



2023
PRELIMS
QUICK REVISION

PART II (DECEMBER '22 - MARCH '23)

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CULTURE

Matua Maha Mela

Matua Dharma Maha Mela was recently organised to celebrate the 212th birth anniversary of Shri Shri Harichand Thakur - **the founder of the Matua sect.**

Harichand Thakur

- He was **born in 1812 in Orakandi in Bangladesh** in a peasant farmer family of the Thakur community (SC community).
- A sect of Vaishnavite Hinduism called Matua was adopted by members of the **Namasudra community**, who were then also known by the common derogatory name of **Chandalas** and considered untouchable.
- He devoted his life to the cause of betterment of the oppressed, downtrodden and deprived people in undivided Bengal during the pre-independence era.
- Thakur's followers consider him God (hence called him Thakur) and an avatar of Vishnu or Krishna. Thus, he came to be known as Sri Sri Harichand Thakur.

Matuas

- Originally from East Pakistan, the Matuas migrated to India during partition and after the creation of Bangladesh.
- However, a sizable number are **yet to get Indian citizenship**. Getting citizenship is one of the long-standing demands of this refugee community.
- The Namasudras (with the Matuas as its biggest group) form one of the largest chunks of SCs in Bengal, comprising 17.4% of the population, behind Rajbanshis (18.4%), as per 2001 Census data.
- **Matua Mahasangha** is a religious reformation movement that originated, around 1860 AD, in modern-day Bangladesh.

Bumchu Festival

- The Bumchu festival was recently held in Sikkim. The festival is celebrated at **Tashiding Monastery** on the 15th day of the first month of the Lunar calendar corresponding to the month of February/March.
- The Bumchu festival commemorates a supernatural occurrence that took place in the 18th century under **Chogyal Chakdor Namgyal**.
- The word 'Bhumchu' means '**sacred pot of water**'. The opening of the vessel containing the holy water is the major highlight of the festival. The level of water in this vessel is believed to be a sign of the fortunes of the coming year.
- The sacred pot is filled with water from the **River Rathong Chu** and sealed after revealing the state's destiny. And it is opened again next year on the day of the festival.

Significance of Tashiding Monastery

- The Tashiding Monastery is believed to be one of the holiest monasteries in Sikkim. Also, it is the centre of the four sacred caves which are Dechenphug, Sharchog Beyphug, Lhari Nyingphug and Khandozangphu.
- Many pilgrims from Sikkim, Bhutan and Nepal come to visit this sacred ceremony and receive the holy water.

Pritzker Architecture Prize

- British architect and urban planner Sir David Chipperfield was recently awarded the 2023 Pritzker Architecture Prize.

- Mindful of the way architecture contributes to climate change and social inequality, Chipperfield has been an advocate of transforming spaces and reinvigorating cities.
- His famous projects include - the 2012 Architecture Venice Biennale, The Neues Museum in Berlin and Procuratie Vecchie in Venice's iconic St Mark's Square.
- **Pritzker Architecture Prize** is an international architecture award presented annually to honour a living architect or architects.

Vedic Heritage Portal

- The Vedic Heritage Portal of the **Indira Gandhi National Centre for the Arts (IGNCA)** was recently launched. **Kala Vaibhav, a virtual museum**, built by the IGNCA was also launched at the same event.
- The portal aims to map the Vedic heritage of the country and is a repository of Vedic knowledge and traditions from across the country.
- It is an effort to preserve & promote 'Vedas', which are an intangible heritage of humanity as per UNESCO
- It gives detailed information about oral traditions, textual tradition in form of published books/manuscripts, or implements (yajna-related objects).

IGNCA

- Established in **1987**, IGNCA is a premier government-funded arts organization in India. It is an autonomous institute under the **Ministry of Culture**.
- It is visualised as a centre encompassing the study and experience of all the arts.

ASI Discovers 1300-Year-Old Buddhist Stupa

- The Archaeological Survey of India (ASI) has discovered a 1,300-year-old stupa in the middle of a mining site in Odisha's Jajpur district, where Khondalite stones are mined.
- The archaeological asset was found at Parabhadi which is situated near **Lalitagiri**, a major Buddhist complex, having many stupas and monasteries.
- The stupa could be 4.5-metre tall and initial assessment showed it may belong to the 7th or 8th century.

Khondalite Stones

- Khondalite is a foliated **metamorphic rock**, found in the Eastern Ghats between Vijaywada and Cuttack in India. In India, it is also called Bezawada Gneiss and Kailasa Gneiss.
- It was named after the Khond of Odisha and Andhra Pradesh because well-formed examples of the rock were found in the inhabited hills of these regions.
- Khondalite stones were widely used in ancient temple complexes.
- They have been proposed to be used widely to maintain aesthetic value of some projects such as heritage security zone, Jagannath Ballav pilgrim centre, Puri lake development project, Atharnala heritage project and Matha Development Initiative.

VIRAASAT

- The second phase of the Sari Festival "VIRAASAT"- Celebrating 75 handwoven Saris of India was recently held by the **Ministry of Textiles** in New Delhi.
- The event is likely to bring renewed focus on the age-old tradition of Sari weaving and thereby improve earnings of the handloom community.

States	Prominent Sari Varieties
Andhra Pradesh	Uppada Jamdhani Sari, Venkatagiri Jamdani Cotton Sari, Kuppadam Sari, Chirala Silk Cotton Sari.
Kerala	Balaramapuram Sari and Kasavu Sari
Telengana	Pochampally Sari, Siddipet Gollabamma Sari and Narayanpet Sari
Tamilnadu	Kancheepuram Silk Sari, Arni Silk Saris, Thirubuvanam Silk Sari, Vilandai Cotton Sari, Madurai Sari, Paramakudi Cotton Sari, Aruppukottai Cotton Sari.
Maharashtra	Paithani Sari, Karvath Kathi Sari.
Chhattisgarh	Tussar Silk Sari of Champa
Madhya Pradesh	Maheshwari Sari and Chanderi Sari
Gujarat	Patola Sari, Tangaliya Sari.
Rajasthan	Kota Doria Sari
Uttar Pradesh	Lalitpuri Sari, Banaras Brocade, Jangla, Tanchoi, Cutwork, and Jamdani
Jammu & Kashmir	Pashmina Sari
Bihar	Bhagalpuri Silk Sari and Bawan Buti Sari
Odisha	Kotpad Sari and Gopalpur Tassar Sari
West Bengal	Jamdani, Santipuri and Tangail
Jharkhand	Tussar and Gichha Silk Sari
Karnataka	Ilkal Sari
Assam	Muga Silk Sari, Mekhla Chadar (Sari)
Punjab	Embroidered & Croch (Phulkari)

Performing Arts/ Instruments

Sursingar

- It is a **stringed musical instrument that is like the sarod**, but which is older and produces deeper notes.
- The instrument is made of **wood** and has a gourd attached to a hollow wooden handle with a metal fingerboard.
- The strings of instrument, usually 4 in number and made of brass or bronze, are plucked with a metal pick.
- The Sursingar (along with the Rudra Veena and the Surbahar) **usually accompanies Dhrupad**, the genre of Hindustani vocal music which has a low, deep, and thoughtful pitch.
- Kolkata-based multi-instrumentalist **Joydeep Mukherjee** is credited with reviving the Sursingar, along with another “lost” stringed instrument, the Radhika Mohanaveena.
- **Radhika Mohanaveena** is named after its creator, Radhika Mohana Maitra.

Lavani

- The dance form of Lavani was at the centre of a controversy, when some top political leaders from Maharashtra directed against organising vulgar public shows in the name of Lavani.

- The word Lavani comes from ‘**Lavanya**’ or **beauty**. Lavani is a traditional folk-art form in which women dancers wearing nine-yard-long sarees in bright colours, make-up, and ghunghroos perform on dholak beats on a stage before a live audience.
- As an indigenous art form, Lavani has a history going back several centuries, and it attained popularity in the **Peshwa era in 18th century**.

Karakattam

- Karakattam is an ancient folk dance of **Tamil Nadu** in which performers in colourful saris dance with a **pot (karakam)** on their head to invoke **Mariamman, the goddess of rain**.
- The dance form became well known with the success of the Tamil film Karakattakaran (1989), but has been criticised by purists for becoming vulgar of late.
- Traditionally, this dance is categorized into two types:
 - **Aatta Karakam** symbolizes joy and happiness. It is mainly **performed as entertainment**.
 - **Sakthi Karakam** is performed only in temples as a **spiritual offering**.
- Three tiers of flower arrangements of different colours sit on top of a container filled to the brim with either water, rice, or soil. All of this is balanced on the head of a Karakattam dancer while he or she dances.
- Other highlights include blowing fire, inserting needles into their eyes, and keeping balance while holding a bottle parallel to the ground on the performer’s back
- **V Durga Devi** of Salem is a well-known Karakattam dancer.



Yakshagana

- PM expressed deep grief over the demise of Yakshagana playback singer, Shri Balipa Narayana Bhagawatha
- Yakshagana is a traditional Indian theatre form, developed in Dakshina Kannada, Udupi, Uttara Kannada, Shimoga and western parts of Chikmagalur districts, in the **Karnataka** and in Kasaragod district in **Kerala**.
- It combines dance, music, dialogue, costume, make-up, and stage techniques with a unique style and form. It is believed to have evolved from pre-classical music and theatre during the period of **Bhakti movement**.
- It is traditionally presented from dusk to dawn and its stories are drawn from Ramayana, Mahabharata, Bhagavata and other epics from both Hindu and Jain and other ancient Indic traditions.
- Yakshagana is synonymous with massive headgears, elaborate facial make-up and vibrant costumes and ornaments.
- Usually recited in **Kannada**, it is also performed in **Malayalam as well as Tulu** (the dialect of south Karnataka)

Sagol Kangjei

- The union home minister unveiled a 122-foot-tall statue of a Sagol Kangjei (polo) player riding a pony at Marjing Polo Complex in **Manipur's Imphal East district**.
- **Sagol Kangjei** is the name of the game of polo played in Manipur. Sagol means pony/horse, kang means a ball or round object, and jei is a stick used for hitting.
- Modern polo is said to have originated from Sagol Kangjei, in which players ride horses, specifically the Manipur Ponies, which are referenced in records dating back to the 14th century.

- The prominent patrons of the game were King Kyamba and King Khagemba (1597-1672 A.D.), and King Chandra Kirti (1850 - 1886 A.D.).

Ottanthullal

- A traditional art Ottanthullal of Kerala which has a history of over 300 years was performed in Kerala School Kalolsavam 2023.
- Ottanthullal (or Thullal, in short) is recite-and-dance art-form of Kerala introduced by the renowned Malayalam poet Kunchan Nambiar (1705-1770).
 - Kunchan Nambiar used it as a medium **to protest the prevalent socio-political structure and prejudices of the society** in his time. (Performed in temples)
- It follows the classical principles of Natyasasthra, a treatise on art compiled in the 2nd century BC.
- It is marked by its simplicity as opposed to more complex dance-forms like Kathakali and Koodiyattam.
- Three separate versions have arisen: Ottanthullal, Seethankan thullal, and Parayan thullal.
- In a performance, elaborate expressions and verses are used to bring mythological tales and stories to life.

Keeladi Findings

- Keeladi is a tiny hamlet in the Sivaganga district in south Tamil Nadu. It is about 12 km south-east to the temple city of Madurai and is located along the **Vaigai river**.
- The excavations here from 2015 prove that an urban civilisation existed in Tamil Nadu in the Sangam age on the banks of the Vaigai river.



Key Findings

- Discovery of heaps of pottery suggests the existence of a pottery making industry, mostly made of locally available raw materials. Over 120 potsherds containing **Tamil Brahmi inscriptions** have been found.
- Keeladi, along with other Tamil Nadu sites which have over a thousand inscribed potsherds, clearly suggest the long survival of the script.
- Spindle whorls, copper needles, terracotta seal, hanging stones of the yarn, terracotta spheres and earthen vessels to hold liquid suggest various stages of a weaving industry. There also existed a dyeing industry and a glass bead industry.
- Gold ornaments, copper articles, semi-precious stones, shell bangles, ivory bangles and ivory combs reflect the artistic, culturally rich and prosperous lifestyle of the Keeladi people.

Keeladi's Link to Sangam Age

- The Sangam age is a period of history in ancient Tamil Nadu which was believed to be from the 3rd century BCE to the 3rd century CE.
- The name is derived from the renowned Sangam poets of Madurai from that time.
- The new report repositions the Sangam age between 800 BCE and 300 CE.
- Even this period of history has been classified into three periods. The pre-early historic period between 800 BCE to 500 BCE, mature early history between 500 BCE to the end of 1st century BCE and post early history from 1st century BCE to 300 CE

- Keeladi could also provide crucial evidence for understanding the missing links of the Iron Age (**12th century BCE to 6th century BCE**) to the Early Historic Period (**6th century BCE to 4th century BCE**) and subsequent cultural developments.

Keeladi's Link to Indus Valley

- The Keeladi artefacts have led academics to describe the site as part of the Vaigai Valley Civilisation.
- As per Tamil Nadu State Department of Archaeology (TNSDA) Keeladi has all the characteristics of an urban civilisation, with brick structures, luxury items and proof of internal and external trade.
- It comes across as an industrious and advanced civilisation and has given evidence of urban life and settlements in Tamil Nadu during the Early Historic Period. Keeladi has also added to the credibility of Sangam Literature.

Threat to Geoglyphs in Ratnagiri

- Experts and conservationists have raised concerns over the proposed location for a mega oil refinery in Barsu village of Maharashtra's Ratnagiri district. It has been claimed that the refinery might damage prehistoric geoglyphs found in the area.
- The sites are protected by the state archaeology department & the Archaeological Survey of India (ASI).
- In April, these sites in the Konkan region were added to a tentative list of UNESCO's world heritage sites.

Geoglyphs

- Geoglyphs are a **form of prehistoric rock art**, created on the surface of laterite plateaus (Sada in Marathi).
- The UNESCO listing mentions Konkan geoglyphs.
- As per the UNESCO listing, petroglyphs and geoglyphs share similarities as both require the skills of removing parts or engraving a symbol on the rock surface.
- UNESCO's tentative world heritage list mentions seven sites with petroglyphs in Ratnagiri district — Ukshi, Jambharun, Kasheli, Rundhe Tali, Devihsol, Barsu and Devache Gothane ('Katal Silpa'), one in Sindhudurg district –Kudopi village, and nine sites at Phansamal in Goa.
- The figures depicted in the geoglyphs include humans and animals such as deer, elephant, tiger, monkey, wild boar, rhinoceros, hippopotamus, cattle, pig, rabbit, and monkey.
- The **largest rock engraving or geoglyph in India** is at **Kasheli** in the Ratnagiri district, which has a large figure of an elephant with dimensions of 18X13 metres.

Significance of Ratnagiri's Prehistoric Rock Art

- Rock art in India is one of oldest material evidence of the country's early human creativity.
- Ratnagiri's rock art is **evidence of the continued existence of human settlements from the Mesolithic** (middle stone age) to the early historic era.
- Imagery from these sites shows how **people adapted to ephemeral** (lasting for a short time) **wetlands** in a dry-arid plateau having shallow rock pools, streams and watercourses.
- Geoglyph clusters have one or two standalone figures of larger-than-life scale, while others show multiple figures gathered together, seemingly for a purpose.

National Archives of India (NAI)

- NAI functions under the **Ministry of Culture** and is the **storehouse of all non-current government records**, holding them for the use of administrators and scholars.
- It is an implementing nodal agency of the Govt of India for Public records Act 1993 & Public Record Rules 1997.
- Originally established as the **Imperial Record Department** in 1891 in Calcutta, the capital of British India, the NAI is now located in Delhi.

- Holdings in NAI are in a regular series starting from the year 1748. The languages of the records include English, Arabic, Hindi, Persian, Sanskrit and Urdu.
- NAI has also made efforts to make available all the records digitally — on the newly created **Abhilekh Patal portal**. However, it's a work in progress and the entire holdings haven't been digitised so far.
- As per the **Public Records Act, 1993**, various central ministries and departments are supposed to transfer records more than 25 years old to the NAI, unless they pertain to classified information.

The Srimukhalingam Temple

The Union government has urged to include Srimukhalingam temple in UNESCO list.

About Srimukhalingam Temple from the 9th Century

- Some architectural masterpieces were created by the rulers of **Eastern Ganga dynasty** in the then-capital of the Kalinga kingdom.
- This temple is built in **Kalinga architectural style** on the banks of the **Vamsadhara river**.
- Srimukhalingam temple is dedicated to Lord Shiva, known as Sri Mukha Lingeswara Swamy, housing 3 Ancient Temples at one Location.
 - The Trinity of Madhukeswara, Someswara and Bheemeswara Temples are a testimony to the magnificent architectural skills of Kalinga Kings.

Ramappa Temple

President of India laid the Foundation Stone for the Development of Pilgrimage Infrastructure at Ramappa Temple.

- Ramappa Temple, also known as the Rudreshwara temple, is a **Kakatiya style Hindu temple dedicated to the god Shiva**, located in Telangana.
- The medieval Deccan Ramappa Temple which dates back to 1213 AD, was built by the patronage of the **Kakatiya ruler Kakati Ganapathi Deva** under the authority of his **Chief Commander Rudra Samani**.

Architectural features

- **Earthquake-proof:** Made out of clay mixed with acacia wood, chaff and myrobalan fruit (a family of amla), the **bricks used in building the gopuram of the temple are light enough to float on water**. Using this technique has made the temple light, meaning, in case of a natural event like an earthquake, the probability of it collapsing would be very low.
- **Sandbox technique:** This is a technique where the foundation pit is filled with a mixture of sand-lime, jaggery and black myrobalan fruit.
- **Pillars:** The temple has many carved pillars. One of the pillars has a Lord Krishna carved into it. When gently hit, the **pillar produces musical notes**.

Kumbhalgarh Fort

- The Sherpas of the G20 countries and invitees from countries and international organisations recently visited the famous Kumbhalgarh Fort in Udaipur, which is a UNESCO heritage site.
- Kumbhalgarh is the second most important fort after Chittorgarh in the Mewar region. The fort was built in the 15th century AD by Rana Kumbha.
- It has the 2nd-longest wall of the world after the Great Wall of China.
- The massive fort is 38 kilometres long, and it surrounds the city of Udaipur
- It contains seven fortified gateways, as well as the Lakhola Tank, the most famous tank within the fort, which was built by Rana Lakha.
- It contains several Hindu and Jain temples, which demonstrate the rulers' religious tolerance and how they patronised the Jains and encouraged their culture in the kingdom.
- The fort has also been designated a **UNESCO World Heritage Site** as part of the group of Hill Forts of Rajasthan.

- The six hill forts of Rajasthan that have made it to UNESCO's World Heritage List are: Chittorgarh Fort, Kumbhalgarh Fort (Rajsamand), Ranthambore Fort (Sawai Madhopur), Jaisalmer Fort, Amber Fort (Jaipur) and Gagron Fort (Jhalawar).

Gujarat's Vadnagar

Vadnagar, and the Sun Temple of Modhera, both in the Mehsana district of northern Gujarat have recently made it to the tentative list of UNESCO World Heritage sites

About Vadnagar

The Vadnagar town represents a continuously evolving historic urban landscape/area from **over 2,700 years** which played a major role in the hinterland trade network of Western India.

Significance

- **The town's fortifications, arched gateways (toranas), temples, wells, residential structures (kothis)** and excavated sites like **Buddhist monasteries and dedicated stupas** showcase the architectural influence of various cultural periods.
- The **extensive water management system** here has also played a role in the town's continuity.
- The Vadnagar was situated at a strategic location of two major ancient trade routes:
 - One joining central India with the Sindh and further northwest regions, while another connected the port towns on Gujarat's coast to northern India.
- **Excavated cowry shells** traced to the Maldives further imply involvement in **overseas trade**.
- **A gold coin**, believed to be from **the Mamluk dynasty of Egypt** (15th century) was also found.
- **A centre of Buddhism**: Chinese traveller **Xuanzang or Hieun Tsang** is said to have visited Vadnagar around 641 AD, referring to it as 'Anandpur' in his writings.

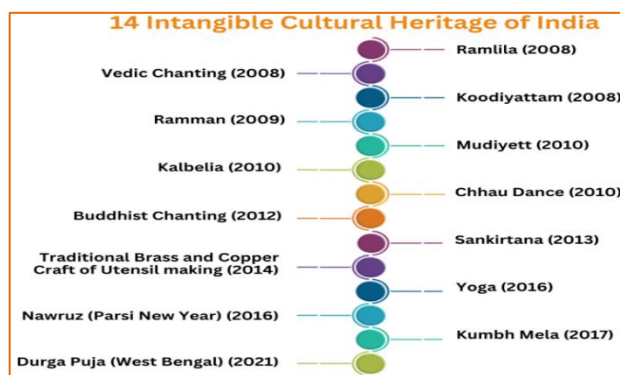
About Sun Temple Modhera

- It is an exemplary model of the **Maru-gurjara architecture style** of the 11th century of western India under the **patronage of the Solanki dynasty**. The age of the temple may be inferred from its style belonging to the **reign of Bhimadeva I (1022-1063 CE)**.
- It consists of – garbhagriha, gadhamandapa, Sabhamandapa or rangamandapa and a sacred pool (Kunda) which is now called Ramakunda.
- This east-facing temple is **built of bright yellow sandstone**.
- Other sun temples in India are 8th century CE **Martand Sun Temple in Kashmir** and the 13th century CE **Sun temple at Konark**.

- **According to the World Heritage Convention's** operational guidelines, a tentative list is an "inventory" of properties a country believes deserves to be a **World Heritage Site**.
- After UNESCO includes a place in the Tentative List, that country has to prepare a nomination document that will be considered by the **UNESCO World Heritage Committee**.

Baguette Gets UNESCO Tag

- Baguette (the staple French bread) included under UNESCO Intangible Cultural Heritage List (ICHL).
- As per UNNESCO intangible cultural heritage includes oral traditions, performing arts, social practises, rituals etc.
- ICHL is step towards preserving intangible heritage from across the globe.
- There are three criteria for ICHL:
 - Entity recognized by communities, groups and individuals as part of their cultural heritage



- Be transmitted from generation to generation and be constantly recreated by communities.
- Provide them with a sense of identity and continuity.
- Currently, there are 14 such intangible cultural heritages from India.

Jharokha Festival

Korku tribe performed Korku tribal folk dance at Jharokha festival – Compendium of Indian handicraft, handloom, art and culture.

About Korku Tribe

- **Location:** Central India - Madhya Pradesh and Maharashtra.
- **Social Structure:** The tribal society is divided into four territorial groups, which is usually ruled by tribal village council under 'Patil' as a village headman.
- **Religious Beliefs:** They worship Natural forces with influences based on Hindu beliefs and culture.

OTHER FESTIVALS IN NEWS



Sangai Festival

- This festival is named after State animal, Sangai, brow-antlered deer found only in **Manipur**.
- Sangai is found in **Keibul Lamjao National Park** and is seen over floating biomass, called phumdi.
- Biggest annual cultural festival of Manipur, organized every year in November.
- Locals exhibit their skills in native sports like:
 - **Thang Ta** (martial art: a combination of Spear and Sword skills).
 - **Sagol Kangiel**, an indigenous form of polo etc.



Losar Festival

- PM extended his greeting on the occasion of 'Losar'.
- It is important festival of **Ladakh** that marks the beginning of the Tibetan New Year in traditional schedule of **Tibetan Buddhism** in relation with ancient 'Bon' religion
- Celebration consists of offering of prayers in the name of God and Goddess, dances and songs in honour of Ibex and pilgrimage of Mount Kailash.

Personalities In News

J C Bose

- On the 164th birth anniversary of Acharya Jagadish Chandra Bose, Vijnana Bharati and Ministry of Culture, organized an "International conference on the contributions of J C Bose: A Satyagrahi Scientist".
- The aim of the conference was to provide a voice to the unheard contributions of Acharya Jagadish Chandra Bose in the pre-independence era as a scientist and a freedom fighter.
 - J C Bose was a biologist, physicist, botanist and an early writer of science fiction. A crater on the moon has been named in his honour.
 - Bose made pioneering discoveries in plant physiology. He used his own invention, the **crescograph**, to measure plant response to various stimuli and proved parallelism between animal and plant tissues
 - Bose **discovered wireless communication** and was named the **Father of Radio Science** by the Institute of Electrical and Electronics Engineering.
 - He is also considered **the father of Bengali science fiction** and was responsible for the expansion of experimental science in India.
 - His books include Response in the Living and Non-Living (1902) and The Nervous Mechanism of Plants (1926).

Kamaladevi Chattopadhyay (1903 - 1988)

- Born in Mangalore (Karnataka), she was the first woman to run for Legislative office
- During Gandhian phase, she always proposed that women's right, religious freedom, environmental justice, political independence, and civil rights were all interrelated movements.
- Going forward, after Independence, she promoted art and crafts that resulted in setting up of National School of drama, Sangeet Natak Akademi (SNA), and Crafts Council of India.
- She was being felicitated with SNA Fellowship, Ramon Magsaysay, Padma Bhushan, Padma Vibhushan.

Pandit Madan Mohan Malaviya

- He was known for his contribution to **India's education system and his role in the Indian Independence movement.**
- He was **given the title of 'Mahamana' or great soul by Mahatma Gandhi**, who considered him as an elder brother.
- In 2014, Pandit Malviya was posthumously conferred with **Bharat Ratna**, the country's highest civilian award and in 2016, Indian Railways started the Varanasi-New Delhi Mahamana Express in the leader's honour.

Major Contributions

- **Banaras Hindu University** was built in 1916 during his struggle against British rule. At the BHU, he served as **Vice-Chancellor from 1919 to 1938.**
- Malaviya was one of the early leaders of the **Hindu Mahasabha (1906).**
- He was a social reformer and a successful legislator, serving as a member of the **Imperial Legislative Council for 11 years (1909–20).**
- One of the most famous slogans, **'Satyamev Jayate' was said by Pandit Malviya in the session of 1918** when he was the President of the Indian National Congress.
- **President of INC:** Pandit Madan Mohan Malviya was the President of Indian National Congress for four sessions (1909, 1913, 1919 and 1932).
- **Role in media:** He was the **chairman of Hindustan Times** from 1924 to 1946, moreover, he also worked on newspaper namely: **'The Leader', 'Hindustan Dainik', 'Maryada' etc.**
- Malaviya opposed the system of indentured labour in the British Empire and supported the nationalization of railways.

Dayanand Saraswati

Prime Minister of India inaugurated the year-long celebrations commemorating the 200th birth anniversary of Maharishi Dayanand Saraswati, at Indira Gandhi Indoor Stadium, Delhi.

- Swami Dayanand Saraswati was a **philosopher, social leader and founder of the Arya Samaj**, a reform movement of Vedic dharma.
- **Social Contributions:** He established the Arya Samaj in April, 1875, in Bombay -- with 10 principles that are beautifully based purely on God, soul and nature. This organization brought about immense changes in the religious perceptions of Indians.
- Swami Dayanand Saraswati was the first to give the call **for Swaraj as "India for Indian" in 1876.** He preached 'Universalism', and not any specific caste.
- **Educational Contributions:** He introduced a complete overhaul of the education system and is often considered one of the visionaries of modern India. The **Dayanand Anglo Vedic schools** came into existence in 1886 to realize the vision of Swami Dayanand Saraswati. The first DAV School was established in **Lahore with Mahatma Hansarjas** the headmaster.
- **Literary Contributions:** One of his most influential works is the **book Satyarth Prakash**, which contributed to the Indian independence movement.

Swami Vivekananda

- January 12 this year marked the 161st birth anniversary of Swami Vivekananda, also observed as **National Youth Day**.
- Swami Vivekananda, known in his pre-monastic life as **Narendra Nath Datta**, was born in an affluent family in **Kolkata**.
- In 1897 he founded a unique type of organization known as Ramakrishna Mission, in which monks and lay people would jointly undertake propagation of Practical Vedanta, and various forms of social service.
- **His Literary contributions:**
 - Raja Yoga
 - Jnana Yoga
 - Karma Yoga

He was one of India's greatest spiritual leaders and inspired the youth of India due to which, Netaji Subhas Chandra Bose had called him the "**Maker of Modern India**".

- **Educational Contributions:** He laid the greatest emphasis on character-building in education. He was determined to spread education among **women** and the **lower castes**.
- **Social Contributions:** He joined the **Brahmo Samaj** and dedicated himself to **eliminating child marriage and illiteracy**.
- **Philosophical Contributions:** He preached '**neo-Vedanta**', an interpretation of Hinduism through a Western lens and believed in combining spirituality with material progress.

Vedanta is one of the six schools of Hindu philosophy and is based on Upanishads and their interpretation. Its aim was to enquire about '**Brahman**' (ultimate Reality).

Neo-Vedanta is a modern interpretation of Vedanta, with a liberal attitude toward the Vedas. It **reconciles dualism and non-dualism** and rejects the "universal illusionism" of Shankara.

Sant Ravidas

- Guru Ravidas Jayanti was observed on February 5 this year. This year marks the 646th birth anniversary of Sant Ravidas.
- Guru Ravidas Jayanti is commemorated on **Magh Purnima**, the day of the full moon in the month of Magh, according to the Drik Panchang
- Born in **1377 C.E. in Varanasi**, Uttar Pradesh, Guru Ravidas was an Indian mystic, poet, social reformer and spiritual guru.
- Also known by Raidas, Rohidas and Ruhidas - his devotional songs and verses created a lasting impact upon the **Bhakti Movement**.
- He was among the first people to oppose the Indian caste system through his poems and teachings based on spirituality and spread the message of equality.
- Around 41 poems accredited to Ravidas were included in the **Adi Granth**, the sacred scripture of Sikhism.
- Ravidas was the founder of the Ravidasia religion. He was also known as the spiritual guide of Meera Bai, who is an eminent personality in the sphere of Hindu spiritualism.

Goswami Tulsidas

- **Ramcharitmanas an epic poem written by Goswami Tulsidas** was at the center of a controversy, when Bihar's Education Minister claimed that Ramcharitmanas spreads hatred in society.
- The Ramcharitmanas is based on the **Ramayana, sage Valmiki's great epic**.
- The poem was **written in the 16th century in the Awadhi dialect** that is mainly spoken in the areas that are today's Lucknow, Prayagraj, and Ayodhya districts.

- Tulsidas, a Brahmin whose original name was **Ram Bola Dubey**, is believed to have been born in Rajapur by the Yamuna in today's Banda district.
- He composed the Ramcharitmanas on the bank of the Ganga in Varanasi. He is said to have begun writing on Ram Navami day in 1574, and completed the poem over the next few years.
- Tulsidas made the story of Lord Ram popular among the masses because he wrote in the regional dialect that most people understood. However, this also angered the Sanskrit scholars of that time.
- Tulsidas lived in the time of Emperor Akbar, and some believe that he was in touch with Abdurrahim Khan-e-Khanan, the son of Akbar's commander Bairam Khan, and they possibly exchanged some poetic communication as well.
- Besides Ramcharitmanas, Ramlalla Nahachhu, Barvai Ramayan, Ramagya Prashna, Parvati Mangal and Janaki Mangal in the Awadhi language are some of Tulsidas' popular works.

Savitribai Phule

- The 192nd birth anniversary of Savitribai Phule was celebrated. A pioneer who challenged oppressive social norms for women's education, equality and justice.
- Savitribai Phule is formally recognized as **India's first woman teacher**.
- A Dalit woman from the Mali community, Savitribai was born in 1831, in Maharashtra's Naigaon village.
- Married off at the age of 10, her husband Jyotiba Phule is said to have educated her at home. Later, Jyotiba admitted Savitribai to a teachers' training institution in Pune.
- At a time when it was considered unacceptable for women to even attain education, the couple went on to open a school for girls in **Bhide Wada**, Pune, in 1848. This became the **country's first girls' school**.

Phule's Role As A Social Reformer, Beyond Education

- Savitribai Phule also advocated inter-caste marriages, widow remarriage, and eradication of child marriage, sati and dowry systems, among other social issues.
- In 1873, the Phule's set up the **Satyashodhak Samaj** ('Truth-seekers' society'), a platform open to all, irrespective of their caste, religion or class hierarchies, with the sole aim of bringing social equity.
- As an extension, they started **Satyashodhak Marriage** – a rejection of Brahmanical rituals where the marrying couple takes a pledge to promote education and equality.
- The couple also set up **Balyata Pratibandak Gruha**, a childcare center for the protection of pregnant widows and rape victims.
- The Phule's also adopted Yashwantrao, the child of a widow, whom they educated to become a doctor.
- Savitribai became involved in relief work during the 1896 famine in Maharashtra and the 1897 Bubonic plague.
- She herself contracted the disease while taking a sick child to the hospital and breathed her last on March 10, 1897.

Savitribai's Literary Works

- **Kavya Phule** ('Poetry's Blossoms') in 1854.
- **Bavan Kashi Subodh Ratnakar** ('The Ocean of Pure Gems'), in 1892.
- **Matushri Savitribai Phulenchi Bhashane va Gaani** (Savitribai Phule's speeches and songs')

Kochi-Muziris Biennale

The fifth edition of the Kochi-Muziris Biennale recently opened, with works of over 90 artists from across the globe in varied media. It is an international large-scale showcase of art that takes place every two years at a particular site.

Biennale

- Biennales are usually **non-commercial enterprises** – unlike art fairs – that centre around a curatorial theme.

- One of the most prestigious and oldest biennales in the world, the **Venice Biennale** was established through a resolution by the city council in 1893 to celebrate national artistic talent.
- With rising popularity, a global **Biennale Foundation** was established in 2009 with an aim to create a platform for dialogue, networking, and knowledge sharing among contemporary art biennials around the world

Significance of Art Biennales

- A Biennale participation can open opportunities for future museum exhibitions, gallery representation and acquisitions.
- Additionally, biennales, often named after the host city, become a reason for local pride, promoting cultural tourism and generating revenue through visitors.

Kochi-Muziris Biennale in India

- Kochi-Muziris Biennale was founded in 2011 by Kerala-born, Mumbai-based artists Bose Krishnamachari and Riyas Komu.
- The aim was to create a platform that will introduce contemporary, global visual art theory and practice to India.

Amrit Udyan

- The iconic Mughal Gardens at Rashtrapati Bhavan were renamed to 'Amrit Udyan'.
- The cluster of about 15 gardens will collectively be known as Amrit Udyan.
 - Individual gardens within the sprawling Presidential Estate — Herbal Garden, Musical Garden and Spiritual Garden — will retain their names.
- Spread over 15 acres, the Mughal Gardens draw inspiration from the Mughal Gardens of Jammu & Kashmir, the gardens around the Taj Mahal and miniature paintings of India and Persia.

Lutyens' Imprint

- Edwin Lutyens had finalized the designs of the Mughal Gardens in **1917**, but it was only during the year **1928-1929** that plantings were done.
- Director of horticulture William Mustoe, who planted the garden, was especially skilled at growing roses and is said to have introduced more than 250 different varieties of hybrid roses gathered from every corner of the world.
- Like the building of Rashtrapati Bhavan has two different styles of architecture, Indian and western, similarly, Lutyens brought together two different horticulture traditions together for the gardens — **the Mughal style and the English flower garden**.
- Mughal canals, terraces and flowering shrubs are beautifully blended with European flowerbeds, lawns and private hedges.

Mughal Touch

- There are three gardens in the Rashtrapati Bhavan inspired by Mughal and Persian gardens. The one inspired from the garden in Srinagar is known as Mughal Garden.
- The style was influenced by the Persian gardens, particularly the **Charbagh structure**. In **Babur Nama**, Babur shared that his favorite kind of garden is the Persian Charbagh style
 - Defined by their rectilinear layouts, **divided into four equal sections**, these gardens can be found across lands previously ruled by the Mughals.
- From the gardens surrounding Humayun's Tomb in Delhi to the Nishat Bagh in Srinagar, all are built in this style – giving them the moniker of Mughal Gardens.
- A defining feature of these gardens is the **use of waterways, often to demarcate the various quadrants of the garden**.

- These were not only crucial to maintain the flora of the garden, they also were an important part of its aesthetic. Fountains were often built, symbolizing the “**cycle of life.**”

Other Gardens in Rashtrapati Bhavan

- Over time, Presidents have contributed to the gardens in their own ways for social or developmental works.
- For instance, **C Rajagopalachari**, the last Governor General of India, during a period of food shortage in the country, himself ploughed the lands and dedicated a section of the garden to foodgrains.
- Today, the Nutrition Garden, popularly known as **Dalikhana**, stands in that spot, organically cultivating a variety of vegetables.
- During the term of former Presidents APJ Abdul Kalam and Ram Nath Kovind, more gardens were developed – such as Herbal-I, Herbal-II, Tactile Garden, Bonsai Garden and Arogya Vanam.
- The herbal garden, bonsai garden, central lawn, long garden and circular garden are now collectively called Amrit Udyan.
- President R Venkatraman added a cactus garden and APJ Abdul Kalam added many theme based gardens- from the musical garden to the spiritual garden.

Palm-Leaf Manuscript Museum

Palm-leaf manuscript museum with modern audio-visual technology was inaugurated at the renovated Central Archives, Fort in Thiruvananthapuram.

- This museum presents the manuscripts from ancient writings such as **Vattezhuthu, Kolezhuthu, Malayanma, and ancient Tamil and Malayalam** in it.
- These manuscripts also depict into diverse aspects like - tax, administration, and trade to education, prisons, and festivals in the erstwhile Travancore, Kochi, and Malabar
- **Besides palm-leaf manuscripts, other collections like scrolls, bamboo splints, and copper plates are also included in the collection.**

SPIC MACAY

- The Society for the Promotion of Indian Classical Music And Culture Amongst Youth (SPIC MACAY) organized its popular ‘Music in the Park’ series this year under the name **Shruti Amrut**.
- This was done in collaboration with the Ministry of Culture and the New Delhi Municipal Council.
- Founded in **1977**, SPIC MACAY is a **non-profit and participatory student movement** registered under the **Societies Registration Act, 1860**.
- It is a voluntary youth movement that **promotes the tangible & intangible aspects of Indian & world heritage** and has chapters in over 850 towns across the world.
- In 2011, SPIC MACAY was awarded the Rajiv Gandhi Sadbhavana award in recognition of its contribution to youth development.

Cyclone Freddy

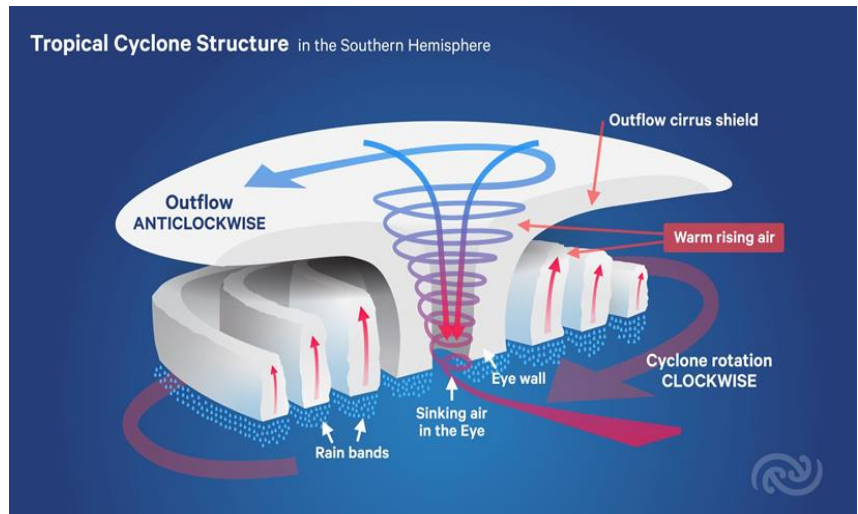
The World Meteorological Organization (WMO) is setting up a committee to evaluate whether cyclone Freddy has broken the record as the longest-lasting tropical cyclone on record.

About Cyclone Freddy

- It originated off the northern coast of Australia. It has been a named tropical cyclone for 33 days, crossed the entire South Indian Ocean and travelled more than 8,000 kilometres.
- It affected Mauritius and La Reunion, before making landfalls in Madagascar two weeks later and then Mozambique.
- It is the 1st tropical cyclone in the Southern Hemisphere to undergo six separate rounds of rapid intensification.

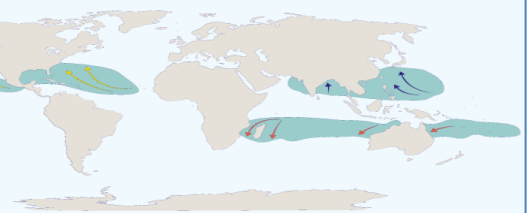
Tropical Cyclones

- These are low pressure systems that form when the sea surface temperature is above 26.5 °C.
- This may continue for several days, even weeks, and may follow quite erratic paths.
- Once developed, a tropical cyclone is like a giant, atmospheric heat engine. The moisture from the warm ocean acts as its fuel, generating huge amounts of energy as clouds form.



Different name of tropical Cyclone

- Tropical cyclones are referred to by different names depending on where they originate in the world.
- Hurricanes occur in the Atlantic Ocean and the eastern north Pacific Ocean.
- Typhoons occur in the western Pacific Ocean and the South China Sea.
- Willy-Willies occur in the Western Australia.
- Tropical cyclones occur in the south Pacific Ocean and Indian Ocean.



Plastic Rocks and Trindade Island

Plastic rocks (**plastiglomerates**) been found on the easternmost remote Brazilian island of Trindade

- These are made of a mixture of sedimentary granules and other debris held together by plastic.
- When the temperature rises, this plastic melt and embeds with the beach's natural material.

Trindade Island

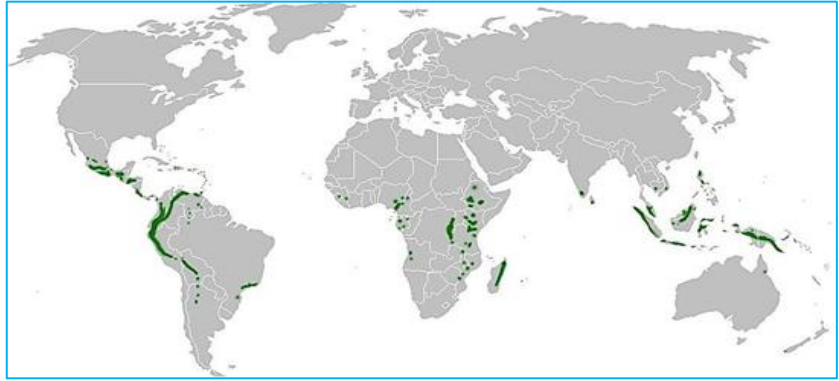
- It was exposed about 3 million years ago due to volcanic activity under the Atlantic Ocean.
- It is known for being one of the most important conservation and nesting spots for **green sea turtles**.

Cloud Forest

According to a report, Cloud Forest **Bonds** can help capture the economic value of cloud forests in 25 countries.

Location of Cloud Forest

- It is rare because the exceptional conditions that create these forests are found only in tropical areas with high mountains.
- The World Conservation Monitoring Centre has identified 736 cloud forests distributed in 59 countries. Of these 327 have been classified as protected areas since 2002.



Characteristics of Cloud Forests

- They are usually characterized by a persistent, frequent and seasonal low-lying layer of mist and cloud cover usually at the canopy level.
- It forms an ecosystem characterized by **dense forests and shorter trees**, coupled with increased stem density and a lower diversity of woody plants.
- The diffuse light, high humidity, and crooked tree trunks with twisting branches provide a conducive environment for the growth of **epiphytic plants** (like orchids)
- The tree crowns intercept the wind driven cloud moisture, which drops in the form of fog.

About Cloud Forest

- It refers to the vegetation of **tropical mountainous regions** where there is heavy rainfall and frequent condensation as a result of cooling of the moisture being pushed up by the mountains.
- Due to their unique characteristics, it is usually found along the sides of the mountains at elevations of between 3000 and 10000 feet.
- Only 1% of the global woodlands are considered cloud forests following a decline from 11% in the 1970s due to interferences by human activities and global warming.
- Just 25 countries hold 90% of the world's cloud forests



Kelp Forests

A study published in the journal Nature revealed that Kelp forests are declining because of climate change.

About Kelp Forests

- Kelp are **large brown algae** that live in cool, nutrient-rich relatively shallow waters close to shore. Because of their dependency upon light for photosynthesis, kelp forests form in shallow open waters and are rarely found deeper than 49-131 feet.
- They grow in **dense groupings** much like a forest on land.
- They provide underwater habitats to hundreds of species of invertebrates, fish, and other algae and have great ecological value.
- It also has economical value like, used as a binding agent in products like ice cream, cereal, ranch dressing, yogurt, toothpaste, lotion and more.

Threats to Kelp Forests

- Water from melting glaciers will reduce salinity and increase turbidity, which affects young kelp.
- Destructive fishing practices, coastal pollution, and accidental damage from boat trawling
- Sea urchins graze kelp forests at a rate of 30 feet per month by moving in herds.
- The uncontrolled growth of sea urchins because of killing of their main predator, starfish, has contributed to the 95% decline in the kelp along the northern California coast.
 - Sea otters, a type of dominant predator, play a key role in controlling population of sea urchin so that kelp forests may thrive.

Lachin Corridor

- It is a mountain road that connects Armenia and the enclave of Nagorno-Karabakh.
- It is often described as a lifeline for residents of Nagorno-Karabakh.
- It has been **blocked** by **Azerbaijani protesters** since December, 2022, protesting about the issue of alleged illegal mining of natural resources in Nagorno-Karabakh.



Cold Wave

- A cold wave is a weather phenomenon that is distinguished by the cooling of the air. It is a rapid fall in temperature within a 24-hour period.
- The Indian Meteorological Department (IMD) marks a cold wave when -
- **For plains:** The minimum temperature recorded must be 10 degrees Celsius (C) or less and is 4.5 degrees (C) less than normal for two consecutive days.
- **For high-altitude hills:** The minimum must be below or at 0 degrees and the highest temperature must be 4.5-6.4 degrees Celsius below normal.
- A severe cold day occurs when the maximum temperature decreases by 6.5 degrees or more below normal.

Factors Contributing to Cold Wave in India

- **Large scale Fog:** It prevents sunlight from reaching the surface and affects the radiation balance. There is no heating in the day time, and then there is the impact of the night.
 - Fog is caused by *light winds and high moisture content near the ground*.
 - Foggy or cloudy nights are usually associated with warmer nights, but if the fog remains for two or three days, cooling begins even at night.
- **Pressure differences** - A build-up of a ridge, or a protracted area of *relatively high atmospheric pressure*, in the jet stream across northwest Asia is one of the causes of cold waves in India.
 - Jet streams are narrow bands of high wind that travel across the globe from west to east.
- **Snow Cover** in the northwest Himalayas also contributes to the formation of a cold wave.
- **Western disturbances** - During the winter months, the passage of western disturbances causes dry, cold north-westerly winds to blow into north and central India, causing minimum temperatures.

ABOUT WESTERN DISTURBANCES

- It is an extra-tropical storm which originates in the Mediterranean region.
- It develops in the mid-latitude region (north of the Tropic of Cancer), not in the tropical region, therefore they are also called mid-latitude storms.
- The disturbance travels from the western to the eastern direction.
- The word Western refers to the direction from which they originate with regard to India.
- Disturbance means an area of *disturbed or reduced air pressure*. Equilibrium exists in nature due to which the air in a region tries to normalise its pressure.

A map showing the path of Western Disturbances. A red dashed line with arrows indicates the movement from the Mediterranean Sea, through the Caspian Sea, across Iran, Afghanistan, and Pakistan, towards India and Uttarakhand. The map also labels the Arabian Sea and Bay of Bengal.

- **La Nina** - Ongoing weaker La Nina phenomenon in the Pacific Ocean also contributes to cold waves.
 - La Nina is characterised by unusually cool ocean surface temperatures along the equatorial Pacific Ocean.
- **Non-seasonal rainfall** or non-monsoon rainfall is another major cause.

The long cold wave spell in Delhi can be attributed to a **large gap between two western disturbances** which allowed the chilly north-westerly winds from the mountains to affect the plains for a longer-than-usual period.

- Mostly there is a gap of three to four days between two western disturbances but this time the period expanded to seven days.

What is the Earth's Innermost Inner Core?

Seismologists at The Australian National University (ANU) recently documented the evidence of a distinct fifth layer of earth at the centermost part of Earth— the “innermost inner core”.

About Earth's Innermost Inner Core (IMIC)

- It is a **400-mile-wide (644-kilometer-wide) ball of metal**.
- IMIC exists in a **solid state** as an alloy of iron and nickel because of the **extreme pressure at the center** of the Earth.
- Its **temperature is estimated to be about 5,500-6,000 degrees** (Celsius/9,930-10,830 Fahrenheit), like the sun's surface temperature.
- The concept of the innermost part of the inner core was **first proposed in 2002 by seismologists from Harvard University**— Miaki Ishii and Adam Dziewonski.
- **Properties:**
 - It is predicted to have very **high thermal and electrical conductivity**.
 - The inner core generates **its own magnetic field and spins a bit faster than the rest of the planet**.

What is Solar Prominence

Scientists recently observed a large prominence near Sun's north pole.

About Solar Prominence

- **Large, loop-like structures on the edge of the solar disk** sometimes **stand out brightly against the dark background of space**. These enormous structures are **called solar prominences**.
- Prominences are anchored to the Sun's surface in the photosphere, and **extend outwards into the Sun's hot outer atmosphere**, called the **corona**.
- They are **much cooler and denser** than the surrounding plasma in the Sun's corona.
- Prominences are **shaped by the Sun's complex magnetic field**, often **forming loops** with each end anchored to the Sun's surface.
- **Some prominences erupt and break apart**, giving rise to **coronal mass ejections (CMEs)**.

What are Solar Filaments

- **Sometimes prominences are observed against the bright background of the Sun itself**, instead of at the edge of the Sun's disk.
- **These prominences appear dark** compared to the bright background of the Sun **and are called solar filaments**.

What are Coronal Mass Ejections (CMEs)

- CMEs are **large expulsions of plasma and magnetic field from the Sun's corona that propagates outward into interplanetary space**.
- The blast of a CME **carries about a billion tons of material out from the Sun at very high speeds** that can **cause geomagnetic storms on Earth**.

About Geomagnetic Storms

- A geomagnetic storm is a **major disturbance of Earth's magnetosphere**.

- These storms **result from variations in the solar wind** that produces **significant changes in the currents, plasmas, and fields in Earth's magnetosphere.**
- **Effects**
 - These storms can **heat the ionosphere, causing beautiful auroras** on Earth.
 - Because the ionosphere is heated and distorted during storms, **long-range radio communication** that relies on sub-ionospheric reflection **gets affected.**
 - **Satellite electronics can be damaged** through the build-up and discharge of static-electric charges.
 - Ionospheric expansion due to these storms can **increase satellite drag and make their orbits difficult to control.**
 - It can **create harmful geomagnetic-induced currents (GICs) in the power grid** and pipelines.

Mammatus Clouds

- These are some of the most unusual and distinctive clouds formations with a series of bulges or pouches emerging from the base of a cloud.
- They are usually formed in association with large cumulonimbus clouds.
- Typically, turbulence within the cumulonimbus cloud will cause Mammatus to form, especially on the **underside** of the projecting anvil as it rapidly descends to lower levels.
- Mammatus clouds generally form in the most unstable cumulonimbus, meaning that there is also a chance of hail, heavy rain and lightning in vicinity, and if air is cold enough during winter, they can produce snow.

Erra Matti Dibbalu

- These are rare red sand dunes, located between Visakhapatnam and Bheemunipatnam in Andhra Pradesh.
- They are fragile and vulnerable to natural degradation.
- Such Sand deposits usually do not occur in equatorial regions or temperate regions.
- Formed around 12,000 years ago due to sea-land interaction; they were home to Neolithic man too.
- It is listed among the 34 notified National Geological Heritage Monument Sites of India.
- Other National Geological Heritage Monument Sites in Andhra Pradesh:
 - Natural Geological Arch, Tirumalla Hills, Chittoor
 - Eparchaeon Unconformity, Chittoor
 - Volcanogenic bedded Barytes, Mangampeta, Cuddapah

Open Pit Mine

- It also known as opencast mining, is a surface mining technique that extracts minerals from an open pit in the ground.
- It is the most common method used throughout the world for mineral mining and does not require extractive methods or tunnels.
- This technique is used when mineral or ore deposits are found relatively close to the surface of the earth.
- Most of the world's annual output of copper, gold, and iron ore is from open-pit mining.

Effects of Open Pit Mining

- It consumes enormous amounts of water.
- It changes geological, hydrological and geotechnical conditions.
- Unrehabilitated pit areas remain at risk of erosion and flooding even after mining are exhausted.

Alternatives to Open Cast Mining

- **In-situ recovery (ISR)** - It is an extraction process designed to leave a mine's physical location undisturbed. It is touted as an environmentally cleaner method of extraction.

- **Block caving mining** - It is an underground mass mining method that allows for the bulk extraction of large, relatively lower grade, ore deposits with substantial vertical dimensions.

Decline in Long-term Groundwater Storage in Ganga Basin

A new estimate has been published in the journal Nature Scientific Reports about Long-term groundwater storage in Ganga basin

Key Findings Of The Study

Long-term groundwater storage in Ganga basin declined at a rate of **2.6 cm per year** between 1996-2017.

- Delhi and Haryana have high groundwater abstraction rates, which explains the steep decline.
- West and southwest areas, including agriculturally intensive regions and urban areas like Delhi and Agra, took the biggest hit.
- Rajasthan, whose groundwater reserves contribute about 90% of the drinking water and 60% of the irrigation, is showing an improvement in groundwater levels in the recent past.
- The Brahmaputra basin, which was not a part of the study, shows more groundwater level reduction than the Ganga and Indus basins.

About Ganga Basin

- It is the largest river basin in the country draining an area of 8,61,452 sq km. It outspreads in India, Tibet (China), Nepal and Bangladesh.
- It is bounded by the Himalayas in the north, the Aravalis in the west, the Vindhyas and the Chotanagpur Plateau in the south, and the Brahmaputra ridge in the east.
- In total, the Ganga has **11 basin states/UT** – Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar, West Bengal, Uttarakhand, Jharkhand, Haryana, Chhattisgarh, Himachal Pradesh and Delhi. (26.3% of the total geographical area of the country).

Namami Gange Programme

The United Nations (UN) has recognised this initiative as one of the top 10 World Restoration Flagships and awarded it on 14th December 2022 - **the World Restoration Day**, at the COP15 to the CBD in Montreal, Canada.

