Early Warning (AEW):** It has a cutting-edge **radar with 360-degree coverage** to give a complete picture of the airspace in its Airborne Early Warning variant.
  - **Water-Bomber:** It can be transformed into a **powerful water bomber** that can **put out forest fires** with up to 7,000 litres of water due to a flexible roll-on/roll-off system.
  - **Armed/Ground ISR (Intelligence Surveillance and Reconnaissance):** A close-air-support operation that uses an ISR with a multi-mission radar that can also be weaponized.
  - The aircraft can be **utilised for casualty or medical evacuation** as well as **airdropping loads and paratroopers**.

Operation POLO

India celebrated the 75thanniversary of Operation Polo on September 13, 2023. On this day in 1948, Indian Army launched military action to integrate the princely state of Hyderabad.

What Was The Background Against Which Operation Polo Was Launched?

- **Intentions of Nizam of Hyderabad state:** The Nizam of Hyderabad state, Mir Osman Ali Shah, had the intention of keeping his state as an independent entity and did not join India or Pakistan after Independence.
- **Standstill agreement with India**
  - This essentially meant that a status quo would be maintained between the Indian dominion and the Hyderabad state till a solution was found.
  - The agreement was signed for a period of one year during which the Indian government would not exercise any authority over Hyderabad.

Why was Operation Polo launched?

- **Location of Hyderabad**
  - Situated in the Deccan, Hyderabad was one of the most populous and richest states.
  - It had 17 districts including Aurangabad (now in Maharashtra) and Gulbarga (now in Karnataka).
- **Intention to have fraternal relations with Pakistan**
  - The landlocked state had **a majority Hindu population with the state administration almost entirely run by its Muslim rulers.**
  - There was no common border with Pakistan but the Nizam had every intention to have fraternal relations with that country.

- **Excesses of the Razakars**
  - During this period, the Nizam's administration had taken advantage of the standstill agreement signed with India.
  - It started to increase the number of its irregular force called Razakars which was led by Maj Gen SA El Edroos, the Arab commander in chief of the Hyderabad state forces.
    - The Razakars were a paramilitary force in the Hyderabad State. It was created to support the Nizam's rule.
    - It also resisted the integration of Hyderabad into the newly independent India.
    - The Razakars primarily consisted of local radical Muslim volunteers who were loyal to the Nizam's regime.
  - The Razakars persecuted Hindus and forced them to become Muslims.
  - They killed many Hindus and Hindu sympathizers, forcing them to flee the state. They also raped women.

Armed Forces Special Powers Act (AFSPA) 1958

According to Army sources, there is a significant limitation for security forces operating without the legal protection provided by the Armed Forces Special Powers Act (AFSPA) in Manipur.

Armed Forces (Special Powers) Act (AFSPA)

- **Armed Forces (Special Powers) Act (AFSPA)** is a law **enacted by the Parliament in 1958** which **gives armed forces** (Army, the Air Force and Central paramilitary forces) the **special powers and immunity to maintain public order in "disturbed areas".**
- **When is it applied?** It can be applied only **after an area has been declared "disturbed"** under section 2 of the act.
- **What is a Disturbed area?** An area can be **considered to be disturbed due to differences or disputes among different religious, racial, language or regional groups or castes or communities.**
- **Who declares an area as disturbed?** Section (3) of AFSPA empowers the **governor of the state/Union territory to issue an official notification declaring** the state or a region within as **a "disturbed area", after which the centre can decide whether to send in armed forces.**
- The '**special powers' of armed forces under Section 4 are:**
  - **Power to use force even to the extent of causing death**, destroy arms / ammunition dumps, fortifications/ shelters / hideouts.
  - **Power to arrest without a warrant.**
  - **Power to seize and search' without any warrant** any premise.
  - It stipulates that **arrested persons and seized property is to be handed over to the nearest Police Station** with least possible delay.
- These **armed forces are immune from prosecution unless the Union Government provides sanction** to the prosecuting agencies.

Fugitive Economic Offender (FEO)

A special Prevention of Money Laundering Act (PMLA) court declared jeweller Nirav Modi as a fugitive economic offender (FEO). Nirav Modi is the second person to be declared a fugitive under the FEO act after Vijay Mallya.

Fugitive Economic Offenders Act (FEOA)

- Fugitive Economic Offenders Act (FEOA) became a law on July 31, 2018.
- **Defining Fugitive economic offender (FEO)**: FEO is defined as an individual who has committed offences involving an amount of **100 crore rupees** or more and has run away from India to **avoid criminal prosecution**
- **Special Court:** A special court will be established under the Prevention of Money-laundering Act, 2002 to declare a person as a Fugitive Economic Offender.

- **Attachment of property:** Special courts can direct the Central government to seize assets of fugitive economic offender including those that are proceeds of the crime.
- **Appeal:** Appeals against the orders of the special court will lie before the High Court.
- **Application:** A director or deputy director (appointed under the Prevention of Money-Laundering Act, 2002) may file an application before a special court (designated under the 2002 Act) to declare a person as a fugitive economic offender.
    - Upon receiving an application, the special court will issue a notice to the individual requiring him/her to appear at a specified place within six weeks
    - If the person appears at the specified place, the special court will terminate its proceedings under the provisions of this Bill.
    - Failure to appear will result in him being declared a fugitive economic offender.
- **Can the offender file a civil claim?** Section 11 of the Act disqualifies those declared as offenders from either filing or defending a civil claim in court.

Spamouflage

- Meta recently, claimed that it is fighting a Chinese 'Spamouflage' operation.
- The term "SPAMOUFLAGE" ("spam" and "camouflage") refers to a **sophisticated online disinformation campaign** using inauthentic social media accounts to spread propaganda and manipulate public opinion.
- **Origin**: China.
- **Targets**: Taiwan, the United States, Australia, Britain, Japan, and global Chinese-speaking audiences.
- It mimicked websites of mainstream news outlets in Europe and posted stories about Russia's war on Ukraine and then spread it online.

Information Fusion Centre – Indian Ocean Region (IFC-IOR)

As per the reports, the Indian Navy's **Information Fusion Centre-Indian Ocean Region (IFC-IOR)** may play a key role in a Quad initiative against **illegal fishing**.

Information Fusion Centre-Indian Ocean Region (IFC-IOR)

- In December **2018**, Indian launched the IFC-IOR, at **Information Management and Analysis Centre (IMAC) Gurugram.**
- It was established for regional collaboration on maritime security issues. This includes:
    - Maritime terrorism, illegal unregulated and unreported fishing (**IUUF**), piracy, armed robbery on the high seas, and human and contraband trafficking.
    - The idea is to develop comprehensive maritime domain awareness and share information on vessels of interest (i.e., information on white shipping).
- **White shipping** information refers to exchange of **advance information on the identity and movement of commercial non-military merchant vessels.**
- **White** is the colour code for commercial ships, Grey is for military vessels and illegal ships are coded as
- So far, this fusion centre has information sharing links with **50 nations** and **multinational/maritime centres**.
- It hosts **international liaison officers** from partner countries. This include neighbour in the Indian Ocean region and further afield including Australia, France, Japan, Singapore, UK and USA.
- The two other **data fusion centres** likely to be involved in this initiative are Singapore Navy's Information fusion centre and Australia sponsored pacific fusion centre.

Project Udbhav

- The Indian Army has started an initiative, named Project Udbhav, to rediscover the profound Indic heritage of statecraft and strategic thoughts.

- **Project Udbhav** was started in **2021** by the **Indian Army in collaboration with the United Service Institution of India**, a defence think-tank.
- It is **an initiative** to rediscover the profound Indic heritage of statecraft and strategic thoughts derived from ancient Indian texts of statecraft, warcraft, diplomacy and grand strategy.
- **It focuses on a broad spectrum** including Indigenous Military Systems, Historical Texts, Regional Texts and Kingdoms, Thematic Studies, and intricate Kautilya Studies.
- This pioneering initiative stands testimony to the **Indian Army's recognition of India's age-old wisdom** in statecraft, strategy, diplomacy, and warfare.

What Is United Service Institution of India (USI)?

- USI is a national security and defence services think tank based in New Delhi, India.
- It describes its aim as the furtherance of interest and knowledge in the art, science and literature of the defence services.

What is Project Shaurya Sankalan?

- Taking inspiration from 'Digital India Vision', the Indian Army conceived Project 'SHAURYA SANKALAN' to preserve the rich and glorious history of the Indian Army.

Goa Maritime Conclave 2023

In his keynote address at the 4th edition of the Goa Maritime Conclave, the Defence Minister of India said 'might is right' has no place in a 'free, open and rule-based' maritime order.

- **Goa Maritime Conclave (GMC)** is the Indian Navy's outreach Initiative providing a multinational platform to harness the collective wisdom of practitioners of maritime security and the academia towards garnering outcome-oriented maritime thought.
  - The previous editions of the biennial event were held in 2017, 2019, and 2021.
- The 4th edition of GMC is being held from 29-31 October by the Indian Navy under the aegis of Naval War College in Goa.
- At the GMC-23, Admiral R Hari Kumar (Chief of the Naval Staff) would be hosting chiefs of navies/ heads of maritime forces/ senior representatives from 12 Indian Ocean littorals.
  - This **includes Bangladesh, Comoros, Indonesia, Madagascar, Malaysia, Mauritius, Myanmar, Seychelles, Singapore, Sri Lanka, and Thailand.**
- The Defence Minister of India (Rajnath Singh) will be the Chief Guest and will deliver the keynote address.
- The theme for this year's edition of GMC - **"Maritime Security in the Indian Ocean Region: Converting Common Maritime Priorities into Collaborative Mitigating Frameworks".**
- The theme has been derived keeping in mind the necessity of synergizing and collaborating efforts in the maritime domain towards achieving maritime security in the IOR.
- As part of the conclave, visiting delegates would get an opportunity to -
  - Witness India's Indigenous shipbuilding industry at the "Make in India" exhibition and
  - Witness the indigenous warships as well as the capabilities of the Deep Submergence Rescue Vessel (DSRV).

Astra Missiles

- Recently, Tejas, Light Combat Aircraft (LCA) LSP-7 successfully fired the ASTRA off the coast of Goa on August 23, 2023.
- **ASTRA Missile is** an indigenous **Beyond Visual Range (BVR) air-to-air missile.** It is to engage and destroy highly **maneuvering supersonic aerial targets**.

- It is designed and developed by **Defence Research and Development Laboratory (DRDL), Research Centre Imarat (RCI)** and other laboratories of DRDO.
- The indigenous Astra BVR firing from home grown Tejas fighters is a major step towards 'Aatmanirbhar Bharat'.

Key facts:

- **LCA Tejas** is the lightest, smallest and tailless multi-role supersonic fighter aircraft in its class.
- This aircraft is designed to **carry a range of air-to-air, air-to-surface, precision-guided, weapons.**
- It has the air-to-air refueling capability.
- The maximum payload capacity of **Tejas is 4000 kg.**
- **Speed:** Mach 1.8.

What is Beyond Visual Range?

- Beyond Visual Range" (BVR) is a term commonly used in the context of military aviation and air combat. It refers to the distance at which an aircraft or a weapon system can engage and potentially target another aircraft without the need for direct visual contact.

Contours Of Joint Theatre Commands Ready

- The Armed Forces have narrowed down the final contours of the integrated theatre commands. There is a proposal for **theatre commanders under a national defence committee** likely to be headed by the Defence Minister.
- **Thematicization of Armed Forces** is a concept which seeks to integrate the capabilities of the three services - army, air force and navy – in order to optimally utilise their resources for wars and operations.
- As of now, almost **all major countries like China, Russia, the US, the UK and France work on a theatre command concept.**

Theaterisation Model Under Consideration In India

- As per media reports, **three theatre commands will be set up first** — one facing Pakistan, another opposite China, and a maritime theatre command to tackle maritime threats outside the coastal borders of the country.
- These theatre commands are likely to be located in **Jaipur, Lucknow and Karwar, respectively.**

Current Command Structure In India

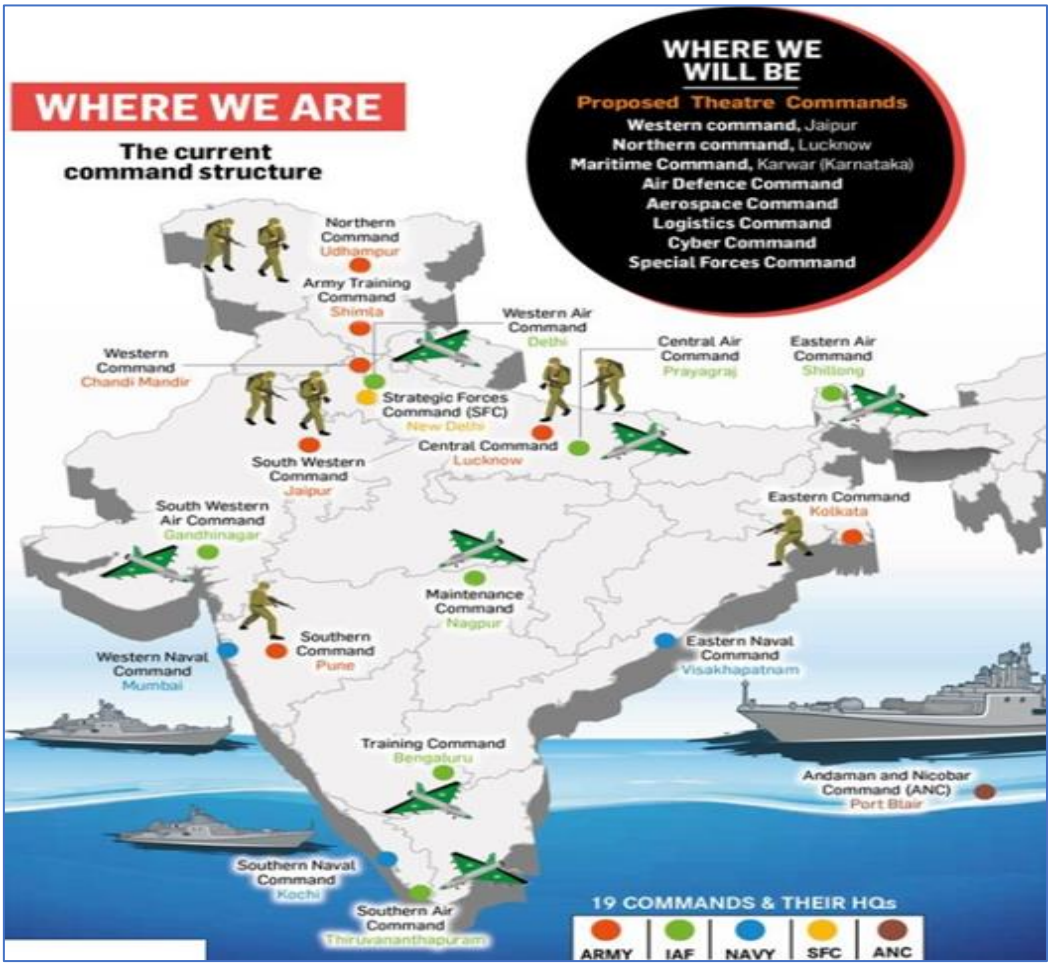
- At present, India has 17 single service commands and only two tri-service commands.
- **The 17 single service commands are divided as:** Army – 7 commands; Airforce – 7 commands; Navy – 3 commands
- **The two tri-service commands** are: Andaman and Nicobar Command (ANC), and The Strategic Force Command (handles the nuclear weapons).

Key Highlights

- **Creation of a national defence committee**
  - There is a proposal for theatre commanders under a **national defence committee** likely to be **headed by the Defence Minister**.
- **Members of Mational defence committee**
  - Members of the Chiefs of Staff Committee (COSC) are also likely to be part of the defence committee.
  - The COSC comprises the three service chiefs and the Chief of Defence Staff (CDS) and takes important decisions related to matters of higher defence.
- **Recent steps taken by India towards theaterisation**
- The **Inter-Services Organisation (Command, Control and Discipline) Bill**, 2023, a key prerequisite for theatre commands, got parliamentary approval in August 2023.

- The act empowers the **commander-in-chief and the officer-in-command** of inter-services organisations with disciplinary and administrative powers over personnel from the other services serving in them.
- It also empowers the central government to constitute an Inter-Services Organisation.

- Limited cross-postings between the Army, Navy and IAF have already been implemented to promote jointness.
  - Restructuring of the headquarters and the subsequent postings will take place after the final approval from the govt.



Fifth Positive Indigenisation List

- Defence Ministry approves 4th Positive Indigenization List for Defence Public Sector Undertakings (DPSU).
- **Positive Indigenisation list** essentially lists items that the armed forces — Army, Navy, and Air Force — will procure only from domestic manufacturers.
- These manufacturers could be from the private sector or Defense Public Sector Undertakings (DPSUs).
- The Government has introduced a comprehensive revamped 'Make and Innovation' procedure to reduce dependency on arms and promote indigenous manufacturing of defence equipment.
- The 'Make and Innovation' procedure has been introduced in DAP-20 to facilitate indigenous design and development of defence equipment through private participation with both govt funding & industry funding.

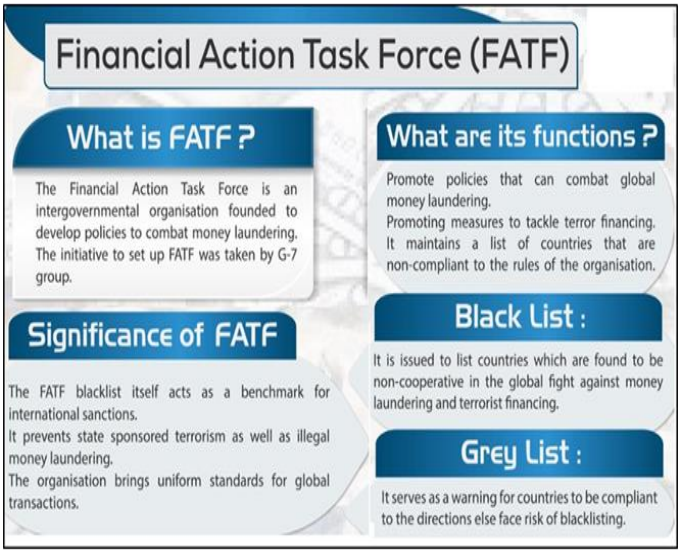
FATF Report: 'Violent Extremist Organisation' In India

According to the 'Crowdfunding for Terrorism Financing' report, recently published by the FATF, a violent extremist organization under investigation in India collected funds through well-structured networks.

Financial Action Task Force (FATF)

- It operates from **Organization for Economic Cooperation and Development** (OECD) **headquarters** in **Paris** and its plenary/ decision-making body meets three times per year.
- It has 39 members including India (became observer in 2006 and a full-time member in 2010) and two regional organizations - the EU and GCC (Gulf cooperation council).

- The FATF conducts peer reviews of each member on an ongoing basis to assess levels of implementation of the FATF Recommendations.



Sonobuoys

The Indian Navy plans to equip the MQ-9B Sea Guardian medium altitude long-endurance (MALE) drones with sonobuoys.