About Namami Gange Programme

- It is an **integrated conservation mission**, approved as 'Flagship Programme' by the Union Government in 2014 with budget outlay of Rs.20,000 Crores.
- It is administered by the **Ministry of Jal Shakti's** Department of Water Resources, River Development and Ganga Rejuvenation.
- The program would be implemented by the **National Mission for Clean Ganga (NMCG)**, and its state counterpart organisations i.e., **State Program Management Groups (SPMGs)**.
 - NMCG is the implementation wing of National Ganga Council (NGC replaced the National Ganga River Basin Authority).
 - NGC was created in 2016 under the River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016, and is headed by the PM.
- To implement the programme, a **three-tier mechanism** has been proposed for project monitoring comprising of:
 - **National level:** A high-level task force chaired by **Cabinet Secretary** assisted by NMCG,
 - **State level:** State level committee chaired by **Chief Secretary** assisted by SPMG
 - District level committee chaired by the **District Magistrate**.
- Its implementation has been divided into -
 - Entry-Level Activities (for immediate visible impact),

- Medium-Term Activities (to be implemented within 5 years of time frame) and
- Long-Term Activities (to be implemented within 10 years).

River Cities Alliance

DHARA (Driving Holistic Action for Urban Rivers) the annual meet of the River Cities Alliance members was organized by the **National Mission for Clean Ganga (NMCG)** in association with the **National Institute of Urban Affairs (NIUA)** in Pune.

- It is a dedicated platform for river cities in India to ideate, discuss and exchange information for sustainable management of **urban rivers**.
- It started with 30 cities in 2021 and currently has 95 cities as members across India.
- It symbolizes the successful partnership of the two Ministries i.e., **Ministry of Jal Shakti and Ministry of Housing and Urban Affairs**.
- Its primary objective is to provide the member cities with a platform to discuss and exchange information on aspects that are vital for sustainable management of urban rivers.

Eastern River Canal Project

Recently, the Madhya Pradesh state government approached the supreme court seeking a stay on an Eastern River Canal Project execution

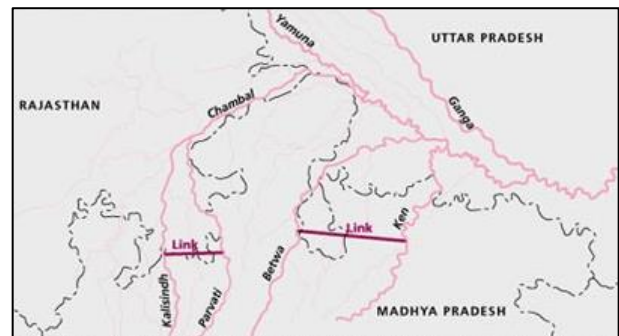
About Eastern River Canal Project

- This canal project aims to harvest surplus water available during the rainy season in rivers in Southern Rajasthan such as **Chambal and its tributaries, including Kunnu, Parvati, and Kalisindh**, and use this water in south-eastern districts of the state, where water is scarce for drinking and irrigation.
- It proposes to provide drinking water to 13 districts of Rajasthan and provide irrigation water for 2.8 lakh hectares of land through 26 different large and medium projects.

Key Facts About the Chambal River

One of the tributaries of the Yamuna River, it originates at the **Singar Chouri peak** on the northern slopes of **the Vindhya mountains**

- On its south, east and west, the basin is bounded by the Vindhyan mountain ranges and on the **northwest by the Aravallis**.
- The Hadauti plateau in Rajasthan occurs in the upper catchment of the Chambal River to the southeast of the Mewar Plains.
- **Tributaries:** Banas, Kali Sindh, Sipra, Parbati, etc.
- **Major Dams on the River:** Gandhi Sagar Dam, Rana Pratap Sagar Dam, Jawahar Sagar Dam.
- The National Chambal Sanctuary is situated along river Chambal on the tri-junction of Rajasthan, Madhya Pradesh and Uttar Pradesh.



Dhauliganga River

- It **rises** in the vicinity of the **border regions** between Garhwal region of **Uttarakhand and southwestern Tibet**.
- It is one of the **important tributaries of Alaknanda**, the other being the Nandakini, Pindar, Mandakini, and Bhagirathi (**meets the Alaknanda River at Vishnuprayag**).
- **Tapovan**, which is **famous for its hot springs**, is **located on the banks** of Dhauliganga.

Siyom River

Defence Minister inaugurated 100-metre-long bridge over Siyom river, close to Arunachal's northern border with China.

About Siyom River

- It is a right bank tributary of Brahmaputra and is a latitudinally flowing river in Arunachal Pradesh.
- River Siyom also known as the Yomgo originates in Tibet. After entering India, it joins Siang (Brahmaputra). It is the largest river of the West Siang district of Arunachal Pradesh.
- The Mouling National Park (in the Abor Hills) is located on the east bank of the river.

Gandak River

Under **Namami Gange Program** (see figure beside), the development of river front on Gandak River has been undertaken and two Ghats have been constructed.

It is an Integrated Conservation Mission, approved as a Flagship Programme by the Union Government in 2014.

It is being operated under the Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti.

It aims to accomplish the twin objectives of effective abatement of pollution and conservation and rejuvenation of National River Ganga.

About Gandak River

Origin	It originates in the north of Dhaulagiri in Tibet near Nepal border.
Course	<ul style="list-style-type: none"> • The river flows through the Bihar and Uttar Pradesh and joins the Ganges near Patna just downstream of Hajipur. • The entry point of the river at the Indo-Nepal border is at the convergence of Gandak, known as Triveni. • It is also known as the Kali Gandaki and Narayani after the confluence with Trisuli in Nepal.
Tributaries	<ul style="list-style-type: none"> • The major tributaries are Mayangadi, Bari, Trisuli, Panchand, Sarhad, Budhi Gandak.
Features	<ul style="list-style-type: none"> • Chitwan National Park of Nepal and Valmiki National Park of Bihar is located just beside each other in the area of Valmiki Nagar around the Gandak Barrage. • It is mentioned in the ancient Sanskrit epic Mahabharata. • It was declared as National Waterway (NW)-37 from Bhaisalotan Barrage to Gandak and Ganga River confluence at Hajipur, Bihar.

New Plateau Type Discovered From Maharashtra

- A rare **low-altitude basalt plateau** has been discovered in Thane region in Western Ghats.
- This is the 4th type of plateau to be identified in the region; the previous three are laterites at high and low altitudes and basalt at high altitudes.
- They are classified as a type of rock outcrop. Rocky outcrops are geological features that protrude above the surface of surrounding land.
- It emerges when the surface soil and other materials wear off, exposing the parent rock surface.

Western Ghats

- Western Ghats are a mountain range running parallel along the western coast of India.
- It passes through the states of Gujarat, Maharashtra, Goa, Tamil Nadu, Karnataka and Kerala.
- It is often called the **Great Escarpment of India**.
- These mountain chains represent geomorphic features of immense importance with unique biophysical and ecological processes.
- The site's high montane forest ecosystems influence the Indian monsoon weather pattern.
- It is one of four global biodiversity hotspots in India. Other three are the **Himalayas, the Indo-Burma region and the Sundaland (includes the Nicobar Islands)**.
- It is recognized as a **UNESCO World Heritage Site**.
- **Anamudi (Kerala)** is the highest peak of Western Ghats.



- These outcrops have seasonal water availability, limited soil and nutrients, making them ideal laboratories to study the effects of climate change on species survival.

Depsang Bulge

- It is a 900 square kilometre area of mountain terrain in the disputed Aksai Chin region.
- It was conceded to India by China in 1960 but remains under Chinese occupation since the 1962 Sino-Indian War.
- The area is immediately to the south of Depsang Plains and encloses the basin of the Burtse Nala. It also provides land access to Central Asia through **Karakoram Pass.**



Vembanad and Ashtamudi Lake

The National Green Tribunal (NGT) imposed a penalty of Rs 10 crore on the Kerala government for failing to protect the Vembanad and Ashtamudi lakes

Vemband Lake	Ashtamudi Lake
<ul style="list-style-type: none"> • It is the largest lake in Kerala and the longest Lake in India. • It has its source in four rivers, Meenachil, Achankovil, Pampa and Manimala. • It is separated from the Arabian Sea by a narrow barrier island and is a popular backwater stretch in Kerala. • It is the 2nd-largest Ramsar site in India, only after the Sunderbans in West Bengal. 	<ul style="list-style-type: none"> • It is 2nd only in size to the Vembanad estuary ecosystem. • Kallada River which originates near Ponmudi from the Kulathupuzha hills Western Ghats is a major river discharging into the Ashtamudi Lake. • The lake is also called the gateway to the backwaters of Kerala and is well known for its houseboat and backwater resorts.
<ul style="list-style-type: none"> • In 2002, both lakes were included in the list of wetlands of international importance, as defined by the Ramsar Convention. 	

Salar de Uyuni

- It is the world's largest salt flat, located in southwest Bolivia.
- A salt flat is a natural landscape in which a large area of flat land is covered by salt.
- It contains over 45% of known global lithium reserves.
- It was formed as a result of transformations between several prehistoric lakes that existed around 40 thousand years ago but had all evaporated over time.

World Wildlife Day 2023 (and 50th Anniversary of first signing of CITES)

March 3 is World Wildlife Day. It is a United Nations International day (Adopted in 2013) to celebrate all the world's wild animals and plants and the contribution that they make to our lives and the health of the planet.

Why March 3 for World Wildlife Day?

- The date chosen coincides with the day of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) which was signed in 1973.
- This World Wildlife Day 2023 is also a celebration of CITES as it turns 50. The theme for World Wildlife Day this year is 'Partnerships for Wildlife Conservation'. (SDG 15)

Recent Reports Related to Environment

Reports (By)	Features/Key Findings
<p>CO2 Emissions in 2022 by International Energy Agency (IEA)</p> <p>About IEA Established in 1974 based in Paris as a response to physical disruptions in global oil supplies and to promote energy savings and conservation.</p>	<ul style="list-style-type: none"> • This report is the first in the IEA's new series, the <u>Global Energy Transitions Stocktake</u>. • The new tracker consolidates the IEA's latest analysis in one place, making it freely accessible in support of the first Global Stocktake in the lead-up to COP 28. • It also provides information on <u>methane and nitrous oxide</u> emissions related to energy. • The biggest sectoral increase in emissions in 2022 came from electricity and heat generation, whose emissions were up by 1.8%.
<p>Global Methane Tracker 2023 (The International Energy Agency's (IEA))</p> <p>Key Publications of IEA</p> <ul style="list-style-type: none"> ➤ World Energy Outlook (WEO) ➤ Net Zero by 2050: a roadmap for the global energy sector ➤ Energy Technology Perspectives (ETP) ➤ Global EV Outlook (GEVO) ➤ Oil Market Report ➤ World Energy Investment 	<ul style="list-style-type: none"> • It is an indispensable resource in the fight to bring down these emissions and implement the Global Methane Pledge. • Fossil fuel companies emitted 120 million metric tonnes of methane into the atmosphere in 2022, only slightly below the record highs seen in 2019. • These companies have done almost nothing to curb the emissions despite their pledges to find and fix leaking infrastructure. • The report said 75% of methane emissions from the energy sector can be reduced with the help of cheap and readily available technology. • The energy sector accounts for around 40% of the total average methane emissions from human activity. <p>Step taken to cut methane emission</p> <ul style="list-style-type: none"> • Around 150 countries have joined the Global Methane Pledge which aims to reduce methane emissions from human activity by 30% from 2020 levels by 2030. • In its part, India has committed to reducing the emissions intensity of its GDP by 35% below 2005 levels by 2030. • The UN has decided to set up a satellite-based monitoring system called The Meth Alert and Response System (MARS).
<p>World Air Quality Report 2022 (By Swiss organisation IQAir)</p> <p>The report is based on PM2.5 air quality data from 7,323 cities in 131 countries, regions and territories around the world.</p>	<ul style="list-style-type: none"> • India is the world's 8th most polluted country in 2022, dropping from the 5th spot the previous year. • A total of 39 Indian cities are on the list of 50 of the world's most polluted cities based on annual average PM2.5 levels in 2022. • Here nearly 60% of the population lives in areas where the concentration of PM2.5 particles is at least seven times higher than WHO's recommended levels. • Lahore is the most polluted city in the world, followed by Hotan in China, and Bhiwadi in Rajasthan. • New Delhi is the second most polluted capital city in the world, with N'Djamena in Chad topping the list.

World's 1st Bamboo Crash Barrier

As part of Aatmanirbhar Bharat, India has developed the world's 1st bamboo crash barrier which has been installed on the Vani-Warora Highway, Vidarbha, Maharashtra.

- Crash barriers are installed on either side of a highway to prevent vehicles from moving out of the road network and also restrict movement of outside elements onto the highways.
- It is a 200m long Bamboo Crash Barrier, named **Bahu Balli**.
- This Bamboo Crash Barrier underwent rigorous testing at various government-run institutions such as the **National Automotive Test Tracks (NATRAX)** in Pithampur, Indore and was rated as Class 1 during the Fire Rating Test conducted at the Central Building Research Institute (CBRI) in Roorkee. It has also been accredited by the Indian Road Congress.
- It is made from Bambusa Balcoa species of bamboo, which has been treated with creosote oil and coated with recycled High-Density Polyethylene (HDPE).

About Bambusa Balcoa

- Bambusa Balcoa, also known as **Female Bamboo**, is a tropical clumping bamboo mainly grown in Northeast India and West Bengal.
- It is commonly used in building material for houses, bridges, fishing floats, scaffolding, baskets etc.

Wildlife Sanctuaries (WLS) In News

Shendurney Wildlife Sanctuary

- It is a protected area located in the Western Ghat (a UNESCO World Heritage Site), Kerala.
- It comes under the control of Agasthyamalai Biosphere Reserve.
- It owes its name to the endemic tree species, Gluta travancorica, locally known as **Chenkurinnji**.
- It has an artificial lake and surrounded by the reservoir of **Thenmala Dam**.
- Tropical evergreen and semi-evergreen forests cover a major area of the sanctuary.
- The 1st eco-tourism project in India, the Thenmala Eco-Tourism Project has been developed in and around this sanctuary.

Thanthai Periyar Wildlife Sanctuary

The Tamil Nadu Government has announced the notification of Thanthai Periyar Wildlife Sanctuary, making it the 18th wildlife sanctuary in the state.

- It is situated at proximity with the Malai Mahadeshwara wildlife sanctuary, Biligiri Ranganatha Swamy Temple Wildlife Sanctuary, Cauvery wildlife sanctuary.
- It acts as the connecting point between Nilgiris Biosphere Reserve and Cauvery South Wildlife Sanctuary.
- This sanctuary is home to various wild animals including tigers, elephants, leopards, wild boars, gaurs and deer.

Mhadei / Mahadayi Wildlife Sanctuary

Under the banner of Save Mahadayi Save Goa, the activists reiterated their demand to notify Mahadayi Wildlife Sanctuary as a Tiger Reserve.

About Mhadei Wildlife Sanctuary

- It is located in the Northern Part of Goa.
- There are a number of picturesque waterfalls within the sanctuary boundaries. The most prominent are the Vazra Sakla Falls and the Viridi Falls.
- It is thickly forested with moist deciduous vegetation and some evergreen species too.

- The sanctuary is being considered for being elevated to the status of a Project Tiger Reserve because of the presence of Royal Bengal Tigers.
- The three highest peaks in Goa – Sonsogod, Talache Sada and Vageri are located in the hill ranges within the sanctuary.

Sunabeda Wildlife Sanctuary

- It is a proposed tiger reserve located in the Nuapada, Odisha, adjoining Chhattisgarh.
- It adjoins the Sitanadi and Udanti sanctuaries of Chhattisgarh.
- It harbors a great diversity of wildlife habitats with a vast plateau, canyons, and 11 waterfalls.
- The sanctuary forms the catchment area of the Jonk River, on which a dam has been constructed to facilitate irrigation.
- The Indra nullah and Udanti River lies to the south of the sanctuary.

Katarniaghat Wildlife Sanctuary (KWS)

- Situated in the **Upper Gangetic plain** falling in the Terai of **Bahraich district of Uttar Pradesh, it is the part of Dudhwa Tiger Reserve, Lakhimpur kheri.**
- The Katarniya Ghat Forest provides **strategic connectivity between tiger habitats of India and Nepal.**
- **Flora:** The sanctuary has a mosaic of **Sal and Teak forests**, lush grasslands, numerous swamps and wetlands.
- **Fauna:** It is home to a number of endangered species including **gharial, tiger, rhino, Gangetic dolphin, Swamp deer, Hispid hare, Bengal florican, the White-backed and Long-billed vultures.**

Tansa Wildlife Sanctuary

The first-ever bird survey in Tansa Wildlife Sanctuary was conducted recently, and the volunteers recorded 186 species of birds.

About Tansa Wildlife Sanctuary:

- It is in the **Thane District of Maharashtra**, the foothills of the **Western Ghats.**
- It has **two rivers, the Tansa and Vaitarna**, and the sanctuary gets its **name from the former, which divides the sanctuary into two parts.**
- **Vegetation:** The Sanctuary has **Southern Tropical Moist Deciduous Forest**, with a few patches of **Evergreen Forest.**
- **Flora:** It consists of trees like **Kalamb, Bibla, Khair, Hed, Teak, and Bamboo.**
- **Fauna:**
 - At least **54 species of animals and 200 species of birds** exist in the sanctuary.
 - Major wild animals are **Panther, Barking deer, Mouse deer, Hyena, Wild boar,**
 - Two **Critically Endangered Gyps species of vultures**, the Vulnerable Pallas's Fish-Eagle *Haliaeetus leucoryphus*, is also seen here.

National Chambal Sanctuary

- It is also known as National Chambal Gharial Wildlife Sanctuary
- It was founded over the Chambal River in 1979 under the **crocodile conservation project** to protect Indian Gharials as a riverine sanctuary.
- It is called a tri-state sanctuary due to its diverse area in three states, Madhya Pradesh, Uttar Pradesh and Rajasthan.
- It is listed as an Important Bird Area (IBA) and is a proposed Ramsar site.

Bird Sanctuaries In News

Thane Creek Flamingo Bird Sanctuary (TCFS)

- TCFS also referred to as the **Airoli Flamingo Sanctuary**, is the **first flamingo sanctuary in India** located along the western bank of the Thane creek.
- It encompasses more than **1600 hectares of mudflats, mangroves, and water bodies**.
- The area was **declared a flamingo sanctuary in 2015** and is home to substantial bird life – both residential and migratory.
- TCFS was **declared a Ramsar site** by the International Wetlands Convention in **2022**.
- **Flora: Avicennia marina, Rhizophora mucronata, Acanthus ilicifolius, Aleuropus lagopoides, Sesuvium protulacastrum**etc.
- **Fauna:** Over **205 species of birds** have been reported from this area, including **Lesser Flamingo, Greater Flamingo, Asian Openbill, White Stork, Pied Avocet, Eastern Golden Plover**, etc.

Saman Bird Sanctuary

- There has been a decline in the number of migratory bird species at Saman Bird sanctuary.
- It is a Ramsar site, located in Mainpuri district of Uttar Pradesh.
- It is a seasonal oxbow lake on the Ganges floodplain and is heavily reliant on south-westerly monsoon.
- Sanctuary regularly provides refuge to over 50,000 waterbirds and is particularly important as a wintering site for many migrants.
- Vulnerable species including sarus crane and greater spotted eagle are also found.

National Parks In News

Kaziranga National Park

The Union Ministry of Environment, Forest and Climate Change recently sought a “factual report” on the rhino population enumeration conducted in the Kaziranga National Park and Tiger Reserve in March 2022.

About Kaziranga National Park:

- **Location:** It is in the Golaghat and Nagaon districts of **Assam**.
- Declared as a **national park in 1974** it is also a **UNESCO World Heritage Site** and **houses two-thirds** of the total **world population of the greater one-horned rhinoceros**.
- It is the **largest undisturbed area in the Brahmaputra Valley floodplains**.
- **Vegetation:** It is a mix of eastern **wet alluvial grasslands, semi evergreen forests** and **tropical moist deciduous forests**.
- **Flora:**
 - It has **dense and tall elephant grasses** intermixed with **small swamplands**, includes an **abundant cover of water lilies, water hyacinths and lotus**.
 - **Rattan Cane**, a type of climbing palm, is also found here.
- **Fauna:**
 - **One-horned rhinoceros, Leopard, Fishing Cat**, other Lesser cats, **royal Bengal tiger**, Large Indian Civet, Small Indian Civet, Sambar, **Barking deer, Hog deer**, Gaur, Hog Badger, Capped Langur, etc.
 - It is also one of the **last remaining homes** of the **endangered and endemic western hoolock gibbon**, the **only species of apes found in India**.
 - It is home to approximately **478 species of both resident and migratory birds**.
 - It is one of the last homes of the **critically endangered Bengal florican**.

Keoladeo National Park

The Rajasthan state Forest Department has recently proposed to construct a zoo inside Keoladeo National Park.

- The Keoladeo National Park formerly known as the Bharatpur Bird Sanctuary (East Rajasthan), hosts thousands of birds, especially during the winter season.

- It is strategically located in the middle of the **Central Asian migratory flyway**.
- The **Siberian crane** is one of the rare species that was spotted here till about the turn of the century.
- **Fauna:** Sambar, Nilgai, wild cats, hyenas, wild boar, birds, including raptors and waterfowl, and Jackals.
- It is a **Ramsar site** and a **UNESCO World Heritage Site**.

Eravikulam National Park

Eravikulam National Park (ENP), a natural habitat for the endangered Nilgiri tahr (*mountain goat*), has witnessed an early onset of the breeding season with two tahr births.

- It is located in the high range (Kannan Devan Hills) of the southern Western Ghats in Idukki district, Kerala.
- It hosts the highest peak of South India, Anamudi (2695 m) in its southern region.
- It was designated as a sanctuary in 1975 to protect the indigenous Nilgiri Tahr population. And it was designated as a national park in 1978.
- Half the world population of the **endangered** Nilgiri Tahr lives here.
- A major part of the park is covered with rolling grasslands, but several patches of **shola forests** are also found in the upper part of the valley.
- This Park is known for “Neelakurinji,” a flower that blooms only once every twelve years.
 - Neelakurinji blooms in altitudes between 1,600 and 2,695 meters in the Western Ghats and grows abundantly in the shola grass land above 1,800 meters. It is believed that the name Nilgiris (literally means Blue Mountains) itself came from the purplish-blue flowers of Neelakurinji.

Mollem National Park

Malabar tree toad found in Mollem National Park which is threatened by three infrastructure project finds mentioned in the updated ‘Checklist of Indian Amphibians (2023)’ released by the Zoological Survey of India.

About Malabar Tree Toad

- It is a small species found in the forest **along the Western Ghats** in wet tree hollows or leaf bases containing water.
- This **toad species** is **found mainly during the monsoon season** and then it disappears.
- It is believed to be the only toad to **dwell on high canopies**.
- Its population is shrinking mainly due to habitat loss, climate change and **Batrachochytrium dendrobatidis**, a deadly fungus that has been decimating entire amphibian populations worldwide.
- **Conservation status**
 - **IUCN: Endangered**

Key Facts about Mollem National Park

- It is in Sanguem taluk in **Goa** close to the border with Karnataka.
- This park also has several temples dating back to the Kadamba Dynasty.
- The park was earlier known as Mollem game sanctuary.
- It was declared a wildlife sanctuary in 1969 and renamed **Bhagwan Mahaveer Sanctuary**.
- Since then, the national park is called Bhagwan Mahaveer Sanctuary and Mollem National Park.
- **Fauna:** King Cobra, Hump-nosed pit viper, Indian rock python and Malabar pit viper

National Tiger Conservation Authority (NTCA)

- It is a **statutory body** under the **Ministry of Environment, Forest, and Climate Change (MoEFCC)**.
- It was **established in 2005 under Wildlife (Protection) Act 1972** for fostering **accountability of Center-State in management of Tiger Reserves**
- **NTCA Members:**

- **Minister in charge of MoEFCC (as Chairperson),**
- **Minister of State in MoEFCC (as Vice-Chairperson),**
- **Three members of Parliament, the Secretary (MoEFCC),** and other members.

‘Project Tiger’

- It is a **Centrally Sponsored Scheme (CSS)** of the **MoEFCC**.
- It was **launched on 1st April 1973**.
- It **provides funding support to tiger range States for the in-situ conservation of tigers** in designated tiger reserves.
- **National Tiger Conservation Authority (NTCA)** is the immediate **supervising agency**.

Tiger Reserves in News	
Valmiki Tiger Reserve (VTR)	<ul style="list-style-type: none"> ● The Bihar state government has decided to increase rhino-bearing areas in Valmiki Tiger Reserve (VTR) in the next two years. ● Valmiki Tiger Reserve forms the easternmost limit of the Himalayan Terai forests in India, ● It is the only tiger reserve of Bihar which is situated in the Gangetic Plains bio-geographic zone of the country ● The forest of this region has a combination of bhabar and terai tracts. ● Rivers Gandak (west of VTR), Pandai, Manor, Harha, Masan and Bhapsa flow through various parts of the reserve.
Debrigarh Tiger Reserve	<ul style="list-style-type: none"> ● NTCA approved Odisha’s Proposal to declare Debrigarh a Tiger Reserve. ● Located near the Hirakud dam at Sambalpur, spread over an area of 347 sq km Dibrugarh Wildlife Sanctuary is one of the famous tourist destinations of western Odisha. ● It will become the third tiger reserve in Odisha after Simlipal and Satkosia. ● It was declared as a wildlife sanctuary in 1985 and situated in the Bargarh district of Odisha near Hirakud dam (Mahanadi River). ● It finds a special mention because of noted freedom fighter veer Surendra Sai. During his rebellion against the British Veer Surendra Sai made his base at ‘Barapathara’ located within the sanctuary.
Bandipur Tiger Reserve	<ul style="list-style-type: none"> ● It was established in the 1930s as a wildlife sanctuary, which became a tiger reserve in 1973 under Project tiger. ● It is situated in two contiguous districts (Mysore and Chamarajanagar) of Karnataka and located at the tri-junction area of the States of Karnataka, Tamil Nadu and Kerala. ● Bandipur Tiger Reserve is surrounded by: <ul style="list-style-type: none"> ➤ Nagarahole Tiger Reserve (Tamil Nadu) in the Northwest (Kabini Reservoir separates the two). ➤ Mudumalai Tiger Reserve (Tamil Nadu) in the South. ➤ Wayanad Wildlife Sanctuary (Kerala) in the Southwest. ● This area has the river Kabini in its north and River Moyar in its south.
Similipal Tiger Reserve (STR)	<ul style="list-style-type: none"> ● STR is located within the Mayurbhanj District, in the Northern-most part of Odisha. ● It is surrounded by high plateaus and hills, the highest peak being the twin peaks of Khairiburu and Meghashini. ● The terrain is mostly undulating and hilly, interspersed with open grasslands and wooded areas.

	<ul style="list-style-type: none"> It was declared a 'Tiger Reserve' in the year 1956 and included under the national conservation programme 'Project Tiger' in 1973. It has been included as a part of the World Network of Biosphere Reserves by UNESCO in the year 2009. It is the only landscape in the world that is home to melanistic tigers.
Corbet Tiger Reserve	<ul style="list-style-type: none"> It is in the Nainital district of Uttarakhand (Patli Dun valley). The Ramganga, Sonanadi, Palain and Mandal, and Kosi rivers form the prominent hydrological resource for the Corbett. The core area of the reserve contains Corbett National Park, and the Sonanadi Wildlife Sanctuary is part of its buffer area. <p>Nearby Related Places</p> <ul style="list-style-type: none"> Sitabani Forest Reserve: The place magnetizes millions of bird watchers yearly. It is also to be the place where Goddess Sita rested throughout the exile, and a very old temple dedicated to Sage Valmiki is also positioned in the reserve. Garjiya Devi Temple: This revered shrine is to be found on the bank of Koshi River amidst the Jim Corbett National Park.
Orang National Park	<ul style="list-style-type: none"> It is located on the north bank of the Brahmaputra River in the state of Assam. It was established as a sanctuary in 1985 and declared a National Park on 13 April 1999. It is also a Tiger Reserve of the country which was notified in 2016. It is also known as the mini Kaziranga National Park (IUCN site) since the two parks have a similar landscape made up of marshes, streams and grasslands and are inhabited by the Great Indian One-Horned Rhinoceros.



Committee to Oversee Transfer and Import of Captive Wild Animals in India

The Supreme Court has increased the jurisdiction and powers of a high-powered committee.

What Changes Have Been Made In The Jurisdiction?

From Regional to National

- The ambit of the committee was earlier restricted to Tripura and Gujarat. It will now have a wider responsibility and will cater to all wild animals in need of rehabilitation or rescue anywhere in India.

Larger Role to the Committee

- The committee can consider requests for approval, dispute, or grievance regarding the welfare of wild animals by rescue centres or zoos across India.
- The Supreme Court ordered the Central and State authorities to report the seizure of wild animals or the release of captive wild animals to the committee.

Enlarging Committee

- State Chief Wildlife Wardens will also be part of the committee.

About High-Powered Committee on Wild Animals

Composition

- It is set up under the chairmanship of former judge Justice Deepak Verma.
- The other members of the committee include the Director General of Forests, Head of Project Elephant Division (MoEF) and Member Secretary (Central Zoo Authority of India) and Chief Wildlife Warden(s) of the State(s) to which the issue relates will be co-opted as Members.

Mandate: To consider approval, dispute, or grievance concerning the **transfer or import of wild animals** into India or their procurement or welfare by any rescue or rehabilitation center or zoo.

Powers and Functions:

- All State and Central authorities shall report the seizure of wild animals or abandonment of captive wild animals to the Committee.
- The Committee shall be at liberty to recommend the transfer of ownership of captive animals or of seized wild animals to any willing rescue center or zoo for their immediate welfare, care, and rehabilitation.
- The Committee is free to conduct necessary checks and to undertake fact-finding exercises in any pending or future complaint.

Multi-Angle Imager for Aerosols Mission

The NASA and Italian Space Agency ASI (Agenzia Spaziale Italiana) will build and launch the Multi-Angle Imager for Aerosols (MAIA) missions.

- The mission is set to launch before the end of 2024.

About Multi-Angle Imager for Aerosols Mission (MAIA)

- MAIA is the first mission by the agency whose primary goal is to benefit **societal health**. Epidemiologists and public health researchers will be directly working on the development of a satellite mission.
- It is a state-of-the-art satellite instrument producing data that will be used in health studies to examine the health effects of various types of air pollution.
- It will consist of the PLATiNO-2 satellite, which will be provided by ASI, and a science instrument that will be built at NASA's Jet Propulsion Laboratory (JPL).

- The 3-year mission will focus on 11 primary target areas: Los Angeles, Atlanta, Boston, Rome, Addis Ababa, Ethiopia, Barcelona, Spain, Beijing, Johannesburg, **New Delhi**, Taipei, Taiwan and Tel Aviv.
- Its measurements of sunlight reflecting off airborne particles will help researchers determine the abundance, size and optical properties of certain pollutants in the atmosphere.

IPCC Published Its Synthesis Report

The 4th and final instalment of the sixth assessment report (AR6) by the Intergovernmental Panel on Climate Change (IPCC) was released.

About Synthesis Report

- It is supposed to be a relatively **non-technical summary** of the previous reports, aimed largely at policymakers around the world.
- This report is meant to address a wide range of policy-relevant scientific questions related to climate change, but, like all IPCC reports, in a non-prescriptive manner.
- This will bring an end to the Sixth Assessment Report, a collective work of thousands of scientists over a period of **eight years**, starting in February 2015.

Key Findings Of This Report	Recommendations In This Report
<ul style="list-style-type: none"> • Human-induced global warming of 1.1 degrees C has spurred changes to the Earth's climate that are unprecedented in recent human history. • Adaptation measures can effectively build resilience, but more finance is needed to scale solutions. • There is a more than 50% chance that global temperature rise will reach or surpass 1.5 degrees C (2.7 degrees F) between 2021 and 2040 	<ul style="list-style-type: none"> • Deep systemic changes are needed across all economic sectors to reduce emissions. Some steps include: <ul style="list-style-type: none"> ➤ Widespread electrification ➤ Diversifying energy generation to include more wind, solar, and small-scale hydropower ➤ Conserving and restoring forests while also reducing tropical deforestation. • Accelerated financial support for developing countries from developed countries is a critical enabler, with a greater focus needed on public grant-based finance.

Extra Mile
<p>IPCC</p> <ul style="list-style-type: none"> • It is an intergovernmental body established in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP). • Headquarter is at Geneva, Switzerland. • It serves to provide policy makers with a regular assessment of the scientific basis of climate change, its impacts and future risks, and adaptation and mitigation options. • <i>IPCC does not conduct its own research, nor does it monitor climate related data or parameters.</i> Thousands of people from all over the world contribute to the work of the IPCC. <p>IPCC Assessment Reports (AR)</p> <ul style="list-style-type: none"> • IPCC Assessment Reports (AR) cover the full scientific, technical and socio-economic assessment of climate Change. It is generally divided into following parts: • IPCC Assessment Report = Working Group (WG) I Report + WG II Report + WG III Report + Three Special Reports + Methodology Reports + Synthesis Report

- Five Assessment Reports have been completed in 1990, 1995, 2001 and 2007, 2014. The IPCC is now in its sixth assessment cycle, in which it is producing the Sixth Assessment Report (AR6).
- For AR 6, Three Special reports have been published including:
 - 1) Special Report on Global Warming of 1.5°C (2018)
 - 2) Special Report on Climate Change and Land (2019)
 - 3) Special Report on the Ocean and Cryosphere in a Changing Climate (2019)
- Methodology reports provide practical guidelines for the preparation of greenhouse gas inventories under the UNFCCC.
- The Synthesis report is the last of the AR6 publications to inform the 2023 Global Stocktake by UNFCCC.

Earth Hour

- It is a global grassroots movement organized by World Wildlife Fund (WWF) to unite people to act on environmental issues and protect the planet.
 - ✓ WWF is an international non-governmental organization (NGO) founded in 1961 in Morges, Switzerland with objective to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.
- It was started as a lights-off event in Sydney, Australia, in 2007 and takes place on the last Saturday of March every year.
- It encourages people to switch off all non-essential lights for an hour, from 8:30 pm to 9:30 pm local time.

Green Tug Transition Programme

The Union Minister of Ports, Shipping & Waterways (MoPSW) and Ayush announced the **Green Tug Transition Programme (GTPP)**.

About Green Tug

Green Hybrid Tugs will be powered by Green Hybrid Propulsion systems and subsequently adopt non-fossil fuel solutions like Methanol, Ammonia, and Hydrogen.

About Green Tug Transition Programme

- Its objective is to convert all tugboats working in the country into Green Hybrid Tugs in all major ports by 2025.
- National Centre of Excellence in Green Port & Shipping (**NCoEGPS**) will act as the nodal entity for this programme.
- India aims at becoming a Global Hub for Green Ship building by 2030 with the launch of this programme.

National Centre of Excellence in Green Port & Shipping (NCoEGPS)

- It works under the Ministry of Ports, Shipping and Waterways and is situated in Gurugram, Haryana.
- Its objective is to provide sustainable solutions for the shipping sector and to ensure the sector's shift towards carbon neutrality and circular economy (CE).
- The Energy and Resources Institute (TERI- Non-profit institution Established in 1974 with Headquarter at New Delhi) is the knowledge and implementation partner of the NCoEGPS.

Aravalli Green Wall Project


The Union Minister for Environment, Forest and Climate Change, unveiled the Aravalli Green Wall Project on the International Day of Forests (March 21).

About Aravalli Green Wall Project

- This project is part of the National Action Plan to Combat Desertification and Land Degradation Through Forestry Interventions to create green corridors across the country.
- It is a significant undertaking aimed at afforesting the 5 km buffer zone around the Aravalli Hill Range in Haryana, Rajasthan, Gujarat and Delhi.

- It will involve planting native species of trees and shrubs on wasteland, scrubland, and degraded forest land along with rejuvenating and restoring surface water bodies such as ponds, lakes and streams.
- The project will also focus on agroforestry and pasture development to enhance the livelihoods of local communities by providing them with employment opportunities.
- It is inspired by Africa's 'Great Green Wall' project, running from Senegal (West) to Djibouti (East), which came into effect in 2007.

Aravali Mountain Range (oldest fold mountains on Earth)



- It spans over 800km from Gujarat to Delhi through Rajasthan and Haryana.
- The highest peak in the Aravalli Range is Guru Shikhar (at 1,722 metres (5,650 ft)) on Mount Abu.
- During monsoons, it gently guides the monsoon clouds eastwards towards Shimla and Nainital, thus helping nurture the sub-Himalayan rivers and feeding the north Indian plains.
- In the winter months, it protects the fertile alluvial river valleys (the para-Indus and Gangetic) from the assault of cold westerly winds from Central Asia.
- Three major rivers originate from the Aravali hills, namely Banas, Sahibi and Luni River.

Extra Mile

Other Initiatives/Bodies/Rules in India to combat Desertification

1) National Action Plan to Combat Desertification (NAPCD)

- It is a comprehensive plan launched by the Government of India in 2010 to address desertification, land degradation, and drought in the country.
- The plan is part of India's efforts to implement the United Nations Convention to Combat Desertification (UNCCD), of which India is a signatory.

2) National Afforestation and Eco-Development Board (NAEB)

- NAEB is a national level organization established in India in 1992 with aim of promoting afforestation and eco-development activities in degraded and desert areas of the country.

3) National Bamboo Mission

- This Mission (Launched in 2006) has the potential to contribute to the conservation of forests and the reduction of desertification in India.

4) The Green India Mission (GIM)

- GIM is launched in 2015 as part of the National Action Plan on Climate Change (NAPCCC) with prominent objectives to increase the forest cover in the country from the current 24% to 33% by the year 2030.

5) National Land Use and Conservation Board:

- This Board is responsible for promoting sustainable land use practices and combating desertification in India.

6) Delhi Declaration:

- India hosted the COP 14 to UNCCD and adopted new targets under Delhi Declaration with aim to raise its total area that would be restored from its land degradation status, from 21 million hectares to 26 million hectares till 2030.
- India also set up a Centre of Excellence at the Forest Research Institute, Dehradun, for providing technical assistance to meet the challenges.

Best Practices Around The World To Reverse Desertification

1) Green Belt Movement (GBM)

- Green Belt Movement is an NGO founded in Kenya in 1977 by environmental & political activist Wangari Maathai. GBM works at the grassroots, national, and international levels to promote environmental conservation

2) Miyawaki Method

- It is a form of urban forestry to restore degraded urban landscapes, while also enhancing the resilience of urban environments to the impacts of climate change.
- It involves planting a mixture of native tree species at high densities in compact plots, which allows the forest to develop quickly and naturally.

3) Sustainable Development Goal- 15 (SDG-15, Life on Land):

- SDG-15 is part of the United Nations' 2030 Agenda for Sustainable Development.
- The goal is to "protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss."

4) The Bonn Challenge

- The Bonn Challenge seeks to restore degraded and deforested lands to contribute to climate change mitigation, biodiversity conservation.
- It was launched in 2011 by the International Union for Conservation of Nature (IUCN) and the German government.
- This Challenge aims to bring 150 million hectares of degraded and deforested lands into restoration by 2020 and 350 million hectares by 2030.
- To achieve the above goals, it relies on a flexible approach to restoration called forest landscape restoration (FLR).

Forest Certification In India

- Forest Certification offers a **multi-layer audit system** that seeks to authenticate the origin, legality, and sustainability of forest-based products.
- It is a process by which independent third-party organizations verify that a forest or forest product has been managed in accordance with certain environmental, social, and economic standards.
- The certification is done to avoid consumption of any product that might be the result of deforestation or illegal logging.
- Currently, forests in only one state **Uttar Pradesh** are certified.
- The standards have been developed by the New Delhi-based non-profit *Network for Certification and Conservation of Forests (NCCF)*.

Galathea Bay

- It is situated on the **Great Nicobar Island** and is part of the Great Nicobar Biosphere Reserve.
- It is included in Coastal Regulation Zone (CRZ)-I, the zone with maximum protection.
- It is home to the indigenous **Shompen community**.
- It is the prime nesting habitat of the Nicobar Megapode, Species of bird.
- In January 2021, the Standing Committee of the National Board for Wildlife (NBWL) **declassified** the entire Galathea Bay Wildlife Sanctuary to allow the port.

UN 2023 Water Conference

- The conference took place in March 2023 at the United Nations Headquarters in New York.
- It was co-hosted by the Government of **Tajikistan** and the Kingdom of the **Netherlands**.

- It marks the halfway point through the International Decade (2018-2028) for Action “Water for Sustainable Development”, adopted by the UN General Assembly on World Water Day – 22 March 2018 – to help put a greater focus on water.
- This was the 2nd UN conference dedicated to water, after the 1977 conference in Mar del Plata, Argentina.
- It aims to urgently tackle the water crisis and get the world back on track on Sustainable Development Goal 6 - Clean Water and Sanitation.

Bauxite Mining in India

- The raw material of aluminium is known as bauxite ore.
- It is generally found in the region close to laterite rocks.
- It is mainly found in the peninsular, coastal and hill ranges, such as Odisha, Gujarat, Jharkhand, Maharashtra, Chhattisgarh, Tamil Nadu and Madhya Pradesh etc.
- Odisha is the largest bauxite ore-producing state.

Sulphur Coated Urea

- It is a fertilizer that is made by coating urea with sulphur.
- It helps in slow release of nitrogen, therefore it reduces nitrogen losses and increases nitrogen availability and uptake.
- Sulfur is a low-cost plant macronutrient and is suitable for fertilizer coating because of its ability to melt at a high temperature (at about 156°C).
- Sulfur is also chosen due to its degradability and improved dry matter production.

DAP and Nano DAP

DAP (Diammonium phosphate)	Nano DAP
1) world’s most widely used phosphorus fertilizer 2) excellent source of phosphorus and nitrogen for plant nutrition 3) highly soluble and thus dissolves quickly in soil to release plant-available phosphate and ammonium	1) unique liquid fertilizer product that contains nanoparticles of DAP 2) One bottle will be equivalent to one bag of DAP 3) jointly manufactured by Indian Farmers Fertiliser Cooperative (IFFCO) in association with a private player Coromandel

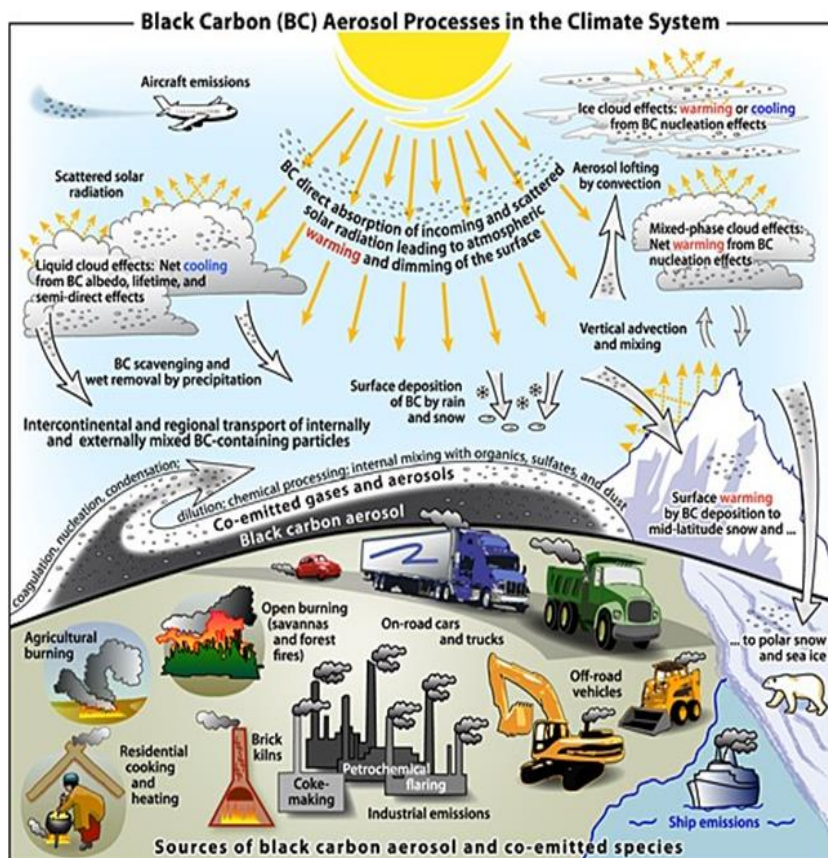
South Asian Black Carbon Aerosols

According to a study, Black carbon aerosols have affected the **mass gain of the Tibetan Plateau glaciers** by changing long-range water vapour transport from the South Asian monsoon region.

Impact of Black Carbon Aerosols on South Asia

- The South Asia region adjacent to Tibetan Plateau has among the highest levels of black carbon emission in the world.
- Black carbon aerosols in South Asia heat up the middle and upper atmosphere, thus increasing the **North–South temperature gradient**.
- Accordingly, the **convection** activity in South Asia is enhanced, which causes convergence of water vapour in South Asia.

- Black carbon also increases the number of **cloud condensation nuclei** in the atmosphere
- These changes in meteorological conditions make more **water vapour form precipitation** in South Asia, and the northward transport to the Tibetan Plateau was weakened.
- As a result, the precipitation in the **central and southern Tibetan Plateau is reduced** during the monsoon.
- The decrease in precipitation further leads to a decrease of mass gain of glaciers.
- From 2007 to 2016, the reduced mass gain by precipitation accounted for 11% of the average glacier mass loss on the Tibetan Plateau and 22.1% in the Himalayas.



About Black Carbon Aerosols

- Also called soot, it is part of fine particulate air pollution (PM2.5).
- It is formed by the incomplete combustion of fossil fuels, wood and other fuels.
- It is a short-lived climate pollutant with a lifetime of only days to weeks after release in the atmosphere.

Impact Of Black Carbon Aerosols

- It is an important contributor to warming because it is very effective at absorbing light and heating its surroundings.
- It also influences cloud formation and impacts regional circulation and rainfall patterns.
- It's deposition in snow reduces the **albedo of surfaces**, a measure of how much of Sun's radiations are reflected.
- It accelerates the melting of glaciers and snow cover, thus changing the hydrological process and water resources in the region.

SAFAR System

- It is an air quality monitoring system, which stands for **System of Air Quality Forecasting and Research**.
- It is introduced by the Ministry of Earth Sciences (MoES) to provide **location specific** information on air quality in near real time and its forecast upto 3 days in India.
- It has been combined with the early warning system on weather parameters.
- It is developed by Indian Institute of Tropical Meteorology (IITM),

How is the Air Quality Index (AQI) calculated in India?

- It is calculated based on the average concentration of a particular pollutant measured over a standard time interval.
 - 24 hours for most pollutants, 8 hours for carbon monoxide and ozone.
- **Eight individual pollutants** are monitored for the calculation of AQI in India.
 - These are **PM10, PM2.5, nitrogen dioxide, Sulphur dioxide, carbon monoxide, ground-level ozone, ammonia, and lead.**
- To calculate AQI, data for a minimum of three pollutants must be present, of which one should be either PM10 or PM2.5.

AIR QUALITY INDEX (AQI)	CATEGORY
0-50	Good
51-100	Satisfactory
101-200	Moderate
201-300	Poor
301-400	Very Poor
401-500	Severe

Pune, along with India Meteorological Department (IMD) and National Centre for Medium Range Weather Forecasting (NCMRWF).

- Its objective is to increase *awareness among the general public* regarding the air quality changes in their city well in advance so that appropriate mitigation measures and systematic action can be taken up for betterment of air quality and related health issues.

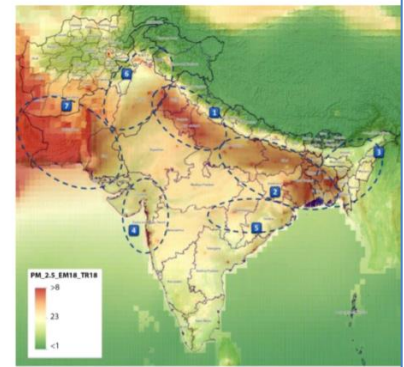
World Bank Report on Air Pollution

India's Scenario

- India has in total six large airsheds, some of them shared with Pakistan.
- The World Bank defines an airshed as a common geographic area where pollutants get trapped, creating similar air quality for everyone. An airshed is the volume over an area of land in which airborne chemicals travel to reach a particular body of water

6 airsheds of India are

- **West/Central Indo-Gangetic Plain (IGP)** that included Punjab (Pakistan), Punjab (India), Haryana, part of Rajasthan, Chandigarh, Delhi, Uttar Pradesh.
- **Central/Eastern IGP:** Bihar, West Bengal, Jharkhand, Bangladesh
- **Middle India:** Odisha/Chhattisgarh
- **Middle India:** Eastern Gujarat/Western Maharashtra
- **Northern/Central Indus River Plain:** Pakistan, part of Afghanistan; and
- **Southern Indus Plain and further west:** South Pakistan, Western Afghanistan extending into Eastern Iran.



South Asia's Scenario

- Currently over 60% of South Asians are exposed to an average 35 µg/m³ of PM_{2.5} annually.
- In some parts of the Indo-Gangetic Plain it spiked to as much as 100 µg/m³ nearly 20 times the upper limit of 5 µg/m³ recommended by WHO
- South Asia is home to 9 of the world's 10 cities with the worst air pollution, which causes an estimated 2 million premature deaths across the region each year.

Global International Biofuel Alliance (GIBA)

Launched during **India Energy Week 2023**, GIBA will help create a favorable ecosystem for promoting development and deployment of biofuels.

- The key stakeholders include - US, Brazil, EU, IEA etc. under **India's G20 Presidency**.
- Biofuel is a liquid, solid, or gaseous fuel produced by conversion of biomass such as bioethanol from sugar cane or corn, charcoal or woodchips, and biogas from anaerobic decomposition of waste.
- The alliance will work in collaboration with existing regional and international agencies, broadly including the Clean Energy's Biofuture Platform, Mission Innovation Bioenergy Initiatives and the Global Bioenergy Partnership.

Viologen-unit Grafted Organic-framework (iVOFm)

To tackle the problem of **Water contamination**, Indian Institute of Science Education and Research (IISER), Pune came up with **iVOFm technique**.

- There are carcinogenic pollutants in freshwater sources that are removed using sorbent materials and ion-exchange techniques, but these techniques are not effective enough. iVOFm aims to improve this.

Ion-Exchange (IX) is a process of purifying water by replacing dissolved impurity ions with hydrogen and hydroxyl ions. Water softeners are similar to IX systems in that they can remove magnesium and calcium ions from water.

About iVOFm

- It is a **custom-designed** unique **molecular sponge-like material**, which can swiftly clean polluted water by soaking up contaminants in it.

- The material employs **amalgamation of electrostatics driven ion-exchange** combined with **nanometer-sized macropores** and **specific binding sites** for the targeted pollutants.
- This material features inherent **cationic nature and microporosity** to allow fast diffusion of pollutants.
- Unlike normal **sorbent materials**, this material is found to be very **selective toward toxic pollutants**. It can be used several times just like a bath sponge.

2022 Restoration Barometer Report

- 2022 Restoration Barometer Report released by IUCN.
- It has highlighted that the investments of \$26bn across 18 countries have brought 14 million hectares of degraded landscapes under restoration.

About The Report

- It is the only tool currently used by national and sub-national governments to track progress on the implementation of restoration targets across all terrestrial ecosystems.
- It was launched in 2016 as the Bonn Challenge Barometer.

Bonn Challenge is a global effort to restore 150 million hectares of the world's degraded and deforested lands by 2020 and 350 million hectares by 2030.

- It helps in highlighting progress against global commitments such as UN Decade on Ecosystem Restoration, Bonn challenge, Paris agreement etc.
- It also shows the importance of enabling structures, such as policies and funding, for the long-term positive impacts of restoration to be realized.

Environment Education, Awareness and Training (EEAT)

Environment Education, Awareness and Training (EEAT) scheme has been revamped into the Environment Education Programme.

About Environment Education, Awareness and Training (EEAT)

- It is a central sector scheme of the Ministry of Environment, Forestry, and Climate Change (MoEF&CC). It was launched during the 6th Five Year Plan in 1983-84.
- The scheme aims –
 - To promote environmental awareness among all sections of society.
 - To spread environmental education.
 - To mobilize student's participation for environment conservation.
- This scheme comprises three programmes namely:

National Green Corps (NGC) Programme	National Nature Camping Programme (NNCP)	Capacity Building Activities
<ul style="list-style-type: none"> • It is a programme launched by MoEF&CC for Schools. • Under this scheme more than 1 lakh Eco-clubs have been formed in schools and colleges to educate students and to spread awareness on environmental. • Each club has <u>30 to 50 NGC Students or NGC Cadets</u> who form the National Green Corps. • A financial assistance of Rs 5,000/- per Eco-club used to be provided with a ceiling of 	<ul style="list-style-type: none"> • It is also known as the National Environment Awareness Campaign (NEAC). • It is a multi-media campaign that spreads environmental messages through traditional and non-traditional communication channels. 	<ul style="list-style-type: none"> • The objective of this programme is to support capacity building activities and to impart <u>skills to students and teachers of Eco-club on various thematic areas</u>. • Areas include bio-diversity conservation, waste management and

<p>500 school Eco-clubs per district and 100 college Eco-clubs per State.</p> <ul style="list-style-type: none"> • These Students participate in activities related to Biodiversity Conservation, Water Conservation, Energy Conservation, Waste Management and Land Use Planning and Resource Management. 	<ul style="list-style-type: none"> • Under this programme, field trips are organized to various protected areas / Nature Parks/ Tiger Reserves all over the country for three days. 	<p>the concept of 4Rs – Reduce, Reuse, Recycle & Recover, 17 Sustainable Development Goals etc.</p>
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Refuse Derived Fuel

- This fuel is produced from combustible components that the industry calls Municipal Solid Waste.
- It is a renewable energy source that ensures waste simply isn't thrown into a landfill and instead, put to good use.

Environment and Climate Sustainability Working Group (ECSWG)


- The 1st G20 **Environment and Climate Sustainability Working Group (ECSWG)** meeting concluded in Bengaluru.
- It ended on a positive note with all G20 countries showing interest and commitment to constructively work towards the objective of the three priority areas:
 - Arresting Land Degradation, Accelerating **Ecosystem Restoration** and Enriching Biodiversity.
 - Promoting a Sustainable and Climate Resilient **Blue Economy**.
 - Encouraging **Resource Efficiency and Circular Economy**.

World Bank Report on India's Cooling Sector

The report builds upon the India Cooling Action Plan, a government initiative to bring affordable and energy-efficient cooling at the forefront of the country's policy agenda.

Key Highlight of the Report

- India is experiencing higher temperatures every year. By 2030, over 160-200 million people across the country could be exposed to lethal heat waves annually.
- Around 34 million people in India will face job losses due to heat stress related productivity decline.
- The current food loss due to heat during transportation is close to \$13 billion annually.
- By 2037, the demand for cooling is likely to be eight times more than current levels.
- Keeping spaces cool using alternative and innovative energy efficient technologies can open an investment opportunity of \$1.6 trillion by 2040.