Sonobuoys

- Sonobuoys are **small, expendable devices used in underwater acoustics** and sonar systems **to detect and analyze sound in the ocean**, **particularly for tracking submarines** and other underwater objects.
- **Deployment:**
  - Sonobuoys are deployed b**y dropping them into the ocean from aircraft or launching them from ships** or submarines.
  - **They sink to a predetermined depth and begin listening for acoustic signals**, helping pin-point potential submarine threats.
  - **Multiple sonobuoys can be deployed in a pattern to determine the exact location** of a target.
- **There are three types of sonobuoys:**
  - **Passive Sonobuoys quietly listen for and record sounds without emitting any signals.** It uses a hydrophone to listen for sound energy from a target.
  - **Active Sonobuoys emit a sound pulse and analyze the return signals (echoes) to detect and locate targets**. It uses a transducer to send an acoustic signal.
  - **Special Purpose buoys provide information about the environment,** such as water temperature, ambient noise level, etc.

- **Components**: A typical sonobuoy consists of a **cylindrical or spherical buoyant housing**, **sensors for detecting acoustic signals**, **a battery or power source**, and **a radio transmitter** or other communication system to relay data to the host platform (e.g., aircraft or ship).
- **Other Applications**: In addition to anti-submarine warfare, they are **used for scientific research and environmental studies,** including studying the behavior of whales and other marine creatures.

MQ-9B Sea Guardian

- **MQ-9B Sea Guardian i**s a **variant of the MQ-9 "Reaper**", an **unmanned aerial vehicle (UAV)**capable of remotely controlled or autonomous flight operations.
- These are **high-altitude long-endurance drones armed with strike missiles** which can take out enemy targets with high accuracy.
- **It was developed** by General Atomics Aeronautical Systems (GA-ASI), **primarily for the US Military.**
- The **Indian Navy has been operating the MQ-9B Sea Guardian since 2020**.
- **Features:** It **can carry up to 5,670 kg** and has a **fuel capacity of 2,721 kg**.
  - The drone **can operate at over 40,000 feet.**
  - The Predator also has a **maximum endurance of 40 hours**, making it useful for long-hour surveillance.

- It is also **capable of automatic take-offs and landings.**
- **It can safely integrate into civil airspace,** enabling joint forces and civil authorities to deliver real-time situational awareness anywhere in the maritime domain -- day or night.

New Indian Air Force (IAF) Ensign

- Indian Air Force (IAF) Chief Air Chief recently unveiled a new Ensign for the force.
- **About Indian Air Force (IAF) Ensign Only** the IAF Crest **will be incorporated** into the new IAF Ensign.
- This crest prominently features the **national symbol**, **the Ashoka Lion, at the top**, with the **words "Satyamev Jayate" in Devanagari script below** it.
- **Beneath the Ashoka Lion is a Himalayan eagle with outstretched wings**, symbolizing the fighting spirit of the IAF.
- A ring in light blue color encircles the Himalayan eagle with the words “Indian Air Force".
- The IAF motto, derived from the Bhagavad Gita, "Nabha Sparsham Deeptam", meaning "touching the sky with glory," is inscribed below the Himalayan eagle in golden Devanagari.

History

- During the British era, Indian Air Force was known as Royal Indian Air Force.
- Its ensign comprised of the Union Jack in the upper left canton and the RIAF roundel (Red, White & Blue) on the fly side.
- Post-Independence, the Indian Air Force ensign was created by replacing the Union Jack with the Indian tricolour and the RAF roundels with the IAF tri-colour roundel in the lower right canton.

Antonov AN-32

India donated propellers of the Antonov AN-32 military transport aircraft **to Sri Lanka**.

Antonov AN-32	**Twin-Engine Turboprop Military Transport Aircraft,** Uses turbo-prop engine and Replaces piston-powered or jet engines.
By	It is designed and built by Antonov Design Bureau of Ukraine and was bought by India in 1984 from the erstwhile Soviet Union.
Features	Operates at high-altitude airfields and hot climates and Can carry 27 tons at 530 km/h. Passenger capacity: 42 paratroopers, 50 passengers, 24 casualties on stretcher, three medical personnel. Limited bombing role, used for para-trooping operations.

Fattah Missile

Iran has unveiled an intermediate range ballistic missile named Fattah.

Features

- **Speed:** Hypersonic speeds of up to 15 times the speed of sound.
- **Range:** 1,400 kilometres (can penetrate missile defence system)
- **Fuel Used:** solid propellants, allowing high manoeuvrability
- **Significance:** Iran will **become the 1st country in the entire Middle Eastern region** to possess a hypersonic weapon
- **Hypersonic missiles** travel at speeds of **at least Mach 5** — five times the speed of sound — and can manoeuvre mid-flight, making them harder to track and intercept.

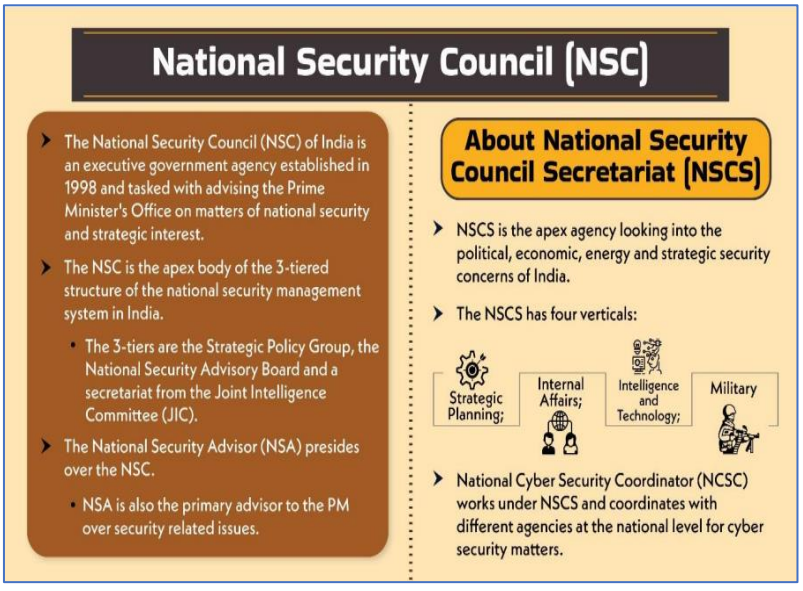
Basis	Cruise Missile	Ballistic Missile
Flight Path	Follows a relatively low-altitude and controlled flight path and operates within the Earth's atmosphere and can maneuver to navigate around obstacles and reach its target.	Follows a high-altitude trajectory, launched into space and then re-enters the Earth's atmosphere to strike its target and primarily relies on the force of gravity and momentum to reach its destination.
Range and Speed	Shorter ranges, can typically travel at subsonic or supersonic speeds depends on the design.	Ballistic missiles are capable of traveling much longer distances and can reach hypersonic speeds.
Guidance System	Sophisticated guidance systems, such as GPS, inertial navigation systems, and terrain contour matching, to accurately navigate and strike their intended targets.	Follow a pre-determined trajectory and have less maneuverability compared to cruise missiles. Rely on guidance systems, including inertial navigation and sometimes celestial navigation, to reach their target area.
Purpose	Used for precision strikes against specific targets, such as military installations, infrastructure, or high-value targets.	Serve various purposes like delivering nuclear or conventional warheads over long distances and used for strategic deterrence, intercontinental strikes, or shorter-range tactical operations.

India To Bring in A National Security Strategy

India has kickstarted the process of bringing in a **National Security Strategy**. The **National Security Council Secretariat (NSCS**) is in the process of collating inputs from several Central ministries and departments. This is the **first time that** India would come out with such a strategy.

National Security Council Secretariat (NSCS):

- **Background:** The National Security Council (NSC) of India is an executive government agency established in 1998 and tasked with advising the Prime Minister's Office on matters of national security and strategic interest.
    - The NSC is the **apex body of the 3-tiered structure** of the national security management system in India.
        - The 3-tiers are the Strategic Policy Group, the National Security Advisory Board and a **secretariat from the Joint Intelligence Committee (JIC).**
    - The National Security Advisor (NSA) presides over the NSC.
        - NSA is also the primary advisor to the prime minister.



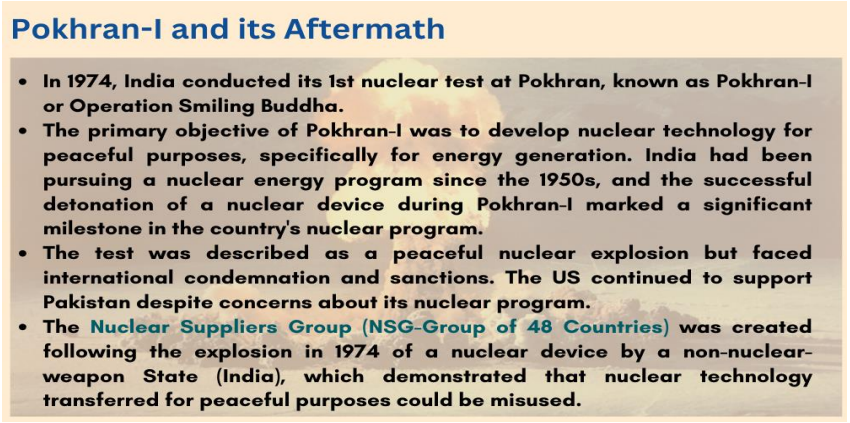
National Security Strategy

- A National Security Strategy document outlines the country's security objectives, and the ways to be adopted to achieve these.
- It defines traditional, non-traditional threats and opportunities while introducing accountability of agencies tasked with the implementation of such responsibilities.

- In a nutshell, a national security strategy would guide the military as well as critical defence and security reforms with strategic implications.
- It will provide a holistic view of the overall national security, the threats and the roadmap to address them.
    - Some experts have also highlighted that major military reforms should ideally flow from a national security strategy.
    - Without such a well-defined strategy, military reforms would be like putting the cart before the horse.

25th Anniversary of Pokhran-II

- It was the series of five nuclear bomb test explosions that were conducted by India in May 1998 at the Indian Army's **Pokhran Test Range (Rajasthan).**
- The test was *initiated* under the designated code name **Operation Shakti** with the detonation of one fusion and two fission bombs.
- This was the 2nd attempt of India that turned out to be successful after the first test (**Pokhran-I**), code-named **Smiling Buddha.**



Hwasong-18

- **Hwasong-18** is a type of **solid-fuel intercontinental ballistic missile (ICBM**) developed by North Korea.
- It is the country's **1st ICBM to use solid fuel**, which allows for faster launches.
    - An ICBM is a long-range (greater than 5,500 km or 3,500 miles) ballistic missile typically designed for nuclear weapons delivery, that is, delivering one or more nuclear warheads.

Solid Fuel Missiles	Liquid Fuel Missiles
• Use a **solid propellant** that is pre-mixed and stored in the missile until it is ignited.	• Use **two separate liquids** that are combined in the missile just prior to launch.
• Generally considered to be more reliable and easier to maintain, since the fuel is already stored in the missile and does **not require any additional preparation**.	• Provide **greater propulsive thrust** and power, but require more complex to operate and maintenance, since the two liquids must be stored separately.

Agni-1 Missile

- India carried out successful training launch of Agni-1 ballistic missile. It is **a medium-range ballistic missile** that was developed by DRDO under the Integrated Guided Missile Development Programme **(IGMDP)**.
- Originally **tested in 1989 at the Chandipur Interim Test Range**, it is a single-stage, solid-fuel missile with a range of 700–900 km and the capacity to carry a nuclear warhead with an estimated weight of 1,000 kg (SRBM).
- The Indian Army's Strategic Forces Command 1st deployed this missile in 2007.

Integrated Guided Missile Development Programme (IGMDP)

- It was an Indian Ministry of Defence programme to research and develop a comprehensive range of missiles. It was **launched in 1982-83**. It was **conceived by Dr. A.P.J. Abdul Kalam. The programme was managed by the DRDO and Ordinance Factory Board** in partnership with other Indian government political organisations.
- The **5 missiles developed under this program**

- **Prithvi**: Short range *surface to surface* ballistic missile.
- **Agni**: Intermediate-range *surface-to-surface* ballistic missile
  - (Agni missile was later separated from the IGMDP due to its strategic importance)
- **Trishul**: Short-range low-level *surface to air* missile.
- **Akash**: Medium range *surface to air* missile.
- **Nag**: 3rd generation fire and forget anti-tank missile.

CL-2

- CL-2 is deemed to be the most lethal **non-nuclear explosive** in existence.
- Its full name, **Hexa-nitro-hexa-azaisowurtzitane**, reflects its chemical composition.
- It has **not yet been incorporated** into any production weapon system, but is undergoing tests for stability, production capabilities and other weapon characteristics.
- Its **high energy output and low sensitivity** to shock and abrasion make it an attractive option for developing more powerful and effective weapons.

Burevestnik Missile (Skyfall or Storm petrel)

- **Russia** has claimed to have **successfully tested its nuclear-powered**, nuclear-armed cruise missile, the Burevestnik.
- **Burevestnik Missile** is a ground-launched, low-flying cruise missile. It is not only capable of carrying a nuclear warhead but is also nuclear-powered. It is designated as SSC-X-9 Skyfall by NATO.

Features

- It is powered by **a small nuclear reactor**, which heats up air to propel the missile forward.
- It has the ability **to bypass missile defense** systems.
- It has a range of **up to 14,000 miles** (22000 km).
- The missile is also designed to fly **at low altitudes**, much lower than a conventionally powered cruise missile, which would make it harder for air-defence radar to detect

Indira Gandhi Peace Prize

- The **Indira Gandhi Prize for Peace, Disarmament and Development** for 2023 has been jointly awarded to **Daniel Barenboim and Ali Abu Awwad.**
- They have been awarded for their efforts in bringing together the youth and people of Israel and the Arab World for a non-violent resolution of the Israel-Palestine conflict.
- Indira Gandhi Peace Prize, also known as Indira Gandhi Prize for Peace, Disarmament and Development was instituted in **1986** by **Indira Gandhi Memorial Trust**. The award carries a cash prize of **Rs 25 lakh** and a citation.
- It is given to individuals or organizations who are: Working towards ensuring international peace and development; Ensuring that scientific discoveries are used for the larger good of humanity; Creating new international economic order; and Enlarging the scope of freedom.

Armed Forces Exercises

Exercise Name	Participating Forces/Nations	Type	Frequency
Indhradhanush - V 2020	Indian Air Force(IAF) & Royal Air Force(RAF)	Air	Annual
Ajeya Warrior 2020	Indian & United Kingdom	Land	Biennial
Sahyog-Kaijin	India & Japan	Maritime	Annual
MLAN 2020	India, Bangladesh, Nepal, Sri Lanka & Myanmar	Maritime	Biennial
BIMSTEC Disaster Management Exercise, 2020	India, Bangladesh, Nepal, Sri Lanka & Myanmar	Joint	Biennial

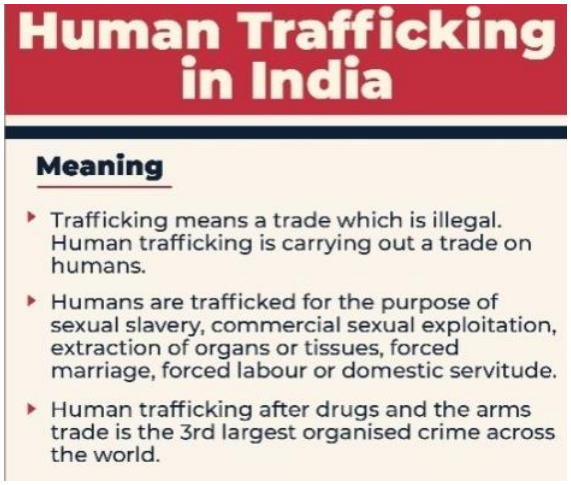
Sampriti –IX	India & Bangladesh	Joint	Annual
Hand-in-Hand VIII, 2019	India & China	Joint	Annual
Indra, 2019	India & Russia	Joint	Annual
Mitra Shakti VII	India & Sri Lanka	Joint	Annual
Dustlik, 2019	India & Uzbekistan	Joint	Annual
Zai'r- Al- Bahr	India & Qatar	Joint	Annual
CORPAT-19	India & Bangladesh	Maritime	Annual
Dharma Guardian	India & Japan	Joint	Annual
Exercise Shakti'19	India & France	Joint	Annual
Samudra Shakti	India & Indonesia	Maritime	Biennial
"Him Vijay"	India & China	Joint	Annual
Nomadic Elephant – XIV	India & Mongolia	Joint	Annual
"Tiger Triumph"	India & USA	Joint	Biennial
"Chang Thang"	India & China	Joint	Annual
Ekuverin	India & Maldives	Joint	Annual
Yudh Abhyas	India & USA	Joint	Biennial
MAITREE	India & Thailand	Joint	Annual
Malabar Exercise	India, US, Japan & Australia	Maritime	Annual
KAZIND – 2019	India & Kazakhstan	Joint	Annual
TSENTR 2019	China, Tajikistan, India, Kyrgyzstan, Kazakhstan, Pakistan & Uzbekistan	Joint	Annual
Garuda-VI, 2019	Indian Army and Frech Army	Joint	Annual
AL NAGAH III	Indian Army and Royal Oman Army	Joint	Annual
Sampriti-2019	India & Bangladesh	Joint	Annual
Bold Kuruksetra 2019	India & Singapore	Joint	Annual
SIMBEX 2019	India & Singapore	Maritime	Biennial
Varuna 2019	India & France	Maritime	Annual
AUSINDEX 2019	India & Australia	Maritime	Biennial
Mainamati Maitree Exercise 2019	Border Security Force(BSF) & Border Guards of Bangladesh (BGB)	Joint	Annual
Mitra Shakti VI	India & Sri Lanka	Joint	Annual
AVIANIDRA	India & Russia	Air	Annual
SAHYOG HOP TAC	India & Vietnam	Maritime	Biennial
Exercise Trishul	Training exercise of indian air force	Air	Annual
Exercise Bright Star- 23	India, United States of America, Saudi Arabia, Greece and Qatar	Joint	biennial
ASEAN India Maritime Exercise (AIME-2023)	ASEAN and India	Naval	First ever exercise held in 2023
Tarang Shakti	12 nations including USA,Uk,Australia etc	Air	-

13 Minors on Plane Held in France Over Suspected Human Trafficking

The plane has been **held at Vatry airport**, 150 km east of Paris, since arriving from Dubai, following a tip-off that it was carrying potential victims of human trafficking.

Constitutional and Legislative Provisions Related to Trafficking in India:

- Trafficking in Human Beings or Persons is prohibited under the Constitution of India under **Article 23 (1)**.
- **The Immoral Traffic (Prevention) Act 1956 (ITPA)** is the premier legislation for prevention of trafficking for commercial sexual exploitation.
- **The Criminal Law (Amendment) Act 2013** has come into force wherein Section 370 of the **Indian Penal Code** has been substituted with Section 370 and 370A IPC. This provides for comprehensive measures to counter the menace of human trafficking including trafficking of children for exploitation in any form including -
    - physical exploitation or any form of sexual exploitation,
    - slavery, servitude, or the forced removal of organs.
- **The Protection of Children from Sexual offences (POCSO) Act 2012** is a special law to protect children from sexual abuse and exploitation. **It provides precise definitions** for different forms of sexual abuse, including penetrative and non-penetrative sexual assault, sexual harassment.



- There are **other specific legislations** enacted relating to trafficking in women and children, such as
    - Prohibition of Child Marriage Act, 2006,
    - Bonded Labour System (Abolition) Act, 1976,
    - Child Labour (Prohibition and Regulation) Act, 1986,
    - Transplantation of Human Organs Act, 1994, etc.
- **State Governments** have also enacted specific legislations to deal with the issue (e.g., The Punjab Prevention of Human Smuggling Act, 2012).

Navy Plans To Get Undersea Chariots For Special Operations

- The Indian Navy is planning to acquire indigenously made swimmer delivery vehicles also known as underwater chariots and midget submarines.
- This is part of efforts to modernize and strengthen the capabilities of its **Marine Commandos (MARCOS)** for special undersea operations.

The Chariots

- These are highly specialized self-propelled vehicles which can be launched from ships or submarines.
- In World War II, manned human torpedoes were referred to as chariots.
- **Function**
    - They can be used for a range of missions which include **shallow-water surveillance**, attacking the adversary's coastal installations, and even their ships in harbour.

CISF To Be Roped In For Parliament Security

- Days after the Parliament security breach, the MHA has asked the Central Industrial Security Force (CISF) to carry out a survey of the Parliament premises for regular deployment. The CISF will work with the **Parliament Security Services** to control access to the new and old Parliament complex.

Nina Singh Becomes 1st Woman to Head CISF

The Centre appointed Nina Singh as the Director General of CISF. Nina Singh was the first woman IPS officer allocated to the Rajasthan cadre where she served in many important assignments across the state.

INS Imphal Commissioned

- INS Imphal (Pennant D68) has been commissioned into the Indian Navy. It is the third of four warships of **Project 15B** that together form the Visakhapatnam class stealth-guided missile destroyers.
- These ships are equipped with **BrahMos supersonic cruise missiles** and long-range **Surface-to-Air Missiles** (SAM).
- The class also has a **total atmospheric control system** (TACS) that offers protection to the crew from chemical, biological and nuclear threats.
- It can operate two multi-role helicopters, including Sea King or HAL Dhruv.

Project 15B

- The **Visakhapatnam-class destroyers**, also classified as the **P-15 Bravo class**, or simply **P-15B, is a class of guided-missile destroyers currently being built for the Indian Navy.**
- A total of four ships are being built by **Mazagon Dock Limited** (MDL), under the **Make in India** initiative. These four ships are **Visakhapatnam**, **Mormugao**, **Imphal**, **Surat**.
- The first vessel of the class, **INS Visakhapatnam** was commissioned in November 2021. The second ship **INS Mormugao** in December 2022.

Pegasus Infection Found On Indian Journalists' Phones After Apple Alert

The Washington Post and Amnesty International report claims that Pegasus spyware targeted journalists in India. The intrusion was detected in October 2023 after Apple warned users, including MPs, of potential 'state-sponsored attacks' on their iPhones.

Pegasus Spyware

- **Pegasus is a malware/spyware developed by Israel's NSO Group.** The spyware suite is designed to access any smartphone through zero-click vulnerabilities remotely.
- Once a phone is infiltrated, the spyware can access entire data on that particular phone.
- It also has real-time access to emails, texts, phone calls, as well as the camera and sound recording capabilities of the smartphone.

Zero-click Exploit

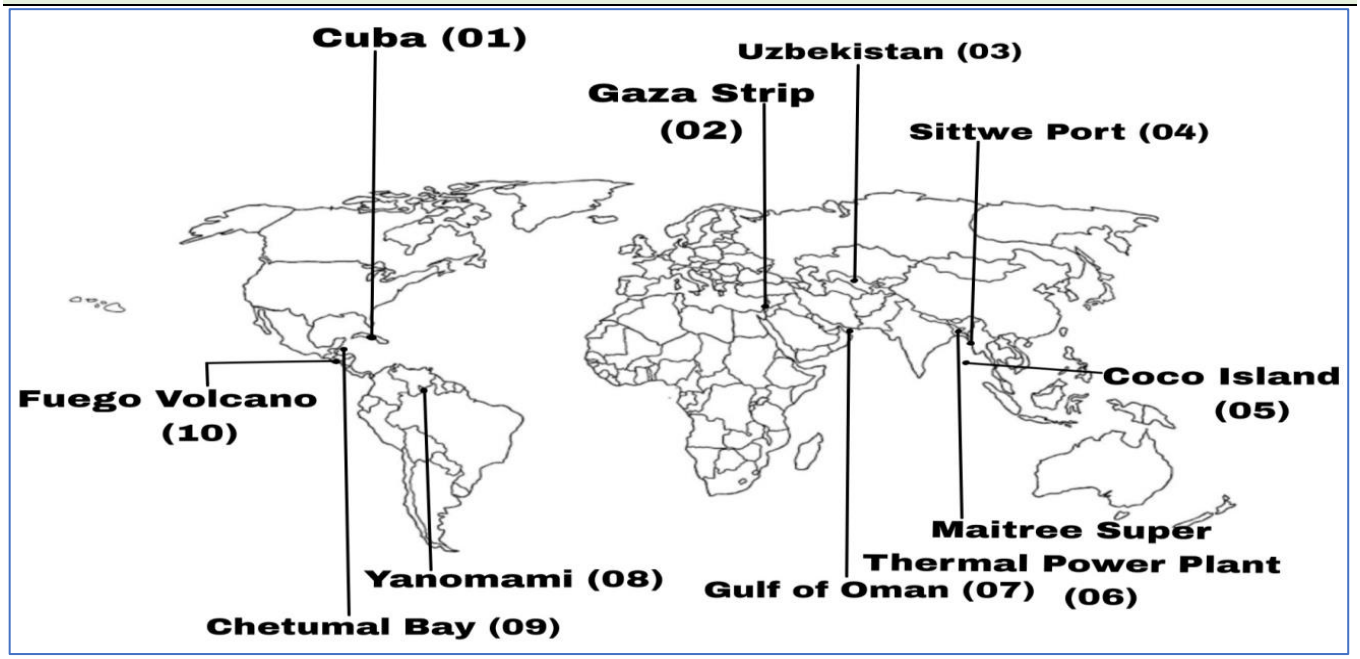
- A zero-click exploit refers to malicious code installed on a device without the device owner's consent.
- More importantly, it does not require the device owner to perform any actions to initiate or complete the installation.

Operation Storm Makers II

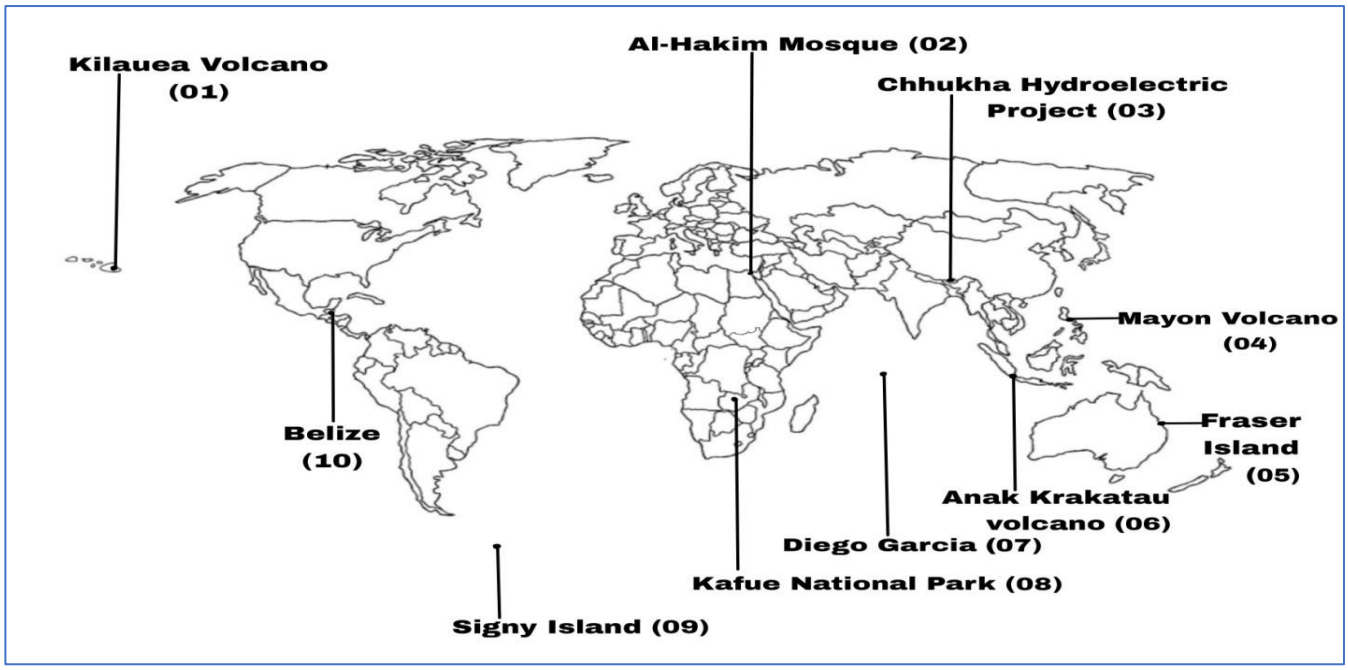
- Operation Storm Makers II was a law enforcement operation **led by Interpol**. The operation targeted human trafficking and cyber scams, and involved law enforcement agencies in 27 countries across Asia and other regions.
- This operation shed light on the **growing network of fraud schemes associated with human trafficking**.

IMPORTANT PLACES IN NEWS

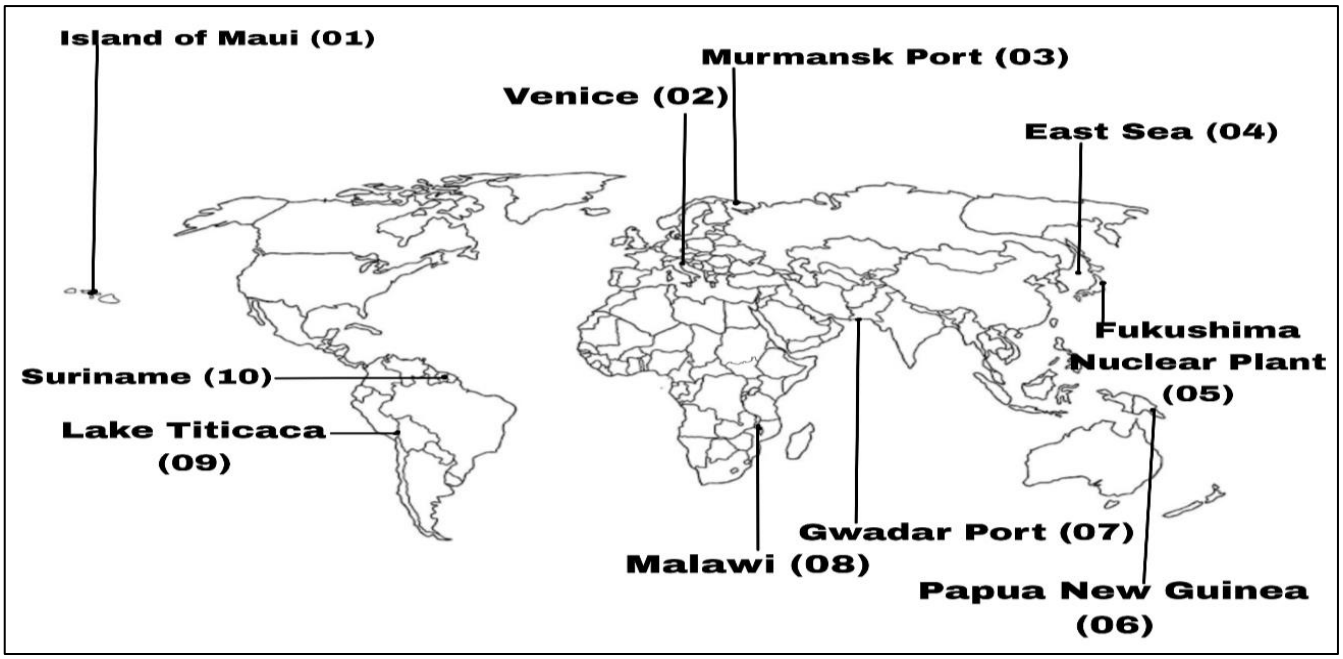
International Places in News



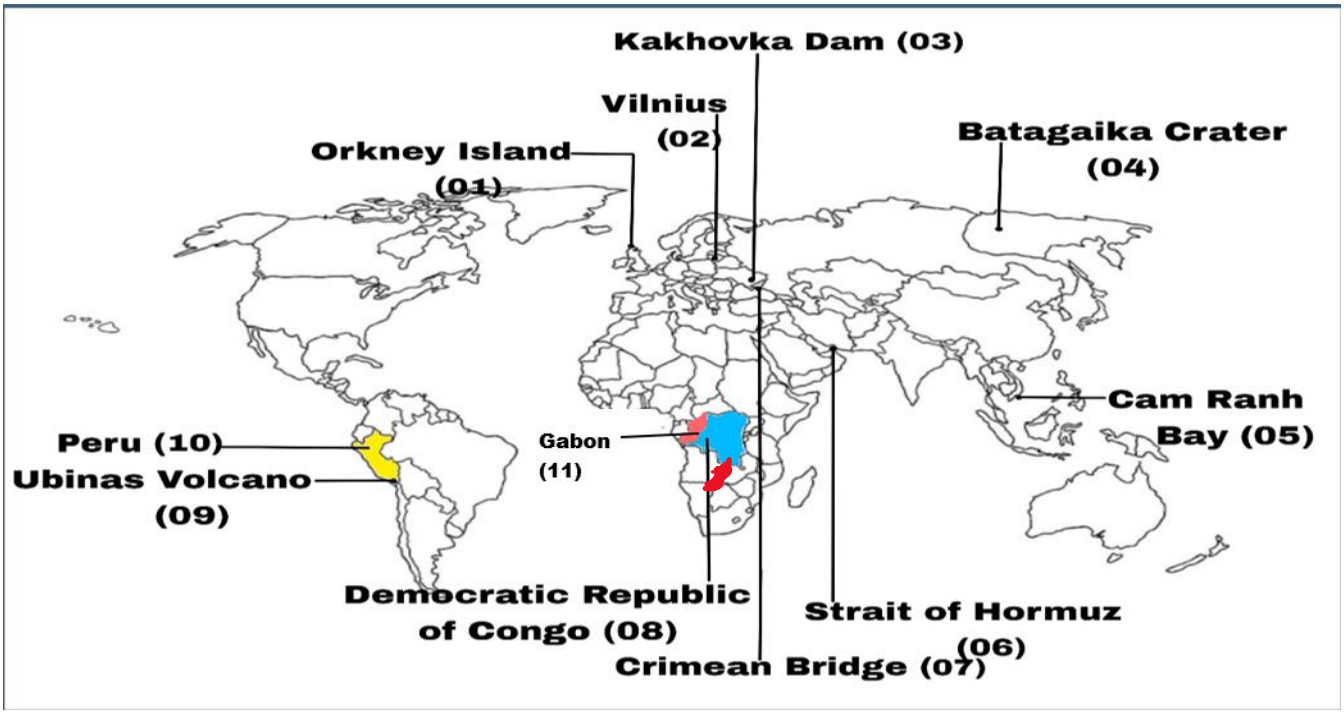
01	**Cuba**	Cuba's National Assembly has confirmed **President Miguel Diaz-Canel for a new five-year term.** It is an island country located where the northern Caribbean Sea, Gulf of Mexico, and Atlantic Ocean meet. Havana is the largest city and capital.
02	**Gaza Strip**	Gaza Strip is a Palestinian enclave on the eastern coast of the Mediterranean Sea. It borders Egypt and Israel.
03	**Uzbekistan**	Uzbekistan holds **referendum on new Constitution** that puts human rights at forefront. It is a **doubly landlocked country** (a landlocked country completely surrounded by other landlocked countries). It is surrounded by five landlocked countries which **are Kazakhstan, Kyrgyzstan, Tajikistan, Afghanistan and Turkmenistan**.
04	**Sittwe Port**	India and Myanmar jointly inaugurated the Sittwe Port. It is a deepwater port constructed by India in Myanmar, on the Bay of Bengal. Situated at the mouth of the **Kaladan River**.
05	**Coco Islands**	They are a small group of islands located in the Bay of Bengal. They are part of the Yangon Region of Myanmar. They are **geologically an extended division of the Arakan Mountains** or Rakhine Mountains.
06	**Maitree Super Thermal Power Plant**	NTPC has marked its first overseas capacity addition, beginning with Maitree Super Thermal Power Plant (MSTPP). It is located in **Bangladesh**.
07	**Gulf of Oman**	Iran's navy seized a **Marshall Islands**-flagged oil tanker in the Gulf of Oman. It is also known as the Gulf of **Makran**. It forms the only entrance to the Persian Gulf from the Indian Ocean. It connects the Arabian Sea with the Strait of Hormuz.
08	**Yanomami**	Brazilian government has promised to speed up the expulsion of illegal gold miners in the Yanomami. It is the largest Indigenous land in Brazil.
09	**Chetumal Bay**	**World's 2nd-deepest blue hole** discovered in Chetumal Bay. It is a large bay of the western Caribbean Sea on the southern coast of the Yucatan Peninsula. It is located in northern Belize and south-eastern Mexico.
10	**Fuego volcano**	Guatemalan authorities evacuated over a thousand people and closed a road as the Fuego volcano erupted. It is an active stratovolcano in Guatemala. It is famous for being almost **constantly active at a low level**.



01	**Kilauea Volcano**	The Kilauea volcano erupted recently. It is **the youngest and most active shield volcano**, located on the southern part of the **Island of Hawai'i, known as Big Island**. It has a large summit caldera with a central crater.
02	**Al-Hakim mosque**	Indian Prime Minister visited the 11th Century Al-Hakim mosque. It is located in Cairo, Egypt. It is named after Al-Hakim bi-Amr Allah, the Fatimid caliph. The mosque was inscribed as a **UNESCO World Heritage Site** in 1979.
03	**Chhukha hydro project**	India agreed to an upward revision of tariff of the Chhukha hydroelectric project. It is a run-of-the-river project, located in the **south-western part of Bhutan**.
04	**Mayon volcano**	Mayon volcano has erupted recently. It is an active volcano in southeastern **Luzon, Philippines**. It is called the world's most perfect volcanic cone because of the symmetry of its shape.
05	**Fraser island**	The government of the Australian has changed the name of Fraser Island to its traditional name K'gari. It is located on the southeast coast of Queensland, Australia, separated from the mainland and the port of Maryborough by Hervey Bay and Great Sandy Strait. It is **the largest sandy island** in the world. The island belongs to **Butchulla** people, who are also the guardians of the land.
06	**Anak Krakatau volcano**	Anak Krakatau volcano has erupted recently. It is located in **Indonesia's** Sunda Strait between the main Java and Sumatra islands.
07	**Diego Garcia Island**	It is a coral atoll, the largest and southernmost member of **Chagos Archipelago**, in Indian Ocean. It is a part of the British Indian Ocean Territory and discovered by the Portuguese in the early 16th century.
08	**Kafue National Park**	Kafue National Park is witnessing a remarkable resurgence in its lion and leopard populations. It is the largest national park in **Zambia**. It is named for the Kafue River.
09	**Signy Island**	Eretmopteramurphyi (tiny insect) has been altering the soil composition on Signy Island. It is a small subantarctic island in the Antarctica. The flora of the island is cryptogams i.e. plants reproduce via spores rather than seeds. And the island has **only two** flowering plant Antarctic hairgrass and Antarctic pearlwort.
10	**Belize**	The World Health Organization (WHO) has certified Belize as a **malaria-free country**. It is located on the northeast coast of Central America and south of the **Yucatan Peninsula**. Along the coast of this country, there is Belize Barrier Reef which is the **2nd-largest barrier** reef in the world after the Great Barrier Reef.