Heat Wave

- It is a period of abnormally high temperatures, which is higher than the normal maximum temperature occurring during the summer season.
- It is considered if the maximum temperature of a station reaches at least 40°C or more for Plains and at least 30°C or more for Hilly regions.
- This usually occurs between March and June, and in some rare cases up to July.
- The extreme temperatures and resultant atmospheric conditions adversely affect the people living in these regions as they cause physical stress, sometimes resulting in death.

CCUS Policy Framework and its Deployment

NITI Aayog has released a study report, titled '**Carbon Capture, Utilisation, and Storage (CCUS) Policy Framework and its Deployment Mechanism in India**'.

- The report explores the importance of CCUS as an emission reduction strategy to achieve **deep decarbonization from the hard-to-abate sectors**.

About CCUS

- It encompasses methods and technologies to remove CO₂ from the flue gas and from the atmosphere.
- It is followed by recycling the CO₂ for utilization and determining safe and permanent storage options.
- CO₂ captured using CCUS technologies are converted into fuel (methane and methanol), refrigerants and building materials.

Carbon Capture and Storage

- It is a method of lowering carbon emissions that could be critical in combating global warming.
- It is a **three-step process** that involves *absorbing carbon* dioxide produced by power generation or industrial activity such as steel or cement production, *transporting it, and storing it deep below*.

Aichi Targets

- The Convention on Biological Diversity (CBD) adopted the Aichi Biodiversity Targets at the Nagoya conference in 2010.
- It laid out a 10-year plan, which had 20 global biodiversity targets, divided under five goals, with a deadline of 2020 (non-binding in nature).
- No single country met all 20 Aichi Targets within its own borders, according to a September 2020 UN assessment.

MISHTI, Amrit Dharohar, PM PRANAM

Finance Minister announced multiple schemes towards protection and conservation of mangroves and wetlands. It includes MISHTI, Amrit Dharohar, PM PRANAM.

MISHTI

- It stands for **Mangrove Initiative for Shoreline Habitats & Tangible Incomes**.
- It will facilitate mangrove plantations along India's coastline and on salt-pan lands.
- It will operate through convergence between *MGNREGS, Campa Fund and other sources*.
- **Compensatory Afforestation Fund Management and Planning Authority (CAMPA)** are meant to promote afforestation and regeneration activities as a way of compensating for *forest land diverted to non-forest uses*. National CAMPA Advisory Council has been established as per orders of Supreme Court
- It will aim at the intensive afforestation of coastal mangrove forests.
- Note: **India joined the "Mangrove Alliance for Climate" launched during the UNFCCC COP27.**

PM PRANAM

- It stands for **Prime Minister Programme for Restoration, Awareness, Nourishment and Amelioration of Mother Earth**.
- It will seek to incentivize states and union territories promoting alternative fertilizers and the balanced use of chemical fertilizers.
- It aims to ultimately bring down the government's subsidy burden, which is estimated to reach Rs 2.25 lakh crore in 2022-23.

Amrit Dharohar

- It will be implemented over the next **3 years** to encourage optimal use of **wetlands**, and enhance biodiversity, carbon stock, eco-tourism opportunities and income generation for local communities.
- It will emphasise on the importance of wetlands and their preservation, with an outlook that is inclusive of local communities as caretakers of the ecosystem.

Project RE-HAB

KVIC (**Khadi and Village Industries Commission**) Chairman distributed live bee colonies, beekeeping equipment and 200 bee-boxes to the trained beneficiaries in Karnataka under RE-HAB project.

About Project RE-HAB

- It stands for **Reducing Elephant-Human Attacks using Bees**.
- Under this project Bee fences are created. The honeybees thwart elephant attacks in human territories.
- It is scientifically recorded that elephants are annoyed by honeybees.
- It is sub-mission of the **KVIC's National Honey Mission**.

Why Is This Project Needed?

- According to the Union Ministry of Environment, Forest and Climate Change (MoEFCC), 1,160 elephants were killed in the country due to reasons other than natural causes in the past 10 years.
- Electrocutation took the lives of 741 elephants, train hits led to the death of 186 pachyderms (animal with a very thick skin), followed by poaching - 169, and poisoning – 64.
- Among elephant casualties due to train hits, Assam stood first with 62 deaths, followed by West Bengal at 57.

Khadi and Village Industries Commission (KVIC)

- It is a statutory body established under Khadi and Village Industries Commission Act, 1956.
- It comes under the Ministry of Micro, Small and Medium Enterprises (MSME).
- The main function is to plan, promote, organize and implement programmes for the development of village industries in rural areas.



Honey Mission:

- KVIC has launched the Honey Mission to provide awareness, training and '**Bee Boxes**' along with **Bee Colonies** to the farmers.
- It was launched in August 2017 as a part of 'Sweet Revolution'.
- The 'Sweet Revolution' was launched in 2016 to promote beekeeping and associated activities

Significance Of This Project

- This is highly cost effective as compared to erecting fences or digging trenches.
- The project simultaneously increases honey production and increases farmer income.
- It helps in minimizing the loss of lives of both humans as well as elephants.
- It helps in maintaining a balance in nature, along with the conservation of biodiversity.

Marine Spatial Planning Framework (MSPF)

- The 1st Marine Spatial Planning Framework (MSPF) in India was launched in **Puducherry**.
- It is to be implemented by India and Norway together under the Indo-Norway Ocean Initiative (2019).

About Marine Spatial Planning Framework (MSPF)

- It is a public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas.
- It is a practical way of creating and establishing a more rational use of marine space and interactions between its uses.
- It is also a way of balancing the demands of development with the need to protect the environment and deliver social and economic outcomes in an open and planned manner.

International Marine Protected Areas Congress (IMPAC)

The 5th International Marine Protected Areas Congress (IMPAC5) was held in Canada

- Canada is bordered by 3 oceans - Pacific, Arctic and Atlantic - and has the longest coastline in the world

About IMPAC

- It has been organized to discuss solutions to address the funding gap of Marine Protected Areas (MPAs).
- Since 2005, the IUCN has co-hosted four IMPAC events-

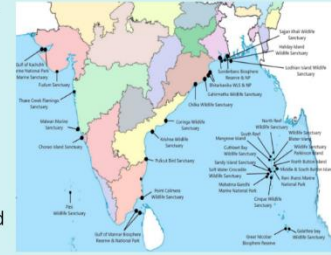
IMPAC1	IMPAC2	IMPAC3	IMPAC4
Australia (2005)	USA (2009)	France (2013)	Chile (2017)

Significance of MPA

- It protects important marine ecosystems such as coral reefs, mangroves, and seagrass beds and provides critical habitat for threatened and endangered species.
- It can help mitigate the effects of climate change by conserving marine ecosystems and their associated species, which play an important role in regulating Earth's climate.
- It can provide economic benefits including increased tourism and recreation opportunities, as well as commercial benefits such as increased fish stocks.

IMPAC5 - Fifth International Marine Protected Areas Congress

- IMPAC5 is a global forum that brings together ocean conservation professionals and high-level officials to inform, inspire and act on Marine Protected Areas (MPAs).
- It aims to protect 30% of the global ocean by 2030.
- It supported Kunming-Montreal Global Biodiversity Framework, "Our Ocean, Our Future, Our Responsibility" Call for Action and Ocean Conservation Pledge.
- MPA is a section of ocean where a government has placed limits on human activity. Currently, an estimated 7.65% of the ocean is covered by MPAs.
- Important MPAs (coastal or marine) of India are as given in above image.
- They are notified as either 'national parks' or 'wildlife sanctuaries' under **Wildlife Protection Act, 1972**.



- MPAs cover less than 4.01% of the total area of all Protected Areas of India.
- In India, PAs that fall-in whole or in part-**within swath of 500 m from the high tide line** and to marine environment are included in the Marine Protected Area Network.
- There are **128 marine Protected Areas** in India.

State of Global Water Resources Report 2021

World Meteorological Organization (WMO) has published its 1st State of Global Water Resources report.

About the Report

- The aim is to support the monitoring and management of global freshwater resources in an era of growing demand and limited supplies.
- The report focuses on three major areas -

- **Streamflow** - the volume of water flowing through a river channel at any given time
- **Terrestrial water storage (TWS)** - all water on the land surface and in the sub-surface
- **The cryosphere** - **Frozen water** (snow and ice)

Key Findings of the Report

- Currently, 3.6 billion people face inadequate access to water at least a month per year and this is expected to increase to more than 5 billion by 2050.
- Between 2001-2018, UN-Water reported that 74% of all natural disasters were water related.



**WORLD
METEOROLOGICAL
ORGANIZATION**

- It is a specialized agency of the United Nations, established in 1950.
- It originated from the International Meteorological Organization (IMO), which was established after the **1873 Vienna International Meteorological Congress**.
- Headquartered in Geneva, Switzerland.
- Its work is dedicated to meteorology, climatology, operational hydrology and other related geophysical sciences such as oceanography and atmospheric chemistry.
- India is a member of WMO.
- It publishes an annual report on the status of the World Climate.
 - This report will provide detailed information on temperatures at the local, national and global levels along with extreme weather events.

Findings Related to Streamflow	Findings Related to Terrestrial water storage	Findings Related to Cryosphere
<ul style="list-style-type: none"> • Drought: Large areas of the globe recorded dryer than normal conditions in 2021, compared to the average of the 30-year hydrological base period. • These areas include South America's Rio de la Plata area, the South and South-East Amazon, and the Colorado, Missouri and Mississippi river basins. • Below Normal: In Africa, rivers such as the Niger, Volta, Nile, Congo and rivers in parts of Russia, West Siberia and in Central Asia had less than normal discharge in 2021. • Above normal: Significant flooding events have been reported from China, northern India, western Europe, and countries affected by tropical cyclones such as Mozambique, Philippines, and Indonesia. 	<ul style="list-style-type: none"> • The report pointed out several hotspots with a <u>negative trend</u> in terrestrial water storage. • These include Brazil's Rio Sao Francisco basin, Patagonia, the Ganges and Indus headwaters, as well as south-western USA. • It was <u>above normal</u> in the central part of Africa, the northern part of South America, specifically the Amazon basin, and the northern part of China. 	<ul style="list-style-type: none"> • Changes to cryosphere water resources affect food security, human health, ecosystem integrity and maintenance, and lead to significant impacts on economic and social development. • Such changes also cause hazards such as river flooding and flash floods due to glacier lake outbursts.

Gross Domestic Climate Risk Report

- The report titled Gross Domestic Climate Risk was released by Australia-based Cross Dependency Initiative (XDI). XDI is a part of the Climate Risk Group of companies quantifying the costs of climate change.

About Gross Domestic Climate Risk Report

- It calculates the physical climate risk to the built environment (by humans) in over 2,600 states and provinces around the world in 2050.
- It also identifies which of these jurisdictions see the greatest escalation of modelled damage from 1990 to 2050.
- It aimed at helping investors with their choice of long-term investment destinations.

Major Highlights of The Report

- Together, China, India and the US make up over half the states and provinces in the top 100.
- China has the highest number of provinces in the top 50 most climate risk-prone territories of the world, followed by the United States.
- Southeast Asia experiences the greatest escalation in damage from 1990 to 2050 anywhere in the world.
- 14 Indian states are set to remain within top 100 most climate risk-prone territories of the world by 2050.
 - **Punjab** is among the top 50 states or provinces across the world at **high risk of damage**
 - **Bihar** is set to be the most climate-vulnerable region in India by 2050 with a global rank of 22nd, followed by Uttar Pradesh and Assam.
 - **Assam** is the **global topper** within the top 50 vulnerable regions in terms of **increase of climatic impacts** during 1990-2050, a whopping 330%.

Sustainable Aquaculture In Mangrove Ecosystem (SAIME) initiative (2019)

It is a community-based initiative of **sustainable shrimp cultivation**. It is being conceived by NGO Nature Environment and Wildlife Society (NEWS) and Global Nature Fund (GNF), Naturland Bangladesh Environment and Development Society (BEDS).

Green Urban Oases Programme

- It was Launched in 2021 by Food and Agriculture Organization (FAO) of the United Nations.
- It contributes to the **FAO Green Cities initiative**, which was launched in 2020.
- It aims to improve the resilience of dryland cities by tackling climate, health, food and economic challenges.
- It will support dryland urban communities in strengthening their policy and technical capacity to design and implement integrated urban forestry and urban greening strategies.

30X30 Targets

- 30X30 aims to protect and conserve 30% of world's terrestrial, freshwater, coastal and marine ecosystems.
- Convention on Biological Diversity (CBD) Goals proposed under Post 2020 Global Biodiversity Framework is likely to be not meeting by Asian countries.
- Presently more than 100 countries (including India), through these goals, aspires to halt the accelerating loss of species, and protect vital ecosystems that are source of economic security.

Dobson Unit (DU)

- It is the most common unit for measuring ozone concentration.
- One Dobson Unit is the number of molecules of ozone that would be required to create a layer of pure ozone 0.01 millimetres thick at a pressure of 1 atmosphere and 0 degree C.

Ocean Wave Energy Converter - Sindhuja – I

- IIT Madras develops the Ocean Wave Energy Converter for generating electricity from Sea Waves.
- The Converter consists of a floating buoy, a spar and an electrical module that generates electricity by using the relative motion between floating buoy and spar passing through buoy centre.
- Seawater stores - tidal, wave and thermal energy.
 - Tidal Energy – caused by gravitational interaction between Earth, Sun, and Moon.
 - Wave Energy – caused by wind across different latitudes on ocean's surface.
 - Ocean thermal energy – caused by temperature difference between ocean surface water and deep water.
- These will help India to meet its energy needs of its islands and also climate-change goals of generating 500 GW of renewable energy by 2030.

Indo-Pacific Parks Partnership (I3P)

- Indo-pacific region is home to one of world's largest hotspots of marine and terrestrial biodiversity.
- I3P aims to promote a sustainable approach in Indo-Pacific region through development of protected areas and natural parks.
- 3 Key components:
 - Biodiversity Conservation
 - Sustainable tourism development and reinforcement of local economic activities
 - Governance reinforcement

Yaya Tso Lake

Yaya Tso Lake was declared Ladakh's first biodiversity heritage site under the Biological Diversity Act. The Biodiversity Management Committee, along with the SECURE Himalaya Project recently resolved the issue and declared Yaya Tso Lake a biodiversity heritage site.

Key Facts About Yaya Tso Lake

- Lake Yaya Tso is known as a **bird's paradise** for its beautiful lake located at an altitude of 4,820 metres in Ladakh.
- It is a nesting habitat for many birds and animals, such as the bar-headed goose, black-necked crane and brahminy duck
- It is also one of the highest breeding sites of the **black-necked crane** in India.

What is the Secure Himalaya project (2017)?

Funded by the **Global Environment Facility (GEF)** it supports the government's efforts for the **conservation of snow leopard** and its habitat by developing and implementing a landscape-based approach for Himalayan ecosystems, and addresses key issues of habitat degradation, threatened livelihoods and illegal trade in wildlife.

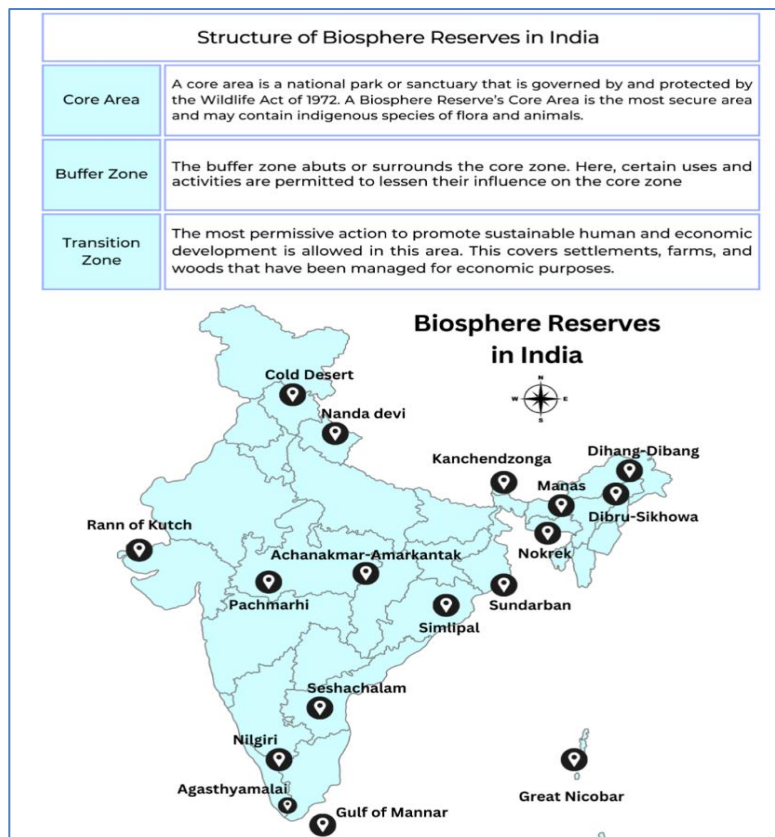
Sundarban Biosphere Reserve

Recently, birders, wildlife enthusiasts and forest officials have sighted 145 different bird species during the first Sundarban Bird Festival.

- The first-ever festival was organised by Sundarban Tiger Reserve (STR) division of West Bengal Forest Department.

Key Facts of Sundarban Biosphere Reserve

- The Sundarbans is located on the delta of the Ganga, Brahmaputra and Meghna rivers in the Bay of Bengal.
- This Biosphere Reserve includes **Sundarban Tiger Reserve**, Sundarban National Park (core area), Halliday Island and **Lothian Island Wildlife Sanctuaries with Sajnakhali Wildlife Sanctuary** forming its buffer area.
- It is designated as a **UNESCO World Heritage site**.
- **Flora:** The vegetation of the area is moist tropical forests and tidal forests.
- **Fauna:** Royal Bengal Tiger, Estuarine Crocodile, Gangetic Dolphin, Water Monitor Lizard etc.



Agasthyarkoodam of Thiruvananthapuram

Agasthiyar observatory, which was one of the few magnetic observatories in world during 19th century, is now situated in Agasthyarkoodam.

- Agasthyakoodam, second highest peak in Kerala and is part of Agasthyamala Biosphere Reserve which lies conjointly in states of **Kerala and Tamil Nadu**.
 - It has been part of **UNESCO's World Network of Biosphere Reserves** since 2001.
- Agasthyarkoodam got its name from **sage Agasthya**. He was a pioneer of **Tamil Siddha Ayurveda**.

World Wetlands Day

- World Wetlands Day is observed on 2nd February every year all over the world to **commemorate the signing of the Ramsar Convention** on Wetlands of International Importance in 1971.
- India is a **party to the Convention since 1982** and has so far declared 75 wetlands as Ramsar sites covering 23 states and Union Territories.
- At present, the state of **Tamil Nadu** has a maximum number of Ramsar sites (14), followed by UP which has 10 numbers of Ramsar sites.
- **The 2023 theme** for World Wetlands Day is **Wetland Restoration**.

Vanikaran Project

- The Forest department in association with Noolpuzha grama panchayat has launched the Vanikaran project.
- The project was executed on 30 hectares of forest land under the Sulthan Bathery forest range of the Wayanad Wildlife Sanctuary.
- It aims to root out invasive plants, especially **Senna spectabilis**, and restore natural forests.

Wayanad Wildlife Sanctuary

- It is the **2nd largest** wildlife sanctuary in **Kerala** after Periyar Wildlife Sanctuary.
- It is an integral part of the Nilgiri Biosphere Reserve.
- It is surrounded by the protected areas of Mudumalai in Tamil Nadu as well as Nagarhole and Bandipur in Karnataka.
- About one third of the sanctuary is covered by plantations of teak, rosewood, eucalyptus and silver oak.

Rhododendrons

The latest publication of the Botanical Survey of India (BSI) reveals that Darjeeling and Sikkim Himalayas are home to more than one-third of all types of rhododendrons found in India

Key Facts About Rhododendrons

- They are a **diverse genus of about 1,000 species of woody flowering plants** in the heath family (**Ericaceae**), notable for their **attractive flowers and handsome foliage**.
- **Distribution:** They are **native to the temperate regions of Asia, North America, and Europe**, as well as to the **tropical regions of southeast Asia and northern Australia**.
- **Habitat:** They occur in a variety of **habitats, including alpine regions, coniferous and broadleaved woodlands, temperate rain forests, and even tropical jungle**
- They also **require a slightly acid soil** to grow well.
- They exhibit an **enormous diversity of size and shape**, from prostrate ground covers growing **no more than a few inches high to trees more than 100 feet tall**.
- Rhododendron, also known as "**Lali Guras**" in local language, **is the national flower of Nepal and the state tree of the state of Uttarakhand in India**.

Orangutan

- These are **exclusively arboreal** which means they live among the trees of tropical rainforests.
- According to the Worldwide Fund for Nature (WWF), there are three species of orangutans: **Bornean, Sumatran and Tapanuli**.
- They feast on wild fruits like lychees, and figs, and slurp water from holes in trees.
- Orangutans can live up to 50 years, but they have a **relatively low reproductive rate** because females only give birth once every 5-10 years.

- Bornean and Sumatran orangutans differ a little in appearance and behavior. While both have shaggy reddish fur, Sumatran orangutans have longer facial hair.
- **Conservation status by IUCN:** Critically Endangered

Vermins

The Wildlife Institute of India (WII) is working to develop immuno-contraceptive measures for population management of species that have become problematic for humans in many parts of the country.

About Vermins

- Vermin are usually considered problem or nuisance animals that attack humans, crops, livestock or property.
- Species which are classified as Vermin are placed under **Schedule V** of the Wildlife Protection Act, of 1972.

Six Schedules In Wildlife Protection Act, 1972

- The Listed breeds and types of animals in **Schedule I and part II of Schedule II** get **supreme protection**. Offences under these are prescribed the highest penalties. (*Himalayan Brown Bear, Indian Elephant etc.*)
- The Listed breeds and types of animals in **Schedule III and Schedule IV** are also secured, but the **penalties are comparatively much lower**. (*Barking Deer, Falcons, Kingfisher, Tortoise etc.*)
- **Schedule V** includes the animals which can be hunted. (*Common Crow, Mice, Rats, Fruit Bats etc.*)
- The **plants, trees and crops mentioned in Schedule VI** are banned from Cultivation and Planting. (*Kuth, Red Vanda, Pitcher Plant etc.*)

Pink Bollworm

The Genetic Engineering Appraisal Committee (GEAC) recently approved confined field trials for Pink Bollworm-resistant GM cotton in Hisar, Haryana

- It is one of the **most destructive pests of cotton**.
- **Distribution:** Originally **native to India**, it is now **recorded in** nearly **all cotton-growing countries** of world.
- **Description:**
 - The **adults are small moths** about **3/8 inch long** and are **dark brown** with **markings on the fore wing**.
 - The **larval stage is the destructive** and identifiable stage.
- **Ecological Threat:**
 - Pink bollworms are **major pests of cotton**.
 - **Adults lay eggs on cotton bolls**; once hatched, **the larvae eat the seeds** and **damage the fibers of the cotton, reducing the yield and quality**

Asiatic Black Bear (Moon Bear)

- The Asiatic black bear is omnivorous and has 7 subspecies, out of which we find the **Himalayan Black Bear** subspecies in India.
- In India, it is found in Arunachal Pradesh, Assam, Sikkim, and the union territory of Jammu and Kashmir.
- **Features:** The Asiatic Black Bear has a coat of smooth black fur
- **Range:** The Asiatic black bear lives in a narrow band stretching from south-eastern Iran to Myanmar, across the Himalayan foothills.
- **Conservation status**
 - **IUCN Red List: Vulnerable**
 - CITES: Appendix I
 - Wild Life Protection Act 1972: Schedule II

Himalayan Griffon

Himalayan Griffon was sighted in the Patrapur and Bail Parao ranges of the Terai Forest range after nearly 15 years.

- It is one of the two largest Old-World vultures and true raptors.
- **Distribution:** Found along **the Himalayas and the adjoining Tibetan**
- **Threat:** Himalayan vultures are also susceptible to toxicity induced by diclofenac, a drug whose residues are in domestic animal carcasses.
- But their population have however not shown signs of rapid decline as witnessed in populations of other Gyps vultures across Asia.
- **Conservation status**
 - **IUCN: Near Threatened**

Other Vulture Species Found In India

India is home to 9 species of Vulture namely the Oriental white-backed, Long-billed, Slender-billed, Himalayan, Red-headed, Egyptian, Bearded, Cinereous and Eurasian Griffon.

Indian Pangolin

International non-profit organization TRAFFIC recently reported that 1,203 pangolins had been found in illegal wildlife trade in India from 2018 to 2022.

- The Indian pangolin, also called **thick-tailed pangolin** and **scaly anteater** is native to the Indian subcontinent. (*one of the eight species of pangolins found.*)
- **Distribution:** It lives in **India (south of the Himalayas), Bangladesh, Southern Nepal, Sri Lanka, and small parts of Pakistan.**
- **Habitat:** It occurs in **tropical forests, open land, grasslands, and degraded habitat, including near villages.**
- **Features:**
 - Like other pangolins, **it has large, overlapping scales** on its body, which **act as armor.**
 - The Indian pangolin's armor **is amongst the most effective in the mammalian world.** It has about **13 rows of moveable sharp scales** covering its body, which **are shed periodically.**
 - It is **nocturnal** and rests in deep burrows during the day.
- **Conservation status:**
 - **IUCN Red List: Endangered**
 - **Wildlife (Protection) Act, 1972: Schedule I**
 - **CITES: Appendix I**

Sarus Crane

According to the latest data from the forest department, the count of the Sarus Cranes has increased by 98 per cent from around 500 in 2015 to nearly 992 in 2022 in the wetlands of Matar Taluka in Kheda.

- It is the **tallest flying bird in the world.**
- **Distribution:** They live in **Southeast Asia, northern India** and in northern **Australia.**
- **Habitat:** They live mainly in **wetlands such as canals, marshes and ponds, sometimes near humans.**
- **Features:**
 - It is **152-156 cm tall** with a **wingspan of 240cm.** It weighs **~8Kgs.**
 - It has a **predominantly grey plumage** with a **naked red head and upper neck** and **pale red legs.**
 - They are regarded as the **least social crane species, found mostly in pairs or small groups of three or four.**

- They are **monogamous birds and pairs mate for life.**
- **Conservation Status:**
 - **IUCN Red List: Vulnerable**
 - **Wildlife (Protection) Act 1972: Schedule IV**

Red Sanders

- It is a flora species that is **endemic** to a distinct tract of forests in the **Eastern Ghats** region of Andhra Pradesh.
- **Geographical conditions required:** It usually grows in rocky, degraded and fallow lands with Red Soil and a **hot and dry climate.**
- **Protection Status:**
 - **IUCN Red List: Endangered**
 - CITES: Appendix II
 - Wildlife (Protection) Act 1972: Schedule IV

Abalone Shellfish, Dugong And Pillar Corals

- **Abalone shellfish** – It is a marine snail, found in various country like Australia, UK, South Africa, and New Zealand. The flesh of abalones is widely considered to be a desirable food.
- **Dugongs** – It also called Sea Cow. It is the only existing species of herbivorous mammal that lives exclusively in the sea including India. It is listed as Vulnerable on the IUCN Red List.
- **Pillar corals** - It is a hard coral found in the western Atlantic Ocean and the Caribbean Sea. It is listed as Critically Endangered on the IUCN Red List.

White-tailed Deer

A recent study has found widespread infection of white-tailed deer with the SARS-CoV-2 virus across New York.









- They are the **smallest members of the North American deer family.**
- **Distribution:** They are found in **North America** from southern **Canada** through **Central America.**
- **Habitat**
 - Includes areas along **streams and rivers, mixed woodlands, farms, forests, and burned shrub fields.**
 - **Open areas are used only when thick shrubs** or forests are **nearby.**
- **Features**
 - It is **tan or brown in the summer and grayish brown in winter.**
 - It has **white mark on its throat**, around its **eyes** and **nose**, on its **stomach**, and on the underside of its tail.
 - **Only male deer grow antlers**, which are shed each year.
- **IUCN Status: 'Least Concern'**








New Anglerfish Species Named After Abdul Kalam


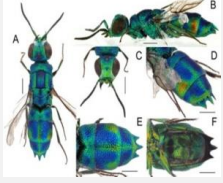
New anglerfish species named as Himantolophus kalami (named after Dr APJ Abdul Kalam) discovered from the Andaman Sea. It is a species with a fishing lure on front of its head bearing symbiotic bacteria that produce light to catch prey.

Other Species In News

Nilgiri Thar	<ul style="list-style-type: none"> ● It is an endangered species and found in the tropical mountains of south India. ● It is the state animal of Tamil Nadu. ● Mukurthi National Park located in the Tamil Nadu was established to protect its keystone species, the Nilgiri Tahr.
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	<ul style="list-style-type: none"> It is listed as Endangered in the IUCN Red list and Schedule I in It Wildlife (Protection) Act, 1972.
<p>Confuciusornis Shifan</p> 	<ul style="list-style-type: none"> Lived during the Early Cretaceous Period It belonged to the Confuciusornithidae family of the genus Confuciusornis, a group of crow-sized beaked birds. It represents the earliest toothless and beaked birds.
<p>Garrarnawun Bush Tomato</p> 	<ul style="list-style-type: none"> It is currently found only in Judbarra/Gregory National Park in the Australia's Northern Territory. It is a perennial pale green shrub about 30 cm tall. Scientists are proposing to include the species in the "Data Deficient" category of the IUCN Red List.
<p>Zebrafish</p> 	<ul style="list-style-type: none"> It is a tropical freshwater fish belonging to the minnow family, native to rivers and streams of South Asia. It is a popular aquarium fish about 4 cm long. It has dark-blue and silvery longitudinal stripes. It is listed as Least concerned in the IUCN Red List.
<p>Blackbuck</p> 	<ul style="list-style-type: none"> It is a diurnal antelope species native to India and Nepal. It has been declared as the State Animal of Punjab, Haryana, and Andhra Pradesh. It is listed as Least Concern in the IUCN red list and in Schedule I in Wildlife Protection Act 1972. In 2017, the Uttar Pradesh approved the plan of setting up the Blackbuck Conservation Reserve in the trans-Yamuna belt Territories are marked by males as per the distribution of female groups. And the presence of female herds itself is determined by the type of habitat.
<p>White Tufted Royal Butterfly</p> 	<ul style="list-style-type: none"> It is also known as Pratapa deva. It is found in Kerala's Kannur region. It is rare species and protected under Schedule 2 of the Wildlife Protection Act 1972. Its larvae feed on Scurrula parasitica, a plant belonging to the Loranthaceae family.
<p>Yangtze Finless Porpoise</p> 	<ul style="list-style-type: none"> These are good indicators of the health of their environment. The Yangtze finless porpoise belongs to the group of animals which also includes dolphins and whales It is listed as Critically Endangered in the IUCN Red list. The Yangtze River, the longest river in Asia is home to these porpoises.
<p>Indian Star Tortoise</p> 	<ul style="list-style-type: none"> It is found in the central and Southern parts of India, Pakistan and Sri Lanka. It is typically found in dry, open habitats such as scrub forests, grasslands, and rocky outcroppings. It is listed as Vulnerable in the IUCN Red list and Schedule IV in Wild Life Protection Act 1972.
<p>Spot Bellied Eagle Owl</p>	<ul style="list-style-type: none"> It is also known as the forest eagle-owl. They are large, very powerful and bold predatory birds. It is a forest-inhabiting species found in the Indian Subcontinent and Southeast Asia. It is called 'Ghost of the forest' in India

	<ul style="list-style-type: none"> • They are nocturnal in nature. • Listed as Least Concern the IUCN Red list & Schedule IV in Wildlife (Protection) Act, 1972.
<p>Mahabali Frog</p> 	<ul style="list-style-type: none"> • It is also known as the pignose frog or purple frog. • It is endemic to the Western Ghat. • Unlike other frogs, it has very short hind legs, which do not allow it to leap from one spot to another. • It buries itself all through the year and surfaces only one day to lay eggs. • It is listed as Near Threatened in the IUCN Red list.
<p>Aztec hummingbird</p> 	<ul style="list-style-type: none"> • It is native to the American continent. • It can beat their wings up to 50 times per second creating a humming sound. • It can fly backward. • The purple sunbird, one of its types is commonly found in India.
<p>Great Seahorse</p> 	<ul style="list-style-type: none"> • It is a type of tiny fish named after the shape of their head resembling a tiny horse. • These are ovoviviparous and the males give birth to live young. • There are 46 species of seahorses worldwide, and India is home to 9 out of 12 species found in the Indo-Pacific. • It is found in shallow coastal waters between latitudes of about 52° N to 45° S. • It is listed as vulnerable on the IUCN Red list. • They are Mentioned in Appendix II of CITES
<p>Mugger crocodile</p> 	<ul style="list-style-type: none"> • According to a recent study, anthropogenic threats like illegal fishing and sand mining pose a threat to the mugger crocodiles. • It is one of the 24 extant species of crocodylians found globally. • It is native to freshwater and inhabits marshes, lakes, rivers and artificial ponds. • It is found all over south Asia India, Pakistan, Sri Lanka, Nepal and Bangladesh as well as south-eastern Iran. • It is listed as Vulnerable on the IUCN Red List. • Mentioned in Appendix I of CITES
<p>Kappaphycus Alvarezii</p> 	<ul style="list-style-type: none"> • It is seaweed (alga) which is native to the Indo-Pacific region. • IUCN lists it as one of the world's 100 most invasive species. • It is one of the prime threats that killed the corals near Kurusadai which was deliberately introduced in Ramanathapuram for commercial cultivation some two decades ago. • It is a major source of carrageenan, which is an additive used for thickening and preserving foods and drinks.
<p>Horseshoe crab</p> 	<ul style="list-style-type: none"> • It is a marine chelicerate arthropod living in shallow coastal waters on soft sandy or muddy bottoms. • Chelicerata is a division within the Arthropoda, containing animals such as spiders, scorpions, harvestmen, mites and ticks. • It is known as a marine living fossil. • Odisha is the largest habitat of horseshoe crabs in India.

	<ul style="list-style-type: none"> • It is listed as Schedule IV in Wildlife Protection Act 1972.
<p>Thiania indica</p> 	<ul style="list-style-type: none"> • It is a newly discovered species of jumping spider from the Western Ghats. • It has been distributed across China, Myanmar, Thailand, Laos, and Indonesia. • Males have four patches of white hairs on their green-yellow abdomen. • Females have a wide transverse black band anteriorly and posteriorly on their creamy yellow abdomen.
<p>Trichrysis poseidonia</p> 	<ul style="list-style-type: none"> • A research team discovered this new species of cuckoo wasp • It derived its name from Poseidon, the Greek God of the Sea, for the three sharp and pointed apical abdominal teeth, recalling the Poseidon's trident. • It known as cuckoo wasp because it steals food from other wasp and bee as the cuckoo bird. • The laterite plateau of Madayipara is well known for its rich biodiversity and is suitable for these wasps.

POLITY AND GOVERNANCE

Swachh Sujal Shakti Samman 2023

Ministry of Jal Shakti organized an event named ‘Swachh Sujal Shakti Samman 2023’ to highlight contribution of women towards making of a ‘Swachh Sujal Bharat’.

About Swachh Sujal Shakti Samman

- Objective: To felicitate women who have done exemplary work at the grassroots level in the implementation of Swachh Bharat Mission – Grameen (SBM-G), Jal Jeevan Mission (JJM), Jal Shakti Abhiyan: Catch the Rain (JSA-CTR).
- 36 women WASH Champions were conferred with the ‘Swachh Sujal Shakti Samman 2023’ under following categories:

SBM – G	JJM	NWM
1) Making the village ODF Plus Model 2) GOBARdhan/Bio-degradable Waste and/or Plastic Waste Management 3) Greywater Management and/or Faecal Sludge Management	1) Women change-makers in the category of O&M of piped water supply	1) Jal Shakti Abhiyan – Catch the Rain 2) Water Warriors

About SBM-G, JJM & JSA

Mission & Objective	Features
Swachh Bharat Mission – Grameen (SBM-G) Objective: to stop Open Defecation	1) Launched on 2nd October 2014 2) All villages in the country declared themselves as Open Defecation Free (ODF) by 2019.
Jal Jeevan Mission (JJM) Objective: To involve each & every person in water conservation and recharge efforts.	1) Launched in 2019 2) It led to the creation and rejuvenation of more than 6 lakh water related structures.
Jal Shakti Abhiyan (JSA)- Catch the Rain Objective: To focus on rainwater harvesting of the monsoon season <ul style="list-style-type: none"> geo-tagging & making inventory of all water bodies Intensive afforestation. 	1) Launched in 2020 under National Water Mission (NWM) 2) It commences prior to the monsoon season and continues for the next six months. (Launched for 2023) 3) Tag line: Catch the rain, where it falls, when it falls. 4) Setting up of Jal Shakti Kendras in all districts

Whip

A five-judge bench while hearing petitions related to Maharashtra political crisis observed that Members of a House are bound by the ‘whip’ and if any section of MLAs from a political party that is part of a ruling coalition disagrees with the alliance, then the MLAs will attract disqualification.

What Is A Whip?

- It refers both to a written order to members of a party in the House to abide by a certain direction, and to a **designated official of the party** who is authorized to issue such a direction.
- The term is derived from the old British practice of “whipping in” lawmakers to follow the party line.
- All parties can issue whips to their members in India. It requires party members to be present in the House for an important vote, or to vote only in a particular way.

- Parties appoint a senior member from among their House contingents to issue whips — this member is called a chief whip, and he/ she is assisted by additional whips.

Chief Whip:

- ✓ Appointed by a political party to serve as an assistant floor leader.
- ✓ His task is to ensure party discipline in a legislature.
- ✓ Ensures the members attend the meetings of the House of Legislature for their support on any important matter during division on the Floor of the House, as the party leadership desires.
- ✓ Are the party's "enforcers".

Type of Whips

The importance of a whip can be inferred from the number of times an order is underlined and is categorized in the same manner:

One-Line Whip- underlined once, is usually issued to inform party members of a vote and allows them to abstain in case they decide not to follow the party line.

Two-Line Whip- directs the party members to be present during the vote.

Three-Line Whip- is the strongest one and is employed on important occasions such as the second reading of a Bill or a no-confidence motion. It places an obligation on members to follow the party line.

Related Constitutional Provision

- The office of 'whip' is mentioned neither in the Constitution of India nor in the Rules of the House nor in a Parliamentary Statute. It is based on the conventions of the parliamentary government.
- However, the **Tenth Schedule (anti-defection law)** allows a political party to issue a whip to its legislators.

Consequences of Defying a Whip

A member may face disqualification proceedings if she/he disobeys the party whip unless the number of lawmakers defying the whip is 2/3 of the party's strength in the house. The speaker takes the decision on the disqualification according to the anti-defection law.

Limitations of Whip

- Whips cannot direct a Member of Parliament (MP) or MLA to vote in a particular fashion during Presidential elections.
- In the case of *Kihoto Hollohan vs Zachillhu* in 1992, the Supreme Court of India ruled that the Tenth Schedule is applicable only in situations where a vote of confidence or no-confidence is being taken in the government, or where the motion being considered is related to a policy or program that is central to the political party.

Norms Eased for Selection of Consumer Court President, Members

Using its extraordinary powers under Article 142, the Supreme Court eased norms for selecting President and members for consumer courts to attract younger talent.

- ✓ **Article 142**- It empowers the SC to pass orders as necessary for doing complete justice in any matter pending before it. Such orders are enforceable throughout the country.

SC's Ruling

- The apex court **upheld** the judgement of Nagpur Bench. It said that Rule 6 lacked transparency and it conferred uncontrolled discretion and excessive power to the Selection Committee.
- The court agreed with high court ruling and said that the provision of 20 years' experience under Rule 3(2)(b) is rightly held to be unconstitutional, arbitrary and violative of the Article 14 of the Constitution of India.

Background

- Last year, the Department of Consumer Affairs urged States/UTs Govts. to resort to **rule 6 of the Consumer Protection (Salary, allowances and conditions of service of President and Members of the State and District Commission) Model Rules, 2020** to fill the vacant posts. The intention was to not affect the proceedings of the consumer commission due to vacancies in the consumer commissions.
 - Rule 6 states that the State Government has the power to appoint the senior most Member to officiate as President in case a casual vacancy is created in the office of the President in the State Commission or District Commission.
 - *Transparency and selection criteria are absent under this rule.*
- The Nagpur Bench of Bombay High Court set aside some provisions of the Consumer Protection Rules, 2020 related to appointment of members.
- This was challenged by the Union Ministry of Consumer Affairs and State of Maharashtra before the Supreme Court.

- It eased the norms for appointments and said that its orders will serve as a basis for appointment to the vacant posts until an amendment is introduced.

Changes Introduced	Amendments Required	Eligibility	Selection Procedure
The mandatory professional experience for the post of President and members has been reduced to 10 years from 20 years and 15 years respectively.	The Central Government and the concerned State Governments need to amend the Consumer Protection (Qualification for appointment, method of recruitment, procedure of appointment, term of office, resignation and removal of president and members of state commission and district commission) Rules, 2020 within three months of this verdict.	A person having bachelor's degree from a recognized university and who is a person of ability, integrity and standing, and having special knowledge and professional experience of not less than 10 years in consumer affairs, law, public affairs, administration, economics, commerce, industry, finance, management, engineering, technology, public health or medicine, shall be treated as qualified for appointment of President and members of the State Commission.	It will consist of a written test and interview. The written test would have two papers on subjects like current affairs, the Constitution, consumer laws, drafting, etc.

About Consumer Commissions

- The Consumer Protection Act 2019 provides for protection of the interests of consumers and establishes authorities for timely and effective administration and settlement of consumers' disputes.
- It replaced the old Consumer Protection Act, 1986.
- It provides for the establishment of three tier Consumer Commissions-

District Commission	State Commission	National Commission
Each District has a District Commission.	Each state has one State Commission.	The National Commission is in Delhi.
It consists of one President, who is or has been or is qualified to be a District Judge and not less than two members.	It consists of a President, who is or has been a Judge of a High Court and at least four other members.	It consists of a President who is or has been a Judge of the Supreme Court and not less than four other members.
At least one of the members or the President shall be a woman.	At least one of the members or the President shall be a woman.	At least one of the members or the President shall be a woman.
It entertains complaints where the value of goods or services paid for as consideration does not exceed rupees one crore.	<ul style="list-style-type: none"> • It entertains complaint where the value of goods or services paid for as consideration exceeds rupees <u>one crore but does not exceed ten crore rupees.</u> • Complaints against unfair contracts, where the value of goods or services paid as consideration does not exceed ten crore rupees can also be filed in SCDRC. 	<ul style="list-style-type: none"> • Complaints where the value of goods or services paid as consideration exceeds rupees ten crore can be filed with the National Commission. • Complaints against unfair contracts, where the value of goods or services paid as consideration exceeds rupees ten crore can also be filed in NCDRC.

Aggrieved by the Order issued by the District Commission, an appeal petition may be filed before the State Commission within 45 days from the date of receipt of Order.	Aggrieved by the Order issued by the State Commission, an appeal petition may be filed before the National Commission within 30 days from the date of receipt of Order.	Aggrieved by the Order issued by the National Commission, appeal petition may be filed before the Supreme Court of India within 30 days from the date of receipt of orders.
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Hallmark Unique Identification Number (HUID)

The sale of gold jewelry and gold artefacts **hallmarked without 6-digit alphanumeric HUID** will not be allowed from 1st April 2023.

Objective

To safeguard and protect the consumers and enhance their confidence in purchase of hallmarked gold jewelry with traceability and assurance of quality.

Key Points

- Hallmarked jewelry lying with consumers as per old schemes will be valid.
- If the Hallmarked Jewelry bought by the consumer is of lesser purity than that marked on jewelry, then he/she will be entitled for compensation which shall be two times the amount of difference calculated based on shortage of purity for the weight of such article sold and the testing charges.

- A consumer can check and authenticate hallmarked gold jewelry items with HUID number using '**verify HUID**' in **BIS CARE app** which is available in both android as well as iOS.
- It provides information of the jeweler, their registration number, purity of the article, type of article as well as details of hallmarking center which test and hallmarked the article.

Which Metals Are Covered Hallmarking In India?

- The government, through a notification issued in 2018, notified two categories—gold jewellery and gold artefacts; and silver jewellery and silver artefacts—under the purview of hallmarking.
- So, hallmarking in India is available for jewellery of only two metals—gold and silver.

Exemptions

- A certain category of jewellery and items will be exempted from the mandatory requirement of hallmarking.
- Export and re-import of jewellery as per Trade Policy of Government of India — Jewellery for international exhibitions, jewellery for government-approved B2B domestic exhibitions will be exempted from mandatory Hallmarking.
- Watches, fountain pens and special types of jewellery such as Kundan, Polki and Jadau are exempted from hallmarking.

What Is Hallmarked Jewelry

- Hallmark is a mark to assure the fineness and purity of gold jewelry. There are three categories of hallmarked jewelry:

- 22K916- It is a 22-carat gold, and the piece of jewelry has 91.6 percent gold.
- 18K750 - It is an 18-carat gold, and the piece of jewelry has 75 percent gold.
- 14K585 - It is a 14-carat gold, and the piece of jewelry has 58.5 percent gold.

Background

- At present, the old, hallmarked jewellery with *four marks without HUID* was also permitted to be sold by the jewellers along with the 6-digit HUID to clear their stock of their 4-digit hallmarked articles.
- The simultaneous sale of two types of hallmarked jewellery was creating confusion in the mind of consumers.
- Therefore, after several rounds of consultations with all stakeholders including jewellers on the issue by BIS, it was decided that after 31st March 2023, sell, or offer to sell gold jewellery or gold artefacts unless it is hallmarked with of 6-digit Hallmark Unique Identification (HUID) number is prohibited.

The image shows a gold bracelet with three distinct markings: the BIS logo, the purity '22K916', and a unique alphanumeric code 'XXXXXX'. Labels with arrows point to these markings: 'BIS LOGO', 'PURITY OF GOLD', and 'UNIQUE HALLMARKING ID (HUID IS A SIX-DIGIT ALPHA-NUMERIC CODE)'.

Before 6-digit HUID	After 6-digit HUID
<p>consisted of 4 logos-</p> <ol style="list-style-type: none"> 1. BIS logo, 2. purity, 3. logo of jeweler and 4. Assaying and Hallmarking Centre. 	<p>consists of three symbols —</p> <ol style="list-style-type: none"> 1. the BIS logo, 2. a symbol to indicate the purity and fineness of the jewelry, and 3. the HUID.

How To Apply For Hallmarking

A consumer cannot directly apply to the Assaying and Hallmarking Centre to get a hallmark on her gold jewelry. This must be done through a **BIS-registered jeweler**.

ATL Sarthi

ATL Sarthi, a comprehensive self-monitoring framework to strengthen the ever-growing ecosystem of Atal Tinkering Labs (ATL) was recently launched by Atal Innovation Mission (AIM)- NITI Aayog.

Atal Innovation Mission (AIM) & Atal Tinkering Labs (ATL)

- AIM is set up by the Central Government in 2016 and implemented by NITI Aayog to act as an umbrella structure, encompassing and overseeing the entire innovation ecosystem of the country.
- AIM is establishing Atal Tinkering Laboratories (ATLs) in schools across India with a vision to ‘Cultivate one Million children in India as Neoteric Innovators’.
- ATL will provide young children with a chance to work with tools and equipment to understand the concepts of STEM (Science, Technology, Engineering and Math).
- Atal Innovation Mission (AIM) has established 10,000 ATLs and is continuously strengthening this ever-growing ecosystem.

Key Points of ATL Sarthi

- It provides:
 - Tools and support to schools to adopt a self-monitoring approach for better and continuous performance.
 - Necessary guidelines for local authorities like districts, states, innovation councils, private organizations etc. to help assess ATLs in their region and provide much-needed guidance and support to steer this ATL ecosystem to new heights.
- It will enable the ATLs to be efficient and effective.
- It has **four pillars** (*shown in figure*) for ensuring the performance enhancement of ATLs through regular process improvements like a self-reporting dashboard known as ‘MyATL Dashboard’ and development of SOPs for schools (ATL compliance guidelines).



Pillars of ATL Sarthi

<p>1. ATL Cluster-based Approach</p> <p>Objective:</p> <ul style="list-style-type: none"> • To help schools adopt best practices to run the ATLs, through <u>co-learning</u>, <u>co-creating</u> and <u>co-adapting</u> with other ATLs of the same region, it is advised to develop a cluster of schools for a region, district (s), area(s) with the support of local authorities/organizations, known as ATL clusters. 	<p>2. Performance Enablement Framework</p> <ul style="list-style-type: none"> • It has been developed to enable <u>self-evaluation</u> of the Atal Tinkering Labs.
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<ul style="list-style-type: none"> • Leverage the concept of competitive federalism to increase the efficiency of the ATLs which will enhance their performance. <p>The ATL cluster shall be overlooked by a committee called 'Cluster Guidance Committee (CGC)' which will consist of ATL in-charges, mentors, nodal officer appointed by Govt. and principals from the best performing schools in the cluster.</p>	<ul style="list-style-type: none"> • It will serve as an appropriate tool for clusters to <u>identify lead and aspirant</u> ATLs, initiate appropriate action, and conduct pre-post analysis of the cluster as a whole. • It can be used by the state and district authorities to identify the current state of ATLs in their jurisdiction and initiate suitable policy measures.
<p>3. ATL Compliance Guidelines</p> <p>For successfully running the ATL in schools, it is mandatory for all selected ATL schools to follow the following ATL guidelines and compliance process:</p> <ul style="list-style-type: none"> • Lab Setup: establish the ATL lab in their school within 3 months of reception of the Tranche 1 • GEM Procurement: procure the equipment only through Government E-marketplace (GeM), via authentic vendors registered on GeM portal. • PFMS and Expenditure: use the Public Finance Management System (PFMS) to record all financial transactions (including online, offline, GeM transactions) pertaining to the ATL grant-in- aid. • Monitoring & Governance Dashboard: periodically update MyATL Dashboard with the details of the ATL activities and operations for monitoring and evaluation for subsequent tranches. • Utilization Certificate: The grant-in-aid being released should be exclusively spent on the specified purpose for which it has been sanctioned within the stipulated time. The school will be required to submit Fund Utilization Certificates (UCs) for the grant-in-aid at the end of each financial year as well as at the time of seeking further installments of the grant-in-aid, if any. • Non-Performance/ Inactive Schools: All the mandatory infrastructural facilities as well as confirming the actual availability of the equipment/ tools installed and the appointment and availability of staff and other records in the lab is required. If any ATL school is inactive for more than 12 months, it shall be liable for punitive action by AIM 	<p>4. MyATL Dashboard</p> <ul style="list-style-type: none"> • It enables ATLs to regularly report their tinkering activities online. • Using this dashboard, schools can report the number of students who were given access to the ATL, the number of tinkering sessions conducted, the number of innovations created, and the number of inter-school and intra- school competitions organized. This reporting activity assists AIM to keep up with the ATL ecosystem and identify new trends. <p>Features: two-step authentication for logging in & Mobile & User friendly</p>

J&K DELIMITATION COMMISSION

Opposing a plea challenging the constitution of Delimitation Commission to readjust constituencies in J&K, the Centre reaffirmed that the **J&K Reorganization Act, 2019** mandates the Commission to do it.

Delimitation Commission

- It is a commission established under the provisions of the **Delimitation Commission Act** which is tasked for redrawing the boundaries of the various assembly and Lok Sabha constituencies based on a recent census.
- It is appointed by the **President** and is composed of a retired Supreme Court judge, Chief Election Commissioner and Respective State Election Commissioners.

- First delimitation exercise was carried out by the President in 1950-51.
- Delimitation Commissions had been set up four times in 1952, 1963, 1973 and 2002 under the Acts of 1952, 1962, 1972 and 2002.
- No delimitation exercise was conducted after the 1981 and 1991 Censuses.
- Its orders **cannot be called in question before any court.**

J&K Delimitation Commission

- It was set up in March, 2020 and is headed by retired Supreme Court Justice **Ranjana Prakash Desai**, with the Chief Election Commissioner and J&K's Chief Electoral Officer as members, and J&K's five MPs as associate members nominated by the Hon'ble Speaker of Lok Sabha.
- It was entrusted with the work of delimiting the Assembly and Parliamentary Constituencies in the UT of Jammu and Kashmir based on 2011 Census and in accordance with the provisions of the **Jammu and Kashmir Reorganization Act, 2019** and **Delimitation Act, 2002.**

Background

- The erstwhile J&K state had 111 seats:



- After carving out Ladakh as a Union Territory, J&K was left with 107 seats, including 24 for PoK.
- The Reorganization Act increased these seats to **114** (90 for Jammu & Kashmir, besides the 24 reserved for PoK). This led to the demand for delimitation exercise.

Suggested Changes

Legislative Assembly: The Commission has increased **7 Assembly seats** — six in Jammu (now 43 seats) and one in Kashmir (now 47).

- 9 Assembly Constituencies have been reserved for STs, out of which, 6 is in Jammu region and 3 ACs in the Valley.
- It recommended at least 2 members from the community of Kashmiri Migrants (Kashmiri Hindus) in the Legislative Assembly.
- It also recommended representation of *displaced persons from Pakistan-occupied Kashmir*, who migrated to Jammu after Partition in the J&K Legislative Assembly.

Lok Sabha: There are five Parliamentary Constituencies in the region. It redrew the boundaries of Anantnag and Jammu seats.

- Also, a Shia-dominated region of Srinagar parliamentary constituency has been transferred to Baramulla constituency.
- **Petitioners' arguments:**
 - They termed the process of delimitation being carried out in J&K based on the 2011 census is unconstitutional as no population census operation was carried out in 2011 for the UT of J&K.
 - They argued that the increase in number of seats to be ultra vires Articles 81, 82, 170, 330 and 332 of the Constitution and Section 63 of the Jammu and Kashmir Reorganization Act, 2019.

- **Article 81:** Composition of Lok Sabha.
- **Article 82:** Seats in Lok Sabha and the division of each State into territorial constituencies will be readjusted after each census.
- **Article 170:** composition of legislative assemblies.
- **Article 330:** Reservation of seats for Scheduled Castes and Scheduled Tribes in Lok Sabha.
- **Article 332:** Reservation of seats for Scheduled Castes and Scheduled Tribes in Legislative Assemblies.
- **Section 63 of J&K Reorganization Act, 2019:** it states that until the first census after the year 2026 is published, it won't be necessary to readjust the division of J&K UT into Assembly and Parliamentary

National Party

AAP became the national party after Gujarat elections.

What is a National Party?

They are usually bigger parties and are recognized by the Election Commission of India based on their poll performance.

Benefits

- Party's election symbol (broom in case of AAP) remains unchanged across country.
- Get broadcast and telecast bands on Akashvani and Doordarshan during general elections.
- Allowed to have a maximum of **40-star campaigners** whose travel expenses are not counted in the accounts of candidates.
- Government land for building party headquarters.
- Only one proposer needed to file a nomination.
- Get two sets of electoral rolls free of cost at the time of revision of rolls.
- Get one copy of the electoral roll free of cost during general elections.