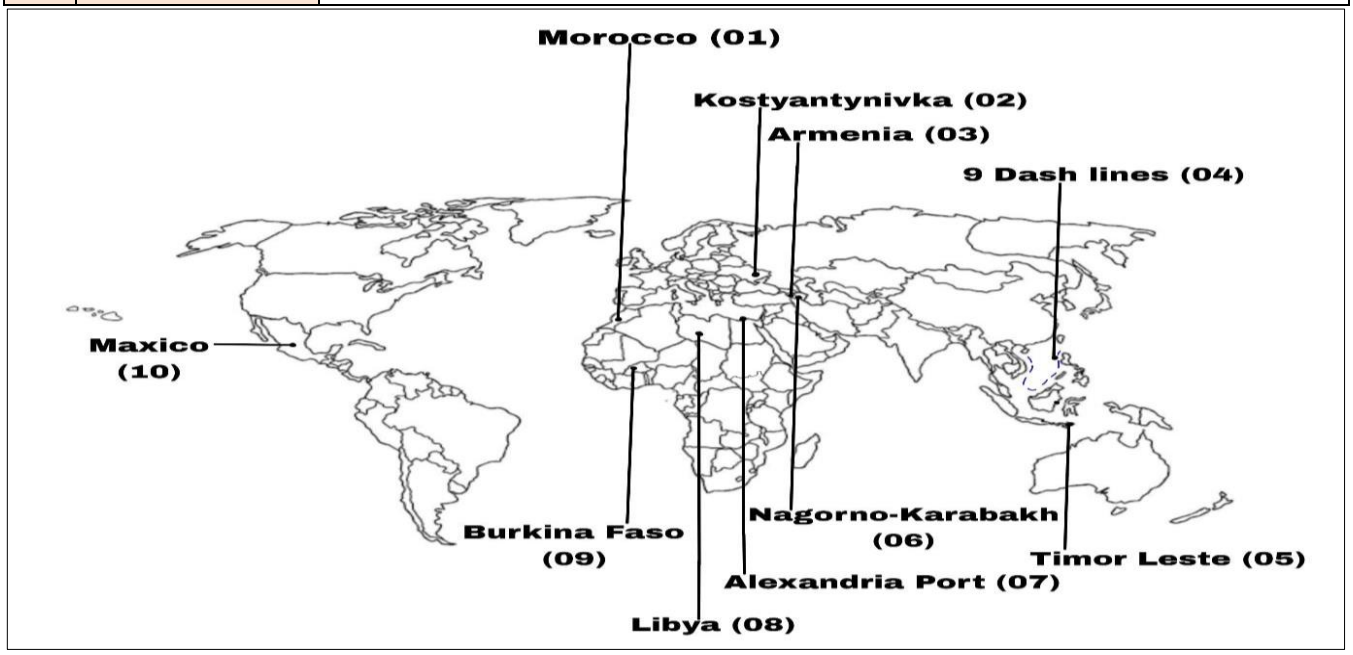


01	**Island of Maui**	Multiple wildfires are raging through Hawaii, especially the island of Maui. It is the second largest Hawaiian island. It is also known as "**The Valley Isle**". The island is adored for its world-famous beaches, the sacred **Lao Valley**, and views of migrating humpback whales.
02	**Venice**	UNESCO proposed to add Venice to the list of World Heritage Sites in Danger list. The islands are located in the shallow Venetian Lagoon, an enclosed bay that lies between the mouths of the Po and the Piave rivers.
03	**Murmansk Port**	India's engagement with Russia's Arctic region has been strengthening with India-bound goods constituting the maximum share of cargo handled this year by Murmansk Port. It is one of the largest **ice-free ports** in Russia. It is located on the **Kola Peninsula** at the coast of Barents Sea.
04	**East Sea**	China and Russia hold a joint air and sea drill in Sea of Japan. It is a **marginal sea** of the western Pacific Ocean. It is located in Eastern Asia that is bounded by Japan and **Sakhalin** Island to the east and by Russia and Korea on the Asian mainland to the west.
05	**Fukushima nuclear plant**	The 1.34 million tonnes of treated radioactive water from Fukushima nuclear plant is to be released into the Pacific Ocean.
06	**Papua New Guinea**	US Secretary of Defence said the US was not seeking a permanent base in Papua New Guinea. It is an **island** country that lies in the **south-western Pacific**. It includes the eastern half of New Guinea (the world's second-largest island) and many small offshore islands.
07	**Gwadar Port**	A convoy of Chinese engineers working on the Gwadar Port was attacked by the militants of the Balochistan Liberation Army (BLA). It is **a deep seaport** located on the Arabian Sea in Pakistan's Balochistan Province
08	**Malawi**	Parliamentary delegation from Malawi is visiting India. It is a **landlocked** country in South-eastern Africa. It is bordered by Zambia, Tanzania and Mozambique. It's capital and largest city is Lilongwe. Lake Nyasa, known in Malawi as **Lake Malawi**, accounts for more than one-fifth of country's area.
09	**Lake Titicaca**	Water levels in **Lake Titicaca falls to historic lows due to climate change**. It is the largest freshwater lake in South America. It is situated between Peru and Bolivia. It is located in Andes Mountains of South America. At 3,800 meters above sea level, it is the world's highest navigable body of water. It has been on UNESCO's World Heritage tentative list since 2005.
10	**Suriname**	A MoU has been signed between the Indian Pharmacopoeia Commission (IPC) and the Ministry of Health of Suriname. It is a small country on the northeastern coast of South America. It is bordered by the Atlantic Ocean, French Guiana, Guyana and Brazil.



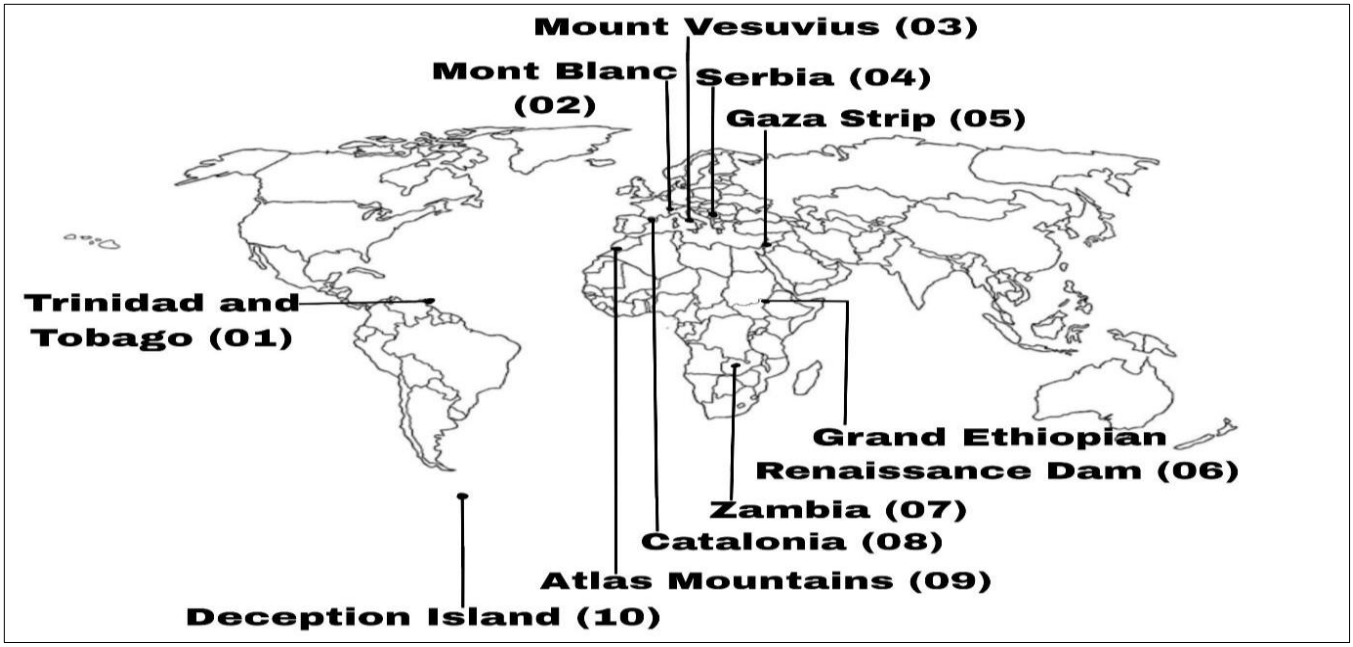
01	**Orkney Islands**	Orkney Islands is looking at ways to split off from the U.K. and potentially become a self-governing territory of **Norway**. It is an archipelago consisting of 70 individual islands, of which only 20 are inhabited. The four monuments that make up the Heart of Neolithic Orkney is designated as **UNESCO world Heritage site**.
02	**Vilnius**	The NATO summit 2023 has been concluded in the Vilnius. It is the capital and the largest city of **Lithuania**. It is known for the architecture of its old town, it was declared a UNESCO World Heritage Site in 1994.
03	**Kakhovka Dam**	Recently a huge Soviet-era Kakhovka dam collapsed. It was located on the **Dnieper** or **Dnipro** River in southern Ukraine.
04	**Batagaika Crater**	Stunning drone footage has revealed details of the Batagaika crater which is getting affected due to climate change. It is a thermokarst depression in the **Chersky Range area**. It is the **biggest permafrost crater** in the world. It administratively belongs to the Sakha Republic, **Russia**. It is also called as "gateway to the underworld,"
05	**Cam Ranh Bay**	Indian Naval Ship Kirpan handed over to Vietnam People's Navy (VPN) at the strategic military port of Cam Ranh Bay. It is a **deep-water bay** in Vietnam in Khanh Hoa Province.
06	**Strait of Hormuz**	Iran made an attempt to seize two oil tankers near the Strait of Hormuz. It is located at the mouth of the Persian Gulf. It separates Iran and Oman**, linking the Persian Gulf to the Gulf of Oman and the Arabian Sea.**
07	**Crimean Bridge**	It is also known as **Kerch bridge** opened in 2018, is a crucial transportation route between Russia and Crimea, which was annexed by Russia in 2014.
08	**Democratic Republic of Congo**	A recent spike in cholera cases raised concerns in Democratic Republic of Congo. It is a country in Central Africa. By land area, it is the 2nd largest country in Africa. Its **capital** and largest city is **Kinshasa**. It is bordered by the Republic of the Congo, Central African Republic, South Sudan, Uganda, Rwanda, Burundi, Tanzania, Zambia, Angola, the Cabinda exclave of Angola and the South Atlantic Ocean.
09	**Ubinas Volcano**	Peru announced a state of emergency in the Moquegua region due to the ongoing activity of the Ubinas volcano. It is a strato-volcano located in the Central Volcanic Zone of the Andes.
10	**Peru**	Peru declared a state of National emergency amid a surge in patient suffering from **Guillain-Barre Syndrome**. It is the 3rd largest country in South America, after Brazil and Argentina.

		The world's largest rain forest, the Amazon, covers nearly half of Peru. It is bordered by Ecuador, Colombia, Brazil, Bolivia, Chile and the Pacific Ocean.
11	**Gabon**	The Military seized power in the West African country of Gabon



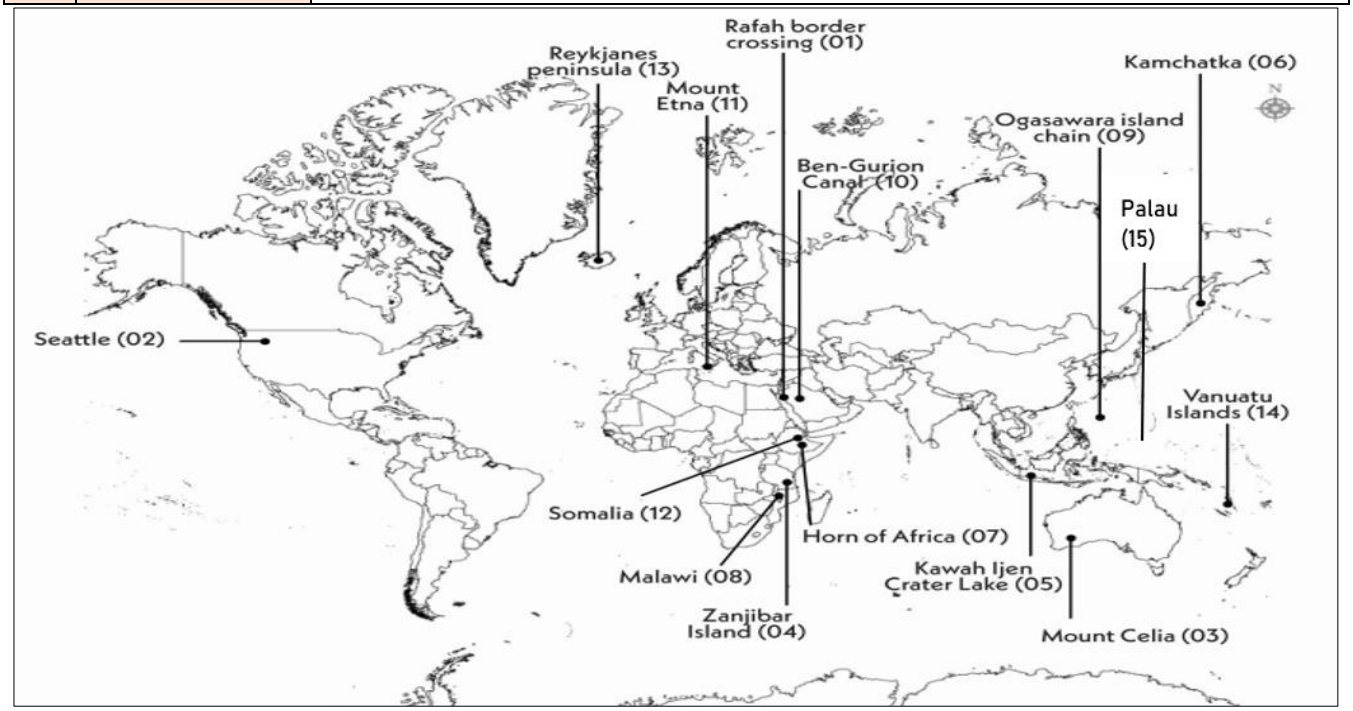
01	**Morocco**	A powerful earthquake of magnitude 6.8 struck central Morocco. Its largest city is Casablanca and capital is **Rabat**. It shares its borders with Algeria, Western Sahara, Atlantic Ocean and Mediterranean Sea. It is the only African country with coastal exposure to both the Atlantic Ocean and the Mediterranean Sea.
02	**Kostyantynivka**	The City is situated in eastern Ukraine, on the bank of **Kryvyi Torets River**. It developed into a major center for the production of iron, zinc, steel and glass during the Soviet era.
03	**Armenia**	Union Cabinet approved the MoU with Armenia on Cooperation in the field of sharing successful Digital Solutions implemented at Population Scale for Digital Transformation. It is a **landlocked country** in the **Caucasus**. It is bordered by Azerbaijan to the east, Iran to the south, Turkey to the west, and Georgia to the north. **Yerevan is its capital, and largest city**.
04	**9 Dash-lines**	Malaysia, Vietnam, Taiwan and Philippines have rejected the new map of China as it depicts U shape 9 Dash-lines as a Chinese Territory**. It is a historical demarcation line on a map used by China to assert territorial claims in the South China Sea**.
05	**Timor-Leste**	India has announced the opening of an embassy in **Dili, capital of Timor-Leste**. Timor-Leste is located in Southeast Asia, on the southernmost edge of the Indonesian archipelago, northwest of Australia. It shares its border with Timor Sea, Wetar Strait, Ombai Strait, and western Timor.
06	**Nagorno-Karabakh**	Region is **landlocked** and referred to as Artsakh by Armenians. The territory is recognised as part of Azerbaijan, but its inhabitants are predominantly ethnic Armenians. The reason for the present-day war is that **Azerbaijan** has imposed an effective blockade on the only route into the enclave from Armenia, known as the **Lachin Corridor**.
07	**AlexandriaPort**	INS Sumedha, a Saryu class Naval Offshore Patrol Vessel (NOPV), arrived in Port Alexandria, for **'Exercise BRIGHT STAR-23**.' It is located on the northern coast of Egypt, to the West of the Nile Delta. In ancient times, Alexandria was built between the Mediterranean Sea and **Lake Mariut**. The latter was connected to the River Nile via canals.
08	**Libya**	Eastern Libya experienced a catastrophic event as floods caused **by Storm Daniel**, brought widespread destruction. It is a country in the Maghreb region of North Africa. It is bordered by the Mediterranean Sea, Egypt, Sudan, Chad, Niger, Algeria, and Tunisia.

09	**Burkina Faso**	Burkina Faso orders the French embassy's defense attache to leave. It is a landlocked country in western Africa. It shares its boundaries with Mali, Niger, Benin, Cote d'Ivoire, Ghana, and Togo. Major river flowing through Burkina Faso is **Black Volta, Red Volta and White Volta**.
10	**Mexico**	**Mexico's Supreme Court** ruled that state **laws prohibiting abortion are unconstitutional** and violate women's rights. It is a country in the southern portion of North America. It shares its land border with United States, Guatemala and Belize and maritime boundary with the Pacific Ocean, Gulf of Mexico and Caribbean Sea.



01	**Trinidad and Tobago**	It is the southernmost island country in the **Caribbean**. It shares maritime boundaries with Barbados, Grenada, Saint Vincent, Grenadines and Venezuela. It is generally considered to be part of the West Indies. The island country's **capital is Port of Spain**.
02	**Mont Blanc**	New research has revealed that Mont Blanc has witnessed a reduction in its height over the past two years. It is the **highest peak (4,807 metres**) in Europe. It is located in the Alps and lies along the French-Italian border and reaches into Switzerland. It is nicknamed as **"the roof of Europe".**
03	**Mount Vesuvius**	Researchers used **an AI program** to read from an ancient scroll that was burned by eruption of **Mount Vesuvius**. It is an **active volcano** that rises above the Bay of Naples on the plain of Campania in southern Italy.
04	**Serbia**	It is a **land-locked country** in the west-central Balkans. It shares **its border with Bosnia and Herzegovina, Croatia, Hungary, Romania, Bulgaria, North Macedonia, Montenegro and Albania.** The main rivers passing through this country are **Danube, Tisa, Morava.**
05	**Gaza Strip**	It is a Palestinian exclave on the eastern coast of the Mediterranean Sea, bordered by Egypt and Israel. Israeli territory separates the territories of Gaza and the West Bank from each other.
06	**Grand Ethiopian Renaissance Dam**	Ethiopia recently announced that it has filled its Grand Ethiopian Renaissance Dam (GERD) on the **blue nile River**. It is formerly known as the **Millennium Dam** and sometimes referred to as **Hidase Dam**. It is situated in the Benishangul-Gumuz region of Ethiopia, near the border with Sudan.
07	**Zambia**	It is a landlocked country in south-central Africa. It shares its borders with Angola, Democratic Republic of the Congo, Malawi, Mozambique, Namibia, Tanzania, Zimbabwe and Botswana. Kafue River which is a tributary of **Zambezi river** is a longest river in Zambia.