Eligibility Criteria

National Party	Regional Party
<ul style="list-style-type: none">• If a party is recognized as a state party in four or more states.• If its candidates polled at least 6% of total valid votes in any four or more states in the last Lok Sabha or Assembly elections and has at least four MPs in the last Lok Sabha polls.• If it has won at least 2% of the total seats in the Lok Sabha from not less than three states.	<ul style="list-style-type: none">• At least 6% vote-share in the last Assembly election and have at least 2 MLAs; or have 6% vote-share in the last Lok Sabha elections from that state and at least one MP from that state; or• At least 3% of the total number of seats or three seats, whichever is more, in the last Assembly elections; or• At least one MP for every 25 members or any fraction allotted to the state in the Lok Sabha; or• Have at least 8% of the total valid votes in the last Assembly election or Lok Sabha election from the state.

Family Pehchan Patra for J&K Residents

A Family Pehchan Patra (identity card) will be introduced for residents of Jammu & Kashmir.

About Pehchan Patra



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

Similar Initiatives

- Haryana was the first state to introduce this concept.
- Punjab introduced it for direct transfer of benefits to families who are eligible for various social service schemes of the government.
- **Jan Aadhaar scheme** by Rajasthan aims to be the single identifier of a family & an individual and provides doorstep delivery of all kinds of cash as well non-cash benefits & services to residents.
- Uttar Pradesh government has decided to launch a **UP Parivar Kalyan Card** for similar purposes.

Pradhan Mantri National Apprenticeship Mela

The Ministry of Skill Development and Entrepreneurship (MSDE) held the Pradhan Mantri National Apprenticeship Mela (PMNAM) across 197 locations in 25 states and Union Territories.

Objective: To encourage companies to hire more apprentices while assisting employers in discovering the right talent and developing their potential via training and practical experience.

Key Points

- Under **National Skill Development Mission (NSDM)**, these melas are hosted in the country every month, wherein selected individuals receive a **monthly stipend** in accordance with **government criteria for gaining new skills**.
- The event witnessed the participation of various companies from different sectors. They had the chance to meet potential apprentices on a single platform and chose applicants on the spot.
- Interested individuals registered for mela by visiting

About Skill India Mission

- It was launched in 2015 by the Ministry of Skill Development and Entrepreneurship.
- It was launched with the aim to provide a strong institutional framework to implement and scale up skill development efforts across the country and to impart training to one crore youth every year.
- Under this mission, the Ministry of Skill Development and Entrepreneurship imparts employable skills to the youth through long term and short-term training.



Various initiatives under this scheme include:

- **Pradhan Mantri Kaushal Vikas Yojana (PMKVY):** Launched with the aim to train the country's youth and continue the journey of Skill India Mission in building India as the skill capital of the world.
- **Jan Shikshan Sansthan (JSS) Scheme:** Launched to impart vocational skills in non-formal mode to non-literates, neo-literates, persons with rudimentary level of education up to 8th and school dropouts up to 12th standard in the age group of 15-45 years.
- **National Apprenticeship Promotion Scheme (NAPS):** Launched for promoting apprenticeship training and increasing the engagement of apprentices by providing financial support to industrial establishments undertaking apprenticeship program under The Apprentices Act, 1961.
- **Industrial Training Institutes (ITIs)/ Craftsmen Training Scheme (CTS):** Launched for providing long-term training through 14,716 Industrial Training Institutes (ITIs) operational across the country.

<https://www.apprenticeshipindia.gov.in/>

- The government aimed to raise apprenticeship opportunities in India to 10 lakhs by end of 2022, and to 60 lakhs by 2026.

Ad-Hoc Judges in HCs

The SC, while hearing a plea filed by NGO Lok Prahari seeking invocation of **Article 224A** for appointment of *ad hoc judges in High Courts* suggested that the process of appointing ad-hoc judges should be simplified.

Who is An Ad-hoc Judge

They are the ones appointed by a special procedure for a limited period to deal with long pendency of cases.

Related Constitutional Provision

- **HCs: Article 224A** states that if the **President** thinks that the number of the Judges of a Court should be increased for the time being due to reasons like temporary increase in the business of High Court or shortage of judges, the President may appoint duly qualified persons to be additional Judges of the Court for a period not exceeding two years.
- **SC: Article 127** empowers the Chief Justice of India with the **previous consent** of the President and after consultation with the Chief Justice of the High Court concerned to appoint a High Court Judge duly qualified for appointment as a Judge of the Supreme Court as an ad hoc judge if there is shortage of judges in the SC.
- According to Article 127, the appointed ad-hoc judge will have all the jurisdiction, duties, powers and privileges of a Judge of the Supreme Court.

When Are HC Ad-Hoc Judges Appointed

- If the number of vacancies is more than 20% of the sanctioned strength.
- If the cases in a particular class have been pending for over **five years**.
- If more than 10 % of pending cases are over five years old.

- If the rate of disposal of cases is lower than the rate of institution of cases ('case clearance rate');

Procedure of Appointment

- The Chief Justice of the High Court, after obtaining the consent of the person concerned, recommends to the CM of the state concerned the name of the retired Judge and the period for which he or she will be required to sit and act as a High Court Judge.
 - Pre-Recommendation Process:
 - The Chief Justice of HC sets up a panel of Judges (in the stage of retirement) and former High Court Judges (who have retired recently preferably within a period of one year) to select the candidate.
 - The judges are chosen based on their expertise in a particular field of dispute.
 - The Chief Justice of HC then investigates the previous performance of recommended retired Judges in the standard & quantum of disposal of cases.
 - Based on this, he forwards the name to the CM.
- The Chief Minister then forwards his recommendation to the Union Minister of Law and Justice after consultation with the Governor of the state.
- The Minister of Justice of the Union Government then contacts the Chief Justice of India.
- After receiving the advice of Chief Justice of India, the Prime Minister advises the President about the person to be appointed as Ad-Hoc Judge of the High Court.
- Once the President approves the appointment, the Secretary of State of India to the Ministry of Justice will notify the Chief Justice of that High Court.
- The Chief Minister of State then issues the required notice in the Indian Gazette.

Appropriation Bill

Opposition slammed the appropriation bill moved by Finance Minister Nirmala Sitharaman in Rajya Sabha aimed at authorizing payment and appropriation of additional spending of Rs 3.25-lakh crore from the Consolidated Fund of India for the current financial year (2022-23).

What is An Appropriation Bill?

It is a bill that authorizes the government to withdraw funds from the Consolidated Fund of India for use during a financial year.

Article 114 allows the government to introduce a Bill in the parliament to withdraw money out of the Consolidated Fund of India required to meet:

- The demand for grants made by the House of the People.
- The expenditure charged on the Consolidated Fund of India but not exceeding the amount shown in the last statement.

Procedure Followed

- Once the demands for grants have been passed by the House of People, a Bill called appropriation bill to provide for the appropriation out of the Consolidated Fund of India is introduced, considered and passed.
 - Demand for Grants is the form in which **estimates of expenditure** from the Consolidated Fund, included in the annual financial statement and required to be **voted upon** in the Lok Sabha, are submitted under **Article 113** of the Constitution.
- The introduction of such a Bill cannot be opposed.
- The scope of discussion is limited to matters of public importance or administrative policy implied in the grants covered by Bill and which have not already been raised during the discussion on demand for grants.
- The members desiring to participate in the discussion need to give advance intimation of the specific points they intend to raise to the Speaker.
- Such advance intimation must be given 1000 hours (about 1 and a half months) before the consideration of the Appropriation Bill.

- Once it is passed by the Lok Sabha, it is sent to the Rajya Sabha.
 - If the bill fails to get passed in LS, it leads to the resignation of the government.
- After getting cleared from both the houses, the bill is sent to the President.
- After receiving the President's assent, this bill becomes the Appropriation Act. This act authorizes payments from the Consolidated Fund of India.
- The government cannot withdraw money from Consolidated Fund of India till the enactment of this bill.

Key Features: The exclusive feature of the Appropriation Bill is its automatic repeal clause, whereby the Act gets repealed by itself after it meets its statutory purpose.

Amendments

- No amendment can be proposed to an Appropriation Bill which will have the effect of varying the amount or altering the destination of any grant or of varying the amount of any expenditure charged on the Consolidated Fund of India.
- The decision of the Speaker as to whether such an amendment is admissible or not is final.

Power of Rajya Sabha over Appropriation Bill

Rajya Sabha has the power to recommend any amendments in this Bill, but it is the prerogative of Lok Sabha to either accept or reject these recommendations.

Appropriation Bill	Finance Bill
It is a Money Bill under article 114 that authorizes the government to withdraw funds from the Consolidated Fund of India to meet the expenses in a financial year.	It is a Money Bill under Article 110 introduced in Parliament every year to give effect to the financial proposals made by the government for the upcoming financial year.
Deals with the expense side of the Budget.	Deals with the income (taxes and levies) side of the Budget.
No amendments can be made to it.	Amendments can be made to the amount specified.

Eastern Zonal Council

The 25th meeting of Eastern Zonal Council was held in Kolkata and was presided over by Union Home and Cooperation Minister Amit Shah.

About Zonal Councils

The idea of Zonal Councils was mooted by the first Prime Minister of India, Pandit Jawahar Lal Nehru in 1956 because of re-organization of the States on linguistic pattern were threatening the nation.

Zonal Councils are the **statutory bodies**. They are established by an Act of the Parliament, that is, States Reorganisation Act of 1956.



The Northern Zonal Council: Comprising of Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Rajasthan, National Capital Territory of Delhi and Union Territory of Chandigarh.

The Central Zonal Council: Comprising of Chhattisgarh, Uttarakhand, Uttar Pradesh and Madhya Pradesh.

The Eastern Zonal Council: Comprising of Bihar, Jharkhand, Orissa, Sikkim and West Bengal.

The Western Zonal Council: Comprising of Goa, Gujarat, Maharashtra and the Union Territories of Daman & Diu and Dadra & Nagar Haveli.

The Southern Zonal Council: Comprising of Andhra Pradesh, Karnataka, Kerala, Tamil Nadu and the Union Territory of Puducherry.

Northeastern Council: It was set up under the **Northeastern Council Act, 1971** and came into being in 1972 to solve the special problems of northeastern states and consists of Assam, Arunachal Pradesh, Manipur, Tripura, Mizoram, Meghalaya, Sikkim and Nagaland.

- Sikkim has also been included in the North Eastern Council vide North Eastern Council (Amendment) Act, 2002

Objectives

- National integration.
- Arresting the growth of acute State consciousness, regionalism, linguism and particularistic tendencies.
- Enabling the **Centre and the States** to co-operate and exchange ideas and experiences.
- Establishing a climate of **co-operation amongst the States** for successful and speedy execution of development projects.
- Fostering balanced socio-economic development of the respective zones

Structure: They consist of-

- **Chairman** - Union Home Minister.
- **Vice Chairman** - The Chief Ministers of the States included in each zone act as Vice-Chairman of the Zonal Council for that zone by rotation, each holding office for a period of one year at a time.
- **Members**- Chief Minister and two other Ministers as nominated by the Governor from each of the States and two members from Union Territories included in the zone.
- **Advisers**- One person nominated by the NITI Aayog for each of the Zonal Councils, Chief Secretaries and another officer/Development Commissioner nominated by each of the States included in the Zone.

Personality Rights

- Delhi HC has passed an interim order to prevent the unlawful use of celebrities' name, image and voice, thus highlighting the issue of Personality Rights.
- Personality rights (PR) refer to the right of a person to protect his/her personality under the Right to privacy or property.
 - Personality rights are the rights of famous personalities and celebrities whose name, voice, signature or any other personality trait has commercial value and can mobilise and influence the public at large.

PADMA (Print and Digital Media Association)

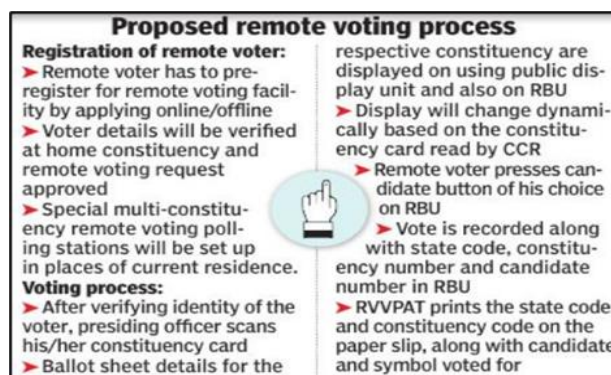
- Ministry of Information and Broadcasting (I&B) has approved PADMA as a self regulatory body for publishers of news and current affairs across the country.
- It will look at grievances related to digital media news content on their platforms.
- It has been approved under Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021.

Remote Voting Facility for Migrant Workers

A prototype of a **Multi-Constituency Remote Electronic Voting Machine (RVM)** has been developed by Election Commission that can handle multiple constituencies from a single remote polling booth.

Proposed Solution

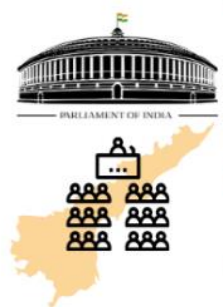
- The EC has come up with a prototype Remote Voting Machine (RVM) - a stand-alone, non-networked system providing a voter with the same experience as currently used EVMs.
- It is being developed with the assistance of Bharat Electronics Limited (BEL) and the Electronics Corporation of India Limited (ECIL).



- **Features:** (include block diagram)
 - **Remote Ballot Unit (RBU):** The unique feature of RVMs is that a single RBU will cater to as many as **72 constituencies** by using a “dynamic ballot display board” instead of the usual printed paper ballot sheet on EVMs.
 - **Ballot Unit Overlay Display (BUOD):** It will show the requisite candidates based on the **constituency number read** on the **voter’s Constituency card**.
 - **Barcode Scanning System:** To read voter ID cards.

Stalemate Between Telangana And Andhra Pradesh

The Andhra Pradesh government has approached the Supreme Court seeking just, reasonable and equitable apportionment of assets and liabilities with Telangana under the Andhra Pradesh Reorganization Act, 2014.



PARLIAMENT OF INDIA

Background

- The Parliament of India passed the Andhra Pradesh Reorganization bill in 2014 paving way for the formation of Telangana state which comprised of ten districts from north-western Andhra Pradesh.
- More than eight years after this bifurcation, division of assets and liabilities between the two States remains elusive as the States make their own interpretation of the provisions under the Andhra Pradesh Reorganization Act 2014.
- The issue involves the division of 245 institutions with a total fixed asset value of ₹1.42 lakh crore. Of 245 institutions, 91 institutions are under Schedule IX and 142 institutions are under Schedule X of the Act.
- The division of another 12 institutions not mentioned in the Act has also become contentious between the States.

Division of Headquarter Assets

According to the Home Ministry, in case of one single comprehensive State undertaking (which includes the headquarters and the operational units in one facility) exclusively located in one area or if its operations are confined in one local area then it shall be **apportioned** based on the location according to **Section 53(1) of the Reorganization Act**.

Constitutional Provisions Related to Inter-State Disputes

- **Article 131:** The Supreme Court has original jurisdiction in any dispute –
 - a. between the Government of India and one or more States or
 - b. between the Government of India and any State or States on one side and one or more other States on the other or
 - c. between two or more States.
- **Article 263:** It empowers the President to appoint an Inter-State Council (ISC) in public interest for
 - Inquiring into and advising upon disputes between the states.
 - Investigating and discussing subjects in which some or all the States, or the Union and one or more of the States, have a common interest.
 - Making recommendations upon any such subject and for better co-ordination or policy and action with respect to that subject.

Chargesheets Are Not Public Documents

The Supreme Court (SC) held that chargesheets are **not** public documents and their free public access violates the provisions of the Criminal Code of Procedure (CrPC)

What is a Chargesheet?

- Defined under Section 173 of CrPC, it is the final report prepared by a police officer or an investigative agency after completion of an investigation.

- It answers all the questions related to an accused i.e.:

- The names of the parties
- The nature of the information
- The names of the witnesses
- Whether any offence have been committed and, if so, by whom
- Whether the accused has been arrested, in custody or has been released and, if released, whether with or without sureties

Process After Preparing the Chargesheet

After preparing the chargesheet, the officer-in-charge of the police station forwards it to a Magistrate, complete with all documents. This forms the basis for the prosecution's case

Time Limit to File Chargesheet

- The charge sheet is to be filed within 60 days from the date of arrest of the accused in cases triable by lower courts and 90 days in cases triable by Sessions Court.
- If the charge sheet is not filed within the given time limit the arrest is termed to be illegal and the accused is entitled to bail.

- **Section 173 of CrPC:** It is related to the final report (chargesheet) prepared by the investigating police officer and submitted to the Magistrate.
- **Section 207 of CrPC:** It requires the investigating agency to furnish copies of the final report (charge sheet) along with the relevant documents related to the case *to the accused and to no-one else.*
- **Section 74 of Evidence Act:** It defines public documents as the ones which form the acts or records of:
 - Sovereign authority.
 - Official bodies, tribunals.
 - Public offices either legislative, judicial or executive in any part of India, Commonwealth or a foreign country.
 - Public records "kept in any state of private documents".
- **Section 76 of Evidence Act:** It is related to the certified copies of public documents and mandates, every public officer having custody of a public document which any person has a right to inspect, to provide its copy on payment of legal fee, accompanied by a certificate of attestation along with the date, seal, name and designation of the officer.
- **Section 4(2) of RTI Act:** It mandates every public authority to provide as much information *Suo motu* to the public at regular intervals through various means of communications, including internet so that the public have minimum resort to the use of this Act to obtain information.

Chargesheet v/s FIR

Chargesheet	FIR
Defined under Section 173 of the CrPC.	Undefined but mentioned under police regulations/rules under Section 154 of CrPC, which deals with 'Information in Cognizable Cases'. ✓ Cognizable Offence is the one in which police may arrest a person without warrant and is authorized to start investigation into it on their own and do not require court orders to do so.
It is the final report filed towards the end of an investigation.	Filed at the ' first instance ' when the police are informed about a cognizable offence
It is complete with evidence and is used during the trial to prove the offences of the accused.	It does not prove a person's guilt.
It is filed only after sufficient evidence has been gathered against the accused in respect of the offences mentioned in the FIR; otherwise, a 'cancellation report' or 'untraced report' can be filed due to lack of evidence.	Investigation takes place only after filing an FIR. Section 155 states that the police don't have any legal authority to record an FIR regarding any non-cognizable offence, unless they have obtained permission from the magistrate for it

Triple Test Formula for OBC Quota

The Uttar Pradesh Government set up a five-member commission to conduct surveys and ensure OBC reservation in the local body is provided based on the **triple test**. This test will be carried out for the first time in Uttar Pradesh and its rules will be laid down by the Law department and the Urban Development department.



About OBCs

- OBC (Other Backward Classes) is a collective term to classify educationally or socially backward castes.
- It is one of several official classifications of India's population along with General, Scheduled Castes and Scheduled Tribes (SCs and STs).
- V.P. Singh government in 1991 recommended a 27% quota for OBCs in public sector jobs and higher education, thus making the total number of reservations for SC, ST and OBC to 49%.
- In October 2017, former President Ram Nath Kovind notified a five-member Commission headed by Delhi HC's former **Chief Justice G. Rohini** under Article 340 of the Indian Constitution, to explore the idea of OBC sub-categorization.

What is Triple Test?

- In a landmark judgement in the **K.Krishna Murthy & Ors. Vs. Union of India** (2010), the Supreme Court had laid down a triple test for reserving seats in local body polls.
- It was reiterated by the Supreme Court in the case of Vikas Kishanrao Gawali vs. State of Maharashtra and others in 2021.
- It requires the government to complete the following three tasks before finalizing reservation for OBCs in local body elections:

- 1. Set up a dedicated commission to conduct a rigorous **empirical inquiry** into the nature and implications of the backwardness in local bodies.
- 2. Specify the **proportion of reservations required** in local bodies considering recommendations of the commission, so as not to *fall foul of overbreadth*.
- 3. Ensure reservations for SCs/STs/OBCs taken together do not exceed an aggregate of 50% of the total seats.

- The reservation cannot be notified without meeting these conditions.

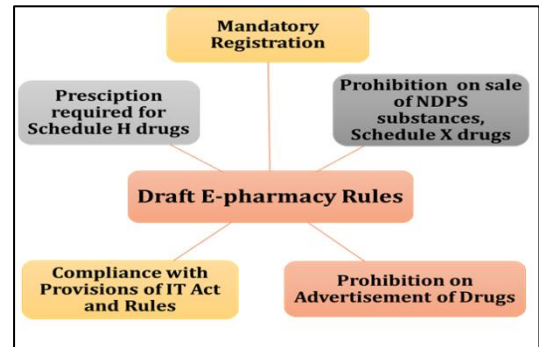
SOCIAL ISSUES

e-Pharmacies: On Regulating Online Sale Of Drugs In India

Union Ministry of Health and Family Welfare (MoH&FW) **pulled up at least twenty companies** including Tata-1mg, Flipkart, Apollo, PharmEasy, **for selling medicines online.**

Legislative Framework For e-Pharmacies In India

- As of now, **no exact rules are in place for E-drug stores in India**, and this is a significant inhibitor to the online drug store market in India.
- At present, E-pharmacies in India follow the ***Drugs and Cosmetics Act 1940, the Drugs and Cosmetics Rules 1945, the Pharmacy Act 1948, and the Indian Medical Act 1956.***
- However, the electronic sale of physician-prescribed drugs from online drug store sites is expressed under the **IT Act, 2000.**
- E-pharmacies are managed by **state drug controllers** and approvals for E-pharmacies should be given by the **Drug Controller General of India (DCGI).**
- The MoH&FW in **2018** came out with **draft rules** to control the online offer of medications and availability of genuine drugs from certifiable online sites. But, after being sent to a group of ministers, the proposal was immediately put on hold.
- Since then, **multiple court orders** and the 172nd Parliamentary Standing Committee report have called for regulating e-pharmacies.



India's Stand On Same-Sex Marriage

Recently, a Bench led by Chief Justice of India D.Y. Chandrachud referred petitions to legally recognise same-sex marriages to a Constitution Bench of five judges of the Supreme Court.

Why Does The Community Want This Right

- Even if LGBTQIA+ couples may live together, legally, they are on a slippery slope.
 - In **Navtej Singh Johar case (2018)** homosexuality was **decriminalised.**
- They do not enjoy the rights married couples do.
 - For example, LGBTQIA+ couples cannot adopt children or have a child by surrogacy;
 - They do not have automatic rights to inheritance, maintenance and tax benefits;
 - After a partner passes away, they cannot avail of benefits like pension or compensation.

About the case

- The Court has been hearing multiple petitioners' requests for **legal recognition of same-sex marriages under a special law.**
- SC took up the case as petitioners claimed that the **non-recognition of same-sex marriage** amounted to discrimination that strikes at the root of dignity and self-fulfillment of LGBTQIA+ couples.
- The petitioners cited the **Special Marriage Act, 1954** and appealed to the Court to extend the right to the LGBTQIA+ community, by making the **marriage between any two persons gender neutral.**
- Special Marriage Act, 1954 provides a civil marriage for couples who cannot marry under their personal law.

- Most of all, since marriage is a social institution - that is created by and highly regulated by law - without this social sanction, same-sex couples struggle to make a life together.

Centre's Stand

- The Centre has opposed same-sex marriage.

- It said that the judicial interference will cause complete havoc with the delicate balance of personal laws and in accepted societal values.
- While filing a counter-affidavit during this hearing, the government said that decriminalisation of Section 377 IPC does not give rise to a claim to seek recognition for same-sex marriage.

Recurring Migrant Workers' Issues

Rumours of migrant workers being assaulted in Tamil Nadu have triggered concern among manufacturers in the state. Officials have rejected the reports as fake news, and political leaders and the administration have appealed to workers to not pay heed to the rumours.

What Is The Legal Framework For Migrant Welfare?

- The **Inter-State Migrant Workmen Act, 1979** looks into the welfare of the labourers.
 - The Act mandates that the establishment which proposes to employ migrant workers be required to be registered with destination states.
 - Contractors will also have to obtain a **licence** from the concerned authority of the home states as well as the host states.
 - However, in practice, this Act has not been fully implemented.
- This Act has been subsumed into the four broad labour codes notified by the Centre:
 - **The Code on Wages, 2019;**
 - **The Industrial Relations Code, 2020;**
 - **The Code on Social Security, 2020;** and
 - **The Occupational Safety, Health and Working Conditions Code, 2020.**
- These have not been implemented yet.
- Also, the registration under the inter-state migrant workers' act is negligible. This is due to:
 - **Lack of awareness** about the rights and the benefits of registration
 - **Complex registration process**
 - **Lack of enforcement** reduces the incentive for migrant workers to register.
 - **Inadequate infrastructure** to register and monitor the movement of migrant workers.
 - **Fear of losing jobs:** Migrant workers often fear that registering under the Act will lead to loss of employment, as employers may prefer to hire workers who are not registered.
 - **Informal nature of work:** Many migrants work in the informal sector, which is not covered by the Act, and hence, they are not required to register.

Are There Any States Which Have Tried To Implement The Inter-State Act?

- In 2012, an MoU was signed between Odisha and Andhra Pradesh to track labourers migrating from 11 districts of Odisha to work in brick kilns in then-united Andhra Pradesh.
 - It was signed with the help of the International Labour Organisation (ILO).
- Kerala has set up facilitation centers for migrant workers whom the state refers to as "guest workers."
 - These facilitation centers maintain data regarding migrant workers arriving in Kerala as well as help migrant workers navigate any problems they might face.
 - However, there is no data sharing between Kerala and the migrant workers' home states.

New Initiative Of Jharkhand To Generate Migration Data

- Jharkhand has started the **Safe and Responsible Migration Initiative (SRMI) in 2021.**

- It aims at enabling systemic registration of migrant workers for monitoring and analysis in the source as well as the destination districts.
- The priority of SRMI is to generate data and then map the labourers who move out to several states for work.

Review Panel Red-Flags How NAAC Grades Colleges And Universities

Lack of action on the report, which was submitted to the University Grants Commission (UGC), was flagged by NAAC executive committee chairperson in the days before he recently announced his resignation.

What Circumstances Led To Resignation Of The Chair Of NAAC Executive Committee

- Based on various complaints, the NAAC executive committee chairperson suggested the **need for an independent inquiry by appropriate high-level national agencies.**
- **The review panel** was set up by NAAC executive committee chairperson to **review the functioning of the NAAC.**
- **A report was submitted** (to the UGC last year) by the panel, with **major findings** -
 - The possibility of a compromised IT system;
 - Presence of multiple “**super admins**” who have full access to the NAAC’s internal system and the power to allot experts;
 - Non-maintenance of logs which may have adverse fall outs;
 - Arbitrary allocation of experts raising questions of conflict of interest;
 - **Vested interests, malpractices** are manipulating processes in the accreditation system;
 - The **process of selection of experts** who comprise peer teams that are sent to assess applications for accreditation is **neither random nor sequential**;
 - **Nearly 70% of experts** from the pool of assessors do not appear to have received any opportunity to conduct site visits while some others have had multiple such visits.
- **Lack of action on the report** was flagged by NAAC executive committee chairperson.



National Assessment and Accreditation Council
An Autonomous Institution of the University Grants Commission

राष्ट्रीय मूल्यांकन एवं प्रत्यायन परिषद्
विश्वविद्यालय अनुदान आयोग का स्वायत्त संस्थान

- It is a **government organization** (HQ in Bangalore) in India established in **1994** in response to recommendations of **National Policy in Education (1986).**
- It is an **autonomous body** that **assesses and accredits** Higher Education Institutions (HEIs) such as colleges, universities/other recognised institutions to derive an understanding of the ‘Quality Status’ of the institution.
- It is **funded by the UGC** and evaluates the institutions in terms of their performance related to the teaching-learning processes, faculty, research, infrastructure, governance, financial wellbeing, student services, etc.

NAAC’s Accreditation Process

- The first step involves an applicant institution submitting a **self-study report (SSR)** based on quantitative and qualitative metrics.
- The **data is subjected to validation** by expert teams of NAAC, with quality reviewed during site visits by peer teams.
- According to the Government of India, of the 1,113 universities and 43,796 colleges in the All-India Survey on Higher Education Report 2020-21, **NAAC accredited 418 universities and 9,062 colleges as on January 31, 2023.**

NCST Upset with Environment Ministry Over Forest Rights

- The National Commission for Scheduled Tribes (NCST) is caught in a row with the Ministry of Environment, Forest and Climate Change over the latest **Forest Conservation Rules (FCR), 2022.**
- The row is over the potential violation of provisions enshrined in the **Scheduled Tribes and Other Forest Dwellers (Recognition of Forest Rights) Act, 2006** dubbed as Forest Rights Act (FRA).

Role of Forest Advisory Committee (FAC)

- The FAC is a **statutory body** established under the Forest Conservation Act (FCA), 1980.
- The FAC considers questions on the diversion of forest land for non-forest uses such as mining, industrial projects, townships and advises the state government on the *issue of granting forest clearances.*

- Once the FAC approves (or rejects) a proposal, it is forwarded to the concerned State government where the land is located, who then has to ensure that provisions of the **Forest Right Act, 2006**, a separate Act that protects the rights of forest dwellers and tribals over their land, are complied with.
- The FAC approval also means that the future users of the land must **provide compensatory land** for afforestation as well as **pay the net present value** (ranging between Rs 10-15 lakh per hectare.)



FOREST CONSERVATION RULES

- The Forest Conservation Rules deal with the implementation of the **Forest Conservation Act (FCA), 1980**.
- They prescribe the procedure to be followed for forest land to be diverted for non-forestry uses such as road construction, highway development, railway lines, and mining.
- The **broad objectives of the Forest Conservation Act** are to –
 - Protect forest and wildlife,
 - Put brakes on State governments' attempts to hive off forest land for commercial projects and
 - Strive to increase the area under forests.
- For forest land beyond five hectares, approval for diverting land must be given by the Central government.
- This is via a specially constituted committee, called the Forest Advisory Committee (FAC).

Forest Conservation Act, 2022 Rules

- The latest version of the rules, which consolidates changes to the Forest Conservation Act over the years from various amendments and court ruling, was made public in June, 2022.
- The new rules make a provision for private parties to cultivate plantations and sell them as land to companies who need to meet compensatory forestation targets.
 - This, according to the Central government, will help India increase forest cover as well as solve the problems of the States of not finding land within their jurisdiction for compensatory purposes.
 - In the earlier rules, there was no such provision.
- Also, in the new rules, there is no mention about what happens to tribals and forest-dwelling communities whose land would be hived off for developmental work.
 - Prior to the updated rules, state bodies would forward documents to the FAC that would also include information on the status of whether the forest rights of locals in the area were settled.

NCST on FCA Rules 2022

- Within two months of the FCR, 2022 coming into force, the National Commission for Scheduled Tribe (NCST) constituted a “Working Group on the Forest Rights Act 2006.”
- It was constituted to monitor the implementation of the FRA and “make recommendations to the Union government and State governments”.
- The NCST concluded that the **new FCR infringed on the rights of STs and other traditional forest dwellers (OTFDs) by violating the FRA.**
- According to the **FRA 2006**, in case of a dispute over forest land, precedence has to be given to the rights of STs and OTFDs, who live in the forest and its resources, over any other party.
- The NCST argued that the previous versions of the Rules provided a legal space for “ensuring completion of the processes for recognition and vesting of rights under the FRA in areas where forests are being diverted.”

Environment Ministry's Response

- **FCR, 2022 does not violate any provisions granting land rights to STs and OTFDs.**
- It said that the FCR has been issued in accordance with the Forest (Conservation) Act, 1980, which will run “parallel” to the provisions of the FRA, 2006.
- It also said that there was **“no legal basis”** for the NCST's concerns about the FCR's impact on the FRA.

PM-ABHIM

The World Bank (WB) is lending up to **\$1 billion** (divided into two complementary loans of \$500 million under PHSP and EHSDP each) to help India with preparedness for future pandemics as well as to strengthen its health infrastructure.

- Through this combined financing, world bank will support India's flagship Pradhan Mantri-Ayushman Bharat Health Infrastructure Mission (**PM-ABHIM**).

PM-ABHIM

- The PM Atmanirbhar Swasth Bharat Yojana (PMASBY), which has now been renamed as PM-ABHIM, was announced in the **Union Budget 2021-22**.
- The PM-ABHIM scheme was launched in October 2021 by the Union **Ministry of Health and Family Welfare**, and will run in addition to the National Health Mission (NHM).
- **Objectives:**
 - To strengthen grass root public health institutions.
 - To expand and build an IT enabled disease surveillance system.
 - To expand research on COVID-19 and other infectious diseases and to develop the core capacity to deliver the **One Health Approach**.
- **Components:** It consists of Centrally Sponsored Scheme Components [like Ayushman Bharat - Health & Wellness Centres (**AB-HWCs**) in rural and urban areas] and some Central Sector Components (like Critical Care Hospital Blocks).

What Is PHSP And EHSDP?

- The \$500-million **Public Health Systems for Pandemic Preparedness Program** (PHSP) will support the government's efforts to prepare *India's surveillance system* to detect and report epidemics of potential international concern.
- Another \$500 million **Enhanced Health Service Delivery Program** (EHSDP) will support government's efforts to strengthen service delivery through a redesigned primary healthcare model
- Both the PHSP and the EHSDP utilise the **Program-for-Results financing instrument** that focuses on achievement of results rather than inputs.

'Scan and Share' Service Under Ayushman Bharat Digital Mission

1. The service is currently provided in 125 districts across 25 States and UTs and it is a typical example of how technology can be leveraged to provide better services to patients and to improve the system efficiency.
2. The participating hospitals (365), both government and private, display their unique QR codes in patient-registration areas.
3. The patients can scan the QR code using any health application such as ABHA app, Aarogya Setu app, EkaCare, DRiefcase, Bajaj Health or PayTM.
4. The patients then share information like name, age, gender, and unique health ID [ABHA number] to the Health Management Information system [HMIS] of the hospital.
5. This enables paperless registration, instant token generation, saves patients' time and the health facility is able to optimise resources deployed for registration.

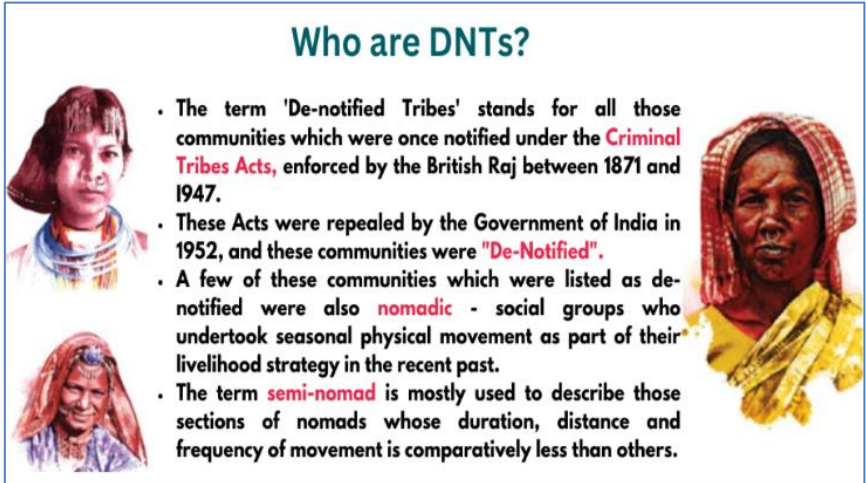
Denotified, Nomadic, Semi-nomadic Tribes

The **Parliamentary panel** on Social Justice and Empowerment has pulled up the Union government over the very slow process to categorise over 260 denotified, nomadic and semi-nomadic tribes (DNTs) under either the SC/ST/OBC lists.

Status in India


- **More than 10 crore Indians** from over **1,400 communities** are either denotified (settled in various States of the country), nomadic or semi-nomadic.
 - The Government of India in **2014** had constituted **National Commission for Denotified, Nomadic and Semi-Nomadic Tribes (NCDNT)/Idate Commission** for a period of 3 years to-
 - Prepare a **State-wise list of castes** belonging to Denotified and Nomadic Tribes
 - Suggest **appropriate measures** in respect of Denotified and Nomadic Tribes that may be undertaken by the Central or the State Government.
 - **The NCDNT/Renke Commission (2008)** was earlier commissioned to identify and list the DNT communities.
- Development and Welfare Board for Denotified, Nomadic & Semi-Nomadic communities (DWBDNCs)**
- **The Idate commission** recommended the setting up of a permanent commission for these communities.
 - But since most DNTs are covered under SC, ST or OBC, to avoid the conflict, the government therefore set up the DWBDNCs in 2019, under the chairmanship of BR Idate. The government felt setting up a permanent commission would be in conflict with the mandate of the National Commission for Scheduled Castes (NCSC), NCST and NCBC-
 - According to the DWBDNC,
 - SEED scheme was launched along with a system for online applications and live status-tracking.
 - However, with many DNT communities unable to navigate the online system themselves, **officials have been conducting camps** across the country with community leaders to help the applicants sign up on the web portal.
 - But unless the **bureaucratic exercise of their accurate categorisation** is completed, the application will not be processed.

Who are DNTs?




- The term 'De-notified Tribes' stands for all those communities which were once notified under the **Criminal Tribes Acts**, enforced by the British Raj between 1871 and 1947.
- These Acts were repealed by the Government of India in 1952, and these communities were "**De-Notified**".
- A few of these communities which were listed as denotified were also **nomadic** - social groups who undertook seasonal physical movement as part of their livelihood strategy in the recent past.
- The term **semi-nomad** is mostly used to describe those sections of nomads whose duration, distance and frequency of movement is comparatively less than others.

SEED (Scheme for Economic Empowerment of DNTs)



The scheme was launched in (February) 2022 by the Ministry of Social Justice and Empowerment, with an allocation of ₹200 crore, to be spent over five years from FY 2021-22 to FY 2025-26.



Components:

- **Educational empowerment:** Providing free competitive exam coaching for DNT candidates.
- **Health:** Health insurance (through PM Jan Arogya Yojana).
- **Livelihoods:** Through National & State Rural Livelihood Missions (NRLM and SRLMs).
- **Land and Housing:** Financial assistance for construction of houses through PM Awas Yojana.

Implementation:

DWBDNCs has been tasked with the implementation of this scheme.

Beneficiaries:

The DNT communities whose family income from all sources is **Rs. 2.50 lakhs or less** and who are not availing benefits under any other central/state schemes are eligible.

Rajya Sabha Passes Bill To Extend ST Status To Gond Community In Four Districts Of UP

- The Rajya Sabha passed the Constitution (Scheduled Castes and Scheduled Tribes) Orders (2nd Amendment) Bill-2022, which seeks to give the ST status to the Gond community in 4 districts (Sant Kabir Nagar, Sant Ravidas Nagar, Kushinagar and Chandauli) of UP.
- The demand for inclusion of the Gond community in the ST list was first raised in the 1980s.

Process of Granting ST Tag in India

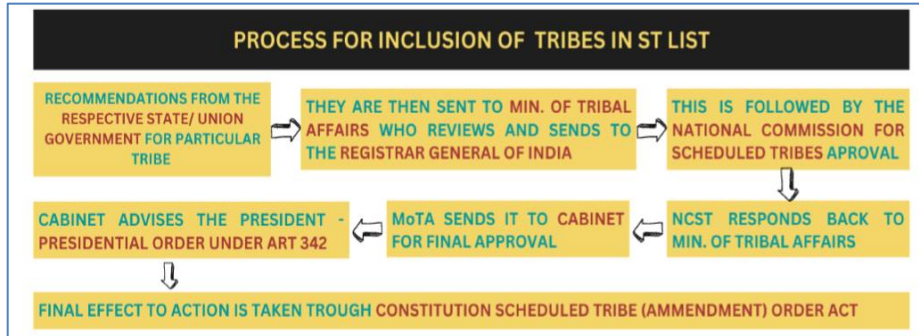
- **Constitutional Provision:** Article 342 of the Indian Constitution -

○ **The President** may with respect to any State/UT and where it is a State after consultation with the Governor, may notify the STs in relation to that State/UT.

○ **The Parliament** may by law include or exclude from the list of STs specified in a notification issued.

○ **The inclusion or exclusion** of any community in the ST/SC list come into effect **only after the President assents** to a Bill that amends the Constitution (STs) Order, 1950, after it is passed by both the Lok Sabha and Rajya Sabha.

● **Criteria to Begin The Process:** To establish whether a community is a ST, the government looks at several criteria, including it –




The 2011 Census of India recorded about 2.98 million Gondi (related to the Telugu) speakers.

The Union Cabinet have also approved the proposals to add other tribes to the **list of Scheduled Tribes (ST)** in States so that they can also avail benefits meant for **STs, including reservation. They were:**

- **Hatti tribe** (Trans-Giri area in Himachal Pradesh)
- **Narikoravar** (hill tribe of Tamil Nadu)
- **Kuruvikaran** (hill tribe of Tamil Nadu)
- **Binjhia** (Chhattisgarh)

National Commission for Backward Classes: Constituted under National Commission for Backward Classes Act, 1993, it presently has been accorded Constitutional status through Constitution (One hundred and second Amendment) Act in 2018.

This Act inserted 338B which requires formation of a commission for socially and educationally backward classes. It constitutes of – a chairperson, Vice-chairperson and other 3 members

Doping In India

As per one of the India’s leading newspaper report, Indian gymnastics’ poster girl Dipa Karmakar is under suspension since the second half of 2021 for her failure to honour the whereabouts as mandated by the world anti-doping agency (WADA).

What Is Whereabouts Clause As Mandated By WADA

- Some athletes, usually those who are part of a **Registered Testing Pool (RTP)**, are required to provide whereabouts information.
- This information is used by Anti-Doping Organizations (such as NADA, WADA etc.) to locate athletes for effective out of competition doping control.



- WADA was established in 1999 as an international independent agency to lead a collaborative worldwide movement for doping-free sport.
 - It was promoted by the International Olympic Committee.
- Its primary role is to develop, harmonize and coordinate anti-doping rules and policies across all sports and countries.
- Its key activities include:
 - scientific and social science research;
 - education; intelligence & investigations;
 - development of anti-doping capacity; and
 - monitoring of compliance with the World Anti-Doping Program.

What is Doping?

- Doping refers to the use of banned substances in competitive sports with a primary goal to enhance performance.
 - **Performance enhancing drugs (PEDs)** is another term for drugs used by athletes to improve their athletic performance.
- This can be achieved in broadly four ways – by increasing muscle mass, getting an artificial spike in energy ahead of an event, cutting down on recovery time and masking the effect of other drugs.

What Are The Existing Regulatory Frameworks In India?

- **Legislation**
 - **National Anti-Doping Bill, 2022:**
 - The legislation seeks to prohibit athletes, support personnel and other people from engaging in doping in sport.
 - The bill aims at strengthening anti-doping activities in sports and offer a statutory framework for the functioning of the National Anti-Doping Agency (NADA).
- **Institution: National Anti-Doping Agency (NADA)**
 - NADA (**statutory body** under National Anti-Doping Act, 2022) was set up as registered society in November 2005 with a mandate for Dope free sports in India.
 - NADA holds regular testing in two different ways.
 - The first one is called the in-competition testing, wherein athletes are tested for banned substances during a competition.
 - To prevent the practice of doping during an off-season, NADA also organises out-of-competition testing.

Free Foodgrains To Beneficiaries Under NFSA

- The Union government said it would provide **free foodgrains** to beneficiaries under the National Food Security Act (NFSA), 2013, as per their entitlement, for a year beginning January 2023.

Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY)

- 
- PM-GKAY is a food security welfare scheme announced by the Central Government in March 2020, during the Covid-19 pandemic.
 - It is a part of Pradhan Mantri Garib Kalyan Package (PMGKP) to help the poor fight the battle against Covid-19.
 - **Objective:** To feed the poorest citizens of India by providing grain through the Public Distribution System, to all the priority households (ration card holders and those identified by the Antyodaya Anna Yojana scheme).
 - **Implementing Agency:** Department of Food and Public Distribution, Ministry of Consumer Affairs, Food and Public Distribution
 - **Nodal ministry:** Ministry of Finance.
 - More than 80 crore beneficiaries are provided 5 kg free wheat/rice per person per month.
 - This is *in addition to the 5 kg food grains already provided to the beneficiaries under the National Food Security Act, 2013.*
 - It is known as the largest food security programme in the world.

- It has, however, discontinued the Pradhan Mantri Garib Kalyan Anna Yojana launched in April 2020 amid Covid-19.

National Food Security Act (NFSA)

- The NFSA, 2013 was notified to provide for food and nutritional security, by ensuring access to adequate quantity of quality food at affordable prices to people to live a life with dignity.
- It provides a **legal right** to persons belonging to “eligible households” to receive food grains at subsidised price/central issue prices under the Targeted Public Distribution System (TPDS).
- State governments are tasked with identifying Antyodaya Anna Yojana (AAY - poorest of the poor) and priority households (PHH) beneficiaries within the TPDS-covered population.
- Every person in the PHH category receives 5 kg of food grains per month at - **rice at Rs 3/kg, wheat at Rs 2/kg and coarse grain at Re 1/kg.**
 - Each Antyodaya Anna Yojana (AAY) household gets Rs 35 kg of food grains per month.
- The Act covers up to 75% of the rural population and up to 50% of the urban population for receiving subsidised food grains (overall **67%** of the total population).
- With this decision of merging NFSA and PM-GKAY, for the first time, India will have a Central food security legislation which gives the poor a ‘right’ to receive 5 kg foodgrains free of cost.
 - Earlier, the poor paid a small price of Rs 3 per kg for rice and Rs 2 per kg for wheat.
- The decision softens the blow, the poor may suffer with the PM Garib Kalyan Anna Yojana being discontinued by the end of the month.

WHY PMGKAY, NFSA WERE MERGED	
<p>LOWER FOODGRAIN STOCKS</p> <p>As on Nov 30, combined stock of rice (115.42 lakh metric tonne) and wheat (190.27 LMT) was at 305.69 LMT. This was lower than the figure of 591.56 LMT (rice 213.03 LMT, wheat 378.53 LMT) on Nov 30, 2021.</p>	<p>HIGHER ECONOMIC COST</p> <p>Economic cost for rice has increased to Rs 3,670.04 per quintal this year from Rs 3,597.17 last year. For wheat, it has gone up to Rs 2,588.70 per quintal from Rs 2,4999.69 per quintal last year.</p>

Prajjwala Challenge

Ministry of Rural Development under the Deendayal Antyodaya Yojana - National Rural Livelihoods Mission (DAY-NRLM) has launched the Prajjwala Challenge

About

- **Aim:** To invite ideas, solutions and actions that can **transform the rural economy**. This Mission is looking for ideas which are broadly categorised into:
 - Focus on Women and the Marginalized section of the community
 - Localised Models
 - Sustainability
 - Cost Effective solutions
 - Multi-sectoral ideas and solutions
- Shortlisted ideas will be acknowledged by the Mission and will be provided mentorship support from an expert panel and incubation support to scale up. The **top 5 ideas will be rewarded with Rs. 2 Lakh each.**

DAY-NRLM: It is one of the **flagship poverty alleviation programs** which aims at creating efficient and effective institutional platforms for the rural poor, enabling them to increase household income through sustainable livelihood enhancements and improved access to financial services.

Key Features:

- **Universal Social Mobilisation:** At least one-woman member from each identified rural poor household, is to be brought under the Self Help Group (SHG) network in a time bound manner.
- **Participatory Identification of Poor (PIP):** All households identified as poor through the PIP process is the NRLM Target Group and is eligible for all the benefits under the programme.

- **Community Funds as Resources in Perpetuity:** NRLM provides Revolving Fund (RF) and Community Investment Fund (CIF) as resources in perpetuity to the institutions of the poor, to strengthen their institutional and financial management capacity.

Grameen Udyami Scheme

About 200 tribal women have completed training under Phase 3 of the Grameen Udyami Scheme in Jharkhand.

About Grameen Udyami Scheme

- It was launched to **augment skill training** in tribal communities for inclusive and sustainable growth.
- Funded by the **National Skill Development Corporation**, this project is being implemented in Maharashtra, Rajasthan, Chhattisgarh, Madhya Pradesh, Jharkhand, and Gujarat.
- It is implemented under the **Sansadiya Sankul Pariyojana** to expand the rural/local economy, enhance employment opportunities by reducing the forced migration and by the conservation of natural resources.

The National Skill Development Corporation

- It is a non-profit public limited company established in 2008 under Section 25 of the **Companies Act, 1956** as a Public Private Partnership (PPP) model.
- The Government of India, through the Ministry of Skill Development and Entrepreneurship (MSDE), owns 49% of NSDC, while the private sector owns the remaining 51%.

'SMART' (Scope for Mainstreaming Ayurveda Research in Teaching Professionals) Program

The **National Commission for Indian System of Medicine (NCISM)** and the **Central Council for Research in Ayurvedic Sciences (CCRAS)**, the two prominent institutions under the Ministry of Ayush, have launched 'SMART' (Scope for Mainstreaming Ayurveda Research in Teaching Professionals) program.

About 'SMART' Program

- **Aim:** To boost scientific research in priority healthcare research areas through Ayurveda colleges and hospitals.
- This initiative in healthcare research majorly works on the areas - Osteoarthritis, Iron Deficiency Anaemia, Chronic Bronchitis, Dyslipidaemia, Rheumatoid Arthritis, Obesity, Diabetes Mellitus, Psoriasis, Generalised Anxiety Disorder, Non-alcoholic fatty liver disease (NAFLD).
- The 'SMART' program will also motivate teachers for taking up projects in designated areas of healthcare research and create a large database.

National Digital University (NDU)

The UGC Chairman recently revealed the framework of India's first-ever National Digital University (NDU) as envisioned under the National Education Policy, 2020.

About National Digital University (NDU)

- The Central Government in its Budget 2022-23 announced the establishment of a digital university that provides access to students for world-class quality universal education with personalized learning experiences at their doorsteps.
- **Structure of NDU:**
 - The institution will function under a **hub-and-spoke model**, which is where one product is delivered to various stakeholders from a central location.
 - The **digital content for various courses will be hosted** on the Study Webs of Active-Learning for Young Aspiring Minds (**SWAYAM**) platform.
 - The **IT and administrative services will be provided through** the government's **Samarth portal**.

- **Facilities offered:**

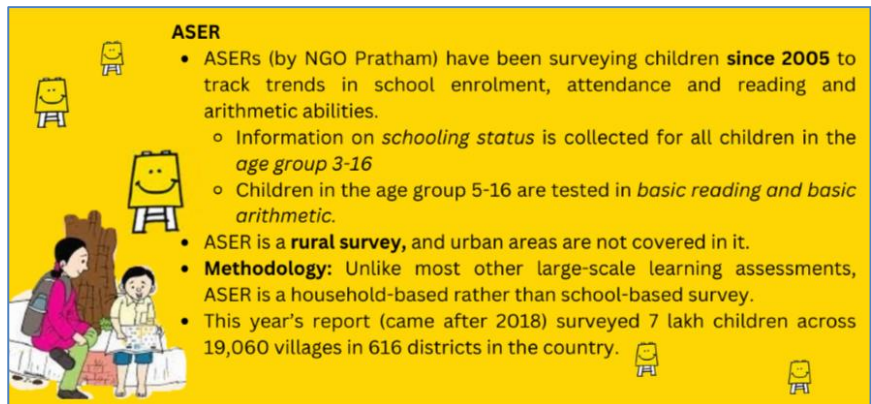
- The university will offer **exclusively online courses** from its partner institutes, which could be **both private and public universities**, so far as they follow the NDU's model.
- The students **can opt for certificate, diploma, or degree courses**.
- NDU will **allow students to pursue multiple courses at a time** from the various partner institutes of NDU.
- Students will be **able to register for programmes of individual universities** through this Digital University.
- NDU **aims to give students the liberty to design their own courses**.

ASER 2022

After two years of a Covid-19-induced school shutdown, the recently released **17th Annual Status of Education Report (ASER) for 2022** contains both good (high enrolment) and bad news (drop in learning levels).

Findings of ASER 2022 Report

- **School enrolment touched a record high:** As the pandemic subsided, school enrolment touched **98.4%** in 2022 up from 97.2% in 2018, when the last full pre-pandemic survey was conducted.
- **The proportion of girls not enrolled has also reduced:** For girls aged 11-14, this share dropped from 4.1% in 2018 to 2% in 2022 (which stood at 10.3% in 2006).
- The proportion of 15-16-year-old girls not enrolled has continued to drop, standing at 7.9% in 2022.
- **Enrolment in the pre-primary age group:** Proportion of 3-year-olds enrolled in some form of early childhood education stands at 78.3% in 2022, an increase of 7.1% over 2018 levels.
- **Drop in learning levels:**
 - Between 2014 and 2018, learning levels in terms of foundational skills in reading and arithmetic had been rising gradually.
- **A small, steady increase in the children availing private tuitions:** Between 2018 and 2022, this proportion increased further - from 26.4% to 30.5% - a trend for over a decade now.
- **Proportion of children in government schools has risen:**
 - The percentage of children (aged 11 - 14) who are enrolled in government schools has risen from 65% in 2018 to 72.9% in 2022 - a trend that was reflected in the government's UDISE+ (Unified District Information on School Education) data.



Aspirational Block Programme (ABP)

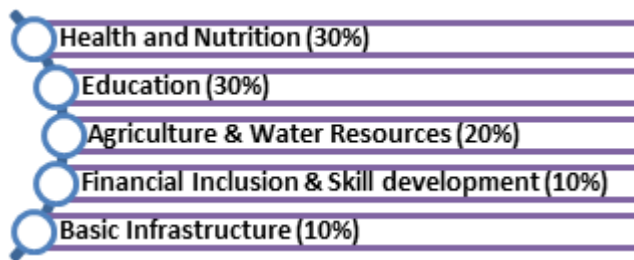
The Prime Minister of India launched the **Aspirational Block Programme (ABP)**, which is aimed at improving performance of blocks lagging on various development parameters.

About ABP

- In Budget (2022-23) speech, Finance Minister had announced the government's intention to launch the ABP.
- The ABP will take the aspirational district model up to block level and will **enable holistic development in those areas that require added assistance**.
- The programme will cover **500 districts across 31 states and UTs** initially and 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).

ADP or the 'Transformation of Aspirational Districts' initiative

- Launched in **2018**, the ADP aims to quickly and effectively **transform** (socio-economic status of) **112 most under-developed districts** across the country, with a vision of a New India by 2022.
- The focus is to improve India's ranking under the **Human Development Index (HDI)** and localising **Sustainable Development Goals (SDGs)**, leading to the progress of the nation.
- The districts have been **identified by NITI Aayog** based upon composite indicators:



- The broad contours (all driven by a mass movement) of the programme are -
 - **Convergence** (of Central & State Schemes),
 - **Collaboration** (of Central, State level Nodal Officers & District Collectors), and
 - **Competition** among districts through monthly delta ranking (available on the Champions of Change Dashboard), so that they can learn from others in the spirit of **competitive and cooperative federalism**.
- NITI Aayog works closely with the respective line Ministries and various development partners to fast-track progress at the district level, **ensuring inclusive growth** for all, 'Sabka Saath Sabka Vikas'.

Board of Examinations in Medical Sciences

The draft **National Medical Commission (Amendment) Bill 2022** seeks to introduce a fifth autonomous body - Board of Examinations in Medical Sciences, under the country's apex medical education regulator, to conduct the **National Exit Test (NExT)**.

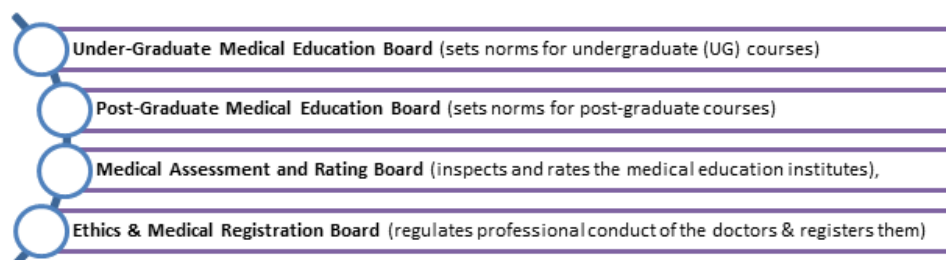
- NExT is a nationwide screening test for doctors before they are registered with the medical council.
- NExT is a medical licensing exam that is designed to assess the competency of medical graduates.

National Medical Commission (NMC)

- The NMC was constituted in September 2020 by an act of Parliament known as the National Medical Commission Act, 2019.
- It regulates medical education and medical professionals in India and has replaced the Medical Council of India (MCI), constituted under the Indian Medical Council Act, 1956.

Organisational structure of NMC

- **Medical Advisory Council:** It provides the platform through which the states or UTs can put forth their views and concerns before the NMC and advises the NMC on measures to determine and maintain minimum standards of medical education.
- **4 autonomous boards:**



Board of Examinations in Medical Sciences

● Background

- **National Board of Examinations in Medical Sciences (NBEMS)** is an autonomous body (established in 1975 as a Society) under the Ministry of Health and Family Welfare.
- It was established to standardise postgraduate (PG) medical education and currently conducts -
 - The entrance tests for all post-graduation and super-speciality courses.
 - The screening test for **foreign medical graduates.**
- After several delays in conducting the PG examinations due to the pandemic, court cases and other procedural delays, resident doctors' associations asked the government to set up such a body to streamline the process.
- **The existing NBEMS will be dissolved**, according to the draft National Medical Commission (Amendment) Bill 2022.

Note: National Testing Agency conducts the UG entrance exam, and no changes have been proposed in new bill.

● About the New Board of Examinations in Medical Sciences:

- This will be the 5th autonomous board under NMC and will take over the functions of the NBEMS, in addition to conducting the **NExT** tests
- **NExT** tests is a two-part examination - a qualifying exam for granting registration to doctors as well as the basis for PG admissions.
- The new board will also **accredit institutions** for diploma, postgraduate fellowship, and super-speciality fellowships.

Other Proposals In The Draft NMC (Amendment) Bill 2022

- It also proposes a section in the parent act stating that any cases against the commission by medical colleges/ institutions will lie under the jurisdiction of the **Delhi HC.**
 - This is significant because the NMC's order regulating fees at private medical colleges and deemed universities was initially challenged in Kerala HC, which ruled in the favour of the institution.
- It also makes provision for patients and their relatives to appeal with the Ethics and Medical Registration Board or the NMC against decisions of the state medical council in cases of medical negligence.

Census To Be Delayed Again

- The Census enumeration, which was scheduled to take place in 2021, has been further pushed to 2024-25 until further orders.
- The Census enumeration is to be preceded by house-listing enumeration where the exercise for **National Population Register (NPR)** is to be held.
 - The first NPR was prepared in 2010 and updating this data was done during 2015 by conducting door to door survey. The next NPR was to be held along with Census 2021.
- In a letter sent to all states and Union Territories, the office of the **Registrar General of India (RGI)** has extended the deadline of freezing of administrative boundaries to June 30, 2023.
 - Earlier, the deadline for jurisdictional changes was December 31, 2022, and before that, June 30, 2022.
- This means the census enumeration, scheduled to take place in 2021, has been further pushed to later dates.
 - The time period for conducting the ensuing census is not yet decided.

Freezing of Administrative Boundaries

- Before every Census, states are required to provide information to the RGI on **changes** in the number of **notified** districts, villages, towns and other administrative units such as tehsils, talukas and police stations in a state since the last Census.
- The boundaries of administrative units are frozen three months before the commencement of Census.

- As per **Rule 8(iv) of Census Rules, 1990**, the boundaries of the administrative units shall be frozen from the date intimated by the Census Commissioner, which shall not be earlier than one year from the **Census reference date**.
- In this period, the boundaries of administrative units cannot be changed and the data is compiled and shared with RGI which begins its preparatory work for the Census.

Process of Census Enumeration

- The Census Operations in India have been carried out in two phases:

House-listing and Housing Census

Population Enumeration

- The Population Enumeration follows the Housing Census within a gap of six to eight months.
- In Population Enumeration phase each person is enumerated and her/his individual particulars like Age, Marital status, Religion, Schedule Cast/Schedule Tribe, Mother tongue, Education level, Disability, Economic activity, Migration, Fertility (for female) are collected.

Some of The Features Of Upcoming Census

- The ensuing decadal Census of India will be the 16th in series and 8th after independence.
- In the history of Indian Census, for the first time, the Census data will be collected digitally i.e., on Mobile App in the ensuing census.
- Also, self-enumeration facility will be provided for the first time

Andhra's Guaranteed Pension Scheme

- At a time when the country is debating Old Pension Scheme (OPS) Vs. New Pension Scheme (NPS), a new model, proposed by the Andhra Pradesh government, has caught the attention of the Union Finance Ministry.
- What has attracted officials in the Union government about this model is it combines the elements of both the OPS (defined benefit) and the NPS (defined contribution).

Difference between NPS and OPS

- The Old Pension Scheme is a pension-oriented scheme. It offers regular pensions to employees during retirement.
 - Thus, in OPS, the pension amount is constant and guaranteed.
- On the other hand, the National Pension Scheme is an investment cum pension scheme.
- Therefore, NPS doesn't guarantee fix returns as it is subjected to market volatility i.e., in NPS, contributions are defined, but benefits depend on the market.

Andhra Pradesh Government's Proposed Pension Model

- It is attractively called the '**Guaranteed Pension Scheme' or the GPS**.
- Employees can get a guaranteed pension of 33% of their last drawn salary if they contribute 10 per cent of their basic salary every month which is matched by a 10% contribution by the state government.
 - They can get a guaranteed pension of 40 per cent of their last drawn salary, if they are willing to contribute a higher (14%) of their salary every month.
 - This will be matched by 14% government contribution.
- It acknowledges states can't get back to the OPS, and yet takes a bold leap that a guarantee, even if not 50 per cent of salary, may be possible.

Assam Crackdown On Child Marriage

Assam has arrested over 2,000 men in a state-wide crackdown on child marriages that have taken place in the state. Assam has a high rate of maternal and infant mortality, with child marriage being the primary cause, according to reports by the National Family Health Survey (NFHS-5).

Legal Interventions

- There are several laws including the **Prohibition of Child Marriage Act, 2006** and the **Protection of Children from Sexual Offences Act, 2012**, which aim at protecting children from violation of human and other rights.
- 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.**
 - Ministry of Women & Child Development in 2020 had formed a committee headed by **Jaya Jaitly** to examine the matter. The committee submitted a report stating that the **marriageable age for women should be increased from 18 to 21 years of age, in light of factors like reproductive health, education, etc.**

Child Marriages in India:

- In India, **child marriage reduced from 47.4% in 2005-06 to 26.8% in 2015-16.**
- In the last five years, it declined by 3.5% points to reach 23.3% in 2020-21, according to the latest **NFHS-5** data.
- There is a growing trend for a decline in the overall prevalence of child marriage, but 23.3% is still a disturbingly high percentage in a country with a population of 141.2 crores.
- Eight States have a higher prevalence of child marriage than the national average –
 - **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.
 - Some States have shown a reduction in child marriages, like **Madhya Pradesh** (23.1% in 2020-21 from 32.4% in 2015-16), **Rajasthan** (25.4% from 35.4%), and **Haryana**.

Global Scenario:

- According to data from UNICEF, **the total number of girls married in childhood stands at 12 million per year.**
- The 2030 UN Sustainable Development Goals aim to eliminate **all harmful practices**, such as child, early and forced marriage and female genital mutilations, under goal 5.

Schemes/ Policies for Preventing Girl Child Marriage

- **Sukanya Samridhi Yojana (SSY)** –
 - Launched in 2015, it encourages parents **to invest and build funds for the future studies and marriage expenses of the girl's children.**
- **Balika Samridhi Yojana** –
 - This central government scheme ensures the enrolment and retention of girl child in primary and secondary schools. It aims at the **prosperity of a girl's child and provides them with a better quality education.**
- **Beti Bachao Beti Padhao** –
 - This scheme celebrates girl children, literally translating to Save the Girl Child, Educate the Girl child. It believes in women empowerment and creating an inclusive ecosystem for the same.
 - This scheme is **to promote girl children's safety before and after they are born.**

Under What Law Are The Arrests Being Made?

- Men who married girls below 14 years of age would be booked under the Protection of Children From Sexual Offences Act, 2012 (commonly known as **POCSO Act**).
 - The POCSO Act 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.**

Demand for Greater Tipraland

The newest political party in Tripura, the Tipraha Indigenous Progressive Regional Alliance (TIPRA) Motha, has created a flutter with its demand for Greater Tipraland.

About Greater Tipraland

- Greater Tipraland is the core ideological demand of the TIPRA Motha.

- The objective is to carve out a new State for the 19 indigenous tribes of Tripura under Articles 2 and 3 of the constitution.
 - **Article 2** - Parliament may by law admit into the Union, or establish, new States on such terms and conditions as it thinks fit.
 - **Article 3** comes into play in the case of formation of new States and alteration of areas, boundaries or names of existing States by the Parliament.
- **Regional extent of the proposed State**
 - It includes the region under Tripura Tribal Areas Autonomous district Council (TTAADC) and 36 villages out of it, within the Tripura State boundaries.
 - The demand seeks to include every tribal person living in indigenous area or village outside TTAADC
 - However, the idea doesn't restrict to Tripura tribal council areas.
 - It extends to include Tiprasa (indigenous people of Tripura) spread across different states of India like Assam, Mizoram etc.
 - It also includes those living in Bandarban, Chittagong, Khagrachari and other bordering areas of neighboring Bangladesh.

Bhashini

- Bhashini is a **local language translation** mission that aims to break the barrier between various Indian tongues by using available technology.
- This government platform aims to bring AI and Natural Language Processing (NLP) resources available in the public domain to be used by -- Indian MSMEs, startups and individual innovators.

How Does It Work?

- The project is aimed to build and develop an ecosystem where various stakeholders can unite to maintain an ever-evolving repository of data, training and benchmark datasets, open models, tools and technologies.
- This online platform also has a **separate 'Bhasadaan' section** which allows individuals to contribute to multiple crowdsourcing initiatives.
- The contribution can be done in four ways -- **Suno India, Likho India, Bolo India and Dekho India** -- where users have to type what they hear or have to validate texts transcribed by others.
- Users, especially farmers in rural areas, may not always want — or be able to — type out their queries, questions can be put to the chatbot using voice notes.
- These contributions can help to improve the open repository of data to digitally enrich their native language.

Importance of Bhashini

- According to Census 2001, India has 22 scheduled languages, 122 major languages and 1599 other languages.
- However, most of the content available on the web is in English.
- This project aims to break the massive Indian language barrier and it wants developers to offer Indians digital services in their local languages.
- Bhashini comes with the sole purpose of developing a **national digital public platform for languages** to provide universal access to content.
 - This is expected to improve the delivery of digital content in all Indian languages.

Mental Healthcare Act 2017

- It **discourages long-term institutionalisation of patients** and reaffirms the rights of people to live independently and within communities.
- The government was made responsible for **creating opportunities to access less restrictive options for community living** - such as halfway homes, rehab homes, etc.

- The Act also **discourages using physical restraints** (such as chaining), objects to unmodified electro-convulsive therapy (ECT).
- It pushes for the **rights to hygiene**, sanitation, food, recreation, privacy, and infrastructure and recognises that **people have a capacity of their own** (unless proven otherwise).
- It also empowers people to make “**advance directives**” and can nominate a representative for themselves.

Changes In Organ Transplant Rules

The Union health ministry modified national organ transplantation guidelines to allow even those **above 65 years** of age to register to receive an organ for transplantation from deceased donors.

- The Union Health Ministry is working on a '**One Nation, One Organ Allocation**' policy in consultation with states to come up with uniform guidelines for registration, allocation and other aspects of the process.
- The government is also planning to introduce a chapter in school curriculum regarding organ donation awareness for students.

Regulatory Frameworks Guiding The Organ Transplantation In India

- **Legislation**
 - In 1994, The **Transplantation of Human Organs Act (THOA)** was promulgated by the government of India.
 - The **Transplantation of Human Organs Rules** followed in 1995 and were last amended in 2014, increasing the scope of donation and including tissues for transplantation.
 - The act made commercialization of organs a punishable offence and legalized the concept of brain death in India allowing deceased donation by obtaining organs from brain stem dead person.
- **Institution**
 - **National Organ and Tissue Transplant Organization (NOTTO)** is a national level organization set up under Ministry of Health and Family Welfare.
 - It functions as apex centre for all India activities of coordination and networking for:
 - ✓ procurement and distribution of organs and tissues; and
 - ✓ registry of Organs and Tissues Donation and Transplantation in country.

Changes Brought In Organ Transplantation Policy

- **Upper Age Limit For Registration Has Been Removed**
 - The new guidelines have done away with the 65-year age limit for registration of patients seeking organs from a deceased donor.
 - There was no age cap for living donor transplants, where family members donate organs like kidneys and livers.
 - However, people over the age of 65 years couldn't register to receive organs from deceased donors as per guidelines of NOTTO
- **No Domicile Requirement**
 - It has asked states to remove the domicile criterion for registering those seeking organs from deceased donor for transplant procedures.
 - Now the needy person can go to any state and register for getting organ and also get the transplant done.
 - The patient will be allotted a unique ID by NOTTO on registering.
 - This will get carried forward even if the patient changes multiple hospitals in different States.
- **No registration fee required**

National Tribal Festival

At the inauguration of the **Aadi Mahotsav** - a mega **National Tribal Festival**, at Major Dhyan Chand National Stadium in Delhi, PM stated that the Centre has been making efforts to mainstream the nation's tribal

communities. According to the PM, the Pradhan Mantri Vishwakarma Kaushal Samman (**PM-VIKAS**) has been introduced to provide traditional craftspeople with financial support in addition to skill development.

History of National Tribal Festival

- The tribal festival is organised **annually** by the **Tribal Cooperative Marketing Development Federation Limited** (TRIFED) under the Ministry of Tribal Affairs since **2015**, when it was titled "VANAJ".
- TRIFED has been organising **Aadi Mahotsav - National Tribal Festival** to provide direct market access to the tribal master-craftsmen and women in large metros and state capitals.

About Pradhan Mantri Vishwakarma Kaushal Samman (PM-VIKAS)


- It was announced in the **Union Budget 2023-24** as a step towards developing the nation's artisans to **enhance the scope, calibre and reach of their goods** (to domestic and international markets), by providing -
 - Technology to increase their productivity and profit,
 - Skills training for age-old and traditional crafts, and
 - The opening of credit lines
- The scheme will significantly benefit the weaker sections and women of society.
- The scheme will also be implemented into the MSME value chain, which will enhance their opportunity to scale up their business.
- It will contribute to India's growth and development, as the craftspeople and artisans are the true spirits of self-reliant and independent India.

Special Marriage Act, 1954

Who Can Get Married Under The Special Marriage Act?

- The applicability of the Act extends to the people of all faiths, including Hindus, Muslims, Sikhs, Christians, Jains, and Buddhists, across India.
- The minimum age to get married under the SMA is 21 years for males and 18 years for females.
- However, once married as per the secular law, under Section 19 of the Act, any member of an undivided family who professes the Hindu, Buddhist, Sikh or Jain religion shall be deemed to effect their severance (ending a connection) from the family.
- This would affect rights, including the right to inheritance, of the persons choosing to marry under the SMA.

Special Marriage Act



- The Special Marriage Act of 1954 (SMA) was passed by the Parliament in October, 1954.
- It governs a civil marriage where the state sanctions the marriage rather than the religion.
- Issues of personal law such as marriage, divorce, adoption are governed by religious laws that are codified.
- These laws, such as the **Muslim Marriage Act, 1954**, and the **Hindu Marriage Act, 1955**, require either spouse to convert to the religion of the other before marriage.
 - In the Indian system, both civil and religious marriages are recognised.
- However, the SMA enables marriage between inter-faith or inter-caste couples **without them giving up their religious identity or resorting to conversion**.

Procedure For A Civil Marriage

- As per Section 5 of the Act, the parties to the marriage are required to give a notice, in writing, to a "Marriage Officer" of the district.
- Before the marriage is solemnized, the parties and three witnesses are required to sign a declaration form before the Marriage Officer.
- Once the declaration is accepted, the parties will be given a "Certificate of marriage".

"Notice Period" Under The SMA?

- As per Section 6, a true copy of the notice given by the parties will be kept under the Marriage Notice Book.
- Upon receiving the notice, the marriage officer shall publish it in some conspicuous place in his office to invite any objections to the marriage within 30 days.

- Section 7 deals with Objection to marriage. It allows any person before the expiration of thirty days from the date of the notice's publication to object to the marriage.
 - Various grounds of objection are specified in Section 4 of the Act.
- If an objection has been made, the Marriage Officer cannot solemnize the marriage until he has inquired into the matter of the objection.
 - In January 2021, the Allahabad High Court ruled that couples seeking to solemnize their marriage under the Special Marriage Act, 1954 can choose not to publish the mandatory 30-day notice of their intention to marry.

National Commission for Safai Karamcharis

The National Commission for Safai Karamcharis (NCSK), after being headless for close to a year, has finally got a chairperson, vice-chairperson and member on board.

Prohibition of Employment of Manual Scavengers and their Rehabilitation Act, 2013

- The Act **prohibits employment of manual scavengers, manual cleaning of sewers and septic tanks without protective equipment**, and the construction of insanitary latrines.
- No person, local authority or agency (like Municipal Corporations) should engage or employ people for hazardous cleaning of sewers and septic tanks.
- It seeks to **rehabilitate manual scavengers and provide for their alternative employment**. Each local authority, cantonment board, and railway authority is responsible for surveying insanitary latrines within its jurisdiction.
- Each occupier of insanitary latrines **shall be responsible for converting or demolishing the latrine** at his own cost.

Bhutan's Graduation From UN List of Least Developed Countries

From December 2023, the landlocked Himalayan kingdom of Bhutan will no longer be on the list of LDCs. It will become only the **seventh country to graduate from the list**.

Criteria For Classification As LDC

- The CDP measures the **LDC category on the basis of**
 - **per capita income**;
 - **human assets index** (includes indicators of nutrition, health, school enrolment and literacy);
 - **economic vulnerability Index** (includes indicators of natural and trade-related shocks, physical and economic exposure to shocks, and smallness and remoteness).

What is an LDC?

- The LDC classification was introduced by the UN in 1971 to identify countries that are deemed highly disadvantaged in their development process, for structural, historical and also geographical reasons.
- LDC designated countries are those that are in **need of the highest degree of attention from the international community**.
- According to the **United Nations Committee on Development Policy (CDP)**, there are now **46 nations, including Bangladesh, Nepal and Laos on the LDC list**.
 - These countries comprise around 880 million people, representing 12% of the global population, but less than 2% of world GDP and around 1% of world trade.

How Does A Country Graduate Out Of LDC Category?

- Every three years, the CDP review the list of LDCs. Based on rigorous assessment, it makes its recommendations for inclusion in and graduation from the category.
 - Decision in that regard is made by the **UN Economic and Social Council (ECOSOC)** and ultimately by the **General Assembly**.
- A country must exceed thresholds on **two of the three criteria** at two consecutive triennial reviews to be considered for graduation.
 - E.g., on GNI per capita, the inclusion threshold is set at a three-year average in keeping with the cut-off determined by the World Bank for identifying low-income countries. As of 2021, the threshold is USD 1,018.
 - ✓ To exit the LDC group, a country has to have this GNI per capita rise 20 per cent above the inclusion threshold, which in 2021 is USD 1,222.
 - On the human assets index, a country's score has to improve by 10 per cent (that is, it has to score 66) above the inclusion cut-off of 60.
 - On vulnerability index, its score has to come down by 10 % to 32 from the inclusion threshold of 36.

Advantages Associated With LDC Tag

- The LDC list is a means of giving a strong signal to the international community to the need of special concessions in support of LDCs.
- These cover the areas of development financing, like the **award of grants and loans, and special trade concessions like preferential market access**.
- Countries are also encouraged to provide **technical assistance to the LDCs**.

Drawbacks Of Being Out Of LDC Group

- Graduating countries stand to **lose preferential support, grants and subsidies**, etc. The loss of preferential market access can affect their export competitiveness, industrial production and jobs.
- These countries would see a shift from the **International Development Association (IDA)-type of concessional foreign aid** to the **International Bank for Reconstruction and Development (IBRD)-type of non-concessional finance** with a higher interest rate and stringent conditions.

- The graduation would also cause an **erosion of facilities and relaxations in relation to intellectual property rights** as well as other obligations in trade matters under the WTO

AUKUS Partnership

- The United States, Australia and Britain unveiled details of a plan to provide Australia with **nuclear-powered** attack submarines from the early 2030s to counter China's ambitions in the Indo-Pacific.
 - This agreement was finalised under the **2021 AUKUS partnership**.
- **Signed in September 2021, the new enhanced trilateral security partnership between Australia, United Kingdom, and United States is named as "AUKUS".**
 - This is a trilateral defence deal for Indo-Pacific.
- **The first major initiative of AUKUS would be to deliver a nuclear-powered submarine fleet for Australia.**
- **These countries, however, made it clear that their aim is not to arm the new submarines with nuclear weapons.**
- **This is because Australia is a signatory to the Nuclear Non-proliferation Treaty (NPT) which bans it from acquiring or deploying nuclear weapons.**
- Under the deal, the United States intends to sell Australia three US Virginia class nuclear-powered submarines, in the early 2030s, with an option for Australia to buy two more if needed.
- The multi-stage project would culminate with British and Australian production and operation of a **new submarine class – SSN-AUKUS**.
 - SSN (Submersible Ship Nuclear)-AUKUS will be a trilaterally developed vessel based on Britain's next-generation design.
 - It would be built in Britain and Australia and include cutting edge U.S. technologies.
- Britain would take delivery of its first SSN-AUKUS submarine in the late 2030s, and Australia would receive its first in the early 2040s.

AUKUS partnership



What Is The Significance Of This Deal

US has only shared nuclear submarine technology once before in 1958 with Great Britain.

- Australia is now set to join **an elite group of only six countries** – India, US, UK, France, Russia and China – that operate nuclear-powered submarines. It will also be the only country to have such submarines without having a civilian nuclear power industry.
- Australia is also a member of **QUAD group**. A stronger Australia would lead to further strengthening of QUAD.

India-Bangladesh Friendship Pipeline

- PM Modi and Bangladesh PM Sheikh Hasina jointly inaugurated the India – Bangladesh Friendship Pipeline via videoconferencing.
- This is the **first cross-border energy pipeline between India and Bangladesh**.

India-Bangladesh Friendship Pipeline (IBFPL)

- The IBFPL is a **131.5-kilometre-long** oil pipeline connecting **Siliguri** in North Bengal to **Parbatipur** in Bangladesh's Dinajpur province.
 - The construction of the project started in 2018 with the help of India's grant funding.



- The pipeline will **carry one million tonnes of high-speed diesel** from Numaligarh refinery in Assam to Bangladesh Petroleum Corporation's Parbatipur depot.
- The pipeline is part of energy sector cooperation between the two neighbouring countries through which **Bangladesh will import petroleum, especially diesel from India.**
- **Economic Benefits –**
 - India will send 2 lakh tonnes of oil annually in the first three years, 3 lakh tonnes per annum in the next three years, 5 lakh tonnes annually in the next four years and 10 lakh tonnes annually afterwards
 - The pipeline with India will cut the transportation cost of fuel oil for Bangladesh by 50%.
 - It will also reduce the transportation time to just one hour as compared to the current situation of taking several days to transport diesel via wagons and trawlers.
 - India will also benefit from it as it will earn revenue through this diesel export.

US Space Force Establishes First Foreign Command In South Korea

- The US military formally launched a space force unit in South Korea, a move that will enable Washington to better monitor its rivals North Korea, China and Russia.
- The facility is the first of its kind outside American soil since the creation of the US Space Force in 2019.

Background

- In December 2019, the then President Donald Trump officially created the **US Space Force**.
- It was created to protect US assets in space - especially satellites used for civilian and military navigation, intelligence and communication.

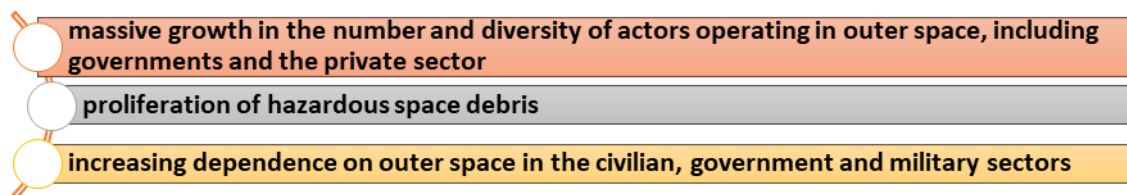
Space Security

- Space security deals with the abilities of a country to protect its assets in space - such as the hundreds of satellites used for communication and surveillance.

Need For Space Security

• Competition in Outer Space

Several recent trends are impacting the security and sustainability of outer space activities. These include:



• Countries developing counter-space capabilities

- The first **successful** Chinese anti-satellite (ASAT) test took place in January 2007.
- China's launch of a rocket from a ship is evidence of growing sophistication of the Chinese military space capabilities.
- In December 2019, US president announced the creation of US Space force.

Counter-Space Capabilities Of India

- So far, India's approach to outer space can be described as purely civilian.
 - India **does not have a declared Space Security Policy.**
- However, due to changing landscape, to deny an adversary advantages, India also started to develop its counter-space capabilities.
- Under the **Mission Shakti**, in March 2019, India shot down a live Low-Earth Orbit (LEO) satellite in space thereby showing its deterrence capability in space.
 - This was the first Indian demonstration of anti-satellite (ASAT) capability.

- With this feat, India became the 4th country in the world to have this capability. The other three countries are U.S, Russia and China.
- To promote R&D in this field, government gave its approval for setting up of a new agency called the **Defence Space Research Agency (DSRA)**.
- India conducted war game IndSpaceEx to gain a better understanding of the current and emerging challenges in the space security domain.

Migration And Mobility Agreement Between India & Austria

- India signed a “Comprehensive Migration and Mobility Partnership Agreement” (MMPA) with Austria.
- This is a much-needed agreement, especially in view of the sharp increase in illegal migration in Austria. This includes over 15,000 illegal migrants from India with practically no chance of asylum.
- This agreement is also seen as a stepping stone for India which has been keen to finalise these agreements with European countries in order to resolve issues over the long-pending India-European Union (EU) Free Trade Agreement.
- In addition, the agreement will also help Indian working professionals.

EU Adopts Global Minimum 15% Tax On Big Business

- Members of the European Union agreed in principle to implement a minimum tax of 15% on big businesses.
- In 2021 a global deal to ensure big companies pay a minimum tax rate of 15% and make it harder for them to avoid taxation has been agreed by 136 countries.

Global Tax Agreement Framed By The OECD: Background

- Companies like Apple, Facebook, Google and other tech giants profit enormously from the domestic markets while they make minimal contributions to public coffers.
 - Many countries wanted new taxes on these companies.
- To address this issue, almost 140 countries started negotiation under the auspices of the OECD.
 - They were trying to find an agreement on a global tax overhaul to address how multinationals are taxed in the nations where they have users or consumers.
- The OECD had proposed two ways to compromise:
 - 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.

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% determined on a country-by-country basis.
 - 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.

India Prioritizes Engaging Lusophone World To Tap Potential

- The Ministry of External Affairs (MEA) in partnership with the Indian Council of Cultural Relations (ICCR) and the Government of Goa organized the **International Lusophone Festival**.
- With this festival, India has expressed its intention to strategically engage with a new geopolitical grouping: the Lusophone (**Portuguese-speaking countries**).

About Lusophone

- The Lusophone world are countries that speak Portuguese as their official language and were colonized by the **Portuguese**.
- The Lusophone world is comprised of **nine countries/regions** (across four continents)
- Even after the collapse of the empire, the corresponding countries continue to exhibit both cultural and political affinities, expressed in the existence of the **Community of Portuguese Language Countries (CPLP)**.

About Community of Portuguese Language Countries (CPLP)

- CPLP or Lusophone Commonwealth, **was founded in 1996 in Lisbon, Portugal**.
- Portugal, Angola, Brazil, Cabo Verde (Cape Verde), Guinea Bissau, Mozambique, Sao Tome & Principe were the founding members; while Timor Leste (East Timor) and Equatorial Guinea joined later.
 - **India joined CPLP as an associate observer** only in July 2021.
- A significant achievement is that **these nine Portuguese-speaking nations signed agreements to facilitate cross-border movement of their citizens for any purpose** and issue residency permits for all CPLP citizens in every one of the member countries.

India And Its Relationship With Lusophone Countries

- Though the Indo-Portuguese relationship can be traced back to the arrival of the Portuguese in India about 500 years ago, **bilateral diplomatic ties were only established in 1974-75**.
 - The first Portuguese to land in India was **Vasco De Gama** in 1498.
- Since then, bilateral ties have progressed tremendously, both politically and culturally.

Sino – India Border Dispute

- The territorial dispute along the China-India border falls across three different areas:
 - **The eastern sector**, about 90,000 square kilometers, corresponds roughly to the Indian state of Arunachal Pradesh and is under Indian control.
 - **The western sector**, sometimes called Aksai Chin or part of Ladakh, involves about 33,000 square kilometers and several districts in Xinjiang. It is under Chinese control.
 - **The central or middle sector**, west of Nepal, is the smallest contested area, around 2,000 square kilometers, and control is divided.
- In 1993, after years of territorial standoffs and negotiations, China and India finally signed an agreement which attempted to mark out a long stretch of border between the two countries.
- That border is known as the **line of actual control (LAC)**, but its precise location can be blurry, and there is still dispute between China and India
 - So far, this LAC has served as the de facto border between these two countries.
 - However, in at least 13 places, however, the two sides disagree over where the LAC lies.

Border Dispute in Eastern Sector: McMahon Line

- The disputed boundary in the Eastern Sector of the India-China border is over the McMahon Line.
 - Representatives of China, India and Tibet in 1913-14 met in Shimla to settle the boundary between Tibet and India, and Tibet and China.
 - During the Shimla conference, Sir Henry McMahon, the then foreign secretary of British India, drew up the 550 mile (890 km) McMahon Line as the border between British India and Tibet.
- The McMahon line moved British control substantially northwards. This agreement ceded Tawang and other Tibetan areas to the imperial British Empire.

- Though the Chinese representatives at the meeting initialed the agreement, they subsequently refused to accept it.
- Subsequently, the Chinese government stated that it does not recognize the "illegal" McMahon Line.
- China accuses India of occupying areas in Arunachal, which it calls part of Southern Tibet.

Twang Sector: A Contested Area

- Tawang, indeed nearly all of Arunachal, is claimed by China.
 - It is one of the more serious dispute points between India and China in the overall border question.
- Within Tawang, there are three agreed areas of differing Indian and Chinese perceptions of the LAC. A majority of these areas – Yangtse included – were identified by two sides during multiple meetings.

Current Situation

- **Tawang sector is dominated by Indian troops** who can spot Chinese patrols when they come forward.
- Every time movement is noticed, Indian troops move for a faceoff.
 - In 2016, around 250 Chinese troops showed up, crossing a point which India says marks the LAC.

Historical Importance Of Tawang Sector

- Tawang is the birthplace of sixth Dalai Lama and an important pilgrimage centre for Tibetan Buddhists.
- The 14th Dalai Lama took refuge in Tawang after he crossed over from Tibet to India in 1959, spending some days in the monastery there before proceeding further.

Context of New India-China crisis at Tawang

- The PLA's motivation for creating a new crisis along the disputed border, this time in the east, appears to be to extend the points of confrontation and keep the issue of India China border alive.
- This is at a time when the world is engaged in overcoming multiple crisis emanating from Ukraine War.
- The Yangtse incident came days after China said that the joint India-US military exercise Operation Yudhabhyas had violated the terms of the 1993 and 1996 border agreements.
 - The 18th edition of the India-US joint military exercise Yudh Abhyas was held recently in Uttarakhand, about 100 km from the LAC.
 - The 1993 agreement deals with maintaining peace and tranquility along the LAC.
 - The 1996 pact was about confidence building measures in military field along the LAC with China.

Recent Activities Of China In Eastern Sector

- It continues to construct **dual-use border villages** & troop habitats which can be used by both military & civilians.
- There has been a marginal increase in patrolling activities in some areas along the LAC.

Steps Taken By India To Counter China In This Region

- **India Strengthening Its Vulnerabilities**
 - It is working towards mitigating the threat to the vulnerable Chicken's Neck area.
 - Chicken's Neck area or the Siliguri Corridor is the narrow strip of land that connect the North-east with rest of India. The tri-junction holds strategic importance as it overlooks the Siliguri Corridor.
 - India has also maximized the use of for ISR (intelligence, surveillance and reconnaissance).
- **New Aviation Brigade In The Eastern Sector**
 - India raised a new aviation brigade in the eastern sector this year. It was raised in March at Missamari in Assam, close to Tezpur.
 - The brigade is mandated with the task of increasing surveillance along the LAC in the eastern sector.
- **Other Measures Taken By India**
 - India has based the second Rafale fighter squadron in Hasimara (close to Sikkim-Bhutan-Tibet tri-junction)
 - Sukhoi-30MKI jets are already deployed at air bases like Tezpur and Chabua
 - Akash surface-to-air missile systems along with Bofors howitzers have been deployed.

India-Central Asia Meeting of NSAs

- The **first India-Central Asia meeting of the National Security Advisers (NSAs)** was held in New Delhi. The meeting discussed the evolving security situation in Afghanistan and ways to deal with threat of terrorism emanating from that country
- This meeting was the outcome of the **India-Central Asia virtual summit held in January 2022.**
 - In this meeting, PM Modi hosted leaders of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.
 - Participating leaders had agreed to have security chiefs meet on a regular basis to discuss India's "extended neighbourhood."

Significance Of This Meeting: India's Emphasis On Dialogue Diplomacy

- This was the **first time India hosted a conclave** of top security officials from Central Asian countries.
 - It coincided with the 30th anniversary of the establishment of diplomatic relations between India and Central Asian countries.
- In November 2021, India hosted a regional dialogue on the Afghanistan situation that was attended by NSAs of Russia, Iran, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.
- The NSAs will be meeting again at Shanghai Cooperation Organisation in India this year as well.

In Focus: Central Asian Countries

- The Central Asia region (CA) comprises the countries of Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan.
- The region extends from the Caspian Sea in the west to the border of western China in the east.
 - It is bounded on the north by Russia and on the south by Iran, Afghanistan, and China.

Croatia Becomes Fully Integrated EU Member

- Croatia adopted the European Union's **common currency, the euro**, and joined the Schengen Area, Europe's visa-free travel area, on January 1.
- With this, Croatia became the fully integrated member of EU. The country joined the EU in 2013.

Eurozone

- All European Union Member States are part of **Economic and Monetary Union (EMU)** and coordinate their economic policy-making to support the economic aims of the EU.
- However, a number of Member States have taken a step further by replacing their national currencies with the single currency – the euro. These Member States form the euro area, also known as **eurozone.**
- In other words, it is a **geographic and economic region** that consists of all the European Union countries that have fully incorporated the euro as their national currency.
- It has a common Monetary Policy governed by a single monetary authority, the **European Central Bank.**



As of January 2023, the eurozone consists of 20 countries in the European Union (EU): Austria, Belgium, Croatia, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, and Spain.

What Are The Requirements For Joining The Eurozone?

- To join the eurozone and use the euro as their currency, EU nations must meet certain criteria consisting of four macroeconomic indicators that focus on:
 - **Price stability** by demonstrating sustainable price performance and average inflation no more than 1.5% above the rate of the three best-performing member states.
 - **Sound and sustainable public finances** - the government must run a budget deficit no greater than 3% of GDP and hold public debt no greater than 60% of GDP.

- **The durability of convergence** – It is assessed through its long-term interest rates, which cannot be more than 2% above the rate in the three member states with the most stable prices.
- **Exchange rate stability** - The nation must demonstrate exchange rate stability by participating in the Exchange Rate Mechanism (**ERM II**) for at least two years without severe tensions and without devaluing against the euro.

Schengen Area

- Schengen Area signifies a zone where **27 European countries**, abolished their internal borders, for the free and unrestricted movement of people.
 - Croatia became the 27th nation in the passport free Schengen zone.

Member of Schengen area: 23 of the 27 EU member states and all members of the European Free Trade Association (Iceland, Liechtenstein, Norway and Switzerland).

Facebook Fined €390 Mn for Breaching EU Privacy Law

- Facebook's parent company Meta has been slapped with two sets of fine totalling €390 million (\$414 million) by the **Irish** Data Protection Commission (DPC) for breaking EU data rules.
- The privacy regulator concluded that the company's advertising and data handling practices were in breach of the EU's new data and privacy law, the **General Data Protection Regulation (GDPR)**.

The Ruling Came From The Irish Regulator

- As per the GDPR, cross-border cases are to be handled by the data-protection authority in the country where the company is based.
- As a result, the Irish DPC is the lead regulatory authority for Meta and a number of other US tech majors that have their headquarters in Ireland.

General Data Protection Regulation (GDPR)

- **GDPR is a legal framework that sets guidelines for the collection and processing of personal information from individuals of the European Union (EU).**
 - The law was approved in 2016 but didn't go into effect until May 2018.
- It imposes obligations onto organizations anywhere, so long as they target or collect data related to people in the EU.
- Its aim is to give consumers control over their own personal data by holding companies responsible for the way they handle and treat this information.
- The law makes it difficult for companies to mislead consumers with confusing or vague language when they visit their websites.
- **European Data Protection Board:** The body that oversees regulatory action on data privacy across the 27-nation bloc

GDPR compliance

- Under the terms of GDPR, not only do organizations have to ensure that personal data is gathered legally and under strict conditions, but those who collect and manage it are obliged to protect it from misuse and exploitation.
- Companies are also required to respect the rights of data owners - or face penalties for not doing so.



Notice to Air Missions (NOTAM)

- Recently, thousands of flights, within, into or out of the United States were delayed or cancelled due to a technical glitch.
- The **US Federal Aviation Administration (FAA)** said that flights were grounded due to failure of a key **pilot notification system** called **Notice to Air Missions (NOTAM)**.
 - FAA is the largest transportation agency of the US government that runs a centralised NOTAM system.

- According to the FAA's website, "a NOTAM is a **notice containing information essential to personnel concerned with flight operations** but not known far enough in advance to be publicized by other means.
 - NOTAMs basically provide real time information about potential hazards or changes to flight operations that may affect safety.
 - E.g. - Without NOTAMs, aeroplanes are at a risk of running into flocks of birds or remaining unaware of slippery conditions on runways.
 - The system relays information about changes in conditions such as weather, volcanic activity, airspace restrictions and other factors, as well as unusual events such as parachute jumps, rocket launches and military exercises.
- NOTAMs have a unique language using special contractions to make communication more efficient.
- NOTAM is different from **Air traffic control system** that helps in keeping planes at safe distance from each other while on air.

Pravasi Bharatiya Divas 2023

- The 17th edition of the 'Pravasi Bharatiya Divas' (PBD) convention was held in Madhya Pradesh's Indore city.
 - The 17th PBD Convention is being organised as a "**physical event**" after a gap of four years and the first after the onset of the Covid-19 pandemic.
 - The 16th edition was held in virtual mode in 2021.
- Theme of this year's PBD is '**Diaspora: Reliable partners for India's progress in Amrit Kaal**'.

Pravasi Bharatiya Samman Award

- During the Convention, Pravasi Bharatiya Samman Award (PBSA) is conferred on the selected overseas Indians. This award is given for their significant contributions by overseas Indians to various fields both in India and abroad.
 - It is the highest honour conferred on a Non-Resident Indian (NRI), Person of Indian Origin (PIO); or an organisation or institution established and run by NRI/PIO
- PBSA is conferred by the President of India.

Classification of Indian Diaspora

- Overseas Indians are classified into **3 categories**: Non-Resident Indians (NRIs are Indians who are **residents of foreign countries**), Persons of Indian Origin (PIOs), Overseas Citizens of India (OCIs).
- According to the MEA, **PIO** refers to a foreign citizen (except a national of Pakistan, Afghanistan, Bangladesh, China, Iran, Bhutan, Sri Lanka and Nepal) -
 - who at any time held an Indian passport, or
 - who or either of their parents/grandparents/great grandparents was born and permanently resided in India as defined in Government of India Act, 1935, or
 - who is a spouse of a citizen of India or a PIO
- A separate category of **OCI** was carved out in **2006**. An OCI card was given to a foreign national -
 - who was eligible to be a citizen of India on January 26, 1950,
 - was a citizen of India on or at any time after January 26, 1950, or
 - belonged to a territory that became part of India after August 15, 1947
 - Minor children of such individuals, except those who were a citizen of Pakistan or Bangladesh, were also eligible for OCI cards.
- The PIO category was abolished in **2015** and merged with the OCI category.

Paris Club Likely To Provide Financial Assurances To IMF On Sri Lanka Debt

- The Paris Club, an informal group of creditor nations, will provide financial assurances to the International Monetary Fund (IMF) on Sri Lanka's debt.

- This assurance is a key step needed to unlock a \$2.9 billion bailout by the IMF.

What is Paris Club?

- The Paris Club is a group of mostly western creditor countries that grew from a 1956 meeting, in which Argentina agreed to meet its public creditors in Paris.
- **Objective** – To find sustainable debt-relief solutions for countries that are unable to repay their bilateral loans.
- It is a **forum where official creditors meet to solve payment difficulties faced by debtor countries**.
- **Member Countries** – Australia, Belgium, Brazil, Canada, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Japan, Netherlands, Norway, Russia, South Korea, Spain, Sweden, Switzerland, United Kingdom and United States.
 - All **22** are members of the group are also part of the Organisation for Economic Co-operation and Development (OECD).
 - OECD is a group of 38 member countries that discuss and develop economic and social policy.

Extra mile: The **London club** is another informal group that was founded in 1976. It is similar to the Paris club, except for **banks lending to countries** instead of other countries.

India Extends A Helping Hand To Earthquake Hit Turkey

- India has sent rescue and medical teams, including an Army medical team and National Disaster Response Force (NDRF) personnel, along with medical supplies to quake-hit Turkey and Syria.
- The search and rescue operations through '**Operation Dost**', India has strengthened its global image as the first responder to any calamity in any part of the world.

SUMMITS AND ORGANISATIONS

Summit for Democracy

US President Biden co-hosted the **second Summit for Democracy** with the governments of Costa Rica, the Netherlands, Korea, and Zambia. · In Dec' 2021, US President Biden hosted the 1st Summit for Democracy.

- 121 leaders across the world were invited to the three-day Summit.
 - India, Nepal and Maldives were invited while Bhutan, Bangladesh and Sri Lanka did not get the invitation.
 - Pakistan, which was invited, declined to attend for the second time, ostensibly due to the exclusion of China.
- The summit finalised the text for **Summit for Democracy Declaration.**

Summit for Democracy Declaration

- The Declaration affirms the endorsing parties' political commitments to:
 - Protect human rights, media freedom, and rule of law;
 - Ensure accountability for human rights violations and abuses;
 - Support people, including in Ukraine, who stand for freedom and reject aggression;
 - Combat all forms of discrimination and exclusion, including by strengthening women's rights;
 - Prevent and combat corruption;
 - Advance technology that works for, and not against democracy;
 - Defend against transnational threats, including foreign malign influence and foreign information manipulation;
 - Support free and fair elections; and
 - Address global challenges, including sustainable development, climate change, global health, and food security.

Iran Expelled From UN Women's Commission

- In an unprecedented move, Iran has been expelled from the United Nation's **Commission on the Status of Women (CSW)** in a vote.
- CSW is the principal global intergovernmental body exclusively dedicated to the *promotion of gender equality and the empowerment of women.*
- The Commission is made up of 45 countries which are elected by the Council to four-year terms. Iran's term, which began in 2022, was to have run through 2026.

ECOSOC

Economic and Social Council

- It is one of the six principal organs of UN, responsible for the direction and coordination of the economic, social, humanitarian, and cultural activities carried out by the UN.
- It was established by the UN Charter (1945) and has 54 members.
- Members are elected for three-year terms by the General Assembly.
 - Four of the five permanent members of the Security Council have been continuously re-elected because they provide funding for most of ECOSOC's budget, which is the largest of any UN subsidiary body.
- Decisions are taken by simple majority vote. The presidency of ECOSOC changes annually.
- India held the inaugural Presidency of ECOSOC (Sir Ramaswami Mudaliar, in 1946).
 - In April 2022, India was elected to four key bodies of the ECOSOC.
 - These four bodies are:
 - Committee on Non-Governmental Organizations;
 - Commission for Social Development;
 - Commission on Science and Technology for Development; and
 - Committee for Economic, Social and Cultural Rights.

Function

- ECOSOC is responsible for coordinating the social and economic fields of the organization, specifically in regards to the **15 specialized agencies, the five regional commissions under the jurisdiction, the eight functional commissions.**
- It also serves as a central forum to discuss the international social and economic issues and formulating policy recommendations addressed to the member states and the United Nations system.

- The US had proposed at the **UN Economic and Social Council to remove Iran from the panel.**
 - The vote came after intense lobbying by the US following widespread protests in Iran sparked by outrage against the edict compelling women to wear hijabs
- India along with 15 other nations abstained from the vote as 29 countries stood in favour of the resolution.

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.

Functions of UN Women

- Working for the empowerment and rights of women and girls globally, UN Women's main roles are:
 - To support inter-governmental bodies, such as the Commission on the Status of Women, in their formulation of policies, global standards and norms.
 - To help Member States implement these standards, standing ready to provide suitable technical and financial support to those countries that request it, and to forge effective partnerships with civil society.
 - To lead and coordinate the UN system's work on gender equality, as well as promote accountability, including regular monitoring of system-wide progress.

India Gets Best-Ever Aviation Safety Rank

United Nations aviation arm - **International Civil Aviation Organisation (ICAO)**, has ranked Indian aviation safety oversight mechanism at the 48th spot - a quantum leap from its 102nd rank four years ago.

Background

- The ICAO had earlier audited the Indian **Directorate General of Civil Aviation (DGCA)** to check its effective implementation (EI) of critical safety elements under the **Universal Safety Oversight Audit Programme (USOAP)**.
- Following that, the



About International Civil Aviation Organization (ICAO):

- It is a specialised agency (headquarters - Montreal, Canada) of the UN that coordinates the principles and techniques of international air navigation.
- It was established in 1947 under the Chicago Convention (1944) and is funded and directed by 193 national governments (signatories of the convention).
- It fosters the planning and development of international air transport to ensure safe and orderly growth and to support diplomacy and cooperation among signatories in air transport.

- Its core function is -
 - To maintain an administrative and expert bureaucracy (the ICAO Secretariat) supporting these diplomatic interactions,
 - To research new air transport policy and standardisation innovations as directed and endorsed by governments through the ICAO Assembly or the ICAO Council which the assembly elects.
- ICAO is distinct from other international air transport organisations (like IATA, CANSO), particularly because it alone is vested with international authority (among signatory states).

UN aviation arm has given the DGCA its highest ever Effective Implementation (EI) score, putting India above that of countries like China (49), Israel (50), Turkey (54), Denmark (55) and Poland (60).

- EI scores are given for **eight areas** - legislation, organisation, personal licensing, operations, airworthiness, aerodromes, aircraft accident and investigation.
- **Top five score countries:** Singapore, UAE, South Korea, France and Iceland. US is at 22nd place and Qatar is at 25th place.

Significance Of India Getting Its Best Ranking

It will make it easier for **Indian carriers to expand their wings abroad**, because countries with poor aviation safety records find their aircraft being subjected to more surprise checks at airports abroad.

Voice of Global South Summit

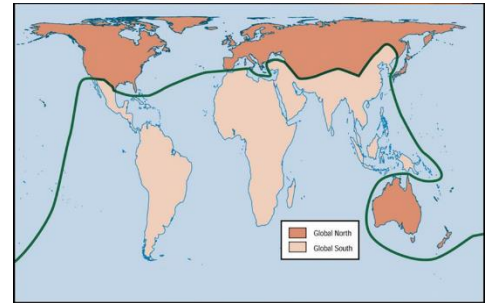
India hosted the *Voice of Global South Summit* in virtual mode

About the Summit

- Theme — **“Unity of Voice, Unity of Purpose”**.
- It is an effort to give “voice to the unheard”, and thereby **leverage India’s role as the current G20 president**.

Key Highlights Of The Summit

- **PM Modi gave the mantra of ‘Respond, Recognize, Respect & Reform’** to re-energise the world
 - **Respond** to the priorities of the Global South by framing an inclusive and balanced international agenda.
 - **Recognize** that the principle of ‘Common but Differentiated Responsibilities’ applies to all global challenges.
 - **Respect** sovereignty of all nations, rule of law and peaceful resolution of differences and disputes; and,
 - **Reform** international institutions, including the United Nations, to make them more relevant.
- He further stated that most of the **global challenges have not been created by the Global South** but they affect us more. Despite this, the search for solutions does not factor in our voice.
 - E. g. COVID pandemic, climate change, terrorism and Ukraine conflict



What is the Global South?

- The term ‘Global South’ began by loosely referring to those countries that were left out of the industrialisation era.
- These countries had a conflict of ideology with the capitalist and communist countries, accentuated by the Cold War. It includes countries that are in **Asia, Africa and South America**.
- ‘Global South’ is just the opposite of ‘Global North’, defined essentially by an economic division between the rich and poorer countries.

Global Partnership for Financial Inclusion

- The first G20 **Global Partnership for Financial Inclusion (GPII)** meeting, under G20 India Presidency was held in Kolkata.
- The meeting focused-on topics like digital financial inclusion, reducing remittance costs, and finance for the SME sector.
- GPII is an inclusive platform for all G20 countries, *interested non-G20 countries* and relevant stakeholders to carry forward work on financial inclusion.
- It also works towards implementation of the G20 Financial Inclusion Action Plan, endorsed at the G20 Summit in Seoul.
 - The GPII was officially launched in December 2010 in Seoul.

‘G20 Digital Innovation Alliance’ and ‘Stay Safe Online’ Campaign

- G20 Digital Innovation Alliance (DIA) and ‘Stay Safe Online’ campaign was launched by the Indian government
- The DIA and Stay Safe Online campaigns foster the vision of greater **digital transformation** by ensuring an innovative and secure cyber environment.
 - The Ministry of Electronics and Information Technology (MeitY) is the nodal Ministry behind the G20 ‘Digital Economy Working Group’ (DEWG).
- The DIA aims to identify, recognize and facilitate the adoption of impactful and innovative digital technologies developed by start-ups from G20 countries as well as the invited non-member nations.

- Due to the increasing usage of social media platforms and the uptake of digital payments, the "Stay Safe Online Campaign" aims to educate people on how to stay safe online.
- It involves the dissemination of multilingual awareness content in the form of infographics, cartoon stories, puzzles, short videos, etc.

First Movers Coalition

- India participated in the **First Movers Coalition (FMC)** Leadership Meeting of the World Economic Forum (WEF).
- This year's annual meeting of WEF took place in Davos.
 - **Theme** of this year's summit was "**Cooperation in a Fragmented World**".
- It was launched at COP26. The meeting deliberated on the need for clean energy technologies to confront climate crisis globally.
- Industry leaders appreciated India's fight against COVID leveraging digital technologies and also expressed their appreciation for Government partnering with industry in its fight.
- The First Movers Coalition is a global initiative harnessing the purchasing power of companies to decarbonize **7 "hard to abate" industrial sectors.**
 - These sectors, currently accounting for 30% of global emissions, include:
 - For these sectors to decarbonize at the speed needed to keep the planet on a 1.5-degree pathway, they require low-carbon technologies that are not yet competitive.
 - Hence, FMC was formed to commit in advance to purchasing near-zero or zero-carbon solutions, despite the premium cost.

62nd Session of UN Social Development Commission

- The UN Commission for Social Development (CSocD) has elected **India's Permanent Representative to the United Nations Ruchira Kamboj** as its chair for the 62nd session.
- The opportunity to chair the 62nd session of CSocD comes at a time when India is leading the G20 and is steering the global agenda through its G20 Presidency.

UN Commission for Social Development (CSocD)

- CSocD, formerly known as Social Commission, has been in existence from the very inception of the United Nations.
- It advises the Economic and Social Council (ECOSOC) and Governments on a wide range of social policy issues and on the social perspective of development.
 - CSocD is a functional commission of the ECOSOC of the UN
- CSocD meets annually in New York, usually in February.
- **Purpose**
 - Since the World Summit for Social Development in Copenhagen in 1995, the CSocD has been the key UN body in charge of the **follow up and implementation** of the Copenhagen Declaration and Programme of Action.
 - Since 2006, the Commission has taken up key **social development themes** as part of its follow up to the outcome of the Copenhagen Summit.
- **Membership**
 - Originally 18, membership now stands at 46.
 - Members are elected by ECOSOC based on equitable geographical distribution for 4 year terms.

Manipur Hosts B20 Conference

- CM of Manipur 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 conference** 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 B20 composes of delegates from the G20 countries, including top executives from the leading multinational corporations.
- 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.

DEFENSE AND SECURITY

Protocols To Tackle Threat Of Spy Balloons

- The Indian military has drafted a set of basic protocols to tackle newer threats like surveillance balloons or other unidentified objects in the sky.
- This was after a similar entity was spotted a year ago over the strategic Andaman and Nicobar Islands.