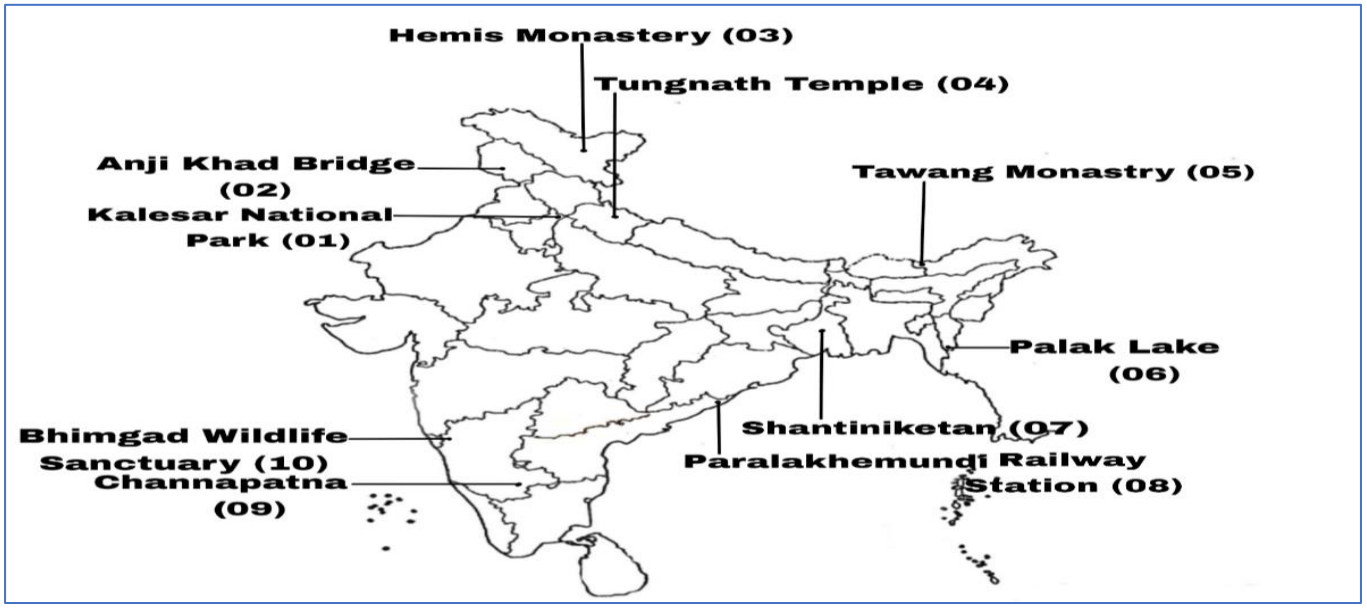
08	**Catalonia**	Mass protests were organised in Barcelona against possible amnesty for Catalan separatists. **Catalonia is an autonomous region** in the northeastern Spain. Most of its territory lies in the northeast of Iberian Peninsula. It is administratively divided into 4 provinces: **Barcelona, Girona, Lleida, Tarragona. Its capital city is Barcelona**.
09	**Atlas Mountains**	The epicentre of the recent devastating earthquake in Morocco was in the High Atlas Mountains. These are a prominent mountain range in North Africa, primarily located in Morocco. These are part of the Atlas Mountain Range, which stretches across Morocco, Algeria, and Tunisia.
10	**Deception Island**	NASA recently posted a birds-eye-view picture of **Deception island**. It is part of a line of islands called the **South Shetland Islands, lying northwest of the Antarctic Peninsula**. It is an active volcano.



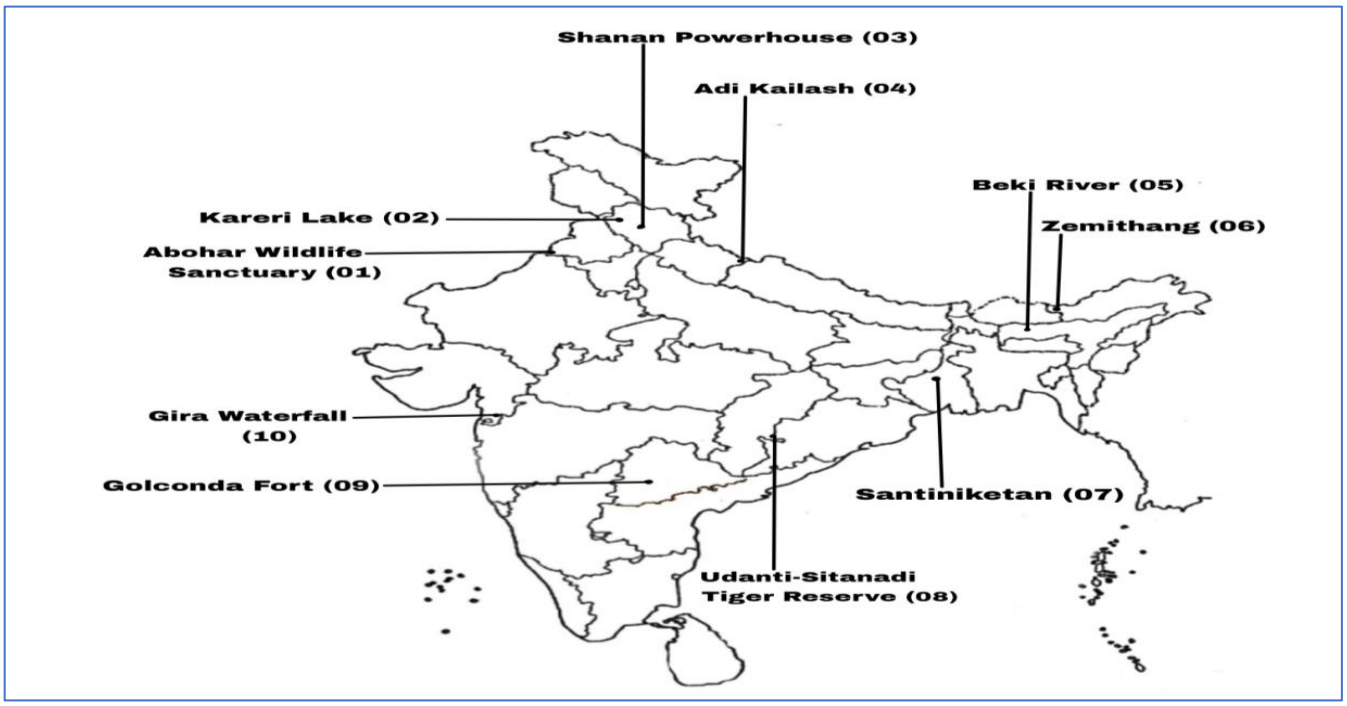
1	**Rafah Border Crossing**	Egypt agreed to receive wounded Palestinians from Gaza from its **Rafah** border crossing. The Rafah Crossing is the southernmost exit point from the Gaza Strip and shares a border with Egypt's Sinai Peninsula. Presently both **Erez and Kerem Shalom** border crossings, controlled by Israel, are closed.
2	**Seattle (USA)**	India is set to open its sixth consulate in Seattle (apart from Consulates in**Atlanta, Chicago, Houston, New York City and San Francisco**), a major hubfor technology companies such as Microsoft, Amazon and Boeing.
3	**Mount Celia Gold Operation (Western Australia)**	National Mineral Development Council (NMDC) has expanded its mineral portfolio by inaugurating the Mount Celia (located 180km northeast of **Kalgoorlie**) Gold Operation in Western Australia. Kalgoorlie isfamous for its rich gold mining history. The "**Golden Mile,"** a vast stretch of gold-bearing land, is located in the Kalgoorlie-Boulder area, making it one of the most productive gold mining regions in the world
4	**Zanjibar Island**	IIT Madras has become the first Indian Institute of Technology to establishan international campus on the picturesque Zanzibar Island in East Africa.
5	**Kawah Ijen CraterLake**	The Copernicus Sentinel-2 mission, which provides optical images of Earth'ssurface, recently captured stunning images of Kawah Ijen Crater Lake. It's the **world's largest acidic lake.** It is located in the crater of the Kawah Ijen volcano (centre of East Java,Indonesia).The lake has been included in UNESCO's World Biosphere Reserves.

6	**Kamchatka, Russia**	Klyuchevskaya Sopka, recently erupted on the **Kamchatka Peninsula** inRussia. Klyuchevskaya Sopka is a stratovolcano, the highest mountain in Siberia,and the highest active volcano in Eurasia.
7	**Horn of Africa**	Horn of Africa faced deadly floods due to El Nino-linked 'above average' rains. It covers countries like **Somalia, Ethiopia, Eritrea and Djibouti**. It is Located in northeast Africa along the southern boundary of the RedSea. It is located along the south of the Gulf of Aden. The Horn of Africa is a UNESCO Biodiversity Hotspot and one of the twoentirely arid ones.
8	**Malawi**	Malawi is battling an outbreak of **scabies**. Scabies is a **skin disease** caused by a **parasite** named Sarcoptes scabie whichis a tiny insect about 0.3 mm long called a mite. The female parasite burrows under the skin.
9	**Ogasawara islandchain**	A new island has now emerged within the vicinity of **Japan's Ogasawara island** chain, after the eruption of an underwater volcano in late October2023. This remarkable event offers an intriguing insight into the Earth's dynamic and ever-changing geological processes.
10	**Ben-Gurion Canal**	The Ben Gurion Canal Project is a proposed **canal project** through the stateof **Israel**. It would connect the Gulf of Aqaba to the Mediterranean Sea. David Ben Gurion, for whom it would be named, is considered the FoundingFather of Israel and was the first Prime Minister of Israel.
11	**Mount Etna**	Mount Etna, Europe's most active volcano, lights up the night sky with eruptions as seen from Mount Salto Del Cane, **Italy** November 12, 2023. Mount Etna is Europe's most active volcano and one of the largest in theworld.
12	**Somalia**	Somalia was heavily flooded due to heavy rain after historic drought. Around 1.6 million people in Somalia could be affected by the heavy seasonal downpours, which have been worsened by the combined impactof two climate phenomenons, El Niño and the Indian Ocean dipole.
13	**Reykjanes peninsula**	A state of emergency has been declared in **Iceland**, after a series of powerful earthquakes that rocked the island country's southwesternReykjanes peninsula. Iceland is located on the Mid-Atlantic Ridge, between the Eurasian and theNorth American tectonic plates.
14	**Vanuatu Islands**	A Magnitude 6.7 Earthquake Jolted the Vanuatu Islands Near Australia recently. Vanuatu, is an island country in the southwestern Pacific Ocean.The Lapita sites became Vanuatu's first UNESCO World Heritage Site in 2008.
15	**Palau**	The United States has signed a new agreement with Palau, which gives American ships the authorisation to unilaterally enforce maritime regulations

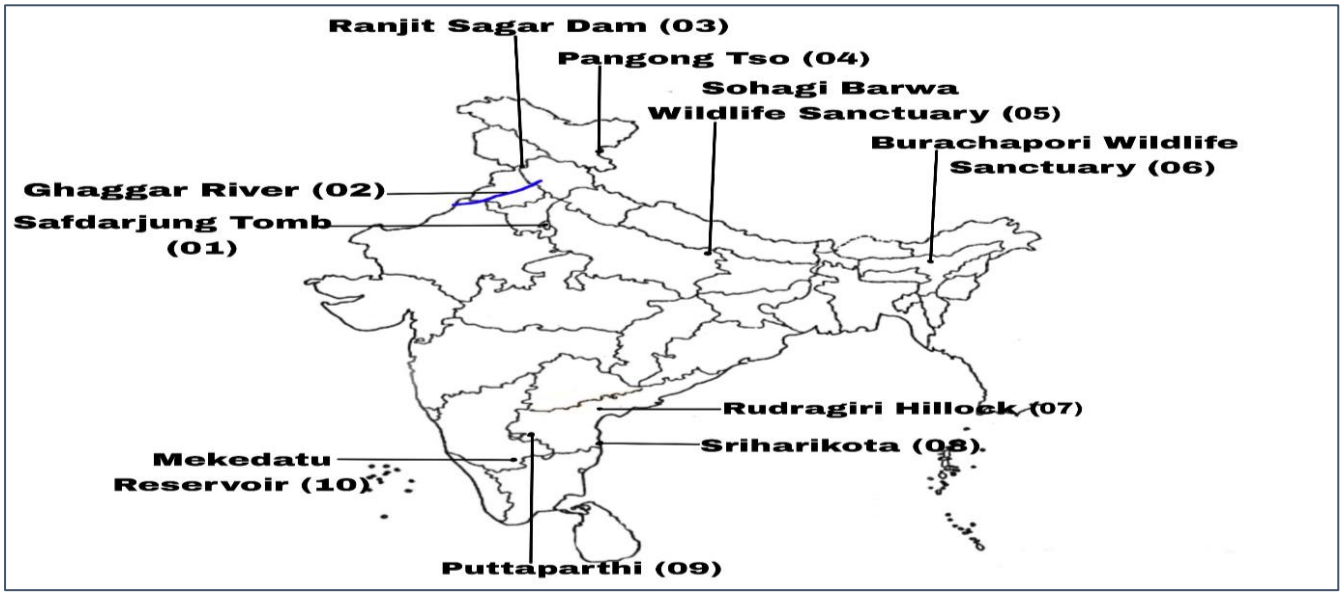
National Places In News



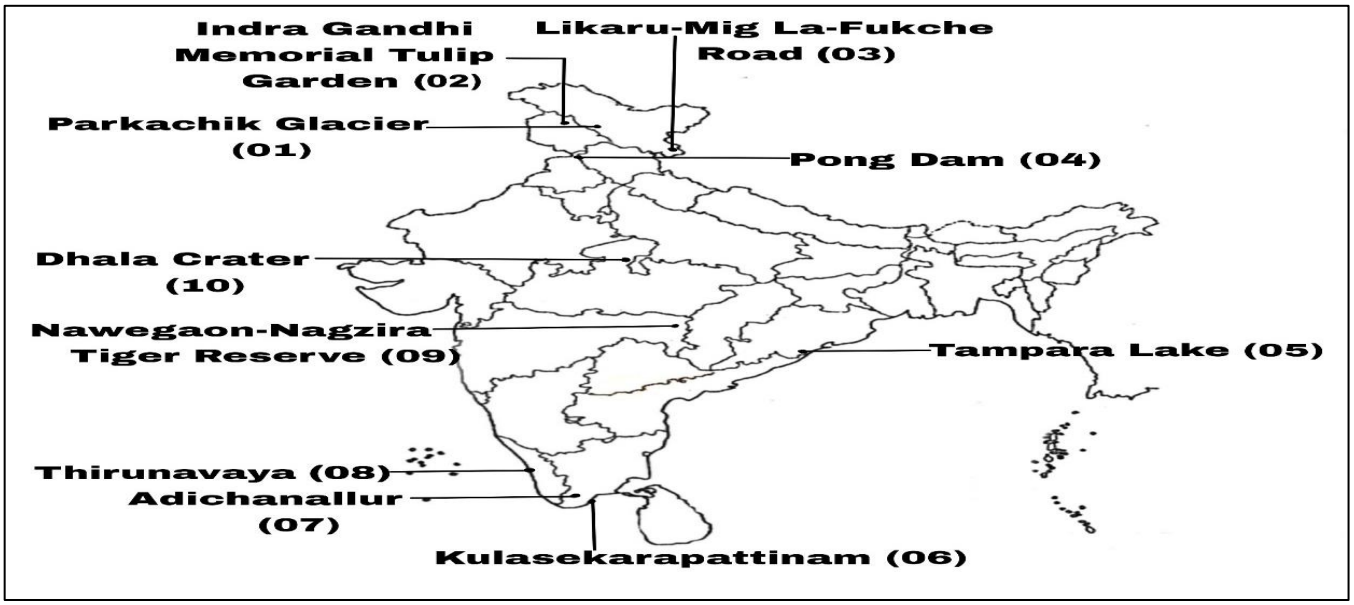
01	**Kalesar National Park**	Haryana forest department has launched efforts to trace pug marks of a tiger that was caught in a camera trap at Kalesar National Park. It is situated in the foot hills of **Shiwalik ranges** in Haryana. It is adjacent to **Simbalbara National Park** in the Himachal.
02	**Anji Khad Bridge**	All 96 cables on the Anji Khad bridge, have been fully installed. It is an under-construction rail bridge in **Jammu & Kashmir**. It connects Katra and Reasi. It is constructed over the **Anji River**, a tributary of the **Chenab River**. It will be the first cable-stayed railway bridge in the country.
03	**Hemis Monastery**	Delegates of G20 visited the Hemis Monastery. It is a **Buddhist monastery** located in Leh City. It belongs to the Drukpa lineage of Buddhism.
04	**Tungnath Temple**	The central government issued a notification declaring the temple of Tungnath as a monument of national importance. It is located in **Rudraprayag, Uttarakhand**. It is the highest Shiva temple in the world. It is the third of the five Panchkedars of Uttarakhand. The temple is believed to have been built by **Adi Shankaracharya**
05	**Tawang Monastery**	It is located in Arunachal Pradesh. It is the largest monastery in India and the 2nd largest in the world after the **Potala Palace in Lhasa, Tibet**. It belongs to the **Gelug school of Mahayana Buddhism**. Torgya is the famous festival celebrated in Monastery.
06	**Palak Lake**	As part of the mass mobilization of public participation in the Lifestyle for the Environment (LiFE), a Nature walk was organized along the **Palak Lake**. It is the largest and biggest lake in **Mizoram**. The lake is a major component of the Palak Wildlife Sanctuary.
08	**Paralakhemundi railway station**	The Indian Railways has embarked on a project to renovate the historic Paralakhemundi railway station. It holds significant historical value as one of India's oldest stations and the 1st in Odisha. It was conceptualized by **Maharaja Goura Chandra Gajapati Narayan Deo II.**
09	**Channapatna**	It is a city in Karnataka. The city is known for its **wooden toys**. The origin of these toys is believed to date back to the reign of Tipu Sultan, who invited artisans from Persia to train local artisans. These toys have been given the **Geographical Indication tag.**
10	**Bhimgad Wildlife Sanctuary**	Two forest guards have been suspended for failing to prevent encroachment in the Bhimgad Wildlife Sanctuary. It is located in the **Western Ghats, Karnataka**. It was declared as a wildlife sanctuary in 2011. It forms the headwaters of a number of rivers like **Tillari, Malaprabha and Mhadei**.



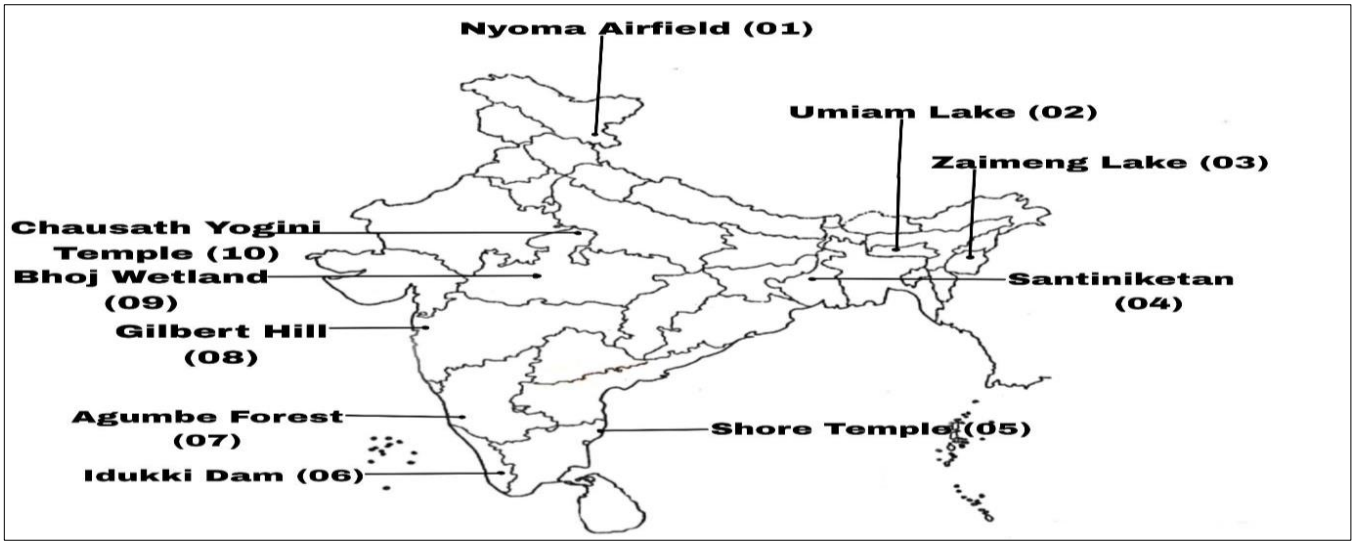
01	**Abohar wildlife sanctuary**	A blackbuck census by the Wildlife Institute of India stated that the blackbucks 'are on the verge of extinction in Punjab. It is located in the state of **Punjab**. The entire area of **Sanctuary is private or community-owned land of 13 Bishnoi villages**.
02	**Kareri Lake**	Police rescues 39 tourists stranded near **Kareri Lake**. It is a high altitude, shallow, fresh water lake in **Himachal Pradesh**. It remains frozen from early December to March–April. Snow melting from the Dhauladhar range serves as the source of the lake and a stream, Nyund is the outflow.
03	**Shanan Powerhouse**	Himachal Pradesh Chief Minister handed over legal documents regarding Shanan Powerhouse to the Union Power Ministry. It is located in the **Mandi district, Himachal Pradesh**. It is a 110 MW project commissioned in 1932. It was constructed against the backdrop of dense deodar forests.
04	**Adi Kailash**	It is considered to be one of the five Kailash mountains and is believed to be the abode of Lord Shiva. It is located in the **Pithoragarh, Uttarakhand**. It is situated among the Kumaon **Himalayan mountain range**
05	**Beki River**	The water level of the Beki River is flowing above the danger level mark at several places across Assam. It originates in Bhutan, and is **known as Kurissu River in Bhutan**. It is one of the right bank tributaries of the Brahmaputra River. It flows through the Manas National Park.
06	**Zemithang**	A major Buddhist Conference was hosted in Zemithang, Arunachal Pradesh. The village of Zemithang, is located in the Tawang district and is home to the **Pangchenpa people**, who are known as "**people who gave up sin**". It is bordering Bhutan and Tibet. It is located on the bank of the Nyamjang Chu river, which originates in Tibet
08	**Udanti Sitanadi Tiger Reserve**	A team of forest personnel were attacked and injured when they arrived to clear encroachments inside the Udanti Sitanadi tiger reserve **(Chattisgarh) The Udanti and Sitanadi Rivers** flow through the Reserve. There is few perennial springs including the famous Deodhara and Godene falls
09	**Golconda Fort**	The Ministry of Culture celebrated the Telangana Formation Day at Golconda Fort. It is located in the Hyderabad, Telangana. It was originally known as **Mankal**. It was originally a mud fort under the reign of Rajah of Warangal. Later it was fortified between 14th and 17th centuries by the Bahmani Sultans and then the ruling **Qutub Shahi dynasty**. Golconda was the principal capital of the Qutub Shahi kings.
10	**Gira Waterfall**	Around 19 people were recently injured after being stung by honeybees near Gira Waterfall. It is a seasonal waterfall located in Gujarat. It is a 75 ft fall that emerges from the Kapri Tributary and drops into the **Ambika River**.



01	**Safdarjung Tomb New Delhi**	The Archaeological Survey of India is set to finish conservation and restoration work on the central dome of Safdarjung Tomb soon. It is the last garden tomb constructed in the late Mughal Empire Style. It was built in 1753- 54 as mausoleum of Safdarjung, the viceroy of Awadh under the Mughal Emperor, **Mohammed Shah**. It was built by his son, Nawab **Shuja ud Daula.**
02	**Ghaggar River**	The Ghaggar River caused havoc in the region after a breach in their embankments. It Originates from Himachal Pradesh in the Shivalik hills. Its tributaries are **Kaushalya, Tangri, Markanda, Beghna, Sarsuti, Chautang and Sukhna rivers**. It flows south through the Himachal Pradesh, Haryana and Rajasthan, eventually entering Pakistan where it dries out before reaching the Arabian Sea.
03	**Ranjit Sagar Dam**	The Ranjit Sagar Dam project has achieved a new record of 153.97 lakh units in single-day power generation from its four units. It is also known as **the Thein Dam**, is a major water reservoir and hydroelectric power project located on the **Ravi River** in the Punjab
04	**Pangong Tso**	It is an **endorheic (landlocked**) lake situated in the **Ladakh Himalayas**. It is the world's highest saltwater lake. One-third of the Pangong Lake lies in India and the other two-thirds in China. India holds one-third of the boomerang-shaped Pangong lake. It is also known to change colours, appearing blue, green, and red at different times.
05	**Sohagi Barwa Wildlife Sanctuary**	A leopard was found dead in the Sohagi Barwa Wildlife Sanctuary, in the **Maharajganj, Uttar Prades**h. On the northern side, it shares boundary with Nepal, and on the eastern border is *Bihar's Valmiki Tiger Reserve*. It is drained by the great Gandak, the little Gandak, Pyas and Rohin rivers.
06	**Burachapori Wildlife Sanctuary**	Several people injured over clash between forest team and illegal encroachers at Bura Chapori Wildlife Sanctuary. It is located on the **southern bank of river Brahmaputra in the Sonitpur, Assam**. It is a part of the Laokhowa-Burachapori eco-system. It comprises of a mosaic of wet alluvial grassland, riparian and semi-evergreen forests dotted by wetland and river systems.
07	**Rudragiri hillock**	A fascinating combination of prehistoric rock paintings from the Mesolithic period and exquisite artwork from the Kakatiya dynasty were discovered in the Rudragiri hillock. Rudragiri hillock, nestled amidst the Eastern Ghats. It is located in **Guntur, Andhra Pradesh**. This site unveils a combination of prehistoric rock paintings from the **Mesolithic** period around 5000 B.C.
08	**Sriharikota**	The Chandrayaan-3 spaceship lifted off from the launchpad at the Satish Dhawan Space Centre, Sriharikota. It is a barrier island in the Tirupati, Andhra Pradesh. It supports the launch-based infrastructure for ISRO and is chosen as an ideal site for the launch of geostationary satellites because of its proximity to the equator.
09	**Puttaparthi**	Prime Minister of India virtually inaugurated the **Sai Hira Global Convention Centre** in Puttaparthi. It is located on the banks of ***Chitravathi River*** which is a tributary of Penna River in **Andhra Pradesh**. It is widely known for the birthplace of the Indian spiritual leader and *guru* ***Sathya Sai Baba*** and his ashram, Prasanthi Nilayam.
10	**Mekedatu Reservoir**	The Karnataka Assembly has unanimously adopted a resolution requesting clearance for the Mekedatu drinking water and balancing reservoir project. This project aims to create a balancing reservoir on the Cauvery River in Karnataka

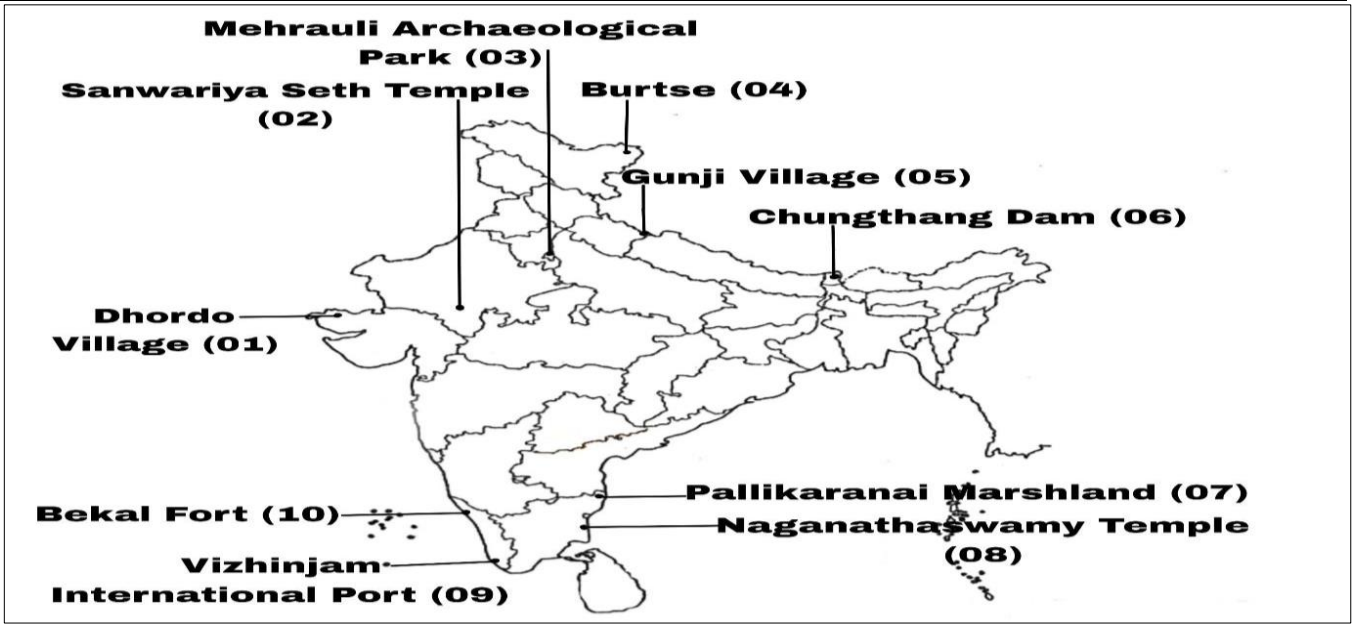


01	**Parkachik Glacier**	A study has shed light on the formation of glacial lakes around Parkachik Glacier. It is a mountain glacier in **Kargil, Ladakh**. This ice mass falls into the Suru River. The Suru River valley is a part of the southern **Zanskar Ranges** in the western Himalayas.
02	**Indira Gandhi Memorial Tulip Garden**	It entered the World Book of Records (London) as Asia's largest such park. It is located **Srinagar, Jammu and Kashmir**. It is spread over an area of about 30 hectares. It is situated on the foothills of the **Zabarwan Range** with an overview of Dal Lake.
03	**Likaru-Mig La-Fukche road**	Border Roads Organisation (BRO) started the construction of the Likaru-Mig La-Fukche road close to Hanle in **Eastern Ladakh's Demchok sector**. The road will reach an altitude of about 19,400 feet, surpassing the existing highest motorable road at Umling La in Ladakh.
04	**Pong dam**	It is a manmade reservoir. It was constructed in 1975 on **river Beas** in wetland zone of Shivalik hills of **Kangra, Himachal Pradesh**. In 1983, entire reservoir was declared as Wildlife Sanctuary. It is the highest earth fill dam in India. Pong Dam Lake has been declared as Ramsar Site in 2002.
05	**Tampara Lake**	It is a **fresh water lake** situated on the right bank of the **Rushikulya River**. It has been designated as a protected Ramsar site since 2021.
06	**Kulasekarapattinam**	The Centre has approved the establishment of a new spaceport in Kulasekarapattinam. It is a town in the Thoothukudi (formerly Tuticorin district) of Tamil Nadu. Its name is derived from **pandyan ruler Maravarman Kulasekara Pandyan** I.
07	**Adichanallur**	The Union Finance Minister visited Adichanallur and laid the foundation stone for the **'Iconic Site Museum'** at the Adichanallur site. Adichanalluris an ancient and historical Iron-age burial site located in Thoothukudi, Tamil Nadu. It is set along the banks of the **Tamirabarani (Porunai) river**.
08	**Thirunavaya**	A large number of **megalithic hat stones** were found at Nagaparamba, near Thirunavaya in Malappuram, Kerala. It is situated on the northern bank of Bharathapuzha river and is considered the land of ancient Mamankam
09	**Nawegaon-Nagzira Tiger Reserve**	A young male tiger died in a road hit near Murdoli village in the buffer zone of the Nawegaon-Nagzira Tiger Reserve. It is located in the **Gondia, Maharashtra**.
10	**Dhala crater**	Study suggests that Ureilite meteorite has formed Dhala crater. It is located in Madhya Pradesh, and has recently gained attention as Asia's largest and **the world's seventh-largest impact crater**. About 2500-1700 million years ago, it was formed by the collision of a meteorite called **Urelite**.



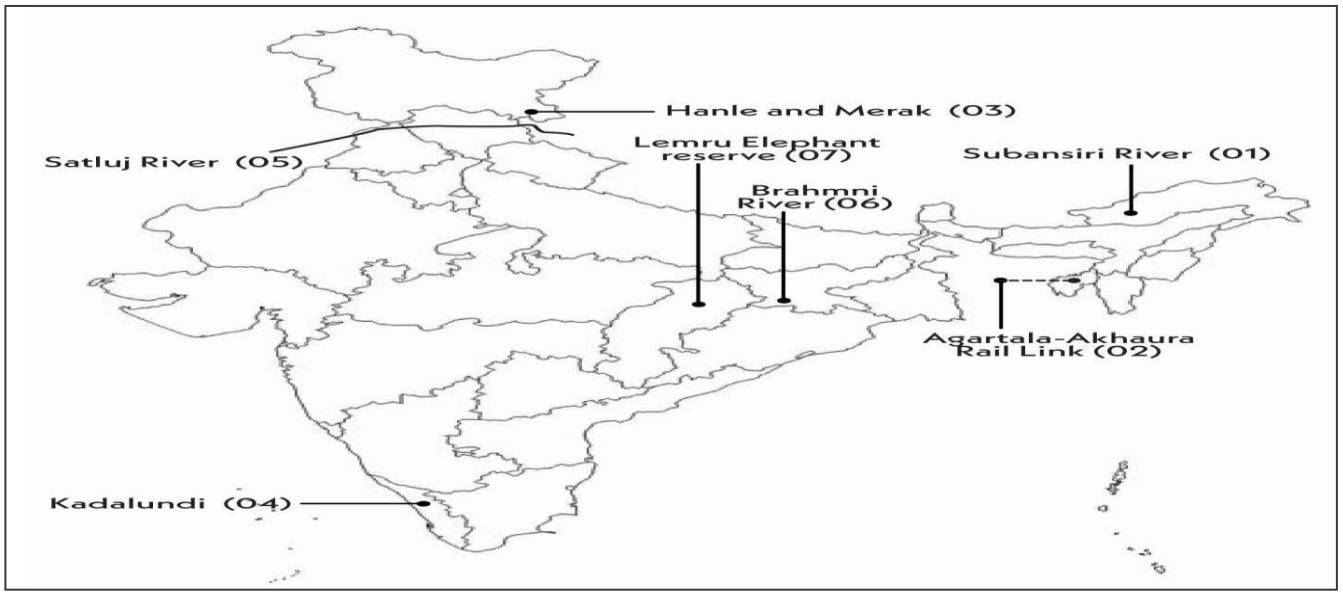
01	**Nyoma airfield**	Minister of Defence has laid foundation stone for **Nyoma airfield in Eastern Ladakh**. Nyoma village is located close to south Bank of Pangong Tso. It hosts an Indian Air Force Base within the Leh district.Border Roads Organisation will construct India's highest fighter airfield in Nyoma.
02	**Umiam Lake**	It is also known as **Barapani Lake**. The Meghalaya government adopted **AI-enabled robotic** technology in Umiam Lake to keep it free of pollutants. It was created by damming the Umiam River in the early 1960s. It is one of the biggest artificial lakes in Meghalaya
03	**Zaimeng Lake**	A team of scientists recorded a new species of salamander the Tylototritonzaimeng in the Zaimeng Lake.It is situated on top of Khongtheng mountain ranges, **Manipur**. The greater part of the lake is basically a marshy mass of thick grass like weeds, mixed with reeds and green mosses.
04	**Santiniketan**	It has been designated as **India's 41st UNESCO World Heritage Site**. It is a renowned cultural and educational hub located in the Birbhum, West Bengal. It started as an ashram (hermitage) founded by Rabindra Nath Tagore's father, Debendranath Tagore in 1901. In 1921, it evolved into a "world university" known as **"Visva Bharati." It was originally called Bhubadanga.**
05	**Shore Temple**	UNESCO World Heritage site, has achieved a significant milestone by becoming India's 1st Green Energy Archaeological Site. It is a historic temple complex located in **Mamallapuram**, Tamil Nadu. It is dedicated to Lord Shiva and Lord Vishnu. It was probably built during the reign of **Narasimhavarman** II, also known as **Rajasimha (Pallava ruler),** who reigned from 700 to 728 CE.
06	**Idukki dam**	Major security breach reported from Idukki dam. It is double-curvature Arch dam constructed across the Periyar River in Kerala. It is the 3rd-highest arch dam in India after the Tehri Dam (Uttarakhand) and **Bhakra Nangal Dam (Himachal Pradesh**).
07	**Agumbe Forest**	The amount of rainfall received in Agumbe has reduced as compared to the other towns in the region. It is located in Shivamogga, Karnataka and referred as **"Cherrapunji of South India**",It is adjacent to the Someshwara Wildlife Sanctuary and the Kudremukh National Park. It is the world's only natural habitat of the King Cobra and referred as **"The Cobra Capital"**
08	**Gilbert Hill**	The Maharashtra Government proposed to develop Gilbert Hill into a tourist spot. It is a monolith column of **black basalt rock** in Maharashtra, Mumbai. It was formed when molten lava was squeezed out of the Earth's clefts during **the Mesozoic Era about 66 million years** ago. It was declared a **National Park in 1952 under the Forest Act**. The 'hill' is one of just three volcanic rock outcrops (visible exposures of bedrock or other geologic formations at the surface of the Earth) on the planet
09	**Bhoj wetland**	The National Green Tribunal (NGT) ordered the Madhya Pradesh government to stop the operation of cruise vessels in the **Bhoj wetland**. It consists of two contiguous human-made

		reservoirs, the upper and lower lakes, located in the city of Bhopal. It was designated as the Ramsar site in 2002.
10	**Chausath Yogini temple**	It is believed that the design of the **old Parliament building** was inspired from Chausath Yogini temple. It is located in **mitaoli village in Madhya Pradesh**. The temple is circular, with 64 chambers dedicated to the 64 yoginis, and a central shrine dedicated to Shiva. It was built around 1323 by King Devapala of the Kachchhapaghatadynasty. It is hypaethral, which means it has no roof and no shikharas.