Key Highlights Of Draft Protocols To Tackle Newer Threats Like Surveillance Balloons

- **Detail the sequence of action**
 - The protocols detail the sequence of action in case an unidentified slow-moving aerial object is spotted.
 - This includes detection, positive identification, verification and targeting using a suitable platform and weapon system.
- **Process to be photographed**
 - The entire operation from the launch of the weapon system to destroying the target will be photographed and recorded in detail.
- **A detailed report will be prepared**
 - It includes the sighting time, size of target, its description recorded on the radars on ground, analysis of remnants, if recovered and this will be intimated through the chain of command.

Associated Challenges

- The primary challenge in such a sighting is the detection and identification of the object. The satellites or radars cannot detect balloons as they are slow-moving.
 - In India, several radars at key military sites are being upgraded to detect such aerial objects.
- Even the US, which possesses the most sophisticated military equipment, had earlier failed to detect the slow-moving Chinese balloons.

Amendments To The Rules On Money Laundering

- The Department of Revenue under the Ministry of Finance brought in ***The Prevention of Money Laundering (Maintenance of Records) Amendment Rules, 2023***.
- These changes are in line with the recommendations of the Financial Action Task Force (FATF).

Key Highlights Of The Amendment

- **Rules related to Politically Exposed Persons (PEP)**
 - The rules related to PEP covers individuals *working for a foreign country, senior politicians, functionaries of political parties, senior bureaucrats, judges, and military personnel*.
 - Earlier, these entities and individuals were not included in the PMLA.
 - For these people, banks will need to maintain records on the nature and value of transactions.
 - The new rule also lays down the procedure:

○	for how this information will be shared
○	time for which such data will be retained
○	manner in which identity records of such clients will be maintained by banking companies, financial institutions and intermediaries

- **For NGOs**
 - The new rules add more data retention requirements:
 - Every banking company or financial institution shall register the details of such a client on the **DARPAN Portal** of Niti Aayog.
- **For identifying beneficial owners by reporting entities**
 - The term beneficial owner was defined to mean ownership of or entitlement to more than **25%** of shares or capital or profit of the company.

Prevention of Money Laundering Act (PMLA)

 - PMLA is a **criminal law** of the Parliament of India **passed in 2002** to prevent money laundering and confiscate property derived from the laundered money.
 - PMLA became law and came into force on **July 1, 2005**.
 - The act has undergone various critical changes from time to time in order to give itself more strength and meaning.
 - E.g., the definition of Money Laundering under the act was broadened via amendments done in 2012 and again in 2019.
 - The act gives blanket powers to the Enforcement Directorate (ED) for seizing, investing, searching and attaching assets.
 - The threshold of **25%** is now **reduced to 10%**, thereby bringing more indirect participants within the reporting net.

Financial Action Task Force (FATF)

 - It is an intergovernmental institution established in 1989 in the endeavour of the G7 to create policies to battle money laundering.
 - In 2001, its directive was expanded to include terrorism financing.
 - FATF releases grey and black lists, in which few countries are mentioned.
 - A grey list is created to **check its nation's progress** on measures against money laundering and terrorism financing activities.
 - A black list includes **non-cooperative countries** against battling money laundering and terror financing.
- **Regarding cryptocurrencies**
 - The tweaks to the PMLA rules brought transactions involving crypto assets under the ambit of the money laundering watchdog.
 - The ED is the main agency probing allegations under PMLA.
 - The notified activities included transactions between *fiat currencies and crypto*, between one crypto and *another*, safekeeping of such assets and participating or offering financial services based on these.

AFSPA Lifted From More Areas In Northeast States

- The Centre has decided to further reduce the jurisdiction of 'disturbed areas' under the **Armed Forces (Special Powers) Act, 1958 (AFSPA)** in Assam, Nagaland and Manipur.
 - With the latest decision, starting April 1, the Disturbed Areas notification will be lifted from:
 - 1 more district in Assam; 4 more police stations in Manipur & 3 more police stations in Nagaland.
 - On the other hand, 1 police station in Arunachal Pradesh — Chowkham — was declared a Disturbed Area under the Act.
- Armed Forces (Special Powers) Act, 1958 [AFSPA]**

 - The Armed Forces (Special Powers) Act was enacted in 1958 to bring under control what the government of India considered **disturbed areas**.
 - AFSPA was first implemented in the Northeast, and then in Punjab.
 - Under its provisions, the armed forces have been empowered to open fire; enter and search without warrant, and arrest any person who has committed a cognisable offence.
 - **Prosecution of the officer on duty needs prior permission of the Central Government.**

States Where AFSPA Is In Effect

- **AFSPA can be implemented in an area after it has been declared as disturbed.**
- Before the current (March 2023) notification, States/UT under AFSPA included:
 - Assam, Nagaland, Manipur (excluding seven assembly constituencies of Imphal),

- Arunachal Pradesh (only the Tirap, Changlang and Longding districts plus a 20-km belt bordering Assam), and Jammu and Kashmir.
- It was completely **lifted from Meghalaya** in April 2018. It was **repealed in Tripura** in 2015

Disturbed Area

- A disturbed area is one which is declared by notification under **Section 3** of the AFSPA.
 - Section (3) of the AFSPA Act empowers the **governor of the state** or the **Administrator of UT** to issue an official notification on The Gazette of India.
 - Following which the centre has the authority to send in armed forces for civilian aid.
- The state or central government considers those areas as disturbed by reason of differences or disputes between members of different religious, racial, language or regional groups or castes or communities.
- Once declared 'disturbed', the region has to maintain status quo for a minimum of **three months**, according to The Disturbed Areas (Special Courts) Act, 1976.
- The state governments can suggest whether the AFSPA is required to be enforced or not.
 - But under Section (3) of the AFSPA, their opinion can still be overruled by the governor or the centre.

Controversial Provisions Of AFSPA

- **Section 3** – It empowers the Centre to declare any area as Disturb Area without taking consent of the concerned state.
- **Section 4** – Accords certain power to an authorised officer which also include power to open fire at any individual even if it results in death.
 - Under this section, the officer has also been given the power to (a) arrest without a warrant; and (b) seize and search any premise without any warrant.
- **Section 7** – It mandates prior executive permission from central or state authorities for prosecution of a member of the security forces.

Court Martials In Armed Forces

- An Army court has recommended life imprisonment for a Captain involved in the staged killings of three men at Amshipora in J&K's Shopian district in 2020.
- The sentence will be final after it is confirmed by the Northern Army Commander.

What is Court Martial?

- A court martial is a type of military court that is empowered to try members of the armed forces for offenses committed under military law.
- The purpose of a court martial is to maintain discipline and order within the military by ensuring that members of the armed forces are held accountable for their actions.
- A court martial is typically composed of military officers who serve as both judge and jury.

What Is The Legal Recourse Available To The Accused?

- Under the Army Act, the accused can file a pre-confirmation petition as well as one post-confirmation.
 - A pre-confirmation petition will go to the Army Commander, who may look into its merits.
 - Post-confirmation petition must be filed with the government since the officer is cashiered — his ranks are removed and he is dismissed from service — after confirmation of the sentence by the Army commander.

- After these options have been exhausted, the accused can approach the Armed Forces Tribunal, which can suspend the sentence.
- The President of India, under **Article 72 of the Constitution**, can use his/her powers to pardon, reprieve, respite or remission of punishment or sentence given by a court martial.

Exercise TROPEX

- The Indian Navy's major Operational level exercise TROPEX for the year 2023 was conducted across the expanse of the Indian Ocean.
- The overall exercise construct included **coastal defence exercise Sea Vigil** and the **amphibious exercise AMPHEX**.
- The exercise also saw significant participation from the Indian Army, the Indian Air Force and the Coast Guard.

Vayulink System

- The Indian armed forces are in the process of inducting a homegrown innovation along the country's northern and eastern borders which will help commanders identify friendly forces in a joint battlespace.
 - This is significant as after the Balakot air strikes in 2019, the IAF had shot down its own Mi-17 V5 helicopter at Budgam by mistake, killing six personnel on board.
- For this, **Vayulink, a data link communication system**, is being developed by the Indian Air Force (IAF).
- It uses the **Indian Regional Navigation Satellite System (IRNSS), also known as NAVIC**, to send radio communication to the base station when the signals are low.
- The important aspect of the Vayulink system is that it prevents fratricide or friendly fire.
 - When installed in an aircraft, the system gives position of other aircrafts close by, encrypts traffic data over secured channel.
 - When the planes are flying close to any friendly forces on grounds during a combat situation, the aircraft display gives the position of such forces on the ground including tanks and troops beneath.
- The Vayulink system also prevents aircraft collision, provides better combat teaming and helps plan real-time basis where multiple teams can get together and go towards the target coming from different areas.
- The system would help pilots with jammer-proof uninterrupted communication with the base station.

Navy Gets 5th Scorpene-class Submarine

- The fifth submarine (INS Vagir) of Project 75 to build Kalvari class diesel-electric attack submarines, was delivered to the Indian Navy.
 - Kalvari class of submarines is based on Scorpene class of submarines
 - Submarines of the Kalvari class are



Kalvari Class

- This class of submarines have Diesel Electric transmission systems and are attack submarines also known as the '**hunter-killer**' type, which means they are designed to target and sink adversary naval vessels.
- The Kalvari-class submarines have the capability of operating in a wide range of Naval combat including anti-warship and anti-submarine operations, intelligence gathering and surveillance, and naval mine laying.

P-75 India Project

- In June 1999, the Cabinet Committee on Security had approved a plan for the Indian Navy to induct 24 indigenously build submarines by 2030.
- It was broken down in two phases — the P-75 and P-75I.
- Of the total 24 submarines to be built in India, six will be nuclear-powered.

First Phase: P-75


- Under the first phase of P-75, signed in 2005, India and France signed a contract for building six **Scorpene** class submarines.
- The executing company on the Indian side was Mazagaon Docks Ltd, and on the French side, it was DCNS, which is now called Naval Group.
- Under this project, the first submarine was commissioned in December 2017.
- Subsequently, the other five have been built and in April, 2022 INS Vagsheer was launched and would be commissioned by 2023.

5TH OF INDIA'S 6 DEADLIEST SUBS DELIVERED VAGIR TO BE 18TH OF NAVY'S IN-SERVICE FLEET

The fifth of six Scorpene-design submarines, Vagir, was delivered to the Navy by Mazagon Dock Shipbuilders Limited (MDL) on Tuesday and will soon be commissioned. The sixth sub is under sea trials and is expected to be delivered within a year. With advanced stealth features, this class of subs is a major boost to India's naval might. But how strong is the Navy's submarine fleet and how does it compare with regional rivals? V Narayan reports

SUBS AT NAVY'S SERVICE

Kalvari Class (Scorpene; French Design)



The class features diesel propulsion and additional air-independent propulsion. Built under Project 75*

Sub	Commissioning
Kalvari	Dec 2017
Khanderi	Sept 2019
Karanj	Dec 2020
Vela	Dec 2021
Vagir	Dec 2022
Vagsheer	2023**

*The name of the Navy's Scorpene programme at MDL
**Expected

INDIA'S SUBMARINES

In service
17

Commissioning soon **1**

Undergoing sea trials **1**

Decommissioned **3**

4 subs in service

1 about to be commissioned

1 undergoing sea trials

Stealth factor | Scorpene-class submarines have advanced acoustic silencing techniques, low-radiated noise levels, hydro-dynamically optimised shape. They can launch attacks using precision-guided weapons including torpedoes and missiles

HOW FLEETS COMPARE
Comparison of naval submarine fleets in India's neighbourhood:

60	17	8
China	India	Pak

The numbers pertain to what is known. Countries keep a lot of data on submarines secret, including information on the exact number of submarines they have

Sindhughosh Class (Russian Design)
7 subs in service. 3 decommissioned

○ Kilo class diesel-electric submarines. Were built under a contract between the erstwhile USSR's Rosvooruzhenie and the Ministry of Defence (India)

Type | Attack submarine

Armaments | Club-S missile, torpedo, anti-submarine missile, active-passive homing torpedo

Length
72.6m

Shishumar Class (German Design) 4 subs in service

○ These are diesel-electric submarines, developed by the German yard Howaldtswerke-Deutsche Werft (HDW). The first two were built by HDW at Kiel, Germany, and the rest at MDL Mumbai. The ships were commissioned between 1986 and 1994


Type | Attack submarine

Armaments | Torpedoes, external strap-on mines, Harpoon Block II missiles

Length
64.4m

Arihant Class (Indian Design) 2 in service

○ The nuclear subs INS Arihant and Arighat are a class of Indian nuclear-powered ballistic missile subs classified as 'strategic strike nuclear submarines'. Arihant (launched in 2009, and after extensive sea trials, commissioned in 2016) was the first ballistic missile sub to have been built by a country other than one of the five permanent members of the UN Security Council



Type | Nuclear-powered ballistic missile submarine

Armaments | Torpedoes, cruise missiles and mines

Length
111m

Second Phase: P-75I

- The P-75I phase approved in 2007 envisages the **construction of six conventional submarines** with better sensors and weapons and the Air Independent Propulsion System (AIP).
- Defence Acquisition Council cleared the project in 2019 **under the strategic partnership (SP) model**.
 - The Ministry of Defence (MoD) announced in 2017 the much-anticipated SP model for the Indian private sector.
 - This was announced to promote Make in India in defence manufacturing
 - SP model seeks to identify a few Indian private companies as Strategic Partners who would initially tie up with a few shortlisted foreign Original Equipment Manufacturers (OEMs) to manufacture big-ticket military platforms.

INS Mormugao Commissioned

- **Indian Naval Ship (INS) Mormugao**, 2nd warship of the **P15B class** of stealth guided-missile destroyers, was commissioned into the Indian Navy. The ship has around 75% indigenous content
- The event marked the formal induction of the **second of the four Visakhapatnam class destroyers**.

Project 15B

- India's indigenous Destroyer construction programme started in late 1990s with three Delhi class (P-15 class) warships - INS Delhi, INS Mysore, and INS Mumbai.
 - A ship 'class' describes a group of vessels of similar tonnage, usage, capabilities, and weaponry.
- Later, as a follow up, the Indian Navy has commissioned three guided missile destroyers of the **Kolkata class under the P-15A**.
 - These three missile destroyers were — **INS Kolkata, INS Kochi, and INS Chennai**.
- Presently, a total of four warships are planned under the **P-15B** (Visakhapatnam Class).
 - These four warships are - **Visakhapatnam, Mormugao, Imphal, Surat**.

About Project 15B

- P15B destroyers incorporate new design concepts for improved survivability, seakeeping and maneuverability.
 - **Enhanced stealth** has also been achieved, making the ships difficult to detect.
- With a significantly increased indigenous content, P15B destroyers are a hallmark of self-reliance in warship design and building and a shining example of 'Aatmanirbhar Bharat'.
- The Project 15B class of guided-missile destroyers, an improved variant of the Kolkata-class destroyers, are built by Mazagon Dock Limited (MDL) for the Indian Navy.
 - It has been designed by the Warship Design Bureau, Indian Navy's in-house warship design body.
- The contract for the construction of four Project 15B destroyers was signed in January 2011.
- The lead ship under this project, INS Visakhapatnam (Pennant D66) was commissioned into the Navy in November 2021.

China Cyberattacks: Centre Issues SOP For Employees

- Facing repeated cyberattack attempts from China, employees across ministries and public sector units (PSUs) being asked by government to follow a standard operating protocol (SOP) or face disciplinary action.
- This SoP has various steps including basic hygiene such as switching off computers, signing out of emails and updating passwords.

Malware

Malware, or malicious software, is any program designed to gain access to computer systems, normally for the benefit of some third party, without the user's permission.

Types

- **Viruses**
 - A Virus is a malicious executable code attached to another executable file. The virus spreads when an infected file is passed from system to system.
 - Once a program virus is active, it will infect other programs on the computer.
- **Worms**
 - Worms replicate themselves on the system, attaching themselves to different files and looking for pathways between computers, such as computer network that shares common file storage areas. Affecting the speed of the running computer programmes.
 - Worms usually slow down networks. A virus needs a host program to run but worms can run by themselves.
- **Spyware**
 - Its purpose is to steal private information from a computer system for a third party. Spyware collects information and sends it to the hacker.
- **Trojan horse**

- A Trojan horse is malware that carries out malicious operations under the appearance of a desired operation such as playing an online game.
- Example: Non-executable files, such as image files, audio files.
- **Logic Bombs**
 - A logic bomb is a malicious program that uses a trigger to activate the malicious code.
 - Once triggered, a logic bomb implements a malicious code that causes harm to a computer.
- **Ransomware**
 - Ransomware grasps a computer system or the data it contains until the victim makes a payment.
 - Ransomware encrypts data in the computer with a key which is unknown to the user. The user must pay a ransom (price) to the criminals to retrieve data.
- **Backdoors**
 - A backdoor by-pass the usual authentication used to access a system.
 - The purpose of the backdoor is to grant the cyber criminal's future access to the system even if the organization fixes the original vulnerability used to attack the system.
- **Rootkits**
 - A rootkit modifies the OS to make a backdoor. Attackers then use the backdoor to access the computer distantly.
- **Keyloggers**
 - Keylogger records everything the user types on his/her computer system to obtain passwords and other sensitive information and send them to the source of the keylogging program.

Yudh Abhyas

- The 18th edition of the India-US joint military exercise Yudh Abhyas was conducted in Auli (Uttarakhand), about 100 km from the LAC.
 - Exercise Yudh Abhyas is conducted annually between **India and USA** with the aim of exchanging best practices, Tactics, Techniques and Procedures between the Armies of the two nations.
- China had objected to the military exercise, arguing that it violates the agreements it had with India in 1993 and 1996.

Border Management

Ministry of Home Affairs (MHA) is responsible for border management.

Various Schemes For Border Management

- **Border Infrastructure and Management (BIM) Scheme:**
 - It is a Central Sector Scheme comprising of projects aimed at infrastructure development of India's international borders.
 - It is being implemented by Border Management-I Division under MHA.
 - The scheme aims to enhance the security along the borders of the country and involve implementing a number of projects for the development of border infrastructure.
 - E.g., Border Fence, Border Roads, Border Floodlights, Border Out Posts (BOPs), Helipads and foot tracks along the international borders of the country.
 - It also involves deployment of **technological solutions** in such patches of the borders, which are not feasible for physical fencing.
- **Comprehensive Integrated Border Management System (CIBMS):**
 - CIBMS has been conceptualized to integrate manpower, sensors, networks, intelligence and command control solutions.
 - It aims to improve situational awareness at different levels of hierarchy to facilitate prompt and quick response to emerging situations along the India-Pakistan Border (IPB) and India-Bangladesh Border (IBB).

Central Armed Police Forces (CAPFs)

- Central Armed Police Forces (CAPF) is the collective name of Armed Police Organisations in India. These armed police organisations are:
 - Assam Rifles (AR) – Administrative control - MHA, Operation control – MoD (Ministry of Defense)
 - 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)
- Technically known as Para-Military Forces, it works under the administrative control of the Ministry of Home Affairs (MHA).

Roles of CAPFs

- **Border Guarding Forces**
 - Out of the forces mentioned above, **AR, BSF, ITBP** and **SSB** are primarily the 'Border Guarding Forces'.
- **Assisting Civil Administration**
 - **CRPF** is deployed to assist the Civil Administration under the State Governments / UT Administrations in matters relating to maintenance of Public Order, internal security and counter insurgency.
 - CRPF has two specialized wings:
 - The **Rapid Action Force (RAF)** to deal with the riots
 - **Commando Battalion for Resolute Action (CoBRA)** also known as 'jungle warriors to deal with Left Wing Extremism / insurgency.
- **Protection to vital installations**
 - **CISF** provides security and protection to vital installations of national / strategic importance including PSUs, airports, atomic power plants, space organizations, industrial units, important national museums, Government buildings in Delhi and other important sensitive organizations.
- **Counter terrorism and anti-hijacking operations**
 - In addition, NSG is a specialized strike Force trained in the Counter terrorism and anti-hijacking operations.
 - It is also entrusted with the task of securing the high-risk VIPs and acts as sky marshal for securing the domestic and international flights.

Big Infrastructure Push For Villages On Border

- Union Cabinet approved the allocation of Rs 4,800 crore for the Centre's **Vibrant Villages Programme (VVP)** for the Financial Years 2022-23 to 2025-26.
- It also approved the induction of over 9,000 troops in the Indo-Tibetan Border Police (ITBP), raising of seven new ITBP battalions.

Vibrant Villages Programme (VVP)

- VVP was announced in the Finance Minister's Budget Speech 2022.
- The programme envisages coverage of **border villages on Northern border** having sparse population, limited connectivity and infrastructure, which often get left out from the development gains.
- **Coverage**
 - The Centrally sponsored village scheme will cover the border areas of Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Sikkim and Ladakh.
- **Aims**
 - To ensure **comprehensive development** of these villages, thereby improving the quality of life of people living in identified border villages.

- To encourage people to stay in their native locations in border areas, reversing outmigration from these regions and contributing to improved border security.
- **Implementation**
 - The programme will provide funding for the development of vital infrastructure and creation of livelihood opportunities in 19 districts, 46 border blocks, four states, and one UT along the country's northern land border
 - It will cover 2,963 villages with 663 villages included in the first phase
 - Key outcomes that have been attempted are: all-weather road, drinking water, 24x7 electricity – solar and wind energy, along with mobile and internet connectivity.
 - With respect to tourism, regular field trips will be held for students as part of a **Seema Darshan programme**
- **Institutions involved**
 - Gram Panchayats will assist the district administration in developing vibrant village action plans.
 - Through this 100 % saturation of Central and state schemes will be ensured.
- **No overlap with Border Area Development Program**
 - The government has stated that VVP will not have an overlap with Border Area Development Program (BADP).
 - The Department of Border Management, MHA has been implementing the BADP through the State Governments as part of a comprehensive approach to Border Management.
 - The programme aims to meet the special development needs of the people living in remote and inaccessible areas (within 0-10 km) situated near the international border.
 - It covers 460 border blocks of 117 border districts in 16 States and 2 UTs
 - It also aims to saturate the border areas with the essential infrastructure.

THE INDO-TIBETAN BORDER POLICE (ITBP)

About

- ITBP is a specialized Armed Police Force of the Nation which was raised in the wake of Chinese aggression in 1962 with a modest strength of 4 battalions.
- It was raised under an integrated 'guerrilla-cum-intelligence-cum-fighting Force' self-contained in supplies, communication and intelligence collection.

Role

- At present, *the ITBP guards 3,488 km long India-China borders* ranging from the Karakoram Pass in Ladakh to Jachep La in Arunachal Pradesh.
- Apart from this, the Force also has important roles in many internal security duties and operations against the **Left-Wing Extremism** in the state of Chhattisgarh.
- ITBP also conducts relief and rescue operations as 'First Responders' for natural calamities in the Himalayan region.

Headquarter and administrative control

- The Force Headquarters is in New Delhi. It is under the administrative control of MHA.

1 Border Security Force (BSF)
Bangladesh border | Strength: 2,46,385

2 Indo-Tibetan Border Police (ITBP)
China border | Strength: 83,790

3 Sashastra Seema Bal (SSB)
Nepal, Bhutan borders | Strength: 87,457

4 Assam Rifles
Myanmar border | Strength: 59,438

Theatre Command

- Theatre Command is putting specific number of personnel from all the three services —army, navy and air force— under a common commander in a specified geographical territory.
- Aim: To combine single-service commands, into several geographical commands including
 - Western theatre command: For border against Pakistan.
 - Northern theatre command: For border with China.

- Maritime command: For Indian Ocean Region.
- Island command: It is already functional, called Andaman & Nicobar Command.
- Idea of Theatre commands has been proposed by both Kargil review as well as D B Shekatkar committee.

Largest Women Contingent Of Peacekeepers At A UN Mission

- The Indian Army has deployed its largest-ever contingent of women soldiers for UN peacekeeping operations in the volatile oil-rich **Abyei region of Africa**.
- Abyei region is situated between northern and southern Sudan and is hotly contested by both.
- The women platoon will provide relief and assistance to local women and children in one of the highly operational and challenging conditions under the UN flag.
- This is India's largest single unit of women peacekeepers in a UN Mission since it deployed the first-ever all women's contingent from the Central Reserve Police Force in Liberia in 2007 as part of United Nations Mission in Liberia (UNMIL).
- Indian women particularly have a tradition in Peacekeeping.
 - Dr Kiran Bedi, UN's first Police Adviser, Major Suman Gawani and Shakti Devi have made a mark for themselves in UN Peacekeeping.

First IAF Woman Fighter Pilot To Participate In Aerial Wargames Abroad

- For the first time, an Indian Air Force (IAF) female fighter pilot, **Squadron Leader Avani Chaturvedi**, participated in aerial war games which held aboard.
 - Avani Chaturvedi was also a part of the first batch of women to be commissioned as **fighter pilots** in the country's air force.
- While women fighter pilots have been part of aerial wargames in the country with foreign contingents, including the French air force, this would be the first instance of a woman air warrior leading an Indian fighter squadron on foreign soil.
- She was part of the Indian contingent for the maiden '**Veer Guardian 2023**' wargame joint exercise between India and Japan.
 - This exercise was conducted at the Hyakuri Air Base in Japan.

Electronic Maintenance Management System (e-MMS) and SAMAR portal

- The Ministry of Defense has launched the Indian Air Force e-MMS and SAMAR (System for Advance Manufacturing Assessment & Rating) portal.
- E-MMS is one of the largest and most technologically complex digital Enterprise Asset Management solutions implemented in the world.
- It is a software that helps an organization track the status of maintenance tasks, and schedule equipment repairs.
- SAMAR is a portal of DRDO's Aeronautical Research and Development Board (AR&DB) and is an outcome of DRDO and Quality Council of India (QCI).
- It is the benchmark to measure the competency of defense manufacturing enterprises.

Section 69(A) of IT Act

The Ministry of Electronics and Information Technology (MeitY) recently issued orders to block 138 online betting platforms and 94 money lending apps under **Section 69(A) of the Information Technology Act, 2000**.

Background

- The decision was based on a recommendation of the Ministry of Home Affairs (MHA).

- The MHA had received inputs from central intelligence agencies that some of the sites and apps were allegedly linked to China and contained “**material prejudicial to the sovereignty and integrity of India**”.

What is Section 69 of The IT Act?

- Section 69 of the IT Act confers on the Central and State governments the power to issue directions “to intercept, monitor or decrypt any information generated, transmitted, received or stored in any computer resource”.
- **It allows the government to issue content-blocking orders to online intermediaries such as Internet Service Providers (ISPs), telecom service providers, web hosting services, search engines, online marketplaces, etc.**

Grounds On Which Section 69 Of The IT Act Can Be Invoked?

If the Centre or state government are satisfied that blocking the content is necessary and expedient on the below mentioned grounds, then it can direct the concerned authority to block the content. Section 69A of the IT Act permits the state to impose ‘reasonable restrictions’ for the same reasons as those for clause 2 of the Article 19 of the Indian Constitution.

- sovereignty or integrity of India,
- defence of India,
- security of the State,
- friendly relations with foreign States or
- public order or for preventing incitement to the commission of any cognizable offence relating to above or for investigation of any offence

Indo-US Exercise TARKASH

The sixth edition of the joint Indo-US exercise (Named TARKASH) was held in February

- Held recently in Chennai (Tamil Nadu), TARKASH is a joint exercise by the National Security Guard (NSG) and US Special Operations Forces.
- This exercise had, for the first time, included Chemical, Biological, Radiological and Nuclear (CBRN) terror response in its drill.
- The name TARKASH is derived from a Sanskrit word meaning 'quiver' which is a container used to hold arrows.
- The exercise is named after the Indian Navy's INS Tarkash, a Talwar-class frigate that was commissioned in 2012.

About CBRN

- CBRN weapons, which are also classified as weapons of mass destruction (WMD)
- The details of the CBRN weapons are as follows:

Chemical weapons	Biological agents
1) Chemical weapons are designed to release toxic chemicals that can cause severe injury or death to people, animals, and plants.	1) Biological weapons use microorganisms, such as bacteria, viruses, or toxins, to cause harm or death to people, animals, or plants.
2) These chemicals can be released in various forms, including gases, liquids, and solids.	2) These weapons can be particularly dangerous because they can spread easily and quickly and can be difficult to detect and treat.
3) Examples of chemical weapons include nerve agents, blister agents, choking agents, mustard gas and blood agents.	3) Examples of biological weapons include anthrax, smallpox, botulinum toxin and Ebola virus.

4) Mustard gas damages the respiratory tract, skin, and eyes and nerve agents victims rapidly become unconscious, have breathing difficulties, and may eventually die.	4) anthrax causes fever, malaise, cough, shock and Death within 36 hours whereas botulinum toxin leads to paralysis of respiratory muscles.
Radiological Weapons	Nuclear Weapons
1) Radiological weapons use ionizing radiation to cause harm or damage. 2) These include devices that emit radiation, such as dirty bombs	1) Nuclear weapons use nuclear reactions to release large amounts of energy in the form of heat, light, and radiation. 2) Examples of nuclear weapons include atomic bombs and hydrogen bombs.

- The most recent use of CBRN in the form of a sarin gas attack was witnessed in Syria in 2017 when more than 100 people died.

Exercise Dharma Guardian

The fourth edition of India-Japan bilateral Army exercise 'Dharma Guardian' was held at Camp Imazu in Shiga province, Japan.

About Dharma Guardian

- The first Dharma Guardian exercise was held in 2018.
- The exercise involves various activities, including tactical drills, jungle warfare, counterterrorism, and humanitarian assistance and disaster relief (HADR) operations.
- The exercise takes place in both India and Japan, with troops from both countries participating in the training.

Other Military Exercises Between India and Japan

In January 2023, the two Air Forces held the maiden air exercise ' Veer Guardian '
MALABAR: It is a trilateral maritime exercise between India, Japan, and the United States. The exercise is aimed at enhancing the interoperability of the three navies and promoting maritime security and stability in Indo-Pacific region.
JIMEX: It is a bilateral maritime exercise between the Indian Navy and the Japan Maritime Self-Defense Force.
Sahyog-Kaijin: It is a joint exercise between the Indian Coast Guard and the Japan Coast Guard.
Shinyuu Maitri: It is a joint military exercise between the Indian Air Force and the Japan Ground Self-Defense Force.
Cope India: It is a bilateral air exercise between the Indian Air Force and the United States Air Force, which is hosted by India. However, Japan also participated in the 2018 edition of the exercise.

Exercise Desert Flag VIII

Indian Air Force participated in Exercise Desert Flag VIII. The IAF participated with five LCA Tejas and two C-17 Globemaster III aircraft.

About Exercise Desert Flag VIII

- Exercise Desert Flag is a **multilateral air exercise** in which participants Air Forces are from UAE, France, Kuwait, Australia, UK, Bahrain, Morocco, Spain, Republic of Korea, and USA
- This was the **first occasion** when the indigenously made light combat aircraft (LCA) Tejas participated in an international flying exercise outside India.

LCA Tejas

- India's HAL (Hindustan Aeronautics Limited) designed and developed the LCA Tejas, which was introduced as a replacement for the aging Mig 21 fighter planes.
- Tejas made its first flight in January 2001. The aircraft was inducted into Indian Air Force in 2016.
- It is the smallest and lightest in its class of contemporary supersonic combat aircraft.
- It can fly with as many weapons and missiles as Sukhoi.
- These aircraft can fly as fast as the speed of sound, i.e., Mach 1.6 to 1.8, up at an altitude of 52,000 feet.

ECONOMY AND INFRASTRUCTURE

Names of Reports Published by Organisations

Organisation	Reports
Asian Development bank	<ul style="list-style-type: none"> • Asian Development Outlook
Financial Action Task Force (FAFT)	<ul style="list-style-type: none"> • Global Money Laundering Report
International Atomic Energy Agency	<ul style="list-style-type: none"> • Technical Cooperation Report • Nuclear Technology Review
IBRD (World Bank)	<ul style="list-style-type: none"> • World Development Report • Ease of Doing Business
ILO (International Labour Organization)	<ul style="list-style-type: none"> • World Social Protection Report • World Employment and Social Outlook • World of Work Report • Global Wage Report
IMF (International Monetary Fund)	<ul style="list-style-type: none"> • Global Financial Stability Report • World Economic Outlook
International Energy Agency (IEA)	<ul style="list-style-type: none"> • World Energy Outlook (WEO) • Southeast Asia Energy Outlook
UNEP (United Nations Environment Programme)	<ul style="list-style-type: none"> • Actions on Air Quality • Global Environment Outlook
UNESCO	<ul style="list-style-type: none"> • Global education monitoring Report
UNICEF (United Nations Children’s Emergency Fund)	<ul style="list-style-type: none"> • Report on Regular resources • The State of the World’s Children reports
UNODC (United Nations Office on Drugs and Crime)	<ul style="list-style-type: none"> • Global Report on Trafficking in Persons • World Drug Report • World Wildlife Crime Report
WEF (World Economic Forum)	<ul style="list-style-type: none"> • Global Information Technology Report • Travel and Tourism Competitiveness Report • Global Competitiveness Report (GCR) • Global Gender Gap Report
WIPO (World Intellectual Property Organization)	<ul style="list-style-type: none"> • World Intellectual Property Report (WIPR)
WWF (World Wildlife Fund)	<ul style="list-style-type: none"> • The Energy Report • Living Planet Report
United Nations Development Programme (UNDP)	<ul style="list-style-type: none"> • Human Development Report
UNCTAD	<ul style="list-style-type: none"> • World Investment Report

SWAMIH Fund

- The **Special Window for Affordable and Mid-Income Housing (SWAMIH)** Investment Fund has completed 20,557 homes since its inception in 2019.
- The SWAMIH Fund is **India’s largest social impact fund**, specifically formed for completing stressed and stalled (brownfield) residential projects. The Fund is **sponsored by the Ministry of Finance**.
- It has so far raised Rs. **15,530 crore** to provide relief to real estate developers that require funding to complete their unfinished projects and ensure the timely delivery of homes to homebuyers.

- The **Investment Manager** of the fund is **SBICAP Ventures**, a wholly owned subsidiary of SBI Capital Markets, which in turn is a wholly owned subsidiary of the State Bank of India (SBI).
- The fund has been set up as a **Category-II AIF** (Alternate Investment Fund) **debt fund registered with SEBI**.
- The Fund is considered as the **lender of last resort for distressed projects**.
 - This is because it considers first time developers, established developers with troubled projects, developers with a poor track record of stalled projects, customer complaints and NPA accounts, even projects where there are litigation issues.

Alternative Investment Fund (AIF)

- As per SEBI (Alternative Investment Funds) Regulations, 2012, AIF is any fund incorporated in India which is a **privately pooled investment vehicle**.
- It collects funds from both Indian and foreign investors. Generally, high net worth individuals and institutions invest in AIFs as it requires a high investment amount, unlike Mutual Funds.
- It can be established in the *form of a company or a corporate body or a trust or a Limited Liability Partnership (LLP)*.
- AIFs are divided into 3 unique categories – Category I, Category II and Category III.
 - **Category I AIF:** Funds are mainly invested in start-ups, SMEs or any other sector which Govt. considers economically and socially viable. Examples include venture capital funds, social venture funds, infrastructure funds.
 - **Category-II AIF** are funds that *do not borrow money other than to meet day-to-day operational requirements*. Real estate funds, private equity funds (PE funds), funds for distressed assets are all Category-II AIF funds.
 - **Category III AIF:** Funds are invested with a view to make short term return. Examples include hedge funds.

Real Estate Regulatory Authority (RERA)

- RERA was established, under Real Estate (Regulation and Development) Act, 2016 to *enhance accountability and transparency with respect to housing transactions* and real estate.
- The Act *establishes RERA* in each state for regulation of the real estate sector and also acts as an *adjudicating body for speedy dispute redressal*.

Criteria for Project Selection

- Funding is provided to the projects that meet the following criteria:

- Stalled for lack of adequate funds
- Projects under **Affordable and Middle** Income Housing
- Real Estate Regulatory Authority (RERA) registered
- Priority for projects very close to completion
- **Net worth positive projects** (including NPAs and projects undergoing NCLT proceedings)

- **Net-worth positive projects** are projects for which the value of their receivables (debts owed to them by buyers), plus the value of their unsold inventories is greater than their completion costs and outstanding liabilities.
- Affordable or Mid-income Housing units is defined as any housing units that do not exceed **200sqm** RERA carpet area and are priced as following (as applicable):
 - Less than INR 2cr in Mumbai Metropolitan Region;
 - Less than INR 1.5cr in NCR, Chennai, Kolkata, Pune, Hyderabad, Bangalore and Ahmedabad;
 - Less than INR 1cr in the rest of India

Har Payment Digital Mission

- RBI has launched the '**Har Payment Digital**' Mission on the occasion of **Digital Payments Awareness Week** (DPAW) 2023.

- The campaign theme is “*Digital Payment Apnao, Auro ko bhi Sikhao*” (Adopt digital payments and also teach others).

75 Digital Villages Programme

- As part of this Mission, the RBI has launched **75 Digital Villages programme** under which 75 villages across the country will be adopted to convert them into digital payment enabled villages.
- Under it, **Payment System Operators (PSOs)** will adopt these villages and conduct two camps in each of these villages with an aim to improve awareness and onboard merchants for digital payments.
- **PSOs are entities authorised by RBI to set up and operate a payment system.**
- As of February 2023, there are 67 PSOs including NPCI, Mastercard, Visa, SBI, Punjab National Bank, Amazon Pay (India), PhonePe, Muthoot Finserv USA, Ola Financial Services, PayU Payments etc.
- The PSOs are under various categories such as retail payments organisations, card payment networks, ATM networks, prepaid payment instruments, etc.

Frozen Semen Station

- The Ministry of Fisheries, Animal Husbandry & Dairying has laid the foundation stone of the Frozen Semen station in **Ranbir bagh, Jammu & Kashmir (J&K)**.
- The semen station has been sanctioned under the **Rashtriya Gokul Mission**.
- It will enable Kashmir province to be self-sufficient in the **production of high quality and disease free-germ plasm** to be used for **Artificial Insemination (AI) coverage**.
- Increased AI coverage will be a great step towards increasing productivity of dairy animals in the UT of J&K.
- The project will strengthen Frozen Semen Bull Station, Ranbir Bagh to realise production of over **10 Lac frozen semen straws (FSSs)** annually.



Rashtriya Gokul Mission (RGM)

- RGM, launched in December 2014, is a focussed project under National Programme for Bovine Breeding and Dairy Development.
- It aims to conserve and develop indigenous breeds in a focused and scientific manner.
- Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture has been implementing the Mission through the State Implementing Agencies (SIA viz Livestock Development Boards).

OBJECTIVES

- Undertake *breed improvement programmes* for indigenous cattle breeds to improve the genetic makeup and increase the stock.
- Enhance milk production and productivity.

Provisions

- Establishment of integrated indigenous cattle centres - *Gokul Gram*.
- Establishment of breeder's societies - *Gopalan Sangh*.
- Distribution of disease free high genetic merit bulls for natural service.
- Incentive to farmers maintaining elite animals of indigenous breeds.
- Organization of training programme for technical and non-technical personnel working at the Institute/Institutions engaged in indigenous cattle development.
- Strengthening of bull mother farms to conserve high genetic merit indigenous breeds.
- Assistance to Institutions/Institutes which are repositories of best germplasm.

Other initiatives under RGM

- Establishment of **National Kamdhenu Breeding Centre (NKBC)** as a centre of excellence for the development and conservation of indigenous breeds in a scientific way
- Developing an e-market portal for connecting the breeders and farmers. This e-market portal was named as '**E-Pashu Haat – Nakul Prajnan Bazaar**'.
- Pashu Sanjivani**: An animal wellness program with the provision of animal health cards.
- Use of advanced reproductive technology like In-vitro Fertilization (IVF) and Multiple Ovulation Embryo Transfer (MOET) for a disease-free female bovine.
- Establishment of National Bovine Genomic Center for Indigenous Breeds (NBGC-IB)

Tajpur, Bengal's 1st Deep Sea Port

Tajpur port will be built by Adani Group, making it the Bengal's 1st Greenfield port in close to 50 years.

- Tajpur will be the second-biggest port in West Bengal, after the Kolkata Port — now known as the Shyama Prasad Mukherjee Port (SMP).
- It will enable a large 'Capesize', which is the largest class of cargo vessels.
- Previously the shallow draft has limitations with larger ships to call on ports.
- A Greenfield project is one in which construction happens on unused land, where there is no need to remodel or demolish an existing structure.

National Flagship Programmes for Fisheries

The Ministry of Fisheries, Animal Husbandry and Dairying has launched **three National Flagship Programmes** for the development of fisheries sector.

National Surveillance Programme for Aquatic Animal Diseases Phase II

- 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 lakh tonnes.
- 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 National Surveillance Programme for Aquatic Animal Diseases (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** has been launched under the **Pradhan Mantri Matsya Sampada Yojana**.
- 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.

Genetic Improvement Programme of Indian White Shrimp

- Farmed **shrimp** accounts for approximately **70% of India's seafood exports worth Rs. 42000 crores**.
- However, the shrimp farming sector mostly depends on **one exotic specific pathogen free stock of pacific white shrimp** (*Penaeus vannamei*).
- It is highly risky to depend on one species for the production of 10 lakh tonnes with huge investments on farming infrastructure and the livelihoods of two lakh farm families directly and around ten lakh families indirectly associated in the ancillary sectors.
- Therefore, to break this single species dependence and to promote indigenous species the government has taken up the '**Genetic Improvement Program of *Penaeus indicus* (Indian White Shrimp)-Phase-I**', as a national priority under the Make in India program.
- The program has an outlay of Rs. 25 crore under PMMSY, to establish a **National Genetic Improvement Facility** for shrimp breeding.

Shrimp Crop Insurance Product

- Similarly, shrimp farming is labelled as a risky venture and due to this, the banking and insurance institutions are cautious about taking up business in the shrimp sector.
- However, India has achieved about 430% growth in shrimp production during the last decade, which highlights the overall profitability, growth and stability of the shrimp farming sector.
- Majority of the aquaculture farmers are small farmers who own 2–3 ponds and face huge obstacles to raise working capital for the crop due to a lack of access to institutional credit and insurance.
- The loss of one crop due to natural calamities or viral diseases makes the farmers fall into deep debt.
- It is estimated that Rs 1000 to Rs 1500 crores is the business potential of shrimp crop insurance per year and a microcredit requirement of over Rs 8,000 to 10,000 crores per annum, which is now being serviced by informal creditors at higher interest rates.

- Therefore, a Shrimp Crop Insurance product has been developed, which charges differential premium based on location and requirements of the individual farmer from 3.7 to 7.7 % of input costs.
- The farmer will be compensated up to 80% loss of input cost in the event of total crop loss. i.e., more than 70% crop loss.

Animal Husbandry Statistics

- The Ministry of Fisheries, Animal Husbandry and Dairying recently released its annual publication '**Basic Animal Husbandry Statistics 2022**'.
- The publication gives an overview of animal husbandry sector briefly in terms of important livestock statistics.
- It is the primary source of data on production estimates of **four Major Livestock Products (MLPs)** like milk, egg, meat and wool for the year 2021-22.

Major Highlights

- In 2020-21, the share of Livestock at **constant prices** in **Agriculture Sector** and **total GVA** was 30.13% and 4.9% respectively.
- During 2014-15 and 2020-21, the value addition of sector grew at a **compound annual growth** rate of 7.93%.

Milk Production

- Total milk production in the country during 2021-22 is **221.06 million tonnes**. In 2021-22, the milk production registered an annual growth rate of **5.29%**.
- Top **five major milk producing States** are **Rajasthan** (15.05%), Uttar Pradesh (14.93%), Madhya Pradesh (8.06%), Gujarat (7.56%) and Andhra Pradesh (6.97%).
- The per-capita availability of milk is **444 gram/day** during 2021-22 increased by 17 gram/day over previous year.

Egg Production

- In 2021-22, the total egg production in the country was **129.60 billion numbers** which has increased by **6.19%** as compared to previous year.
- Total **five major egg producing States** are Andhra Pradesh (20.41%), Tamil Nadu (16.08%), Telangana (12.86%), West Bengal (8.84%) and Karnataka (6.38%).
- In 2021-22, the per-capita availability of egg is **95 numbers/annum** increased by 5 numbers/annum over previous year.

Meat Production

- The total **meat production** in the country is **9.29 million tonnes** for the year 2021-22 with an annual growth rate of **5.62%**.
- The total **five major meat producing States** are Maharashtra (12.25%), Uttar Pradesh (12.14%), West Bengal (11.63%), Andhra Pradesh (11.04%), and Telangana (10.82%).
- The per-capita availability of meat is **6.82 kg/annum** during 2021-22 increased by 0.30 kg/annum over previous year.

Wool Production

- The total wool production in the country during 2021-22 is **33.13 thousand tonnes** which has decline by 10.30% as compared to previous year.
- The top **five major wool producing States** are Rajasthan (45.91%), Jammu and Kashmir (23.19%), Gujarat (6.12%), Maharashtra (4.78%) and Himachal Pradesh (4.33%).

Animal Husbandry

- It refers to livestock raising and selective breeding. It is the management and care of animals by which the genetic qualities and behaviour of animals are further developed for profit.
- The total Livestock population in the country is 535.78 million which is an increase of 4.6% over Livestock Census 2012.

International Intellectual Property (IP) Index

- The **US Chambers of Commerce** recently released the 11th edition of the **International IP Index**.
- The annual index evaluates the protection of IP rights in **55 of the world's leading economies**, together representing around **90% of global GDP**. The evaluation is done across **50 unique indicators**.
- The report covers everything from patent and copyright laws to the ability to monetise IP assets and the ratification of international agreements.
- By analyzing the IP landscape in global markets, the index aims to help nations navigate towards a brighter economic future marked by greater innovation, creativity, and competitiveness.

Key Findings

- **India has been ranked 42nd** out of 55 countries in the index. As India's size and economic influence grows on the world stage, India is ripe to become a leader for emerging markets seeking to transform their economy through IP-driven innovation.
- India has maintained continued strong efforts in copyright piracy through the issuing of **"dynamic" injunction orders**.

Gaps In India's IP Framework

- Among India's key areas of weakness are the **2021 dissolution of the IP Appellate Board**.
- Furthermore, there is a longstanding issue of an **under-resourced and overstretched judiciary**, which raises serious concerns about rights holders' ability to enforce their IP rights in India and to resolve IP-related disputes.
- Limited framework for the protection of **biopharmaceutical IP rights** and patentability requirements which are outside international standards are the other weaknesses.

International Arms Transfers 2022

Stockholm International Peace Research Institute (SIPRI) recently released Trends in International Arms Transfers.

Key Findings

- SIPRI identified **India, Saudi Arabia, Qatar, Australia and China** as the top five arms importers during 2018-2022, accounting for **36 per cent of global arms imports** during the period.
- **India's share globally was 11%** followed by Saudi Arabia with 9.6% and Qatar with 6.4%
- The **US, Russia, France, China, and Germany** were the **five biggest arms exporters**. The five countries alone **accounted for 76 per cent of global arms transfers** between 2018 and 2022.
- Of this, the US had a lion's share (40 per cent) with countries in the middle east receiving 41 per cent of the arms exported by it in the said period.
- Imports of major arms by European states increased by 47 per cent between 2013-17 and 2018-22 in the backdrop of the war in Ukraine even as the global volume of international arms transfers fell by 5.1 per cent.
- The report highlighted the all-weather friendship between Pakistan and China. China accounted for 77 per cent of Pakistan's arms imports between 2018-2022. This reflects the extent to which Pakistan is dependent on China for its military needs.

Findings From India

- India remained the world's largest arms importer during 2018-2022 even though its arms imports dropped by 11% between 2013-2017 and 2018-2022.
- The decrease can be attributed to several factors including India's slow and complex arms procurement process, efforts to diversify its arms suppliers, and attempts to replace imports with major arms that are designed and produced domestically.
- Russia was the largest supplier of arms to India from 2013 to 2022, but its share of total imports fell from 64% to 45%, between 2013-2017 and 2018-2022. Russia was followed by France (29%) and the U.S. (11%).
- India's arms **import from France**, which included 62 combat aircraft and four submarines, **increased by 489%** between 2013-2017 and 2018-2022.
- Also, India was the third largest arms supplier to Myanmar after Russia and China accounting for 14% of its imports.

SIPRI

- SIPRI is an **independent international institute** dedicated to **research into conflict, armaments, arms control and disarmament.**
- Established in 1966, SIPRI provides data, analysis and recommendations, to policymakers, researchers and media.
- It has a vision of a world, in which sources of insecurity are identified and understood, conflicts are prevented or resolved, and peace is sustained.
- **Based in Stockholm**, SIPRI is regularly ranked among the most respected think tanks worldwide.

Sagar Manthan

- The Ministry of Ports, Shipping and Waterways (MoPSW) has launched the Real-Time Performance Monitoring Dashboard called **Sagar Manthan**.
- Developed in-house by the MoPSW, the platform will have all the integrated data related to the ministry and other subsidiaries.
- It will enable organizations to monitor and track the progress of their projects and key performance indicators (KPIs).
- In addition to **real-time project tracking** it also promotes risk management, resource allocation and progress reporting.

Features Of The Dashboard

- Data visualization
- Real-time monitoring
- Improved communication
- Data-driven decision making
- Increased accountability
- In future, the dashboard would further be integrated with input from CCTV camera, live streaming from drones, AI based algorithm to map actual progress.

Significance

- It is a significant step towards digitalization and transparency in the **maritime transport sector**.
- Effective project monitoring will ensure timely completion of projects, informed decision-making, increased efficiency & effectiveness of projects.

Electronics Manufacturing Cluster (EMC)

- The Ministry of Electronics and IT (MeitY) has announced the approval for setting up a Rs 180 crore worth Electronics Manufacturing Cluster (EMC) at Dharwad.
- It will be set up at Kotur-Balur Industrial Area in **Dharwad District of Karnataka** under EMC 2.0 scheme.
- It is expected to create over 18,000 jobs and catalyse investments of over Rs 1,500 crore soon.
- The EMC has strategic locational advantage and will be well connected with NH -48 and Hubli Domestic Airport which will reduce the logistics/ transportation cost of the industry in the EMC.
- The Centre has already approved a Common Facility Centre (CFC) for development of an advanced testing facility in Mysore, Karnataka that will meet the various testing requirement of the industry.

Electronics Manufacturing Cluster (EMC) Scheme

- **EMC scheme** was launched in **2012**, to make India a global player in the field of electronics manufacturing and to offset disabilities faced by industries for reliable infrastructure.
- It provided support for creation of world-class infrastructure for attracting investments in the Electronics System Design and Manufacturing (ESDM) sector.
- EMC provided grant assistance:
 - **Greenfield EMC** - 50% of project cost subject to a ceiling of Rs. 50 crores per every 100 acres of land
 - **Brownfield EMC** - 75% of the project cost subject to a ceiling of Rs. 50 crores per project

EMC 2.0

- The Modified Electronics Manufacturing Cluster (EMC 2.0) scheme was introduced in **2020**.
- Its **objective** is to create world class infrastructure along with common testing facilities, including Ready Built Factory sheds/Plug & Play infrastructure for attracting Anchor unit along with their supply chain to set up their manufacturing facility in the country.
- Under it, three EMCs over an area of 1,337 acres with project cost of Rs 1,903 crore, including Central financial assistance of Rs 889 crore have been approved which projected investment target of Rs 20,910 crore.

City Finance Rankings 2022

- The **Ministry of Housing and Urban Affairs** recently launched the City Finance Rankings 2022 under which urban local bodies in the country will be evaluated on the basis of their financial health.
- The urban local bodies will be evaluated on 15 indicators across **three key parameters**:

resource mobilisation

expenditure performance

fiscal governance

- The **objective** is to evaluate, recognise and reward municipal bodies across the country based on the quality of their current financial health and improvement over time in financial performance.
- The cities will be ranked based on their scores under **four population categories** — above 40 lakh, 10 lakh-40 lakh, one lakh to 10 lakh and below one lakh. Awards would be given to the top three cities in each category.

Significance

- At a state- and national-level, the rankings will highlight the outcomes achieved by municipalities and provide critical insights to key policy makers into the state of finances of urban local bodies.
- Thus, the rankings will serve as a constant motivation for city/state officials to continue to implement municipal finance reforms.

PM MITRA Parks

The government recently announced that **seven mega textile parks** under **PM Mega Integrated Textile Regions and Apparel (PM MITRA)** scheme will be set up in the first phase.

Background

- Currently, the entire value chain of textiles is scattered and fragmented in different parts of the country. Cotton is made in Maharashtra and Gujarat. It is then processed in Tamil Nadu before it is shipped to Bengaluru or Noida after which it is sent to the port.
- This leads to high logistics costs, which is a key hurdle to India's goal of boosting textile exports.

Details of PM MITRA

- First announced in Union Budget 2021, PM MITRA is designed to make the textile industry globally competitive.
- It is inspired by the **5F vision of Farm to Fibre to Factory to Fashion to Foreign**. It aims to create an **integrated textiles value chain** from spinning, weaving, processing/dyeing and printing to garment manufacturing at one location.
- Under the first phase of the PM MITRA scheme, large textile parks, spread across at least 1,000 acres, will come up in 7 States —Tamil Nadu, Karnataka, Telangana, Madhya Pradesh, Maharashtra, Gujarat, and Uttar Pradesh.
- The parks will have **plug-and-play manufacturing facilities** and all the common amenities required.
- **Special purpose vehicles (SPVs)**, with a 51% equity shareholding of the State government and 49% of the Centre, will be formed for each park.
- Each park will have an incubation centre, common processing house, a common effluent treatment plant, design and testing centres, skill training centres and warehouses too.
- It is designed to attract investment from companies that are looking to scale up, and require integrated manufacturing facilities in one location.

Support Under The Scheme

- The centre will provide **Development Capital Support** for the development of common infrastructure (@30% of the project cost) with a cap of Rs 500 crore for each greenfield MITRA park and up to Rs 200 crore for each brownfield park.
- An additional Rs 300 crore will be provided as **Competitiveness Incentive Support (CIS)** for the early establishment of textiles manufacturing units in each of these parks.
 - Under CIS, a maximum support of Rs 10 crore per year for a maximum of three years will be provided to such anchor (early) investors.
- State Government support will include provision of **1,000 Acre land** for development of a world class industrial estate.

Samarth (Scheme for Capacity Building in Textile Sector)

- In order to broad base the panel of implementing partners of **Samarth**, Ministry of Textiles has invited proposals for **empanelment** from textile industry and industry associations related to textile sector.
- Samarth is a **demand driven and placement-oriented umbrella skilling programme** of Ministry of Textiles.
- The scheme was formulated under the broad skilling policy framework adopted by Ministry of Skill Development & Entrepreneurship. Its implementation period is **up to March 2024**.
- The scheme is **implemented through** Implementing Partners (IPs) comprising of Textile Industry/ Industry Associations, State government agencies and Sectoral Organizations of Ministry of Textiles like DC/ Handloom, DC/Handicrafts and Central Silk Board.