01	**Dhordo village**	Dhordo has been conferred the prestigious title of the **Best Tourism Village** by the United Nations **World Tourism Organisation (UNWTO**). It is located in the Kutch district of Gujarat, also the same village where Rann Utsav was launched back in 2005.
02	**Sanwariya Seth Temple**	The Prime Minister offered prayers at the Sanwariya Seth Temple in **Chittorgarh, Rajasthan**. It is a Hindu temple dedicated to Lord Krishna. It was built in 1840 A.D. The temple follows the traditional architecture of Rajasthan, known for its intricate carvings and vibrant colors.
03	**Mehrauli Archaeological Park**	A revamped **Mehrauli Archaeological Park** was unveiled to the public recently. It is located in Delhi, spread over 200 acres and is adjacent to Qutub Minar. It is home to 55 historic structures built by various empires, including the **Khaljis, Tughlaqs, Lodhis, Mughals**.
04	**Burtse**	Coral reef fossils have been unearthed at 18,000 feet above sea level at **Burtse, Ladakh**. It is located in eastern Ladakh Himalayas, east of Daulat Beg Oldie sector. A strategic road to Daulat Beg Oldie (DBO) passes through it.
05	**Gunji Village Pithoragarh, Uttarakhand**	The Prime Minister 's recent visit to Gunji has triggered an uproar in Nepal. It is situated near the borders of Tibet and Nepal and the confluence of the **Kuthi Yankti and Kalapani Rivers**. The village is on the traditional Indian/Nepalese route to Kailas–Manasarovar. To visit Gunji, one has to obtain **an Inner Line permit.**
06	**Chungthang Dam**	Chungthang Hydro-Dam was washed away by flooding of the **Teesta River**. It is a dam and hydroelectric power station located in **Chungthang, a town in Sikkim**.It is a major source of electricity for Sikkim and West Bengal.
07	**Pallikaranai marshland**	Despite threats of new infrastructure and encroachments, winged visitors continue to arrive at the Pallikaranai marshland. It is a **freshwater marsh** and partly saline wetland situated in Chennai, Tamil Nadu. It is one of the Ramsar sites from India.

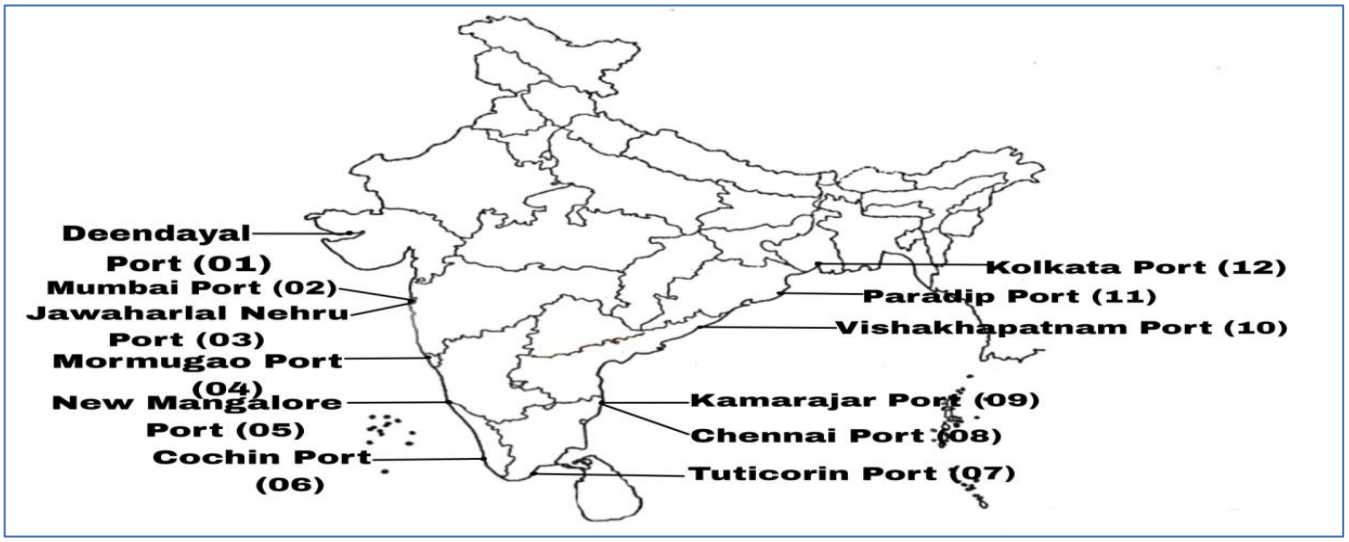
08	**Naganathaswamy Temple**	The Tamil Nadu Department of Archaeology is set to take up restoration of the 1,000-year-old Naganathaswamy Temple at **Manambadi in Thanjavur**. It was built by **Rajendra Chola I. It is referred as Kailasamudaiyar temple in inscriptions**. It consists of an ekatala vimana and a mukhamandapa.
09	**Vizhinjam International Seaport**	It is located at Vizhinjam, Kerala.It will be country's **first Deepwater container transhipment** terminal. It is being built on a public-private-partnership (PPP) mode set to be completed in 2024.
10	**Bekal Fort**	The **first public sector caravan park in Kerala** to come up at Bekal fort. It is exquisitely designed and built with dark maroon laterite stones. Originally constructed by the rulers of the ancient Kadampa Dynasty in 17th century, the Fort changed hands over the years to the Kolathiri Rajas, the Vijayanagara Empire, **Tipu Sultan** and finally, the British East India Company. The most prominent structure inside the fort is the observation tower built by Tipu Sultan.



1	**Subansiri Lower Hydroelectric Project**	It is India's largest hydel project under construction. Subansiri (518km) (also called "**Gold River**") is a trans-Himalayan River andthe largest tributary of the Upper **Brahmaputra River**. It flows into India through the Miri Hills of Arunachal Pradesh.
2	**The Agartala-Akhaura**	It is a railway link established between Bangladesh and India. It serves to re-establish connectivity between Bangladesh and India's northeast through Tripura.
3	**Hanle and Merak (Ladakh)**	The Hanle and Merak observatories in **Ladakh**, which capture photographs ofthe night sky, spotted red aurora (a phenomenon uncommon in India). Hanle is an ideal place to observe the phenomenon as it is India's only dark sky reserve. **Aurora** are formed when charged particles from the sun, mainly electrons and protons, interact with the Earth's magnetosphere and atmosphere Northern lights (Aurora borealis) and southern lights (Aurora australis) are themain auroras.
4	**KadaluniMudflats**	Researchers have identified that Shrinking mudflat ecosystem of Kerala's Kadalundi keeps shorebirds away. Today, the expanse of mudflats in the estuary of the Kadalundipuzha river hasreduced to just about 1 hectare.

5	**River Satluj**	Recently, a team of researchers from the Indian Institute of Technology (IIT),Ropar, found the presence of tantalum, a rare metal, in the Sutlej river sand in Punjab. **Tantalum**: It is a rare metal with the atomic number 73—the number of protons found inone atom of the element. It's grey, heavy, very hard, and possesses high corrosion resistance because, when exposed to air, it formsan oxide layer that is extremely difficult to remove, even when it interacts with strong and hot acid environments.
6	**River Brahmni**	It is a major inter-state east-flowing river amongst the peninsular rivers inIndia. The river is known **as Dhamra in its lower reaches**. The Brahmani River basin is bounded in the north by the **Chhotanagpur plateau**, in the west and south by the Mahanadi basin, and in the east by **theBay of Bengal**.
7	**Lemru Elephant reserve**	The Union coal ministry recently said that Coal India Limited's (CIL) 40 coal blocks in and around the Lemru Elephant Corridor (LEC) will not be auctionedon the request of the **Chhattisgarh government**.

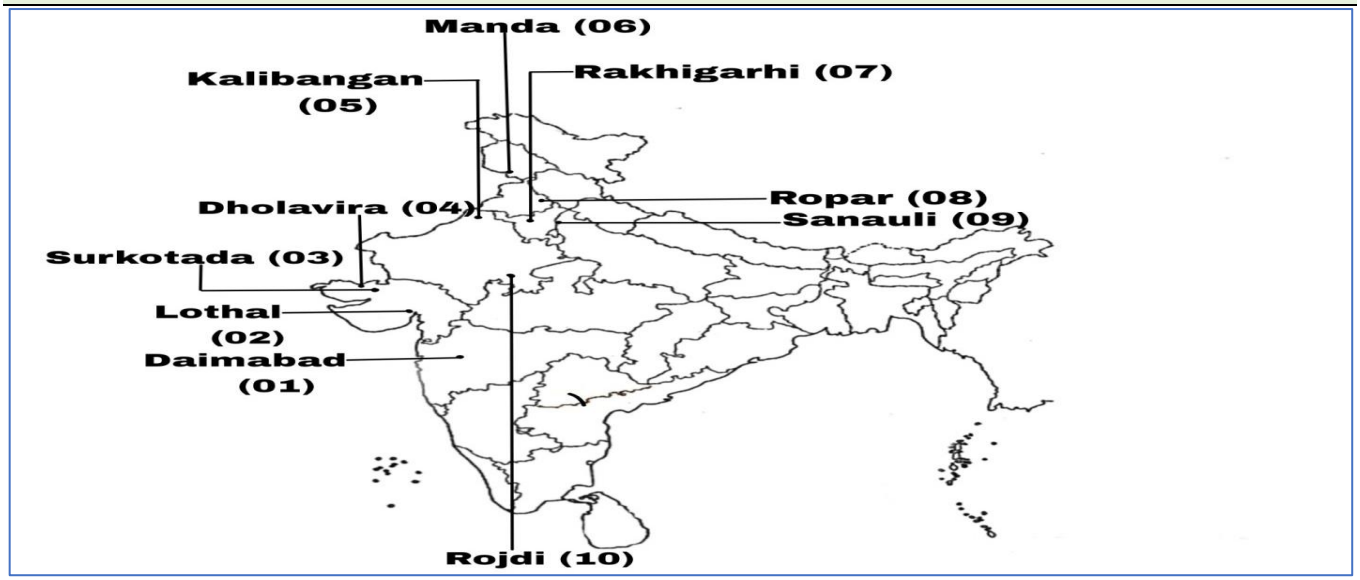
Major Ports In India



01	**Deendayal Port**	It is also known as kandla port. It is a sea port situated in the Kandla Creek and is 90 kms from the mouth of the Gulf Of Kachch in Gujarat. It is a protected natural harbour. It is **hub for major imports like petroleum, chemicals and iron**
02	**Mumbai Port**	It is centrally located on the west coast in **Maharashtra**. The port is mainly used for bulk cargo. It was used by the Maratha Navy, as well as the British and Portuguese colonial navies.
03	**Jawaharlal Nehru Port**	It is also known as **Nhava Sheva Port**. It is the 2nd largest container port in India after Mundra Port (Gujarat). It is situated on the eastern shore of the Arabian Sea in Maharashtra. The port is the terminal of Western Dedicated Freight Corridor.
04	**Mormugao Port**	It is located on the coast of Goa, in the southern part of the mouth of the **Zuari River**. This. During World War II, it was the site of Operation Creek, which resulted in the bombing of a German merchant ship.
05	**New Mangalore Port**	It is a small water all-weather port located on the Western Seacoast of Arabian Sea in Karnataka. It is the deepest inner harbour on the west coast. It is the only major port of Karnataka and the seventh largest port in India.
06	**Cochin Port**	It is a major port on the **Arabian Sea in Kochi, Kerala**. It is the first transshipment port in India. The International Container Transshipment Terminal (ICTT), part of the Cochin Port,

		is the largest container transshipment facility in India. The port lies on two islands in the Lake of Kochi: **Willingdon Island and Vallarpadam**
07	**Tuticorin Port**	It is located in **Tuticorin, Tamil Nadu**. At present it is known as the V.O.Chidambaranar Port. It is an artificial port. With its massive size, it takes **the 2nd place in the list of the largest ports in India**. It is located in the Gulf of Mannar and has SriLanka on the South East along with India on the west.
08	**Chennai Port**	It is an artificial and all-weather port with wet docks. Located in Chennai, Tamil Nadu. It was formerly known as **Madras Port,** is the second-largest container port of India, behind Mumbai's Nhava Sheva (JNPT).
09	**Kamarajar Port**	It is located on the **Coromandel Coast** about 24 km north of Chennai, Tamil Nadu. It is the only corporatized major port in India and is registered as a company. The port was declared as a major port under the Indian Ports Act, 1908 in March 1999.
10	**Visakhapatnam Port**	It is the only major port in Andhra Pradesh. It is the third largest state-owned port in India by cargo volume and the largest on the east coast. It is situated between the ports of Chennai and Kolkata in the Bay of Bengal.
11	**Paradip Port**	It is a natural, deep-water port on the East coast in Jagatsinghpur district of Odisha. It is situated at confluence of the **Mahanadi river** and the Bay of Bengal. It was commissioned in 1966 as a mono commodity port for export of iron ore.
12	**Kolkata Port**	It is officially known as **Syama Prasad Mookerjee Port**. It is the only riverine major port of India, located in Kolkata, West Bengal. It is the oldest operating port in India and was constructed by the British East India Company in 1870.

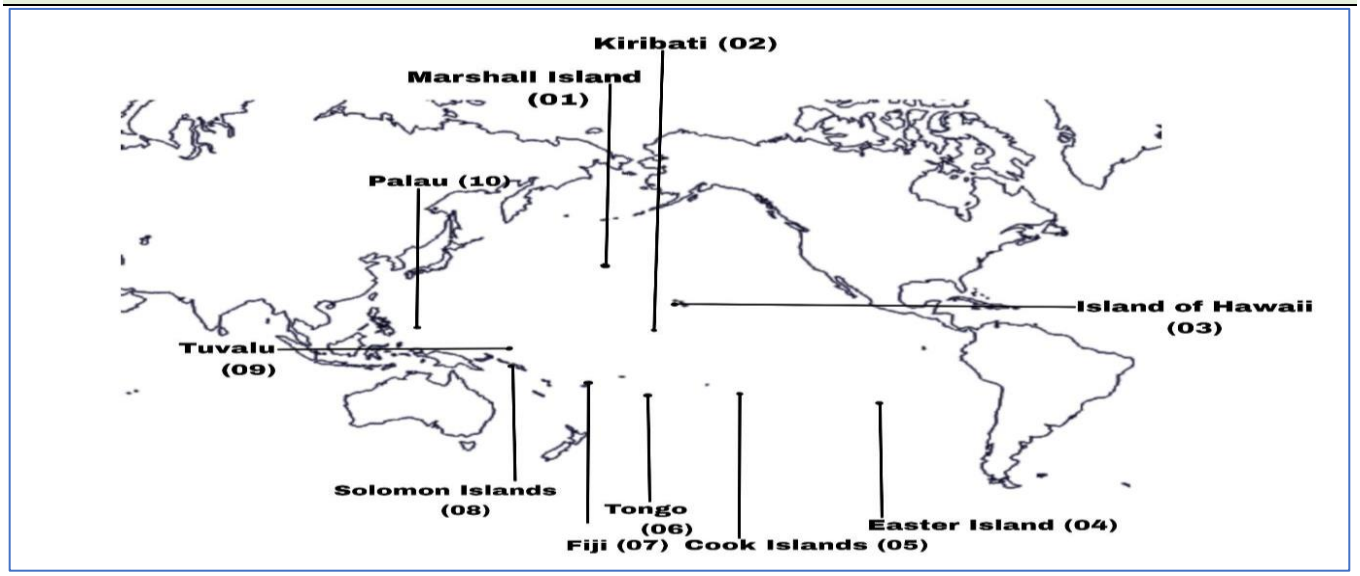
List of Indus Valley Civilization (IVC) Sites In India



01	**Daimabad**	It is a **Chalcolithic or copper age site**. It is located on the left bank of the Pravara River, a tributary of the Godavari River in Ahmednagar, Maharashtra. Discoveries at Daimabad suggest that Late Harappan culture extended into the Deccan Plateau in India.
02	**Lothal**	It is one of the southernmost sites of the IVC located in Gujarat. It was a port city along the Bhogava river, a tributary of Sabarmati, in the Gulf of Khambat. It was the only site of IVC with an artificial brick dockyard. It was a major trading center of the IVC. The meaning of Lothal is **"the mound of the dead".**
03	**Surkotada**	It is located in Kutch, Gujarat. It is a tiny village surrounded by a stone fortification wall. Many academics believe the area was strategically important in controlling the Harappans' eastward march from Sind. Horse bones dating from 2000 BCE were discovered at the Surkotada site, which is considered an important discovery.

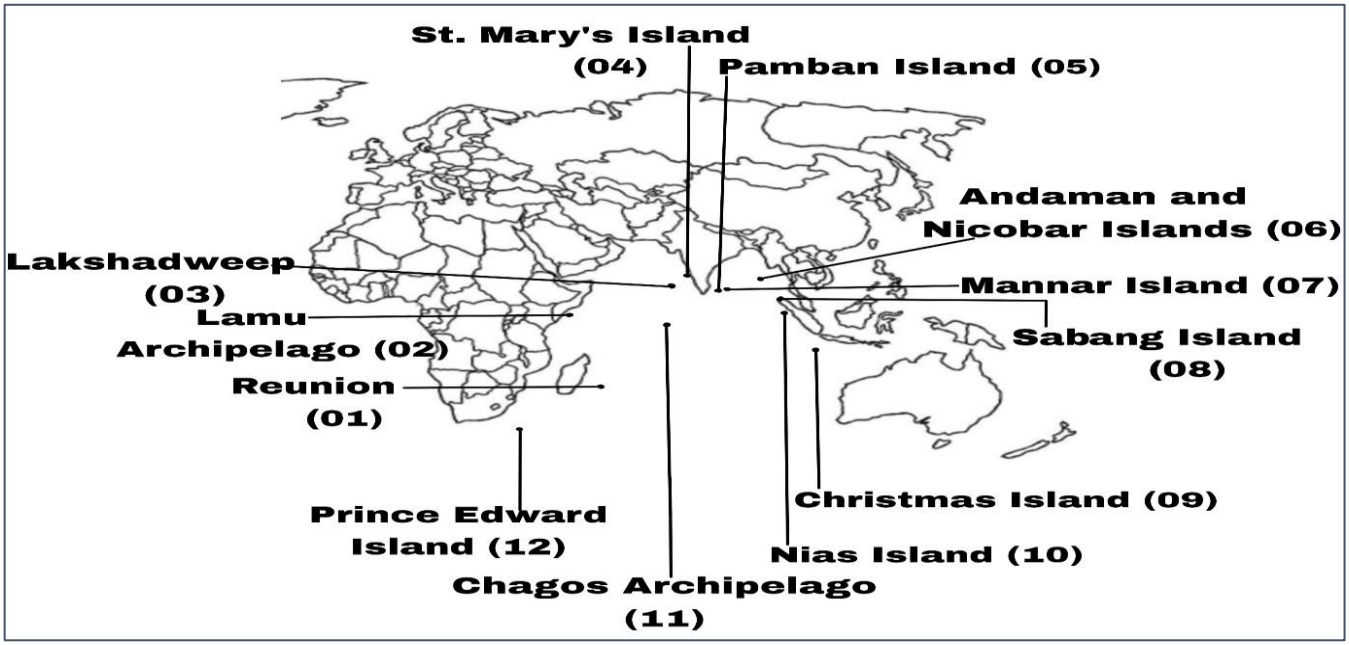
04	**Dholavira**	It is located in **Kachchh, Gujarat**. Its location is on the Tropic of Cancer. It is the first site of the IVC in India to get the UNESCO World Heritage tag. The site includes a large cemetery with cenotaphs of six types testifying to the Harappan's unique view of death. Dholavira has one of the world's earliest water conservation systems ever excavated
05	**Kalibangan**	It is located in **Rajasthan.** It was located on the bank of River Saraswati which dried up by 2000 BC. The most important discovery of Kalibangan is a ploughed field. The discovery of fire altars at Kalibangan reveals that the locals were ritualistic and believed in fire worship. It also provided proof of the world's first documented "Earthquake."
06	**Manda**	It is situated on the **right bank of Chenab** river in the foothills of Pir Panjal range, in Jammu. It is considered the northernmost limit of the Harappan civilisation. It is considered the north-most site (excluding Shortugai) of IVC.
07	**Rakhigarhi**	It is located in **Hisar, Haryana**, in the Ghaggar-Hakra river plain. It is the largest Harappan site in the Indian subcontinent. It is a mature Harappan phase and is represented by a planned township having mud-brick as well as burnt-brick houses with a proper drainage system.
08	**Ropar**	It is located in **Punjab**, on the banks of the Sutlej River. Archaeologists estimate that Harappans lived at Ropar until around 2,000 BC. It was the first Indus Valley Civilisation site excavated in independent India. There is an indication of burying the dog beneath the human grave. A copper axe was discovered.
09	**Sanauli**	It is located in **Baghpat, Uttar Pradesh**, at the Ganga-Yamuna Doab. The archaeologists found antiques such as chariots, a torch, an antenna sword, highly decorated coffins, and helmets.The site was the largest necropolis of the late Harappan period of the early 2nd millennium BCE.
10	**Rojdi**	It is located on the northern bank of the **Bhadar River in Rajkot, Gujarat**. Here houses were built on stone foundation, probably by mud walls as no remains of bricks found, even lacked traces of drainage system.

Islands In Indian Ocean



01	**Marshall Island**	It is an island country near **Kiribati** in the Pacific Ocean, slightly west of the International Date Line and just north of the equator. The capital and largest city of the country is Majuro. The country is part of the larger island group of Micronesia.
02	**Kiribati**	It is a group of 33 islands, of which only 20 are inhabited, are scattered over a vast area of ocean. It is made up of three distinct island groups - **the Gilbert Islands, the Line Islands, and the Phoenix Islands.**
03	**Island of Hawaii**	These are an archipelago of eight major volcanic islands. Mauna Loa is the largest shield volcano on Earth located in this Island.

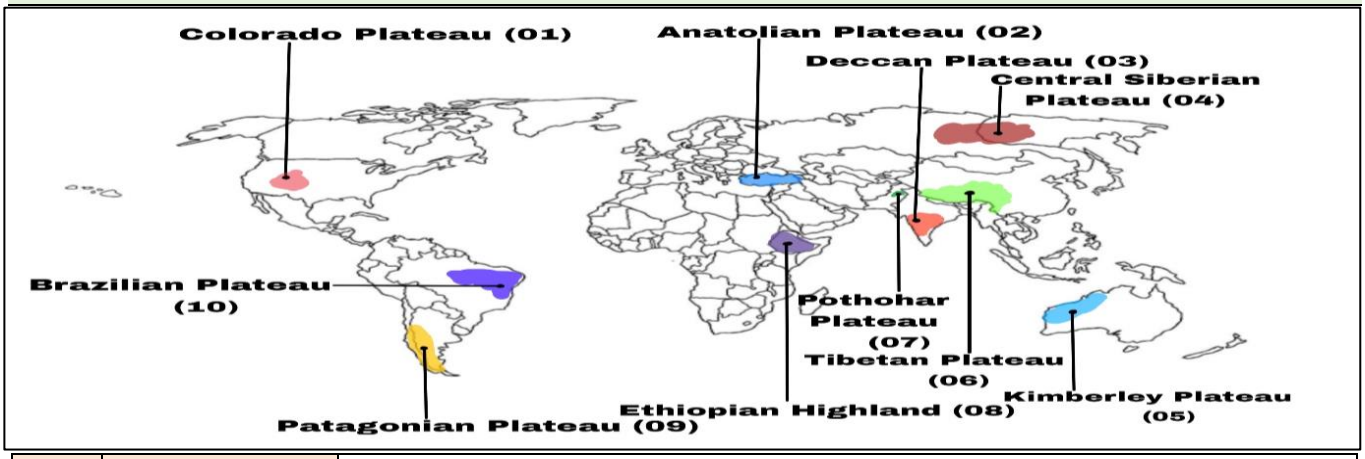
04	**Easter Island**	It is an island and special territory of Chile, at the south-easternmost point of the Polynesian Triangle in Oceania. In 1995, UNESCO named Easter Island a World Heritage Site, with much of the island protected within **Rapa Nui National Park**.
05	**Cook Islands**	It comprises 15 islands. In 1965 the Islands become a self-governing territory in free association with New Zealand.
06	**Tonga**	It is a Polynesian country and also an archipelago consisting of 171 islands of which 45 are inhabited. Tonga is a constitutional monarchy and a member of the British Commonwealth.
07	**Fiji**	It is an island country in Melanesia, part of Oceania in the South Pacific Ocean. The majority of Fiji's islands were formed by volcanic activity.
08	**Solomon Islands**	Solomon Islands, country in the southwestern Pacific Ocean. It consists of a double chain of volcanic islands and coral atolls in Melanesia.
09	**Tuvalu**	It was formerly known as the **Ellice Islands**. It is composed of three reef islands and six atolls. Due to the lack of land above sea level, Tuvalu is often referred to as the first country that will be totally submerged, due to climate change.
10	**Palau**	It is an island country in the Micronesia sub-region of Oceania in the western Pacific. Palau is also best known for unique limestone islands that make up part of the Rock Islands Southern Lagoon, a natural and cultural UNESCO World Heritage Site.



01	**Reunion**	It is an overseas department and region of France in the Indian Ocean. It is located east of the island of Madagascar and southwest of the island of Mauritius. It is an outermost region of the European Union and is part of the eurozone.
02	**Lamu Archipelago**	It is located close to the northern coast of Kenya; to which it belongs.The island lies between the towns of Lamu and Kiunga. The largest town in the archipelago is Lamu Town, on Lamu Island. The town is on the World Heritage List.
03	**Lakshadweep**	It is a tropical archipelago of 36 atolls and coral reefs in the **Laccadive Sea**. But currently, there are 35 islands, as the Parali island submerged in water due to sea erosion. These islands were earlier known as Laccadive, Minicoy, and Amindivi Islands.
04	**St. Mary's Islands**	It also known as **Coconut Island and Thonsepar**, are a set of four small islands in the Arabian Sea off the coast of Malpe in Udipi, Karnataka. They are known for their distinctive geological formation of columnar rhyolitic lava. The monument is considered an important site for "Geo Tourism".

05	**Pamban Island**	It also known as Rameswaram Island, located between peninsular India and Sri Lanka, on the Rama Setu archipelago. It belongs to India and forms the Rameswaram taluk of Tamil Nadu.It is the largest island in Tamil Nadu by area.
06	**Andaman and Nicobar Islands**	It consists of 572 islands, of which 38 are inhabited, at the junction of the Bay of Bengal and the Andaman Sea. It comprises two island groups, the Andaman Islands and the Nicobar Islands, separated by the 150 km wide **Ten Degree Channel**.
07	**Mannar Island**	It lies off the north-western coast of Sri Lanka, is part of Mannar District, Sri Lanka. The island lies at the eastern end of Adam's Bridge.
08	**Sabang Island**	It is a town name on an island north of **Banda Aceh on the northern tip of Sumatra**. The island is best known for its snorkelling and diving. In Indonesia it is known as being the (north) westernmost point of the Indonesian archipelago, known as **'kilometre zero'**.
09	**Christmas Island**	It is an **Australian external territory**. It is located in the Indian Ocean to the south of Java and Sumatra. It is situated at the peak of a basalt volcanic seamount which arose from the ocean floor in the Eocene era about 60 million years ago.
10	**Nias Island**	It is the largest of the islands off Sumatra that are part of North Sumatra province. It is located off the western coast of Sumatra, Indonesia. It is mostly a lowland area rising to around 800 m above sea level.
11	**Chagos Archipelago**	It is a **group of seven atolls** comprising more than 60 islands in the Indian Ocean south of the Maldives. It had been part of Mauritius since the 18th century when the French first settled the islands. All of the islands of French colonial territory in the region were ceded to **the British** in 1810.
12	**Prince Edward Island**	It is an **uninhabited island in the sub-Antarctic Indian Ocean that** are part of South Africa. It has been declared Special Nature Reserves under the South African Environmental Management: Protected Areas Act.

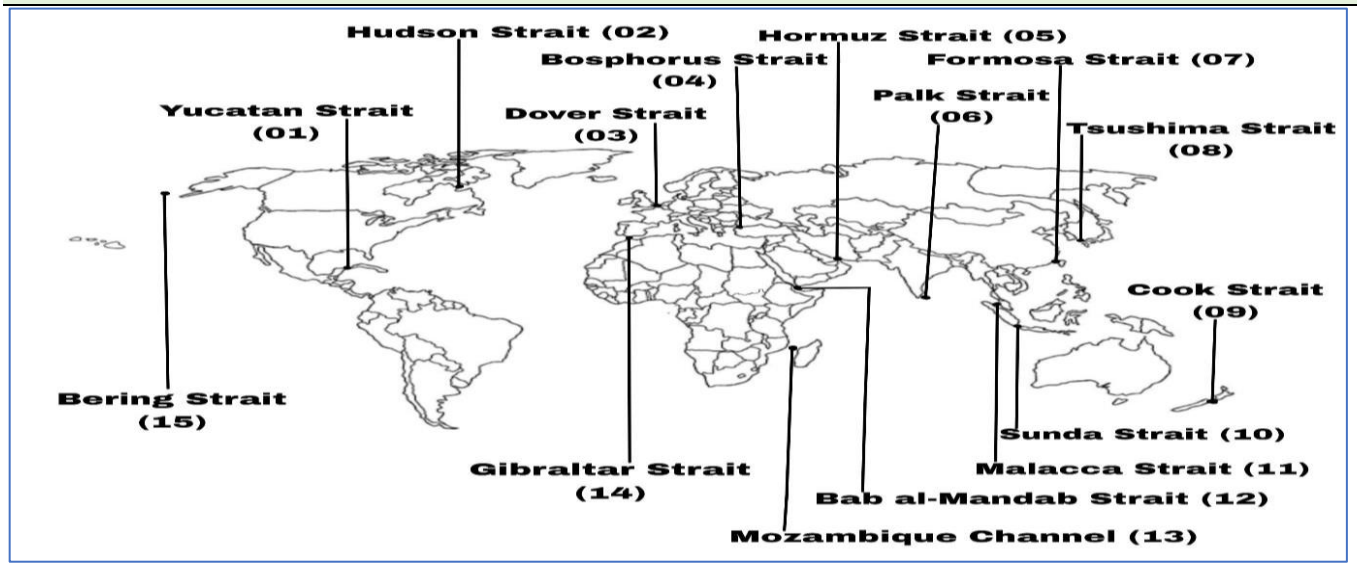
Major Plateau of Worlds



01	**Colorado Plateau**	It includes Utah, Arizona, and New Mexico. It is divided by the Colorado River and the Grand Canyon. It is the largest plateau in America, and it covers an area of 337,000km2and its highest elevation is about 2,450m above sea level.
02	**Anatolian Plateau**	It is also known as **Asia Minor, most of Turkey lies on this plateau. It is** an inter montane plateau lying between Pontiac and Taurus Mountain ranges. Tigris – Euphrates Rivers flow through this plateau. Precious wool producing Angora goats are found here.
03	**Deccan Plateau**	It cuts across eight states of India. It is bordered by two mountain ranges, the Western Ghats and the Eastern. The plateau includes **the Deccan Traps which is the largest volcanic feature on Earth.**
04	**Central Siberian Plateau**	It occupies a great part of central Siberia between the Yenisei and Lena rivers. To the south it is bounded by the Altai Mountains, Salair Ridge, Kuznetsk Alatau, the Eastern and Western

		Sayan Mountains. The plateau is underlain by crystalline rocks of the stable Siberian Platform.
05	**Kimberley Plateau**	It lies in the northern part of Australia. This plateau is **made of volcanic eruption**. Many minerals like iron, gold, lead, zinc, silver and diamond are found here. Diamond is also found here.
06	**Tibetan plateau**	It is the **highest, largest and most famous plateau in the world**. It is located in South-Central Asia and Stretches through the countries of Tibet, China, and India. It is sometimes termed as the Third Pole because its ice fields contain the largest reserve of fresh water outside the polar regions.
07	**Pothohar Plateau**	It is located in the northeastern part of Pakistan. The plateau is bordered by the **Jhelum River to the east, by the Indus River to the west,** by the Margalla Hills and the Kala Chitta Range to the north, and by the Salt Range to the south
08	**Ethiopian Highland**	It is the **highest plateau in Africa** and forms the largest continuous area of its altitude in the continent. It is sometimes called the Roof of Africa due to its height and large area.
09	**Patagonian Plateau**	It is a **Piedmont plateau** lying in southern part of Argentina. It is a rain shadow desert plateau. It is bounded, by the Patagonian Andes to the west, the Colorado River, the Atlantic Ocean, and the Strait of Magellan to the south.
10	**Brazilian Plateau**	It is a large plateau that covers almost half of Brazil. The Brazilian Highland is divided into three plateaus mainly Atlantic, Central, and the Southern plateau. The Atlantic Plateau is located at the eastern coast of Brazil.

Major Straits of the World



01	**Yucatan Strait**	It separates Cuba from the Yucatan Peninsula of Mexico. It connects the Yucatan Basin of the Caribbean Sea with the Gulf of Mexico.
02	**Hudson strait**	It links the Atlantic Ocean and the **Labrador Sea to Hudson Bay** in Canada. This strait lies between Baffin Island and Nunavik.
03	**Dover strait**	It is located at the narrowest part of the English Channel, marking the boundary between the Channel and the North Sea, and separating Great Britain from continental Europe.
04	**Bosphorus Strait**	It is located in northwestern Turkey. It connects the **Black Sea with the Sea of Marmara**. It is the world's narrowest strait used for international navigation.
05	**Hormuz Strait**	It links the Persian Gulf with the Gulf of Oman and the Arabian Sea. It separates Iran from the Arabian Peninsula. It is the world's most important oil chokepoint because of the large volumes of oil that flow through the strait.

06	**Palk Strait**	It lies between the **Tamil Nadu and Sri Lanka**. It connects the Bay of Bengal in the northeast with the Gulf of Mannar in the southwest. Several rivers flow into it, including the Vaigai River of Tamil Nadu.
07	**Formosa Strait**	It is also known as **Taiwan Strait**. It is a 180 km wide strait separating Taiwan and mainland China. The strait is part of the South China Sea and connects to the East China Sea to the north.
08	**Tsushima Strait**	It is a channel of the Korea Strait, which lies between Korea and Japan, connecting the Sea of Japan, the Yellow Sea, and the East China Sea.
09	**Cook Strait**	It separates the North and South Islands of **New Zealand**. It connects the Tasman Sea on the northwest with the South Pacific Ocean on the southeast.
10	**Sunda Strait**	It links the Java Sea (Pacific Ocean) with the Indian Ocean.It lies between the islands of Java and Sumatra.It is an important passage connecting the Indian Ocean with eastern Asia.
11	**Malacca Strait**	It connects the Andaman Sea and the South China Sea.
12	**Bab al-Mandab strait**	It is the narrow waterway that separates the Arabian Peninsula from the Horn of Africa. It links the Red Sea to the Gulf of Aden and the Indian Ocean.
13	**Mozambique Channel**	It is situated between the eastern island country of Madagascar and Mozambique on the continent of Africa. It is located in the Indian Ocean.
14	**Gibraltar Strait**	It connects the Atlantic Ocean to the Mediterranean Sea and separates Gibraltar and Peninsular Spain in Europe from Morocco and **Ceuta (Spain)** in Africa. After the English Channel, the Strait is the world's busiest shipping lane.
15	**Bering Strait**	It separates the continents of Asia and North America, and the countries of Russia and the United States. It also connects the Arctic Ocean and the Bering Sea. It also connects the Bering Sea to the Chukchi Sea of the Arctic Ocean.

Major Biodiversity hotspots of the world

1.	**The Guinean forests of Western Africa**	The areas covered are Benin, Cameroon, Cote d'Ivoire, Equatorial Guinea, Ghana, Guinea, Liberia, Nigeria, Sao Tome and Principe, Sierra Leone, Togo. The Guinean forests of West Africa is a biodiversity hotspot designated by Conservation International.

3.	**Madagascar and the IndianOcean Islands**	The areas covered are Comoros, Madagascar, Mauritius and Seychelles. One of the most notable features of the Madagascar and Indian Ocean Islands Hotspot is the extremely high floral and faunal endemism.
4.	**Coastal forestsof Eastern Africa**	The areas covered are eastern edges of Africa, parts of Somalia, Kenya, Tanzania and Mozambique, islands of Pemba, Zanzibar, Mafia and the Bazaruto Archipelago. **Critically Endangered Kipunji monkey andVulnerable grey-faced elephant shrew** are found here.
5.	**Himalayan hotspot**	It covers both the Eastern Himalayas and the Western Himalayas. Of the estimated 10,000 species of plants in the Himalaya Hotspot, about 3,160 are endemic, as are 71genera. The largest family of flowering plants in the hotspot is the orchidaceae, with 750 species. A zone of permanent ice and rock begins at about 5,500-6,000 meters.
6.	**Indo Burmaregion**	This region consists of numerous countries including North-Eastern India (to the south of the Brahmaputra River), Myanmar, and China's Yunnan provinces southern part, Lao People's Democratic Republic, Vietnam, Cambodia, and Thailand.
7.	**Japan biodiversity hotspot**	It covers the land area of the nation of Japan. The most notable endemic species found in Japan include the **Japanese giant salamander, the Amami rabbit,** and the **Okinawa woodpecker**. These species are not found anywhere else in the world andare essential components of their ecosystems.
8.	**New Zealand Biodiversity Hotspot**	This Biodiversity Hotspot covers the country's three main islands (**North Island, SouthIsland and Stewart Island).** It also covers two islands namely Lord Howe and Norfolk islands of Australian territories.
9.	**Philippine Biodiversity Hotspot**	Philippines is the world's second largest archipelago, located in the southeast regionof Asia and westernmost Pacific ocean. **Critically Endangered Philippine eagle the** second-largest eagle in the world is found here.
10.	**Western Sundaland**	It covers the western half of the Indonesian archipelago dominated by the islands of Borneo and Sumatra, nearly all of Malaysia, Singapore and Brunei region. A very small
11.	**Western ghats of India and Srilanka**	It covers the states of Goa, Maharashtra, Karnataka, Tamil Nadu and Kerala and SriLanka. Some of the endangered species found here are Nilgiri Tahr, Lion-tailed Macaque and Nilgiri Langur.
12.	**Polynesia and Micronesian Islands**	This Biodiversity Hotspot covers all the islands of Micronesia and Polynesia, plus Fijiregion, scattered across the Pacific Ocean
13.	**CaliforniaFloristic Province**	It lies in the region that extends from Santa Barbara in Southern California to the**parallel 30th in Northern Baja California** (about 220 miles from San Diego)
14.	**CaribbeanIslands Hotspot**	This Island Hotspot comprises of 30 nations including countries like Anguilla, Bermuda. the Caribbean is one of themost **critically endangered** hotspots in the world. Fauna includes unique reptiles like the Cuban iguana and the Jamaican boa.
15.	**Chilean winterrainfall (Valdivian) Forests**	The Chilean Winter Rainfall-Valdivian Forests covers the central-northern part of the nation of Chile and the far western edge of Argentina. The Valdivian forests of Argentina and Chile are the only temperate rainforests in South America. Olivillo trees, longest livingtree species are found here.
16.	**The Mediterranean basin**	The Biodiversity hotspot of the **Mediterranean Basin** covers the areas of Albania, Bosnia and Herzegovina, Cabo Verde, Egypt, Jordan, Lebanon, Libya, Montenegro, Morocco, North Macedonia, Tunisia