- Samarth **aims to** incentivize and supplement the efforts of the industry in creating jobs in the organized textile and related sectors, covering the entire value chain of textiles, **excluding spinning and weaving**.
- The training programme and course curriculum have been rationalized keeping in view the technological and market demand of the domestic and international economies.
- In addition to the entry level skilling, a special provision for upskilling/re-skilling programme has also been operationalized towards improving the productivity of the existing workers.
 - It also caters to the upskilling/ re-skilling requirement of traditional textile sector such as handloom, handicraft, silk and jute.
- Furthermore, a total of 184 courses aligned with **National Skill Qualification Framework (NSQF)** have been adopted under the scheme.
- **Employment linkage** is mandated in the courses under organized textile sector with **mandatory placement 70% in entry level & 90% for Upskilling programmes**.

Regenerative Agriculture


- It is a **holistic** farming system that focuses on soil health, food quality, biodiversity improvement, water quality and air quality.
- It can be **practiced under many names** and is often also referred to as — *agroecological farming, alternative agriculture, biodynamic agriculture, carbon farming, inclusive nature farming, conservation agriculture, green agriculture, organic regenerative agriculture and sustainable agriculture*.
- It employs reduced/zero tillage (mechanical manipulation of soil for the purpose of crop production)

Benefits

- Permanent pastures can trap large amounts of carbon and water, reducing farm emissions and polluted runoff. Healthy soil protects land from floods and drought and provides crops with higher nutrient density.
- It builds resilience and mitigates the effects of extreme weather caused by a changing climate.


Scheme for Procurement of Aggregate Power

- The **Ministry of Power** launched a Scheme for Procurement of Aggregate Power of 4500 MW on competitive basis for 5 years **on Finance, Own & Operate (FOO)** basis under the SHAKTI Policy.
- **PFC Consulting Ltd**, a wholly-owned subsidiary of PFC Ltd, has been designated as the **nodal agency** by the Ministry of Power.



GOVERNMENT OF INDIA
MINISTRY OF POWER

SHAKTI Policy



- **SHAKTI (Scheme for Harnessing and Allocating Koyala Transparently in India) policy was approved in 2017 to provide coal linkages to the power plants which do not have linkage.**
- Thus, helping the generators to get cheaper coal and thereby **reduction in cost of generation.**

Objective

- Its aim is to ensure the availability of coal to all the thermal power plants in India, in a way that is **transparent and objective.**
- It aims to transfer the benefits of linkage coal to the **end consumers.**
- The scheme is supposed to be **beneficial not just for the infrastructure sector, but also for the public sector banks** which have huge loans unpaid at the end of the power companies.
 - The companies, which did not have coal linkages before the introduction of the Shakti, would benefit when they would get domestic fuel supplies through auction at competitive rates.
- It also aims to **reduce the dependence on imported coal and promote domestic industries.**

Extension of PM SVANidhi Scheme

The Union Government extended the **PM Street Vendor's AtmaNirbhar Nidhi** (PM SVANidhi) scheme beyond March 2022 till December 2024.

PM SVANidhi Scheme

- Launched in 2020, it is a **Central Sector Scheme** fully funded by the **Ministry of Housing and Urban Affairs**. The scheme facilitates **affordable collateral-free loans to street vendors**.

Eligibility

- The scheme is available for beneficiaries belonging to only those States/UTs which have notified Rules and Scheme under **Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014**.
- Beneficiaries from Meghalaya, which has its own State Street Vendors Act may, however, participate.

Extension of Provisions of the Scheme

- The scheme has been extended with the following provisions:
 - Extension of lending period till December 2024.
 - *Introduction of 3rd loan of upto ₹50,000* in addition to 1st & 2nd loans of ₹10,000 and ₹20,000 respectively.
 - Extension of 'SVANidhi Se Samridhhi' component for **all beneficiaries** of the scheme across the country.
 - **SVANidhi se Samridhhi component** was launched in 2021 in 125 cities to provide social security benefits to street vendors for their holistic development and socio-economic upliftment. Quality Council of India (QCI) is the implementing partner for the program.
- Originally, the scheme had envisaged to facilitate loans for an amount of Rs. 5,000 crore. The extension has increased the loan amount to Rs. 8,100 crore.

Dare to Dream Contests

- A total of 5,637 applications have been received under three Dare to Dream Contests in the last three years.
- It was initiated in memory of the former President of India, Dr APJ Abdul Kalam
- Dare to Dream is a scheme to promote individuals and start-ups (recognised by DPIIT and with Indian founders) for innovation in the area of defence and aerospace.
- DRDO has been launching Dare to Dream Contest every year **since 2019**.
 - Dare to Dream 2.0 and Dare to Dream 3.0 were launched in 2020 and 2021, respectively
- DRDO supports awarded ideas to develop a Prototype through Technology Development Fund (TDF) scheme.

Technology Development Fund (TDF)

- TDF has been established to promote self-reliance in defence technology as a part of **Make in India** initiative.
- It is a programme of **Ministry of Defence** executed by DRDO meeting the requirements of Tri-Services, Defence Production and DRDO.
- The scheme encourages participation of public/private industries especially MSMEs to create an eco-system for enhancing cutting edge technology capability for defence application.

GI Tag to Nine Products

- **9 new items**, including gamocha of Assam, Tandur red gram of Telangana, Raktsey Karpo apricot of Ladakh, and Alibag white onion of Maharashtra, were given the GI tag. The list includes five GI tags for Kerala, for its agricultural produce.
 - With this, the total number of GI tags in India comes to 432. **Karnataka and Tamil Nadu are states with the highest number of GI tags**, followed by Kerala (35), Uttar Pradesh (34), and Maharashtra (31).
 - The World Intellectual Property Organisation defines a GI as a sign that can be used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin.
 - GIs are typically used for agricultural products, natural or a manufactured product (handicrafts and industrial goods) like, Basmati rice, Darjeeling Tea, Chanderi Fabric, Mysore Silk, Kullu Shawl, Kangra Tea, Thanjavur Paintings.
 - The tag conveys an assurance of quality and distinctiveness, which is essentially attributable to the place of its origin.

- Internationally, GIs are covered as an element of intellectual property rights under the **Paris Convention** for the Protection of Industrial Property. They are also covered under the Trade Related Aspects of Intellectual Property Rights (**TRIPS**) Agreement.

Gamochoa of Assam:

- Gamochoa literally means a towel. It is a handwoven rectangular cotton piece of cloth known for its **distinctive red border and floral motifs**.
- A Gamochoa meant for exchange during Bihu festival is known as **Bihuwan**.

Tandur Red gram of Telangana:

- It is a local variety of pigeon pea which is mainly grown in the rainfed areas (fertile deep black soil with clay minerals) of the Tandur and nearby places in the state.
- It contains about 24 percent protein, which is almost three times that of cereals, and is popularly known for its very good taste, and better cooking quality.

Raktsey Karpo apricot of Ladakh:

- Raktsey Karpo, belongs to the **family of apricot**. Packed with vitamins and low on calories, it is **rich in sorbitol** – a **natural glucose substitute** that can be consumed by diabetics.
- The oil from its seed is known to relieve back aches and joint pain. These apricots are grown organically as individual on trees or in clusters without using any chemical fertilisers.

Alibag white onion of Maharashtra:

- The soil of Alibaug taluka has low sulphur content & its geo-climatic conditions make it unique compared to other white onion-producing areas.
- White onions are an excellent source of antioxidants that contain more than 25 different types of flavonoids which lowers the risk of developing chronic diseases like diabetes, cancer, and heart disease.

GI to five agricultural products of Kerala

Attappady Attukombu Avara (beans):

- Cultivated in the Attappady region of Palakkad, is curved like a goat's horn as its name indicates.
- Its **higher anthocyanin** content imparts **violet colour** in the stem and fruits. Anthocyanin is helpful against cardiovascular diseases along with its antidiabetic properties.
- Other than this, calcium, protein, and fibre content are also high. Its **higher phenolic content** imparts resistance against pest and diseases, making the crop suitable for organic cultivation.

Attappady Thuvara (red gram):

- It has seeds with white coat. Compared to other red grams, Attappady Thuvara seeds are bigger and have higher seed weight.
- This delicious red gram, which is used as vegetable and dal, is rich in protein, carbohydrate, fibre, calcium and magnesium.

Onattukara Ellu (sesame):

- **Onattukara Ellu** and its oil are famous for its unique health benefits. Relatively higher antioxidant content in Onattukara Ellu helps in fighting the free radicals, which destroy the body cells.
- Also, the high content of unsaturated fat makes it beneficial for heart patients.

Kanthalloor-Vattavada Veluthulli (garlic):

- Compared to the garlic produced in other areas, the garlic from Kanthalloor-Vattavada area contains higher amount of sulphides, flavonoids, and proteins.
- It is rich in allicin, which is effective against microbial infections, blood sugar, cancer, cholesterol, heart diseases, and damages to blood vessels. The garlic cultivated in this area is also rich in essential oil.

Kodungalloor Pottuvellari (snap melon):

- Cultivated in Kodungalloor and parts of Ernakulam it is consumed as juice and in other forms.
- This snap melon, which is harvested in summer, contains high amount of Vitamin C.

Pradhan Mantri Virasat Ka Samvardhan (PM VIKAS) Scheme

- The Ministry of Minority Affairs (MoMA), shared that the Pradhan Mantri Kaushal Ko Kaam Karyakram (PMKKK) has now been named as **Pradhan Mantri Virasat Ka Samvardhan (PM VIKAS) Scheme**.
- The integrated scheme **converges five erstwhile schemes** of MoMA viz. *Seekho aur Kamao, USTTAD, Hamari Dharohar, Nai Roshni and Nai Manzil*.
- The scheme has been approved by the Cabinet for the period of **15th Finance Commission**.
- PM VIKAS aims to **improve livelihoods of the minorities**, particularly the artisan communities, using the components of *skill development, education, women leadership & entrepreneurship*.
- These components complement each other in the ultimate objective of the scheme to increase the incomes of the beneficiaries and provide support by facilitating **credit and market linkages**.

1. **Seekho aur Kamao**: It is a **placement-linked skill development scheme** for minority youth in the age group of 14-45 years.
 - a. It aims to upgrade the skills of minority youth in various modern/traditional skills depending upon their qualification, present economic trends and market potential.
2. **USTTAD** was launched to **preserve the rich heritage** of traditional arts/crafts of minorities.
 - a. It aims at capacity building and upgrading the traditional skills of **master craftsmen/artisans**, training of minority youths in various identified traditional arts/crafts, and developing national and international market linkages.
3. **Hamari Dharohar** scheme has been formulated to preserve rich heritage of minority communities under overall concept of Indian culture which includes curating exhibitions, preservation of literature/documents etc.
 - a. It aims to empower and enhance confidence in **minority women** by providing knowledge, tool and techniques **for leadership development of women**.
4. **Nai Roshni**: It is a six-days non-residential/five-days residential training programme conducted for women from minority community between the age group of 18 years to 65 years.
 - a. The training modules cover areas related to programmes for women health and hygiene, legal rights of women, financial literacy, digital literacy, swachh bharat, life skills, and advocacy for social and behavioural changes.
5. **Nai Manzil**: It aims to benefit the youth (both men & women) belonging to minority communities of 17-35 years of age, who do not have formal school leaving certificate, i.e., those in the category of school dropouts or educated in community education institutions like Madrasas.
 - a. It provides a combination of formal education (Class VIII or X) and skills to enable beneficiaries seek better employment and livelihood.

Extension of Indian Footwear and Leather Development Programme

The Union Government has approved the continuation of Indian Footwear and Leather Development Programme (IFLDP) till 2026 or till further review, whichever is earlier.

IFLDP

- It is a **Central Sector Scheme** that aims at development of infrastructure for the leather sector, address environmental concerns specific to the leather sector, facilitate additional investments, employment generation and increase in production.
- It was launched by Department for Promotion of Industry and Internal Trade under the Ministry of Commerce and Industry.

- **Sub-schemes** approved under the programme include:
 - Sustainable technology and environmental promotion (STEP);
 - Integrated development of leather sector (IDLS);
 - Establishment of institutional facilities (EIF);
 - Mega leather footwear and accessories cluster development (MLFACD);
 - Brand promotion of Indian brands in footwear and leather sector
 - Development of design studios in footwear and leather sector.

Impact Of The Programme

- The programme has a direct benefit towards quality employment generation especially for women, skill development, decent work, making the industry more environment friendly and prompting sustainable production system.
- Leather clusters located in different parts of the country have benefited in terms of reduction of poverty, gender equality, sector specific skill/education, etc., thus touching many of the Sustainable Development Goals (SDGs).

Status of Indian Leather and Footwear Industry

- The leather industry in India accounts for around **13% of the world's leather production** of hides/skins and handles an annual production of about 3 bn sq. ft. of leather.
- The industry is known for its consistency in high export earnings and it is among the **top ten foreign exchange earners** for the country.
- The country accounts for 9% of the world's footwear production and is the **second largest footwear producer and consumer** in the world.
- The **major production centres** of leather and footwear products in India are located in the States of Tamil Nadu, Andhra Pradesh, West Bengal, Uttar Pradesh, Maharashtra, Punjab, Haryana and Delhi.
- The **major markets** for Indian leather & footwear products are **USA**, Germany, U.K, Italy, France, Spain, Netherlands, U.A.E, China, Hong Kong, Belgium, and Poland.

Extension of RoDTEP Scheme

The Centre has recently expanded the scope of the export promotion scheme, **Remission of Duties and Taxes on Exported Products (RoDTEP)**, to include the chemicals, pharmaceuticals and iron & steel sectors.

Background of RoDTEP scheme

- The US had earlier challenged India's key export subsidy schemes in the World Trade Organization (WTO).
- A dispute panel in the WTO ruled against India, stating that India's export subsidy programmes violated WTO norms.
- The panel further recommended India to withdraw such export subsidy programmes. This led to the development of the RoDTEP Scheme, in order to ensure that India stays WTO-compliant.

Features of RoDTEP

- RoDTEP was formed to replace the Merchandise Exports from India (MEIS) Scheme. It became applicable from **January 2021**.
- RoDTEP is based on the globally accepted principle that taxes and duties should not be exported, and taxes and levies borne on the exported products should be either exempted or remitted to exporters
- Before the introduction of RoDTEP, GST taxes and import/customs duties for inputs required to manufacture exported products were either exempted or refunded.
- However, certain taxes/duties/levies are outside GST, and were not refunded for exports, such as, VAT on fuel used in transportation, Mandi tax, Duty on electricity used during manufacturing etc.
- The RoDTEP scheme now covers these taxes/duties/levies which are refunded for exported products.
- The rebate is issued as a **transferable electronic scrip** by the **Central Board of Indirect Taxes & Customs** in an end-to-end IT environment.

- Moreover, a monitoring and audit mechanism, with an Information Technology based **Risk Management System (RMS)**, is used to physically verify the records of exporters.
- This scheme is applicable to all the sectors involved in the export of goods irrespective of their turnover. Goods exported through e-commerce platforms can benefit under this scheme. Re-exported products of the country are not eligible.

TULIP Platform

- The government shared the progress of the **The Urban Learning Internship Program (TULIP) platform**.
- TULIP is an initiative by the **Ministry of Housing and Urban Affairs (MoHUA)** in collaboration with the **Ministry of Education (MoE)** and All India Council of Technical Education (**AICTE**).
- The platform has been developed to provide internships to students and graduates in Urban Local Bodies (ULBs), smart cities, parastatals of States/UTs, to utilise the skills of freshly graduated students to co-create modern solutions for Indian cities.
- **Eligibility:** The internships under TULIP are open to **Indian citizens** who graduate from an undergraduate program can apply within 18 months from graduating.

Objective

- Short-term exposure to fresh graduates to enhance their professional development through experiential learning with ULBs and smart cities.
- Harnessing fresh energy and ideas towards ULBs and smart cities efforts to solve critical challenges.

Greenwashing

- The RBI Deputy Governor called for a formal definition of green finance to avoid the risk of greenwashing.
- **Green financing** refers to lending to environmentally sustainable economic activities

Greenwashing

- It refers to misleading the general public into believing that companies, sovereigns or civic administrators are doing more for the environment than they actually are.
- Thus, it refers to **dishonest practices designed to deceive people**. This may involve making a product or policy seem more environmentally friendly or less damaging than it is in reality.
- It is done primarily for a company to either present itself as an environment-friendly entity or for profit maximization.

One District One Product (ODOP) Merged with Districts as Export Hub (DEH)

- ODOP was launched by the *Ministry of Food Processing Industries*, to help districts reach their full potential, foster economic and socio-cultural growth, and create employment opportunities, especially, in rural areas.
- It aims to do this by identifying, promoting and branding a product from one district. It intends to turn every district in India, into an export hub through promotion of the product in which the district specializes.

Districts as Exports Hub initiative

- An initiative of the *Directorate General of Foreign Trade (DGFT), Department of Commerce*, DEH aims to convert each district into an export hub.
- It tries to target export promotion, manufacturing and employment generation at grass root level and has made States and Districts accountable for the export growth from the districts in the country.
- DEAP will include clear identification of products (**goods and services**) with export potential in the District.

Achievements of ODOP	Achievements Related to DEH
<ul style="list-style-type: none"> • The ODOP GeM Bazaar has been launched on the Government e-Marketplace (GeM) with over 200 product categories created on the platform to 	<ul style="list-style-type: none"> • State Export Promotion Committee (SEPC) and District Export Promotion Committee (DEPC) has been constituted in all the 36, States/UTs.

<p>promote sales and procurement of ODOP products across the country.</p> <ul style="list-style-type: none"> • ODOP products are showcased in various International forums such as World Economic Forum DAVOS, at International Yoga day in New York etc. • The ODOP initiative has been identified for the prestigious Prime Minister’s Award for Excellence in Public Administration in Holistic Development 	<ul style="list-style-type: none"> • Products/services with export potential have been identified in 734 Districts across the country. • State Export Strategy has been prepared in 28 States/UTs. • Draft District Action Plan has been prepared for 570 Districts. • A web portal to monitor the progress of District Export Action Plan in all the Districts has been developed by DGFT.
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Global Employment Scenario

- The International Labour Organisation (ILO) released two reports that gave an indication of the global employment scenario post-pandemic.
- The **first report** is 'Global Wage Report 2022-2023: The Impact of inflation and COVID-19 on wages and purchasing power'
- It discusses the twin crises, inflation and economic slowdown, which created a significant fall in real monthly wages around the globe. The report blames the war in Ukraine and the global energy crisis for this situation.
- The objective of the report is to collect wage data from as many countries and territories (about 190) which are then grouped into five separate regions
- The **second report** is, the 'Asia-Pacific Employment and Social Outlook 2022: Rethinking sectoral strategies for a human-centred future of work'.
- It stated that the Asia-Pacific region lost about 22 million jobs in 2022. The decrease in wages is placing millions of workers in a dire situation.
- Income inequality and poverty will rise if the purchasing power of the lowest paid is not maintained.

National Single Window System

- Five more states and union territories — Haryana, Andaman and Nicobar, Tripura, Jharkhand, and Arunachal Pradesh — joined the National Single Window System (NSWS) by 15 December. So far 16 states/UTs have already been on boarded.
- Invest India, under the guidance of DPIIT, manages the National Single Window System project.
- NSWS can be described as a one-stop platform for businessmen **seeking regulatory approvals and services** related to investments. The platform helps businesses in identifying and applying for required approvals to start or run their businesses.
- The system is aimed at reducing duplicity of information submission to different ministries, reduce compliance burden, cut gestation period of projects, and promote ease of starting and doing business.
- It enables the identification, applying and subsequent tracking of approvals for all integrated states and central departments.
- The system currently accepts applications for 248 **government-to-business** clearance and approvals from 26 central ministries and departments, including states.
- Over 44,000 approvals have been facilitated through NSWS and over 28,000 approvals are currently under process.

First Loss Default Guarantee

- Two months after the RBI issued guidelines on digital lending, banks, non-banking financial companies (NBFCs) and fintech players are still awaiting clarity on many aspects, including the First Loss Default Guarantee (FLDG) system and challenges that banks face while collaborating with fintechs.

- FLDG is a **lending model between a fintech and a regulated entity** in which a third party guarantees to compensate up to a certain percentage of default in a loan portfolio of the regulated entities (RE).
- Under FDLG, the fintech originates a loan and promises to compensate the partners up to a pre-decided percentage in case customers fail to repay.
- FDLG helps to expand the customer base of traditional lenders but relies on the fintech's underwriting capabilities.
 - Underwriting is the process through which an individual or institution takes on financial risk for a fee.

Startups Intellectual Property Protection (SIPP) Scheme

- The government has revised the scheme for facilitating Start-Ups Intellectual Property Protection (SIPP) to upgrade the professional charges of the facilitators. The facilitation fee has been increased by at least 100%.
- The scheme was launched in 2016 to **protect and promote Intellectual Property Rights (IPR)** of Startups and to **encourage innovation and creativity among them**.

Benefits for Startups

- Startups can avail patent, trademark, and design services by paying them only required statutory fees and professional fees are excluded.
- Startups can avail an array of services, including general advice, assistance in drafting applications, preparing and filing responses to examination reports, appearing at hearings, contest opposition and ensuring the final disposal of the IPR application.

Trading Platform for Coffee

- A **blockchain-enabled trading platform for coffee** that will help connect growers with roasters and traders directly, ensuring better realisations, is being developed.
- The Coffee Board is facilitating the setting up of the proposed trading platform which will also help address the traceability issue for the buyers.

Price Discovery

- Coffee growers, curers, traders and exporters can participate and trade online on the trading platform where the price discovery will happen.
- Currently, the **coffee trade is largely unorganised** and is not under the purview of the Agricultural Produce Market Committee (APMC) system.
- Though prices of Indian coffee reflect the broader trend in the New York and London terminals, the curing houses and traders fix the actual farm gate prices depending upon the locations and quality parameters.
- Once the trading platform is operationalised, growers can sell directly from their farm gates or can ship to an empanelled warehouse that will approve the quality parameters and then the trade will take place online.

Coffee Board

- The Coffee Board is a statutory organization constituted under the **Coffee Act, 1942** and functions under the administrative control of the **Ministry of Commerce and Industry**.
- The Board is mainly focusing its activities in the areas of research, extension, development, market intelligence, external & internal promotion and welfare measures.

Circular Trading

- The issue of circular trading in GST was recently discussed by the Goods and Services Tax (GST) Council.
- Circular trading refers to **fraudulently availing input tax credit by traders by issuing of invoices without an actual supply of goods or services**.
- In simple words, it refers to the transaction of selling and buying of goods (without actual movement of goods) through shell companies.

- The Central Board of Indirect Taxes and Customs (CBIC) has already issued a circular that **circular trading is not a case of tax evasion and so arrests should not be made**. However, detention in these cases continue.

Digital e-Rupee

- The RBI recently launched the central bank digital currency (CBDC), known as **digital Rupee-Retail (e₹-R)**, on a pilot basis.
- The pilot would initially cover four cities — Mumbai, New Delhi, Bengaluru and Bhubaneswar — and later extend to Ahmedabad, Gangtok, Guwahati, Hyderabad, Indore, Kochi, Lucknow, Patna and Shimla.
- Four banks will be involved in the controlled launch in these four cities: State Bank of India, ICICI Bank, Yes Bank, and IDFC First Bank.
- It would cover select locations in a closed user group (CUG), comprising participating customers and merchants.

Types of e-rupee

- Based on the usage and the functions performed by the digital rupee and considering the different levels of accessibility, RBI has demarcated the digital rupee into two broad categories — **retail and wholesale**.

Retail e-rupee	Wholesale e-rupee
<ul style="list-style-type: none"> • In effect, the retail e-rupee (e₹-R) will be an electronic version of cash, and would be in the form of a digital token. • It will be potentially available for use by all — the private sector, non-financial consumers and businesses. • The e₹-R is recognised as legal tender by the RBI, and thus has to be accepted by everyone in the country as a medium of exchange. • It will be issued in the same denominations as paper currency and coins, and will be distributed through intermediaries, i.e., banks. • It is, however, different from deposits held in a bank. Unlike deposits which earn interest, the digital rupees in the wallet will not earn any interest by the central bank. Deposits held in banks can be converted into digital rupees and vice-versa. • Users will be able to transact with e₹-R through a digital wallet offered by the participating banks. Transactions can be both <u>Person to Person (P2P) and Person to Merchant (P2M)</u>. • It offers features of physical cash like trust, safety and settlement finality. 	<ul style="list-style-type: none"> • The pilot in wholesale segment, known as the Digital Rupee - Wholesale (e₹-W), was launched in November, 2022. Its use case is limited to: <ul style="list-style-type: none"> • the settlement of secondary market transactions in government securities. • Use of (e₹-W), is expected to make the inter-bank market more efficient. • Settlement in central bank money would reduce transaction costs by pre-empting the need for settlement guarantee infrastructure or for collateral to reduce settlement risk.

Advantages of e-rupee

- It will help to **reduce operational costs** involved in physical cash management, encouraging financial inclusion, bringing resilience, efficiency and innovation in the payments system.
- The digital rupee could also play a crucial role in India's transition towards a **cashless society**.

BIND Scheme

- The Cabinet Committee on Economic Affairs (CCEA) has approved a **central sector scheme Broadcasting Infrastructure and Network Development (BIND)** up to 2025-26.
- A scheme of **Ministry of Information and Broadcasting**, BIND will focus on **infrastructure development of Prasar Bharati**, including All India Radio (AIR) and Doordarshan (DD).
- The scheme is the means for providing financial support to Prasar Bharati for expenses related to expansion and upgradation of its broadcasting infrastructure, content development and civil work related to the organisation.

- The Scheme will increase coverage of AIR FM transmitters in the country to 66% by geographical area and 80% by population up from 59% and 68% respectively.
- It also intends to freely distribute over 8 lakh DD Free Dish Set-Top Boxes (STBs) to people living in remote, tribal, Left Wing Extremist and border areas.

Prasar Bharati

- Headquartered in New Delhi, Prasar Bharati is India's **state-owned public broadcaster**. It is a statutory autonomous body set up by an Act of Parliament and comprises the **Doordarshan Television Network and Akashvani All India Radio**.
 - At present, Doordarshan operates 36 TV channels including 28 regional channels and All India Radio operates more than 500 broadcasting centres.
- As the public broadcaster of the country, it is the *most important vehicle of information, education, entertainment and engagement for the people* especially in the remote areas of the country through Doordarshan and All India Radio.
- It played a significant role in communicating public health messages and awareness to the public during the covid pandemic.

Utkarsh 2.0

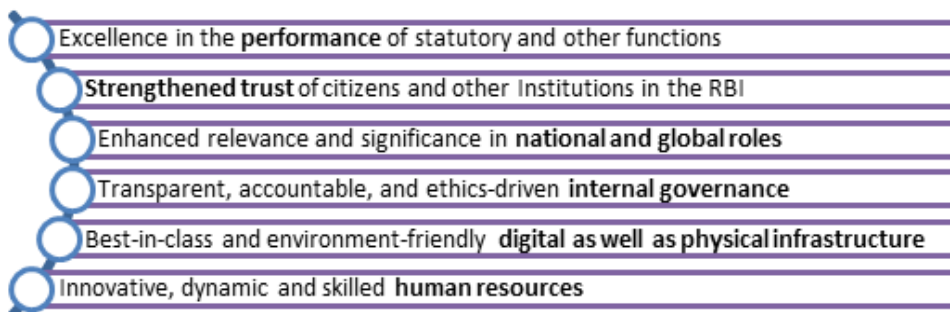
RBI recently launched Utkarsh 2.0, the second phase of the central bank's **medium-term strategy for strengthening regulatory and supervisory mechanism**.

Background

- In 2015, the RBI launched a **strategic management program** to provide a framework for all its future policies
- Under this, the first strategy framework titled Utkarsh 2022 was launched in **2019**, covering the **period from 2019-2022**.
- It became a medium-term strategy document guiding the Bank's progress towards realization of the identified milestones.

Utkarsh 2.0

- Utkarsh 2.0 harnesses the strengths of Utkarsh 2022 by retaining the **six Vision statements** as well as Core Purpose, Values, and Mission statement.
- The **6 Vision** in Utkarsh 2.0 that will guide the RBI over the period **2023-25** includes:



- Adoption of Artificial Intelligence (AI) and Machine Learning (ML) driven tools for data analysis and information creation will be an integral part of Utkarsh 2.0.
- The strategy framework will also make the Bank a listening oriented, transparent organization.
- Its core purpose is to foster monetary and financial stability
- It will enable the Bank to be in readiness not just to respond to the changing socio-economic environment, but also proactively anticipate and act.

Financial Stability Report

RBI in its latest Financial Stability Report (FSR) conducted macro stress tests, to assess the resilience of banks' balance sheets

- FSR is published biannually and **includes contributions from all the financial sector regulators**. It reflects the collective assessment of the Sub-Committee of the **Financial Stability and Development Council (FSDC)** on risks to financial stability

Macro Stress-testing

- It refers to a range of techniques used to assess the vulnerability of the banking system to **exceptional but plausible (probable) macroeconomic shocks**. Essentially, stress tests are meant to be “**what if**” exercises.
- There are **three scenarios** considered in the stress testing by the RBI which are:
- The baseline scenario assumes the continuation of the current economic situation in future.

Key Findings

- India's banks and non-bank lenders are in a position to withstand even the worst macro-economic stress originating from global spillovers.
- By September 2022, the gross non-performing assets (**GNPA**) ratio had slowly declined to 5% to a seven-year low.
- As of September 2022, the **net non-performing assets (NNPA)** ratio stood at a ten-year low of 1.3%, whereas private banks (PVBs') NNPA ratio was below 1%.

GNPA: It refers to the sum of all the loans that have been defaulted (not repaid within the ninety-day period) by the borrowers within the provided period.

NNPA: NNPA subtracts the **provisions** made by the bank from the GNPA. Therefore, net NPA gives the exact value of non-performing assets (NPA) after deducting provision for doubtful & unpaid debts from GNPA.

$$\text{NNPA} = \text{GNPA} - \text{Provisions}$$

NNPA constitute the actual loss experienced by the organization after debts have defaulted.

- Stress tests indicate that the GNPA ratio of **all banks** may improve from 5% in September 2022 to 4.9% by September 2023, under the baseline scenario.
- However, if the macroeconomic environment worsens to a **medium** or **severe stress scenario**, the GNPA ratio may rise to **5.8%** and **7.8%**, respectively.
- At the bank group level, under the severe stress scenario **GNPA ratios** of:
 - **Public sector banks** may rise from 6.5% in September 2022 to 9.4% in September 2023;
 - **Private sector banks** would go up from 3.3% to 5.8%; and
 - **Foreign banks** would increase from 2.5% to 4.1%.

Business Confidence Index

- The latest Business Confidence Index by the **Confederation of Indian Industry (CII)** for the October-December quarter rebounded to its highest reading in almost two years of 67.6 from 62.2 in the previous quarter.
- The index is based on the findings of a **survey of over 120 firms** of varying sizes and across all industry sectors and regions of the country.
- Despite tightening financial conditions & geopolitical tensions globally, around **73%** of the survey respondents expected only a moderate impact of the global slowdown on Indian economy.
- This reflects optimism around India being in a '**sweet spot**' despite rising global uncertainties.
- However, a majority (70%) of respondents feel that the Indian economy will expand in a range of 6.5-7.5% in the current financial year ending March, slower than the 8.7% recording last fiscal.
- Growth is expected to moderate further in the next year due to the global scenario. Hence, to support growth, it is critical that the RBI does not raise interest rates any further.

Ganga Vilas

- The world's longest river cruise, MV Ganga Vilas was recently flagged off from by the Prime Minister.
- While it will be managed by private operators, the **Inland Waterways Authority of India (IWAI), under the Ministry of Shipping, Ports and Waterways (MoPSW)**, has supported the project.
- Setting sail from **Varanasi**, the cruise ship, MV Ganga Vilas, will cover 3,200 km over **51 days**
- Besides connecting National Waterway 1 (NW-1) and NW-2, while crossing 27 river systems and several states, it will ending its journey at Dibrugarh in Assam
- The voyage is packed with visits to **50 tourist spots**, including World Heritage spots, national parks, river ghats, and major cities like Patna, Sahibganj, Kolkata, Guwahati and **Dhaka (Bangladesh)**.
- It will make pit-stops to cover the famous Ganga Arti in Varanasi, the Buddhist site of Sarnath, and even Majuli, the largest river island in Assam. The travellers will also visit the Bihar School Of Yoga and Vikramshila University.
- The cruise will traverse through the Sunderbans in the Bay of Bengal delta, as well as the Kaziranga National Park.

Ken-Betwa Link Project

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 2008, the Centre declared KBLP a **National Project**. Later, it was included as part of the Prime Minister's package for development of drought-prone Bundelkhand region.
- In 2009, it was decided that the DPR will be prepared in two phases. In 2018, a comprehensive DPR was prepared.
- In March, 2021, a memorandum of agreement was signed among the Ministry of Jal Shakti and the governments of Madhya Pradesh and Uttar Pradesh to implement KBLP.

Details of the Project

- The project has **two phases**, with mainly four components.
- **Phase-I** will involve one of the components — **Daudhan Dam complex** and its subsidiary units such as Low Level Tunnel, High Level Tunnel, Ken-Betwa Link Canal and power houses.
- **Phase-II** will involve three components — Lower Orr Dam, Bina Complex Project and Kotha Barrage.
- The total **cost** of KBLP has been assessed at **Rs.44,605 crore**. The Centre would fund Rs 39,317 crore for the project, with Rs 36,290 crore as a grant and Rs 3,027 crore as a loan.
- A Special Purpose Vehicle (SPV) called **Ken-Betwa Link Project Authority (KBLPA)** will be set up to implement the project.
- In fact, the Centre has initiated the process to create the **National Interlinking of Rivers Authority (NIRA)**.
- NIRA would be an independent autonomous body for planning, investigation, financing and implementation of the interlinking of river projects in the country. It will have powers to set up SPV for individual link projects.

Concerns

- Nearly 4000 hectares of forest land in the core tiger habitat of Panna Tiger Reserve will get submerged.
- This will impact the conservation of tigers, vultures and also impact the breeding pattern of gharials and other aquatic life.
- Large scale clearance of forest land, may **impact the local rainfall pattern**, which will further impact the wildlife habitat.

Hakku Patra

- The Prime Minister distributed Hakku Patra (land title deeds) to families of the Banjara (Lambani) community, a nomadic Scheduled Caste group, in the Kalaburagi district of Karnataka.
- A title deed is a **property ownership document**, and the bearer of the document owns the land.
- This formal recognition by the government will enable owners to **avail of bank loans**, make them eligible to buy or sell land to which the title deed is granted and receive government services like drinking water, electricity, roads etc.

Additional Tier 1 Bonds

The Bombay High Court cancelled the **write-off** of Additional Tier-1 (AT1) bonds worth Rs 8,400 crore issued by Yes Bank Ltd, bringing relief to investors.

Additional Tier 1 (AT1) Bonds

- AT1 bonds are **unsecured, perpetual bonds with no pre-determined maturity date** issued by financial institutions to fulfil their capital adequacy requirements.
- Though these bonds never mature, they are issued with a call option. The **call option** gives the issuers of AT1 bonds, usually banks, the right (but not an obligation) to buy these bonds back from investors by paying the principal amount to investors.
 - The issuer of such bonds may call or redeem the bonds if it is getting money at a cheaper rate, especially when interest rates are falling.
- Also, the holders of AT1 bonds **do not have a put option**, which means, investors cannot return these bonds to the issuing bank and get back the principal amount.
- Like other bonds, AT1 bonds pay a fixed rate of interest (slightly higher) at regular interval. However, **if banks face bankruptcy or capital shortage**, they can dismiss the principal amount and not pay interest.
- AT1 bonds can also be listed and traded on exchanges. So, if an AT1 bond holder needs money, he/she can sell it in the market.
- AT1 bonds are regulated by RBI. If the RBI feels that a bank needs to be rescued, it can ask the bank to cancel its outstanding AT-1 bonds without consulting its investors.

Capital Adequacy Ratio (CAR)

- CAR is the **ratio of a bank's capital in relation to its risk weighted assets and current liabilities**. In other words, it measures how much capital a bank has with it as a percentage of its total credit exposure (loans).
- It is also known as the Capital to Risk (Weighted) Assets Ratio (CRAR).
- **CAR = (Tier 1 capital + Tier 2 capital)/risk weighted assets**
 - Banks' regulatory capital is divided into Tier 1 and Tier 2
- Bank regulators enforce this ratio to ensure **credit discipline** in order to protect depositors and promote stability and efficiency in the financial system.
- CAR was formulated under the **Basel III accord** of 2009 after the global financial crisis of 2008.
 - Basel III is a set of financial reforms developed by the **Basel Committee on Banking Supervision (BCBS)**, to strengthen regulation, supervision, and risk management in the banking industry.
- As per Basel III, banks must maintain a capital adequacy ratio of at least 8%. However, in India, RBI norms mandate that India's public sector banks maintain a CAR of 12% and scheduled commercial banks should maintain a CAR of 9%.

First Advance Estimates

The **National Statistical Office, Ministry of Statistics and Programme Implementation (MoSPI)** released the First Advance Estimates (FAE) for the financial year 2022-23.

Calculation of FAE

- The FAE are derived by extrapolating the available data. **Extrapolation** is a process of estimating the values of a particular metric by assuming that existing trends will continue.
- The sector-wise estimates are obtained by extrapolating indicators like:
 - Index of Industrial Production (IIP) of first 7 months of the financial year.
 - Financial performance of listed companies in the private corporate sector available for Q1 and Q2 2022-23.
 - The 1st Advance Estimates of crop production.
 - Production estimates of Major Livestock Products for summer season of 2022-23;
 - Fish Production; Production/Consumption of Cement and Steel;
 - Net Tonne Kilometres and Passenger Kilometres for Railways;
 - Passenger and Cargo traffic handled by Civil Aviation;
 - Cargo traffic handled at Major Sea Ports;
 - Sales of Commercial Vehicles;
 - Bank Deposits & Credits
 - The accounts of central & state governments.

Open Market Sale Scheme

- The government approved a proposal for the sale of 30 Lakh Metric Tonnes of wheat under the Open Market Sale Scheme (OMSS).
- Wheat will be offered to the flour millers, and bulk buyers through e-auction.
- Wheat will also be offered to State governments and UTs for their schemes without e-auction.

OMSS

- Under the OMSS, the government allows state-run **Food Corporation of India (FCI)** to sell foodgrains, especially wheat and rice, at **pre-determined prices** in the **open market** from time to time to bulk consumers and private traders.
- The purpose is to dispose of surplus stocks of wheat and rice held by FCI, boost the supply during the lean season and moderate the general open market prices, especially in the deficit regions.
- The FCI conducts a **weekly e-auction** to conduct this scheme using NCDEX (National Commodity and Derivatives Exchange Limited).
 - NCDEX is a commodity exchange platform for trading in various agricultural and other commodities in India

India Adopts T+1 Settlement System

- India has transitioned to a market-wide Transaction+1 (T+1) settlement system for equities from the previous T+2 cycle.
 - This is aimed at bringing operational efficiency, faster fund remittances, share delivery, and ease for stock market investors.
- Until 2001, stock markets had a weekly settlement system. The markets then moved to a rolling settlement system of T+3, and then T+2 in 2003.

Reduce Number Of Outstanding Unsettled Trades	Reduce Systemic Risk
<ul style="list-style-type: none">• T+1 settlement cycle not only reduces the timeframe but also reduces and frees up capital required to collateralize that risk.• A shortened settlement cycle also reduces the number of outstanding unsettled trades at any point of time, and thus decreases the unsettled exposure to Clearing Corporation (CCP) by 50%.	<ul style="list-style-type: none">• Systemic risk depends on the number of outstanding trades and concentration of risk at critical institutions such as CCPs, and becomes critical when this magnitude of outstanding transactions increases.

<ul style="list-style-type: none"> The narrower the settlement cycle, the narrower is the time window for a counterparty insolvency/ bankruptcy to impact the settlement of a trade. 	<ul style="list-style-type: none"> Thus, in this era of increasing trade volumes, a shortened settlement cycle will help in reducing systemic risk.
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Additional Surveillance Mechanism

- The National Stock Exchange (NSE) has placed Adani Enterprises, Adani Ports, and Ambuja Cements under the additional surveillance mechanism (ASM).
- This means trading in their shares will require a **100% margin**, which is aimed at curbing speculation and short-selling.
- The move comes as shares of Adani group companies continue to fall in the light of accusations of stock manipulation and fraud levelled against the group by New York-based Hindenburg Research.
- ASM was introduced in 2018** with the intention to **protect investors from market volatility and unusual changes in share price**.
- The shortlisting of securities for placing in ASM is based on criteria that are jointly decided by the SEBI and exchanges.
- It covers the following **parameters**: high low variation, client concentration, market capitalisation, volume variation, delivery percentage, and number of unique PANs.
- Put simply, an ASM shortlisting signals to investors that the **stocks have seen unusual activity**.
- However, the shortlisting of securities under ASM is purely on account of market surveillance and it **should not be interpreted as an adverse action against the concerned company/entity**.

MSCI Index

- MSCI, or Morgan Stanley Capital International**, is a leading provider of critical decision support tools, including stock indexes, and services for the global investment community. It has over 160,000 indexes in its portfolio.
- At the core is its modern index strategy, which provides consistent treatment across all markets, followed globally by investors.
- MSCI has indexes for countries, regions, emerging markets, developed markets, small cap, all cap and even Islamic indexes.
- It selects stocks for its equity indexes that are easily traded and have high liquidity, with companies having high free float getting more weightage.
- It prefers stocks that have active investor participation and are without owner restrictions.

MSCI India Index

- The MSCI India Index is designed to measure the performance of the large and mid-cap segments of the Indian market. With 113 constituents, the index covers approximately 85% of the Indian equity market.
- Overall financial stocks have 24.74 per cent weightage and IT 15.72 per cent in the India index.
- The index is **reviewed quarterly** with the objective of reflecting change in the underlying equity markets in a timely manner, while limiting undue index turnover.

Significance

- MSCI indexes are widely tracked by foreign portfolio investors, hedge funds and other sovereign wealth funds which allocate funds to various markets like India depending on the overall weightage and direction given by these indexes.
- If India and its top listed companies get good weightage in MSCI indexes, foreign investors invest more funds on that basis and vice versa.

Short Selling

- **Buy low, sell high** is the traditional investment strategy in which one buys a stock or security at a particular price and then sells it when the price is higher, thereby booking a profit.
- This is referred to as a **long position**, and is based on the view that the price of the stock or security will appreciate with time.
- **Short selling, or shorting**, on the other hand, is a trading strategy based on the expectation that the price of the security will fall.
- While fundamentally it is based on the buy low, sell high approach, the **sequence of transactions is reversed in short selling — to sell high first and buy low later**.
- Also, in short selling, the trader usually does not own the securities he sells, but merely borrows them.
- In the stock market, traders usually short stocks by selling shares they have borrowed from others through brokerages.
- When the price of the shares falls to the expected levels, the trader would purchase the shares at the lower price and return them to the owner, booking a profit in the process.
- If, however, the price of the shares appreciates instead of falling, the trader will be forced to buy shares at a higher price to return to the owner, thereby booking a loss.

Follow-on Public Offer

- An FPO is a process through which companies that are **publicly listed** on the stock market, issue additional shares to investors.
- During an FPO, a company could decide to issue **fresh shares** to investors, or existing shareholders in the company could decide to sell their shares to other investors.
- An FPO is similar to an initial public offering (IPO), except that an IPO refers to the issuance or sale of shares by a company to investors when it taps into the public market for the **very first time**.
- In an IPO, the price is either fixed or variable as a range, while in an FPO the price is dependent upon the number of shares as they increase or decrease and is market-driven
- FPOs can also be a way for existing shareholders to sell their shares and exit the company.
 - It also provides an opportunity for existing shareholders to increase their stake in the company.
 - FPOs are used by companies to diversify their equity base and raise capital for their business. This capital can be used for a variety of purposes such as general corporate expenses, working capital, expansion, and debt reduction.
 - FPOs are typically offered at a **discount** to the current market price of the shares, which can make them more attractive to retail investors. This allows them to participate in the potential upside of the company's performance.
 - Additionally, FPOs come with the advantage of more information being available about the company, as it has already been listed on the exchange and has a track record of performance.
 - This allows investors to make more informed decisions about investing in the company.

Types of FPOs

Diluted FPO	Non-Diluted FPO
<ul style="list-style-type: none"> • In diluted FPO, the new offer of shares increases the outstanding shares of the company. • A new set of shares are issued to the public through diluted FPO to raise the <u>capital for</u> 	<ul style="list-style-type: none"> • Non-diluted FPOs are issued when <u>existing shareholders of the company sell their stocks to the public</u>. Non-Diluted FPOs are also known as secondary market offerings. • Non-Diluted FPOs do not benefit the company in terms of raising more capital as these are

funding new projects, and activities or for paying debts.

generally issued to change the shareholding ownership pattern.

Social Stock Exchange

The National Stock Exchange (NSE) has received final approval from the Securities and Exchange Board of India (Sebi) to set up a Social Stock Exchange (SSE) as a separate segment of the NSE

About Social Stock Exchange

- SSE is a novel idea in India, and a stock exchange of this kind is intended to benefit **the private and non-profit sectors** by directing more capital to them.
- The SSE will function as a distinct division of the **current stock exchanges** under the new regulations.

Who Can List on SSE?

- **Not-for-profit organizations** (NPOs) and for-profit social enterprises with social intent and impact as their primary goal will be eligible to participate in the SSE.
- The social enterprises will have to engage in a social activity out of 16 broad activities listed by the regulator. The eligible activities include-
 - Eradicating hunger poverty, malnutrition and inequality
 - Promoting healthcare, supporting education, employability and livelihoods
 - Gender equality empowerment of women LGBTQIA communities.
 - Supporting incubators of social enterprise.
- **Corporate foundations**, political or **religious organizations or activities**, professional or trade associations, infrastructure companies, and housing companies, except affordable housing, **will not be eligible** to be identified as social enterprises.
- According to Sebi's framework, a **minimum issue size of ₹1 crore** and a minimum application size for the subscription of ₹2 lakh are currently required for SSE.

Trademark Infringement

The Delhi High Court dismissed a case of trademark infringement brought up by the global fast food chain **Subway**, against a Delhi based restaurant - **Suberb**.

Trademark

- It is a **symbol, design, word or phrase that is identified with a business**. When a trademark is registered, its owner can claim **"exclusive rights" on its use**.
- **The Trademark Act, 1999**, governs the regime on trademark and its registration.
- The Act guarantees protection for a trademark that is registered with the **Controller General of Patents, Designs, and Trademarks**, also known as the trademark registry.
- A trademark is **valid for 10 years**, and can be **renewed by the owner indefinitely** every 10 years.

Types of Intellectual Property (IP): Copyright, Patents, **Trademarks**, Industrial designs, Geographical indications (GI) and Trade secrets.

IP Rights In India Are Governed Under

- The Trade Marks Act 1999,
- The Patents Act 1970 (amended in 2005),
- The Copyright Act 1957,
- The Designs Act 2000,
- The GI of Goods (Registration and Protection) Act 1999, etc.

Ways Of Trademark Infringement

- **Deceptive Similarity:** A mark is considered deceptively similar to another mark if it nearly resembles that other mark, confusing the consumer in the process. Such deception can be caused phonetically, structurally or visually.
- **Passing off:** For example, if a brand logo is **misspelt in a way that's not easy for the consumer to recognize**.
- In such cases, the infringing products need not be identical — but similarity in the nature, character, and performance of the goods of the rival traders has to be established. (Cadila Healthcare Limited vs Cadila Pharmaceuticals Limited, 2001).
- Essentially, for a claim of 'passing off', some form of deception, misrepresentation, or harm to goodwill and reputation to the owner of a mark has to be established.
- As per the Supreme Court, passing off is an unfair trade practice that attempts to obtain an economic benefit of the reputation which other has established for himself in a particular trade or business.

National Financial Reporting Authority

- In a first-of-its-kind move aimed at **improving audit quality**, the National Financial Reporting Authority (NFRA) has published draft requirements regarding preparation and publication of **Annual Transparency Report (ATR)** by auditors/audit firms.
- The effort is aimed at enhancing the transparency about management and governance of **audit firms** and their internal policy framework to ensure high quality audits and preventing conflict of interest by maintaining independence.
- The reports will also cover the details about the revenues of the statutory auditor and its network firm for the current and previous years.

NFRA

- The NFRA was constituted in **2018**, by the Union Government under the **Companies Act, 2013**. It is an audit regulator.
- **Functions**
 - Recommend accounting and auditing policies and standards to be adopted by companies for approval by the Central Government;
 - Monitor and enforce compliance with accounting standards and auditing standards;
 - Oversee the quality of service of the professions associated with ensuring compliance with such standards and suggest measures for improvement in the quality of service;

Pension Eligibility For Adopted Child

- The Supreme Court recently ruled that a child adopted by the widow of a government servant is not qualified to get the family pension under the Central Civil Services (Pension) Rules.
 - However, it clarified that a child born to the wife of the deceased government servant after his death is entitled to it.
- The definition of the term 'family' cannot be extended to include those persons who were not even dependents of the government servant, **at the time of his death**.
- The bench said that the word "adoption" in Rule 54(14)(b)(ii) of the CCS (Pension) Rules, must be restricted to an adoption made by a government servant during his/her lifetime.
 - And it must not be extended to a case of adoption made by a surviving spouse of the government servant after his/her death.

Transfer Pricing

- Pricing Transfer pricing refers to prices of transactions or transfer of goods, services and technology between related enterprises or between unrelated parties but controlled by a common entity.
- Companies use transfer pricing to reduce the overall tax burden of the parent company. The effect of transfer pricing is that the parent company tends to produce insufficient taxable income or excessive loss on a transaction.

Angel Tax

The **Finance Bill 2023** has **proposed some changes** that will **remove the exemption for foreign funds and non-resident investors, who will now have to pay Angel Tax** on the difference between capital raised and the fair value of securities sold.

About Angel Tax

- It is levied on the capital raised via the issue of shares by unlisted companies from an Indian investor if the share price of issued shares is seen more than the fair market value of the company.
- The excess funds raised at prices above fair value are treated as income, on which tax is levied.
- It derives its genesis from section 56(2)(viib) of the Income Tax Act, 1961.
- It was introduced in 2012 to prevent black money laundering, it is levied at a rate of 30.9% on net investments more than the fair market value.
- In 2019, the Government announced an exemption from the Angel Tax for startups on fulfillment 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.
 - For angel investors, the amount of investment that exceeds the fair market value can be claimed for a 100% tax exemption. However, the investor must have a net worth of ₹2 crores or an income of more than ₹25 Lakh in the past 3 fiscal years.

Eligibility Criteria for Startup Recognition:

- The Start-up should be incorporated as a private limited company or registered as a partnership firm or a limited liability partnership.
- Turnover should be less than INR 100 Crores in any of the previous fiscal years.
- An entity shall be considered a Start-up up to 10 years from the date of its incorporation.
- The Start-up should be working towards innovation/ improvement of existing products, services, and processes and should have the potential to generate employment/ create wealth.
- An entity formed by splitting up or reconstruction of an existing business shall not be considered a "Startup".

Private Placement Of Bonds?

State-owned hydropower giant National Hydroelectric Power Corporation Ltd (NHPC) recently raised Rs 996 crore through the issuance of non-convertible bonds on private placement basis.

What is Private Placement of Bonds?

- A private placement is a sale of bonds to select investors and institutions instead of the open market.

- Typically, a private placement is defined as **an issuance of securities to less than 50 persons**.
- **Investors** in privately placed bonds **usually include wealthy individuals** and entities, **mutual fund providers, insurance companies**, and banking and **financial institutions**.
- Unlike a public offering, **private placements are exempt from having to file an offer document with SEBI** for comments.
- **Advantages:**
 - It is a **cost and time-effective** method of raising funds.
 - It can be **structured to meet the needs of entrepreneurs and investors**.
 - It has **easier compliance formalities**.
 - In India, most **corporate fund raises have been through private placement**.
- Issue of securities through **private placement** route is **governed by SEBI (Issue and Listing of Debt Securities) Regulations, 2008**.

What are Non-convertible Bonds?

- It is a **financial instrument issued by Corporates** for specified tenure to **raise resources/funds** through public issue or private placement.
- It is a **fixed-income instrument and cannot be converted into equity shares or stocks, hence called non-convertible**.
- **Interest** can be **earned monthly/quarterly / annually / cumulative**, and **on maturity principal amount is paid to the bondholder**.

GST Appellate Tribunal (GSTAT)

The Goods and Services Tax (GST) Council recently accepted the Group of Ministers' (GoM) recommendations on long pending constitution of GST appellate tribunal in the country

About GST Appellate Tribunal (GSTAT)

- The **Central Goods and Service Tax Act, 2017 (CGST Act) in Section 109** mandates the constitution of a **GSTAT and its Benches**.
- The GSTAT will be the **specialized appellate authority for resolving disputes** under the **GST laws**.
- **Composition:**
 - The GST Tribunal will have **one principal bench in New Delhi** and as many **benches or boards in states as decided by each state**, subject to approval of the council.
 - **North-eastern states could opt for one bench for 2-3 states** and an **additional bench for very far-flung areas**.
 - The principal bench and state boards would have **two technical and two judicial members each, with equal representation from the Centre and states**.
 - **All four members would not sit for hearing each case**. It depends on the threshold or value of dues involved.

PM KUSUM Extended

The government has extended the **Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM)** scheme, till March 2026.

PM KUSUM

- The PM KUSUM scheme was launched by **Ministry of New and Renewable Energy (MNRE) in 2019**, to add solar capacity of **30,800 MW by 2022**

- **State Nodal Agencies (SNAs)** of MNRE coordinate with States/UTs, discoms and farmers for implementation of the scheme.

Objectives

- The scheme **aims** to boost solar capacity to provide **energy security to Indian farmers**. At the same time, it aims to achieve the aim by **increasing India's share of solar power generation**.
- It also aims at **de-dieselization** of the farm sector, providing water and energy security to farmers, increasing the income of farmers and curbing environmental pollution.

Scheme Components

- **Component A:** It focuses on the installation of **10,000 MW of solar capacity by setting up small power plants** of capacity of 2 MW. These power plants will be set up by farmers, panchayats, cooperatives, farmer producers etc. in barren land.
- **Procurement Based Incentive (PBI)** will be provided for the first five years by MNRE to DISCOMs, for buying the power from farmers/developers.
- **Component B:** It lays emphasis on the installation of **20 lakh standalone solar-powered agriculture pumps (off grid)**. The government will support individual farmers in setting up solar pumps of a capacity up to 7.5 Horse Power (HP).
- **Component C:** Solarisation (conversion) of 15 lakh grid-connected agriculture pumps.

Central Finance Assistance (CFA) for Component B & C

- CFA of 30% of the benchmark cost or the tender cost, whichever is lower; State Government subsidy 30%; Remaining 40% by the farmer
- In North Eastern States, Sikkim, J&K, Himachal, Uttarakhand, Lakshadweep and A&N Islands, CFA of 50%, State Government subsidy 30%, Remaining 20% by the farmer.

South India's 1st Industrial Corridor Project

- The Prime Minister laid the foundation stone of **South India's 1st Industrial Corridor Project** to be implemented at Tumakuru which is spread over 8500 acre of land under the **Chennai Bengaluru Industrial Corridor (CBIC)**.
- The CBIC project includes the development of industrial townships at three nodes: **Krishnapatnam (Andhra Pradesh), Tumakuru (Karnataka), and Ponneri (Tamil Nadu)**.
- The Multi Modal connectivity ecosystem will ensure a **seamless movement of raw material and finished goods**.
- Target sectors are Food Products, Textile and Apparels, Electronics, Auto & Auto Components, Pharmaceuticals, Chemicals, Engineering, General Manufacturing etc.

Startup India Seed Fund Scheme

- The **Ministry of Commerce and Industry** has shared that under Startup India Seed Fund Scheme (SISFS), 477.25 crore has been approved to 133 incubators of which Rs. 211.63 crore has been disbursed as on 31st December 2022.
- The flagship schemes under **Startup India initiative** namely, *Fund of Funds for Startups (FFS)*, *Startup India Seed Fund Scheme (SISFS)* and *Credit Guarantee Scheme for Startups (CGSS)* extend support to startups at various stages of their business cycle.

Need For SISFS

- Easy availability of capital is essential for entrepreneurs at the **early stages** of growth of an enterprise.

- However, funding is generally available to startups only after the proof of concept has been provided. At the same, it is difficult for early-stage startups to get loans from banks.

Objective of SISFS

- SISFS provides **financial assistance** to startups for proof of concept, prototype development, product trials, market entry and commercialization.
- This would enable these startups to rise to a level where they will be able to raise investments or seek loans from commercial banks or financial institutions.

Details of SISFS

- Launched in January 2021, SISFS was approved with a corpus of **Rs. 945 crore for the period of 4 years**.
- An **Experts Advisory Committee (EAC)** has been created by DPIIT (Department for Promotion of Industry and Internal Trade) to execute and monitor SISFS.
- The EAC **evaluates and selects incubators** for allotment of funds, monitors progress, and takes all necessary measures for efficient utilization of funds.

Incubators and Seed Funding

- Business **incubators** are institutions that support entrepreneurs in developing their businesses, especially in initial stages.
- **Seed funding** is the earliest stage of investment in a business.

Eligibility

- A startup, recognized by DPIIT, incorporated not more than 2 years ago at the time of application.
- Startups should not have received more than Rs. 10 lakhs of monetary support under any other Central or State Government scheme.

Funding Provisions

- The Seed Fund is disbursed to eligible startups through eligible incubators across India.
- Grants of up to **Rs 5 Crores** is provided to the eligible incubators selected by the EAC.
- The selected incubators provide grants of up to **Rs 20 lakhs** for validation of Proof of Concept, or prototype development, or product trials to startups.
- Furthermore, investments of up to **Rs 50 lakhs** are provided to the startups for market entry and commercialization.

Sagar Parikrama

- Sagar Parikrama Phase III was launched from Hazira Port, Surat, by the **Ministry of Fisheries, Animal Husbandry, and Dairying**.
- After Surat, the 720 km journey proceeds towards the coastal line of Maharashtra at Satpati, Vasai, Versova, and will end at Sasson Dock, Mumbai.
- Phase I and Phase II of Sagar Parikrama were organized in Gujarat in March 2022 and September 2022 respectively.
- It is an evolutionary journey conceived in the sea across the coastal belt demonstrating solidarity with all fisherfolk, fish farmers and concerned stakeholders in the spirit of Aatmanirbhar Bharat.
- Sagar Parikrama program shall be celebrated in all coastal States/UTs through a pre-decided sea route from Gujarat, Diu, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha, West Bengal, Andaman & Nicobar, and Lakshadweep Islands
- The main **objectives** of Sagar Parikrama are:

- Facilitate **interaction** with fishermen, coastal communities and stakeholders to share information of various fisheries related schemes and programs being implemented by the government.
- Promote responsible fisheries with focus on sustainable balance between the utilization of marine fisheries resources for food security of nation and livelihoods of coastal fisher communities; and
- Protection of marine ecosystems.
- In addition to raising awareness, Sagar Parikrama has also made significant contributions to **oceanographic research**.
- During the first circumnavigation, the sailors collected valuable data on ocean currents, weather patterns, and marine life.
- Sagar Parikrama continues to inspire and educate people around the world about the importance of ocean conservation.

Khanan Prahari App

- The government has launched a mobile app **Khanan Prahari** and a web app **Coal Mine Surveillance and Management System (CMSMS)** for reporting unauthorized coal mining activities.
- Khanan Prahari app is part of (CMSMS).
- The basic objective of CMSMS is reporting, monitoring and taking suitable action on unauthorized coal mining activities like rat hole mining, pilferage etc.
- It is a web-based **Geographic Information System (GIS)** application through which location of sites for unauthorised mining can be detected.
- There are two ways in which illegal coal mining is reported/ identified through CMSMS.
 - One way is through **periodic scanning of Satellite imagery** (In house) and the second is through the information provided by responsible citizens using the mobile application 'Khan Prahari'.
- The basic platform used in the system is of Ministry of Electronics & Information Technology's (MeiTY) map which provides village level information.

Millet International Initiative for Research and Awareness (MIIRA)

- During its G20 Presidency, India proposed to the launch of a global initiative (MIIRA) to encourage the consumption and production of millets.
- MIIRA will aim to connect the millet research organisations across the world while also supporting research on millet crops.
- It is in line with the **UN declaring 2023 as the International Year of Millets** and the Centre's plan to make India a global hub for millets.
- For MIIRA to take off, India will contribute the "**seed money**" while each G20 member will later have to contribute to its budget in the form of a membership fee.
- The MIIRA secretariat will be in Delhi. With India being a major producer of millets, this will ensure a flow of investment from the country's industry and research bodies.

- India's **top five millet producing states** are Rajasthan, Maharashtra, Karnataka, Gujarat and Madhya Pradesh.
- Share of export of millets is nearly 1% of the total millet production. However, it is estimated that the millets market is set to grow from its current market value of more than USD 9 billion to over USD 12 billion by 2025.
- **India's major millet exporting countries** are U.A.E, Nepal, Saudi Arabia, Libya, Oman, Egypt, Tunisia, Yemen, U.K and U.S.A. The varieties of millets exported by India include Bajra, Ragi, Canary, Jawar, and Buckwheat.

- The **major millet importing countries:** Indonesia, Belgium, Japan, Germany, Mexico, Italy, U.S.A, United Kingdom, Brazil and Netherlands.

Broadband Definition Updated

- The Telecom Regulatory Authority of India (TRAI) has revised the minimum download speed for broadband connectivity to 2 Mbps (Megabits per second) from 512 kbps.
- As per TRAI's **definition**, Broadband is a **data connection** that is able to support interactive services including Internet access and has the capability of minimum download speed of **2 Mbps** to an individual subscriber from the **point of presence (POP)** of the service provider intending to provide Broadband service.
- While broadband is generally understood to mean home WiFi connections, government statistics include *faster mobile internet connections in the category*. Thus, **wired broadband and wireless broadband will both be subject to this 2Mbps limit.**
- TRAI also recommended that broadband should be categorised in **three segments: basic, high-speed and ultra high-speed.**
- Basic broadband services should offer at least 2Mbps to 30Mbps download speeds while high-speed plans should offer anywhere between 10Mbps to 100Mbps download speeds.
- Ultra-high speed broadband connection should provide 100Mbps to 1Gbps speeds

Current Status in India

- By the previous definition, there were 825.38 million broadband users in India in November 2022.
- According to a 2021 report by Ookla, around 97.5% of Indian broadband subscribers meet the 2Mbps threshold.
- The median **wired broadband speed** in India is over 75Mbps, and for **wireless broadband (mobile)** it is over 36Mbps. As 5G coverage on networks expands, these numbers are likely to go up.
- A typical broadband plan provided by a telecom operator promises speeds between 40 Mbps and 1 Gbps.

Steel Industry

- India has become the **2nd largest consumer of finished steel in the world.** The finished steel consumption was **106 million tons (MT)** during the FY22.
- The per capita steel consumption in the World is around 233 kg. However, the **per capita consumption of steel in India is around 77.2 kg**, gone up by 50% in last 8 years,
- Steel is a **deregulated sector** and Government's role is that of a facilitator for encouraging steel consumption in the country.
- Ministry of Steel has also set up a Joint Working Group (JWG) with Ministry of Housing & Urban Affairs (MoHUA) having members from Bureau of Indian Standards (BIS), Central Public Works Department (CPWD), Technical Institutions (IITs/NITs) & Industries for encouraging steel usage in Housing and Construction sector.

Gross Domestic Expenditure on R&D (GERD)

- India's R&D expenditure-GDP ratio of 0.7% is very low when compared to major economies and is much below the world average of 1.8%.
- The main reason is the low investment in R&D by the corporate sector. While the corporate sector accounts for about **two-thirds** of gross domestic expenditure on R&D (GERD) in leading economies, its share in India is just 37%.

Issues With The Current System

- The National Science and Technology Management Information System (NSTMIS) of the DST is the agency that compiles GERD statistics in India.
- It is easier to gather the information on R&D by the government sector, the higher education sector and public sector enterprises.
- The challenge lies in collecting data from the private corporate sector.

UPNEXT India

- The **first edition of UPNEXT India** was inaugurated in the presence of international buyers and exhibitors.
- UPNEXT India is **organized by Apparel Export Promotion Council (AEPC) and supported by the Ministry of Commerce and Industry under the Market Access Initiative (MAI) Scheme.**
- This initiative is in the form of a series of Reverse Buyer Seller meet and has been kick-started with Japan.
- The objective of the **Reverse Buyer Seller** meet is to provide an opportunity to prospective importers(buyers) to interact with Indian counterparts(sellers) about the requirements and to increase the potential of exports of Indian textile products

Market Access Initiative (MAI) Scheme

- MAI is an **Export Promotion Scheme** designed to act as a catalyst to promote India's exports on a sustained basis.
- It is formulated on **focus product-focus country approach**. This helps to evolve specific market and specific product through market studies/survey.
- Under it, assistance is provided to Export Promotion Organizations, Trade Promotion Organizations, National Level Institutions, Research Institutions, Universities, Laboratories, Exporters etc.
- The assistance helps in enhancement of exports through accessing new markets or through increasing the share in the existing markets.

Apparel Export Promotion Council (AEPC)

Incorporated in **1978**, AEPC is the official body of apparel exporters in India that provides assistance to Indian exporters as well as importers/international buyers who choose India as their preferred sourcing destination for garments.

THE UNION BUDGET 2023-24 SUMMARY

The Finance Minister of India called it the **first Budget in Amrit Kaal**. The vision for the Amrit Kaal is an empowered and inclusive economy that is technology-driven and knowledge-based with a robust financial sector.

The Budget is divided into two parts:

Part A

• Deals With Various Developmental Initiatives Across Different Sectors Of Economy.

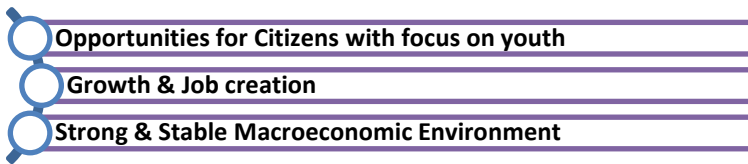
Part B

• Deals With Taxation, Both Direct And Indirect

Part A

Amrit Kaal (Period of 25 Years (2023-2047))

The Vision for 'Amrit Kaal' articulated in the Union Budget for FY 2023-24 is centered around:



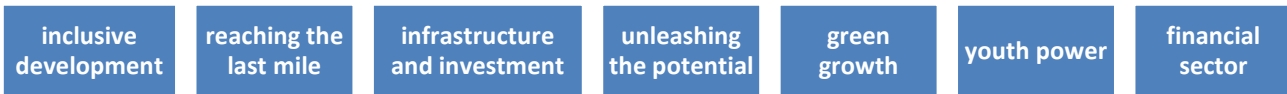
Achievements since 2014: Leaving no one behind

In the 75th year of India's Independence, the World has recognized the Indian Economy as a 'bright star' as the Economic Growth is estimated at 7%, which is the highest among all major economies, in spite of the massive global slowdown caused by COVID-19 and Russia-Ukraine War. The following achievements took place in the Indian economy:

- The Indian economy has increased in size from **being 10th to 5th largest in the world** in the past 9 years.
- **Per capita income** has more than doubled to ₹1.97 lakh in around nine years.

Saptarishi

The Budget listed **seven priorities** of the Union Budget and said that they complement each other and act as the 'Saptarishi' guiding us through the Amrit Kaal. They are as follows:



Budget w.r.t. Inclusive development (Social Justice) and the last mile connectivity

Last Mile connectivity (Inclusive Growth)

- Investment of Rs. 75,000 crore, including Rs. 15,000 crore from private sources, for one hundred critical transport infrastructure projects, for last and first mile connectivity for ports, coal, steel, fertilizer, and food grains sectors.
- **Aspirational Blocks Programme** covering 500 blocks launched for saturation of essential government services across multiple domains such as *health, nutrition, education, agriculture, water resources, financial inclusion, skill development, and basic infrastructure*.
- **PM Garib Kalyan Anna Yojana (PMGKAY)** Scheme to supply free food grain to all Antyodaya and priority households has been extended for the next one year (from 1st January 2023). The entire expenditure of about Rs 2 lakh crore will be borne by the Central Government.

Women

- To commemorate Azadi Ka Amrit Mahotsav, a one-time new small savings scheme, **Mahila Samman Savings Certificate** to be launched.
 - It will offer deposit facility **upto Rs 2 lakh** in the name of women or girls for tenure of 2 years (up to March 2025) at fixed interest rate of 7.5% with partial withdrawal option.

Elderly

- The maximum deposit limit for **Senior Citizen Savings Scheme** to be enhanced from Rs 15 lakh to Rs 30 lakh.

Tribals

- Rs. 15,000 crore for implementation of **Pradhan Mantri PVTG Development Mission** over the next 3 years under the Development Action Plan for the Scheduled Tribes.
- Centre to recruit 38,800 teachers and support staff for the 740 **Eklavya Model Residential Schools**, serving 3.5 lakh tribal students over the next three years.

Health	Education
1) Sickle Cell Anaemia elimination mission to be launched.	1) District Institutes of Education and Training to be developed as vibrant <i>institutes of excellence for Teachers' Training</i> . 2) A National Digital Library for Children and Adolescents to be set-up for facilitating availability of quality books across geographies, languages, genres and levels, and device agnostic accessibility.
Governance <ul style="list-style-type: none"> • Phase-3 of the E-Courts project to be launched for efficient administration of justice. • Jan Vishwas Bill to amend 42 Central Acts has been introduced to further trust-based governance. • National Data Governance Policy to be brought out to unleash innovation and research by start-ups and academia. • <i>One stop solution for reconciliation and updation of identity and address</i> of individuals to be established using DigiLocker service and Aadhaar as foundational identity. • iGOT Karmayogi, an integrated online training platform, launched to provide continuous learning opportunities for lakhs of government employees to upgrade their skills and facilitate people-centric approach. 	

The Budget w.r.t. Infrastructure and Investment

- Rs. 10 lakh crore **capital investment**, a steep increase of 33% for third year in a row, to enhance growth potential and job creation, *crowd-in private investments*, and provide a cushion against global headwinds.
- **New Infrastructure Finance Secretariat** established to *enhance opportunities for private investment in infrastructure*.
- **Urban Infrastructure Development Fund (UIDF)** will be established through use of *Priority Sector Lending shortfall*, which will be managed by the **National Housing Bank**, and will be used by public agencies to create urban infrastructure in Tier 2 and Tier 3 cities.

The Budget w.r.t. Finance

- **National Financial Information Registry** to be set up to serve as the *central repository of financial and ancillary information for facilitating efficient flow of credit*, promoting financial inclusion, and fostering financial stability. A new legislative framework to be designed in consultation with RBI to govern this **credit public infrastructure**.
- **Integrated IT portal** to be established to enable investors to *easily reclaim the unclaimed shares and unpaid dividends* from the **Investor Education and Protection Fund Authority**.
- **Central Processing Centre** to be set up for faster response to companies through centralized handling of various forms filed with field offices under the Companies Act.
- **SEBI** to be empowered to develop, regulate, maintain and enforce norms and standards *for education in the National Institute of Securities Markets* and to recognize award of degrees, diplomas and certificates.

GIFT IFSC

Period of tax benefits to funds relocating to **IFSC, GIFT City** *extended till 31.03.2025*. To enhance business activities in GIFT IFSC, the following measures are to be taken.

- Delegating powers under the SEZ Act to **IFSCA (International Financial Services Centres Authority)** to avoid dual regulation.
- Setting up a *single window IT system for registration and approval* from IFSCA, SEZ authorities, GSTN, RBI, SEBI and IRDAI.
- Establishing a subsidiary of EXIM Bank for trade refinancing.
- Amending IFSCA Act for statutory provisions for arbitration, ancillary services, and avoiding dual regulation under SEZ Act
- Countries looking for digital continuity solutions would be facilitated for setting up of their **Data Embassies** in GIFT IFSC.

The Budget w.r.t. Green Growth and Environment

- 500 new 'waste to wealth' plants under **GOBARdhan (Galvanizing Organic Bio-Agro Resources Dhan)** scheme to be established for promoting **circular economy**
- **Green Credit Programme** to be notified under the **Environment (Protection) Act** to incentivize and mobilize additional resources for environmentally sustainable and responsive actions.
- Annual production of **5 MMT under Green Hydrogen Mission** to be targeted by **2030** to facilitate transition of the economy to low carbon intensity and to reduce dependence on fossil fuel imports.
- Centre to facilitate one crore farmers to adopt natural farming over the next three years. For this, **10,000 Bio-Input Resource Centres** to be set-up, creating a national-level distributed micro-fertilizer and pesticide manufacturing network.

The Budget w.r.t. Youth Power (Employment and Skill Development) and Utilisation of Emerging Potential

- **Pradhan Mantri Kaushal Vikas Yojana 4.0**, to be launched to skill lakhs of youth within the next three years covering new age courses for Industry 4.0 like coding, AI, robotics, mechatronics, IOT, 3D printing, drones, and soft skills.
- A unified **Skill India Digital platform** to be launched for enabling demand-based formal skilling, linking with employers including MSMEs, and facilitating access to entrepreneurship schemes.
- **Direct Benefit Transfer** under a pan-India **National Apprenticeship Promotion Scheme** to be rolled out to provide stipend support to 47 lakh youth in three years.

The Budget w.r.t. Occupational Structure (Agriculture, Manufacturing and Services)

Agriculture

- **Atmanirbhar Clean Plant Program** with an outlay of ₹2200 crore to be launched to boost availability of disease-free, quality planting material for high value horticultural crops.
- **Agriculture Accelerator Fund** to be set-up to encourage agri-startups by young entrepreneurs in rural areas.
- To make India a global hub for 'Shree Anna', the Indian Institute of Millet Research, Hyderabad will be supported as the Centre of Excellence for sharing best practices, research and technologies at the international level.
- Digital public infrastructure for agriculture to be built as an open source, open standard and interoperable public good to enable inclusive farmer centric solutions and support for growth of agri-tech industry and start-ups.

- **Computerisation of 63,000 Primary Agricultural Credit Societies (PACS)**
- States are encouraged to set up a **Unity Mall** for promotion and sale of their own and also all other states' *ODOPs (One District, One Product), GI products and handicrafts.*

Manufacturing/Industry/MSME

- **Entity DigiLocker** to be set up for use by MSMEs, large business and charitable trusts to store and share documents online securely.
- **Revamped Credit guarantee scheme** for MSMEs to take effect from 1st April 2023 through infusion of Rs 9,000 crore in the corpus. This scheme would enable additional collateral-free guaranteed credit of Rs 2 lakh crore and also reduce the cost of the credit by about 1 percent.

The Budget w.r.t. Culture

- **Bharat Shared Repository of Inscriptions (Bharat SHRI)** to be set up in a digital epigraphy museum, with digitization of one lakh ancient inscriptions in the first stage.

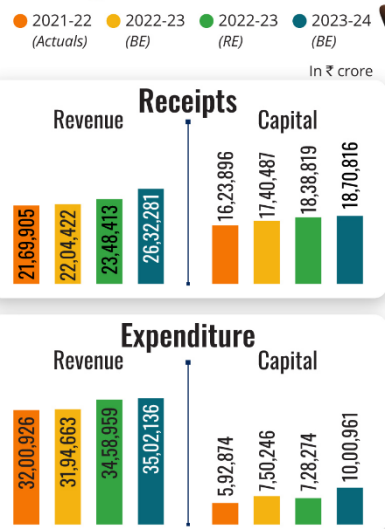
Part B

FISCAL MANAGEMENT (Revenue & Expenditure)

Key Numbers

In ₹ crore	2021-22 (Actuals)	2022-23 (Budget Estimates)	2022-23 (Revised Estimates)	2023-24 (Budget Estimates)
Revenue Receipts	21,69,905	22,04,422	23,48,413	26,32,281
Capital Receipts	16,23,896	17,40,487	18,38,819	1,870,816
Total Receipts	37,93,801	39,44,909	41,87,232	45,03,097
Total Expenditure	37,93,801	39,44,909	41,87,232	45,03,097
Revenue Deficit	10,31,021	9,90,241	11,10,546	8,69,855
Effective Revenue Deficit	7,88,375	6,72,598	7,84,958	4,99,867
Fiscal Deficit	15,84,521	16,61,196	17,55,319	17,86,816
Primary Deficit	7,79,022	7,20,545	8,14,668	7,06,845

Budget at a Glance



Revised Estimates 2022-23	Budget Estimates 2023-24
1) The <u>total receipts other than borrowings</u> is Rs 24.3 lakh crore, of which the <u>net tax receipts</u> are Rs 20.9 lakh crore.	1) The total receipts other than borrowings is estimated at Rs 27.2 lakh crore and the total expenditure is estimated at Rs 45 lakh crore .
2) The total expenditure is Rs 41.9 lakh crore, of which the capital expenditure is about Rs 7.3 lakh crore.	2) The net tax receipts are estimated at Rs 23.3 lakh crore.
3) The fiscal deficit is 6.4 percent of GDP , adhering to the Budget Estimate.	3) The fiscal deficit is estimated to be 5.9 percent of GDP .
	4) To finance the fiscal deficit in 2023-24, the net market borrowings from dated securities are estimated at Rs 11.8 lakh crore.
	5) The gross market borrowings are estimated at Rs 15.4 lakh crore.

Fiscal Deficit

- Targeted Fiscal Deficit to be **below 4.5% by 2025-26**.
- 'Effective Capital Expenditure' of Centre to be Rs. 13.7 lakh crore.
- The entire **fifty-year interest free loan** to states to be spent on capital expenditure within 2023-24. Part of the loan is conditional on States increasing actual Capital expenditure and parts of outlay will be linked to States undertaking specific loans.
- Fiscal Deficit of 3.5% of GSDP allowed for States of which 0.5% is tied to Power sector reforms.

DIRECT TAXES

- Highest surcharge rate to reduce from **37% to 25%** in the new tax regime. This further resulted in reduction of the maximum personal income tax rate to 39 per cent.
- **Agniveer Fund to be provided EEE status.** The payment received from the Agniveer Corpus Fund by the Agniveers enrolled in Agnipath Scheme, 2022 proposed to be exempt from taxes. Deduction in the computation of total income is proposed to be allowed to the Agniveer on the contribution made by him or the Central Government to his **Seva Nidhi account**.

Personal Income Tax

There are five major announcements relating to the personal income tax.

1) The rebate limit in the new tax regime has been increased to **₹ 7 lakh**, meaning that persons in the new tax regime with income upto ₹ 7 lakh will not have to pay any tax. The tax structure in the new personal tax regime has been changed by reducing the number of slabs to five and increasing the tax exemption limit to ₹ 3 lakh. This will provide major relief to all taxpayers in the new regime.

2) The benefit of standard deduction has been extended to the salaried class and the pensioners including family pensioners under the new tax regime. Salaried individuals will get standard deduction of ₹ 50,000 and pensioner ₹ 15,000 as per the proposal. Each salaried person with an income of ₹ 15.5 lakh or more will thus gain ₹ 52,500, from the above proposals.

3) The **highest surcharge rate** in personal income tax has been reduced from **37% to 25%** in the new tax regime for income above ₹2 crore. This would result in the maximum tax rate of personal income tax coming down to **39%** which was earlier 42.74%.

Both Old And New Tax Regime Are As Follows:

New Tax Regime		Old Tax Regime	
Total Income (Rs)	Rate (per cent)	Total Income (Rs)	Rate (per cent)
Up to 3,00,000	Nil	Up to INR 2.5 lakh	Nil
From 3,00,001 to 6,00,000	5	INR 2.5 lakh to INR 5 lakh	5
From 6,00,001 to 9,00,000	10	INR 5 lakh to INR 7.5 lakh	20
From 9,00,001 to 12,00,000	15	INR 7.5 lakh to INR 10 lakh	
From 12,00,001 to 15,00,000	20	INR 10 lakh to INR 12.5 lakh	30
Above 15,00,000	30	INR 12.5 lakh to INR 15 lakh	
		Above INR 15 lakh	30

INDIRECT TAXES

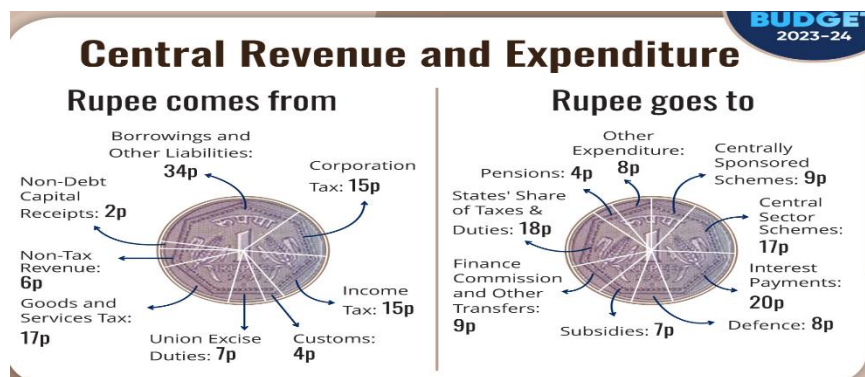
The Budget emphasized on simplification of tax structure with fewer tax rates so as to help in reducing compliance burden and improving tax administration.

- The **number of basic customs duty rates** on goods, other than textiles and agriculture, has been reduced from 21 to 13.
- To avoid cascading of taxes on blended compressed natural gas, excise duty on GST-paid compressed biogas contained in it has been exempted from excise duty.
- Customs duty exemption has been extended (till 31.03.2024) to import of capital goods and machinery required for manufacture of lithium-ion cells for batteries used in electric vehicles.
- **National Calamity Contingent Duty** on specified cigarettes has been revised upwards by about 16%.

Amendments In CGST Act

- The Budget provides for amending the CGST Act so as to raise the minimum threshold of tax amount for launching prosecution under GST from ₹ 1 crore to ₹ 2 crore, except for the offence of issuance of invoices without supply of goods and services or both.
- The compounding amount will be reduced from the present range of 50 to 150% of tax amount to the range of 25 to 100%.
- It will also **decriminalize** certain clauses of the Act like obstruction and preventing any officer from discharge of his duties, deliberate tampering of evidence or failure to supply the information.

Overall Analysis of Rupee



Megha-Tropiques-1

ISRO has successfully carried out the controlled Re-Entry experiment for the decommissioned Megha-Tropiques-1 (MT-1) Satellite in an uninhabited area in the Pacific Ocean.

ISRO is crashing the satellite as part of its commitment UNIADC (Inter-Agency Space Debris Coordination Committee).

Ways To Crash Satellite

UN IADC space debris mitigation guidelines recommend deorbiting a Low Earth Orbit object at its end-of-life.

- It can be done preferably through controlled re-entry to a safe impact zone, or by bringing it to an orbit where the orbital lifetime is less than 25 years.
- It is also recommended to carry out passivation of on-board energy sources to minimise the risk of any post-mission accidental break-up.


ISRO System for Safe and Sustainable Space Operations Management (IS4OM) has been established to spearhead such activities.

What is Controlled Re-entry?

Controlled re-entry refers to the deliberate and planned descent of a spacecraft or satellite from orbit back to Earth's atmosphere, in a way that ensures the object is destroyed during re-entry and does not pose a risk to human life or property on the ground.

ABOUT MEGHA-TROPIQUES-1

- It was launched into Low Earth Orbit (LEO) in 2011 as a joint satellite venture of ISRO and the French space agency (CNES) for tropical weather (Clouds & Precipitation) and climate studies (Water Cycle).
- The mission life was originally 3 years, with the satellite continuing to provide valuable data services for over a decade, supporting regional and global climate models through 2021.
- It had day, night and all-weather viewing capabilities; it passes over India almost a dozen times every day, giving scientists an almost real-time assessment of the evolution of clouds.



Terran 1

The launch of the world's first 3D-printed rocket named Terran 1 was cancelled at the last second due to fuel temperature concerns.

About Terran 1

- It is the world's 1st 3D-printed rocket which is expendable two-stage small-lift launch vehicle.
- An expendable launch vehicle can be launched only once, after which its components are either destroyed during re-entry or discarded in space.

3D Printing:	<ul style="list-style-type: none"> 3D printing or additive manufacturing is a process of making three-dimensional solid objects from a digital file. 3D printing enables you to produce complex shapes using less material than traditional manufacturing methods.
4D Printing:	<ul style="list-style-type: none"> 4D printing is an emerging technology that builds on the concepts of 3D printing by adding the dimension of time. While 3D printing allows objects to be created layer by layer in a static form, 4D printing enables objects to self-assemble or transform into different shapes over time in response to a specific stimulus, such as heat, moisture, or light. For example, 4D printing can be used to create <i>self-folding structures</i>, such as <i>medical implants or packaging materials that can assemble themselves upon contact with water or heat</i>. In the construction industry, 4D printing can be used to create <i>self-assembling buildings</i> that can adapt to changing environmental conditions or to repair themselves when damaged.

- It is built by California aerospace startup ‘Relativity Space’.
- 85% of its mass is 3D printed with metal alloys, including the engines.
- It is powered by Aeon engines using liquid oxygen and liquid natural gas as propellants.
- It is ultimately capable of sending satellites up to 1,250 kg into low Earth orbit.

Starberry-Sense

Researchers at the Indian Institute of Astrophysics (IIA) have developed a low-cost star sensor named **Starberry-Sense** for astronomy and small CubeSat class satellite missions.

Star Sensor	Starberry-Sense
<ul style="list-style-type: none"> • It is an instrument (a celestial compass) that is used by any satellite that needs to know where it is pointed in space. • The position of stars in the sky is fixed relative to each other and can be used as a stable reference frame to calculate the orientation of a satellite in orbit. • This is done by correctly identifying the stars in the sky towards which the star sensor is pointed. 	<ul style="list-style-type: none"> • It is a cost-effective star sensor. • It can help small CubeSat class satellite (Type of nanosatellite with weight less than 1.33 kg) missions find their orientation in space. • Based on commercial/off-the-shelf (COTS) components, it costs less than 10% of those available in the market. • The brain of the instrument is a single-board Linux computer called Raspberry Pi, which is widely used among electronics hobby enthusiasts.

JANUS-1

- World’s 1st **Cloud-Built Demonstration Satellite** called JANUS-1 launched successfully.
- It was fully conceived, designed, and manufactured with Antaris’ end-to-end **cloud platform**.
- It was launched from the Satish Dhawan Space Centre under a commercial arrangement with New Space India Limited (NSIL).
- The first cloud-based satellite means one can access the data of JANUS-1 satellite from the **cloud of Antaris (Indian company)**.
- It will perform internet of things (IoT) communications, advanced experimental laser communications, radio communications, and machine learning (ML) during orbit.

Oumuamua

Scientists think they have explained the unexpected behaviour of Oumuamua (1st known interstellar object).

About Oumuamua

- It is the first confirmed object from another star (interstellar object) to visit our solar system.
- It was discovered in 2017, by the NASA’s Near-Earth Object Observations (NEOO) Program funded Pan-STARRS1 telescope.
- Two of NASA’s space telescopes (Hubble and Spitzer) tracked the object traveling about 85,700 miles per hour.
- The object was dubbed as ‘Oumuamua’ which means “a messenger that reaches out from the distant past” in Hawaiian.

Features

- It was Initially assumed to be a comet, then it was reclassified as an asteroid.

- Oumuamua is dense, composed of rock and possibly metals, has no water or ice, and that its surface was reddened due to the effects of irradiation from cosmic rays over hundreds of millions of years.
- Its trajectory (hyperbolic orbit) indicated that it had come from another solar system, traveling through the Milky Way galaxy for hundreds of millions of years before encountering our sun.

OSIRIS-REx Mission

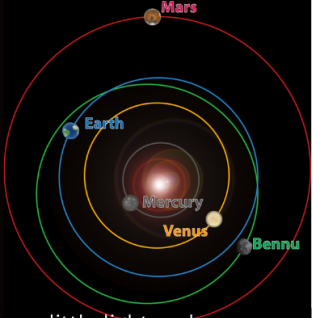
NASA is preparing for the finale of the OSIRIS-REx mission, it will reach on earth in September 2023.

About OSIRIS-REx Mission

- It stands for Origins, Spectral Interpretation, Resource Identification, Security-Regolith Explorer.
- It was launched in 2016, as the 1st-ever return-sample mission by NASA to collect surface and dust particles (extra-terrestrial material) from asteroid Bennu.
- In October 2020, the spacecraft successfully completed a "Touch-And-Go" (TAG) manoeuvre, where it briefly touched down on the asteroid's surface to collect a sample of regolith, the loose surface material on the asteroid.

ASTEROID BENNU

- It is an ancient asteroid, currently more than 200 million miles from Earth.
- It was discovered by the NASA-funded **Lincoln Near-Earth Asteroid Research (LINEAR survey)** team in 1999 and is named after an Egyptian mythological bird associated with rebirth and renewal.
- Its composition is similar to that of carbonaceous chondrite meteorites, which are believed to be remnants of the early solar system.
- Bennu also has a **low albedo**, which means it reflects very little light and appears dark in color.
- It likely formed in the Main Asteroid Belt between Mars and Jupiter and has drifted much closer to Earth since then.



- Regolith is a mixture of rocky debris and dust.

Mission Daksha for 360- Degree Watch Of Skies

- Physical Research Laboratory, Tata Institute of Fundamental Research, Raman Research Institute and the other scientific institutions involved in the mission known as Daksha.
- It will comprise two broadband satellites orbiting opposite sides of Earth to provide continuous coverage of the entire sky.
- It will study for five years high-energy counterparts to gravitational wave sources, earth occultation imaging, and gamma-ray flashes caused by intense electric fields produced above or inside thunderstorms.

India's 1st Private Space Vehicle Launch Pad

Chennai-based space tech start-up Agnikul Cosmos has launched **India's 1st private launchpad** at the Satish Dhawan Space Centre (SDSC) in **Sriharikota**.

- It is executed in support with ISRO and IN-SPACe (Indian National Space Promotion and Authorization Center)

About Agnikul's Launchpad Facility

- The facility has two parts - **Agnikul launchpad** and **Agnikul mission control centre**, designed to accommodate and support liquid stage-controlled launches.
- It plans to launch its **Agnibaan rocket** from this launch pad.

Agnibaan

- It is Agnikul's highly customizable, two-stage launch vehicle, capable of taking up to 100 kg payload to low Earth orbits (LEOs).

- It will be powered by the company's 3D-printed Agnilet engines.
- Agnilet is the world's 1st single-piece 3-D printed **semi-cryogenic** engine fully designed and manufactured in India.
- It uses a mixture of liquid kerosene and supercold liquid oxygen to propel itself.

Chandrayaan-3

The Chandrayaan-3 lander has successfully completed the crucial EMI-EMC (Electro - Magnetic Interference/ Electro - Magnetic Compatibility) test.

About Chandrayaan-3 (3rd Moon mission)

- Chandrayaan-3 interplanetary mission has three major modules: 1) the Propulsion module, 2) Lander module, and 3) Rover. The mission's complexity calls for establishing radiofrequency (RF) communication links between the modules.
- It will showcase the capability for safe landing (By Lander) and roving on the lunar surface (By rover), which is where Chandrayaan-2 failed due to a last-minute glitch in the soft-landing.
- It will be launched without orbiter as Chandrayaan 2 already launched Orbiter.
- Its propulsion module will behave like a communications relay satellite.
- If Chandrayaan-2 mission had gone successfully, then India would have been the 4th nation to make a soft landing on the Moon.

About EMI-EMC Test

- **Electromagnetic interference (EMI)** refers to the disturbance of electrical or electronic equipment by electromagnetic radiation or conduction. It can result in a loss of performance or complete failure of the equipment.
- **Electromagnetic compatibility (EMC)** refers to the ability of electronic devices to operate without being affected by or causing EMI.
- Tests were conducted to ensure compatibility between the **lander and rover** for the post-landing phase.

Chandrayaan-1 (1st lunar mission)	Chandrayaan-2 (2nd lunar mission)
launched in October 2008 by PSLV and It was operational for 312 days till August 29, 2009.	launched from the Satish Dhawan Space in July 2019, by GSLV Mk III-M1
It involved an orbiter and an impactor, both built by ISRO. the 1 st to discover water on the Moon.	The mission consisted of an Orbiter of the Moon, Vikram the lander and Pragyan the rover. But the lander and rover malfunctioned in the final moments and crash-landed.

Solar Radiation Management (SRM) Technologies

Researchers have proposed that dust can be launched from moon to a Lagrange point to achieve Solar Radiation Management (SRM) objectives.

About Solar Radiation Management (SRM)

- It is a group of proposed geoengineering technologies that aim to reduce the inflow of solar energy, rather than to reduce global warming by reducing greenhouse gases.
- It aims to offset greenhouse warming by reducing the incidence and absorption of incoming solar radiation.
- It proposes to do this by making the Earth more reflective, that is by increasing the planetary albedo, or by otherwise diverting incoming solar radiation.

Here Are Some Of The Most Discussed SRM Technologies

- **Space-based Reflectors:** Space sunshade, using mirrors in space, placing giant satellites at Lagrange point 1, space parasols, etc.
- **Stratospheric aerosol injection (SAI)** methods involving the injection of sulfate aerosols into the stratosphere to reflect sunlight back into space.
- **Marine cloud brightening (MCB)**, the seeding of high cirrus clouds with heterogeneous ice nuclei. In simple words, spraying seawater into the atmosphere to create more reflective clouds, which would reflect more sunlight back into space.
- **Surface Albedo Modification:** Surface-based alternatives such as whitewashing roofs, growing more reflective crops, etc.

It's important to note that SRM technologies are largely theoretical and have not yet been widely tested. There are also concerns about the potential unintended consequences of these technologies, such as disrupting rainfall patterns or affecting agriculture.

Neutrinos

- These are the 2nd most abundant particles in world, after photons. They are fundamental particles, meaning they are not made up of smaller particles, and they have no electric charge, making them difficult to detect.
- These are very similar to an electron but have no electrical charge and a very small mass, which might even be zero.

How Are Neutrinos Created?

- Neutrinos are created in a variety of processes, including nuclear reactions in stars, radioactive decay, and high-energy particle collisions.
- They are also produced in large quantities in the sun, where they are formed through nuclear fusion reactions.
- Neutrinos come in three different types or "flavors": **electron neutrinos, muon neutrinos, and tau neutrinos.**
- One of the unique properties of neutrinos is that they interact very weakly with matter, meaning they can pass through vast amounts of material without being detected. This property makes them difficult to observe
- Scientists have developed large underground detectors that use vast amounts of material to increase the likelihood of interaction between neutrinos and matter.

Indian Neutrino Observatory (INO)

- It is an underground research facility located in Bodi West Hills region of Tamil Nadu, to study neutrinos and their properties to advance our understanding of fundamental physics and astrophysical processes.
- The primary goal of the INO is to study neutrino oscillations, the phenomenon where neutrinos change between different flavors as they travel through space.
- The detector will be able to detect neutrinos from a variety of sources, including the sun, the atmosphere, and cosmic rays, and will be used to study the properties of these particles.
- Tamil Nadu government objected that the project falls within it a significant tiger corridor, namely the Mathikettan-Periyar tiger corridor. This corridor links the Periyar Tiger Reserve along the Kerala and Tamil Nadu borders and the Mathikettan Shola National Park.

Kilonova

Researchers have confirmed the detection of a star system that will one day end in a kilonova. The newly found star system has been labelled CPD-29 2176 and is located about 11,400 light-years from the earth. CPD-29 2176 is currently a neutron star and a star orbiting each other.

What is Kilonova?

- A kilonova is a cosmic event that occurs when a **neutron star smashes into another** neutron star or a black hole.
- It **releases heavy gamma-rays and metals** like gold, silver, and selenium into outer space at tremendous velocities, as well as radiation.
- A kilonova **radiation** also accompanies a **gamma-ray burst**, one of the most energetic cosmic events ever known.

What is a Neutron star?

The stars which are formed when a massive star runs out of fuel and collapses are called neutron stars. The very central region of the star – the core – collapses, crushing together every proton and electron into a neutron.

Vikas Engine

The ISRO has successfully tested the throttling of Vikas, its workhorse launch-vehicle engine.

About Vikas Engine

- VIKAS (an acronym for Vikram Ambalal Sarabhai) engine is a family of **liquid-fuelled rocket engines** conceptualized and **designed by the Liquid Propulsion Systems Centre** of ISRO in the **1970s**.
- These engines are **deployed for ISRO's Polar Satellite Launch Vehicle (PSLV)** and the **Geosynchronous Satellite Launch Vehicle (GSLV)** series of expendable launch vehicles for space launch use.
- The **fuel load** of the Vikas engine is **40 tonnes for the PSLV, GSLV Mark I and II**, and **55 tonnes for the GSLV Mark III**.

Liquid Propulsion Systems Centre (LPSC)

- The **LPSC** is a **research and development** center functioning **under ISRO**.
- It is the center for the **design, development**, and realization of **liquid propulsion stages for ISRO's Launch Vehicles**.
- LPSC activities and facilities are spread across its **two campuses**: LPSC, **Valiamala, Thiruvananthapuram**, and LPSC, **Bengaluru, Karnataka**.

Parker Solar Probe

Recently, one of the instruments on NASA's Parker Solar Probe powered down unexpectedly and the mission team expects it to come back online soon.

About Parker Solar Probe

- It was **launched in 2018** and will travel through the sun's atmosphere, closer to the surface than any spacecraft before it.
- To unlock the **mysteries of the sun's atmosphere** this will use Venus' gravity during seven flybys over nearly seven years to gradually bring its orbit closer to the sun.

Parker Solar Probe has three detailed science objectives

- Trace the **flow of energy** that heats and accelerates the **solar corona and solar wind**.
- Determine the **structure** and dynamics of the **plasma and magnetic fields** at the sources of the solar wind.
- Explore mechanisms that accelerate and transport **energetic particles**.

Space Debris

India has announced that 111 payloads and 105 Space debris have been identified as Indian objects orbiting Earth.

About Space Debris

- It is also known as space junk or space garbage. It refers to the **man-made objects** in space that no longer serve a useful purpose, such as defunct satellites, spent rocket stages, and other debris that has been left behind from human space activities.
- It orbits around the earth at tremendous speeds about 25000 kph in low Earth.

India's Step to Tackle Space Debris

1. **Project NETRA (Network for space object Tracking and Analysis) by ISRO**
 - It is an early warning system in space to detect debris and other hazards to Indian satellites.
2. **ISRO System for Safe and Sustainable Operations Management (IS 4 OM)**
 - It has been established in 2022.
 - It works towards more focused efforts to continually monitor the objects posing collision threat and concerted activities to mitigate the risk posed by space debris.
3. **Space Situational Awareness (SSA) Control Centre:**
 - India has established an SSA Control Centre in December 2020 to detect, track, and catalog space objects.
4. **Indigenous Anti-Satellite (ASAT) Technology:**
 - India has developed its ASAT technology, which allows it to destroy satellites in low-earth orbit.
5. India has built the capability for Collision Avoidance (COLA) analysis and **Space Object Proximity Analysis (SOPA)** for safeguarding of its space assets.
6. Being an active member of Inter-Agency Space Debris Coordination Committee (IADC) since 1996, ISRO follows the Space Debris Mitigation Guidelines recommended by IADC and UN for limit on creation of space debris.

Global Effort to Tackle Space Debris

1. **United Nations Space Debris Mitigation Guidelines** for long-term sustainability of outer space activities.
2. **Inter-Agency Space Debris Coordination Committee (IADC):** It is an international forum of space agencies, authorized governmental entities for the coordination of activities related to the issues of human-made and natural debris in space.
3. **Committee on the Peaceful Uses of Outer Space (COPUOS):** It has been established by the United Nations to develop guidelines for the long-term sustainability of outer space activities, including space debris mitigation.
4. **Space Traffic Management:** The International Association for the Advancement of Space Safety (IAASS) is working on developing a framework for space traffic management. This framework would provide guidelines for safe and responsible space operations, including the mitigation of space debris.

Wolf 1069 b

Astronomers have discovered a potentially **habitable exoplanet** just 31 light-years away from Earth known as Wolf 1069 b.

About Wolf 1069 b

- It is an exoplanet that orbits a red dwarf star called Wolf 1069.
- It orbits its star at about 0.038 astronomical units (AU), which is very close compared to the distance between Earth and the Sun. As a result, the planet's year is only about 18 Earth days long
- Wolf 1069 b is tidally locked to its parent star, meaning one side is always in daylight, and the opposite side is always in darkness.

1) One of the most exciting goals of exoplanet research is to find a habitable world similar to Earth. However, of the more than 5000 exoplanets astronomers have discovered so far, only about 1.5% have masses below two Earth masses. Just about a dozen of them populate the so-called **circumstellar habitable zone**, the range in a planetary system where water can maintain a liquid form on the planet's surface.

2) A dwarf star is any star of average or low luminosity, mass, and size. The colour of dwarf stars can range from blue to red, the corresponding temperature varying from high (above 10,000 K) to low (a few thousand K).

3) Chinese scientists have proposed a space project named **Closeby Habitable Exoplanet Survey (CHES)**. It will be the 1st space mission specially designed to search for habitable terrestrial planets around nearby Sun-like stars.

Aeronomy

The Union Minister of State for Science & Technology and Space informed the Parliament that ISRO has taken initiatives for feasibility studies on **missions to Venus as well as Aeronomy**.

About Aeronomy

- It is the scientific study of the upper atmospheric regions of the Earth and other solar system bodies.
- It includes the distribution of temperature, density, and chemical constituents, and the chemical reactions that occur.

Venus Mission

- ISRO is planning to launch the Venus mission (Shukrayaan) by December 2024.
- It aims to study Venus' atmosphere, which is toxic and corrosive in nature as clouds of **sulfuric acid** cover the planet.
- Venus is the 2nd planet from the Sun and 6th in the solar system in size and mass.
- Every planet in our solar system except for Venus and Uranus rotates counter-clockwise as seen from above the North Pole
- Venus rotates clockwise while Uranus rolls on its side as it orbits the Sun
- It has been called Earth's twin because of the similarities in their mass, size, and density.

JO201

The **Hubble Space Telescope** captured an image of JO201.

About JO201

- It is a jellyfish galaxy in the Abell 85 galaxy cluster. JO201 is an example of a planetary nebula, and its beautiful and intricate structure is the result of the complex interaction between the ionized gas and the intense radiation from the white dwarf at its center.
- The colors in the image correspond to different elements in the nebula, with red indicating hydrogen, green indicating nitrogen, and blue indicating oxygen.
- It is at a distance of about 700 million lightyears, in the constellation of Cetus or the Whale.
- It has been moving through the massive galaxy cluster at supersonic speeds, for around a billion years.
- The tentacles of JO201 appear so short because it is moving towards us along the line of sight.

Jellyfish Galaxy

- The name "Jellyfish" comes from the resemblance of these galaxies to the underwater creatures with long, trailing tentacles.
- It is a type of galaxy that exhibits long tentacles or tendrils of gas, dust, and stars that appear to be streaming away from the galaxy's main body.

- These tentacles are formed as the galaxy moves rapidly through the hot gas of a galaxy cluster, causing the gas to strip away from the galaxy and form a tail.
- This process is called ram-pressure stripping.

Radio Galaxy

A team of astronomers discovered several elusive dying radio galaxies.

About Radio Galaxy

- It is a particular type of active galaxy that emits more light at radio wavelengths than at visible wavelengths.
- It is also known as a radio-luminous galaxy or radio-loud galaxy, driven by non-thermal emissions.
- Some radio galaxies, called extended radio galaxies, have lobes of radio emission extending millions of light-years from their nuclei.
- Centaurus A is a nearby example of an extended radio galaxy that features two outer lobes 650,000 and 1,350,000 light-years in diameter.
- There are two broad classes of radio galaxies –
 - **Core-halo radio galaxies** - They exhibit radio emission from a region concentrated around the nucleus of the galaxy.
 - **Lobed radio galaxies** - They display great lobes of radio emission extending, in some cases, for millions of light years beyond the optical part of the galaxy.

James Web Telescope

James Webb Space Telescope (JWST) has discovered six extraordinarily massive first-generation galaxies, formed roughly 500-700 million years after the Big Bang,

About James Web Telescope

This telescope was built in **collaboration between NASA, the European Space Agency (ESA) and the Canadian Space Agency** and was launched in December 2021.

- It is presently at a point in space known as the Sun-Earth L2 Lagrange point, approximately 1.5 million km beyond Earth's orbit.
- Lagrange Point 2 is one of the five points in the orbital plane of the Earth-Sun system.
- It's the largest, most powerful **infrared space telescope that** examine every phase of cosmic history; from the Big Bang to the formation of galaxies, stars, and planets to the evolution of our Solar System.

James Webb Space Telescope has found that TRAPPIST-1 b does not have any significant atmosphere as most observations were predicting that it may have a substantial atmosphere.

- TRAPPIST-1 b is one of the **seven exoplanets** that orbit the ultra-cool **dwarf star TRAPPIST-1**, located about 40 light-years away from Earth in the constellation **Aquarius**.
- TRAPPIST-1 b was the first exoplanet to be discovered in the TRAPPIST-1 system.
- It has 1.4 times the mass and 1.1 times the radius of Earth. This means TRAPPIST-1 b has a radius similar to Earth's, but it is much denser, suggesting that it may have a large iron core.

Astronomers have also released an image of the globular cluster Messier 92 (M92) captured by the James Webb Space Telescope.

- **Messier 92** is a globular cluster of stars in the northern constellation of Hercules.
 - Globular clusters are spherical aggregates of several thousand to millions of stars bound by gravity.

- M92 is one of the brightest globular clusters in the sky and can be seen with binoculars or a small telescope. It is estimated to be about 26,700 light-years away from Earth and has a diameter of about 109 light-years.

Pandora's Cluster (Abell 2744)

Astronomers have revealed the latest deep field image from NASA's James Webb Space Telescope, featuring never-before-seen details in a region of space known as Pandora's Cluster (Abell 2744).

About Pandora's Cluster (Abell 2744)

- It is a **giant galaxy clust** that appears to be the **result of a simultaneous pile-up of at least four separate, smaller galaxy clusters**.
- The **crash took place** over a **span of 350 million years**.
- The **galaxies** in the cluster **make up less than five percent of its mass**.
- **The gas (around 20 percent)** is **so hot** that it **shines only in X-rays**.
- **Dark matter** makes up around **75 percent of the cluster's mass**. It is located around **4 billion light years from earth**.

What Are Galaxy Clusters?

- They are the **largest objects in the universe that are held together by their own gravity**.
- They **contain hundreds or thousands of galaxies**, lots of **hot plasma**, and a **large amount of invisible dark matter**.
- Galaxy clusters are **home to the biggest galaxies in the known universe** and provide us with information about the structure of the universe on the largest scales.

AstroSat

The Indian Space Research Organisation (ISRO) has recently made an Announcement of Opportunity (AO) to allow scientists and researchers to analyze data from the first dedicated Indian astronomy mission, AstroSat.

About AstroSat

- It is **India's first dedicated multi-wavelength space observatory**.
- It is the **first dedicated Indian astronomy mission** aimed at **studying celestial sources in X-ray, optical, and UV spectral bands simultaneously**.
- AstroSat, with a **lift-off mass of 1515 kg**, was **launched by** the Indian launch vehicle **PSLV** from **Satish Dhawan Space Centre, Sriharikota**, on **September 28, 2015**, into a **650 km orbit** inclined at an angle of 6 degrees to the equator.
- The **spacecraft control center** at Mission Operations Complex (MOX) of **ISRO Telemetry, Tracking and Command Network (ISTRAC), Bengaluru**, **manages the satellite** during its entire mission life.
- The **minimum useful life** of the AstroSat mission **is around 5 years**.

AzaadiSAT-2

ISRO's Small Satellite Launch Vehicle SSLV-D2 carrying EOS-07, Janus-1 and AzaadiSAT-2 satellites was successfully launched from the Satish Dhawan Space Station, in Sriharikota

About AzaadiSAT-2

- It has been designed and **developed by 750 Indian girl students** through Chennai-based startup **Space Kidz India**.
- The girls **received training both online and, in some cases, in-person**.

- It aims to **measure various health data like temperature** and reset count from 75 student experiments installed inside the satellite.

ULTRASAT

NASA will launch Israel's first space telescope mission, the Ultraviolet Transient Astronomy Satellite (ULTRASAT) in early 2026.

About ULTRASAT

- ULTRASAT is an ultraviolet observatory with a large field of view, that will investigate the secrets of short-duration events in the universe, such as **supernova explosions and mergers of neutron stars**.
- It is planned to launch into a **geostationary orbit** around Earth

What is a Geostationary Orbit?

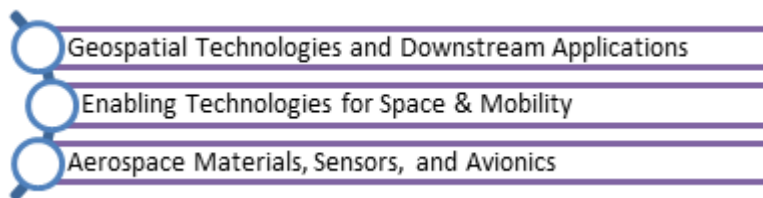
- Satellites in geostationary orbit (GEO) circle Earth above the equator from west to east following Earth's rotation – taking 23 hours 56 minutes and 4 seconds – by travelling at the same rate as Earth.
- This makes satellites in GEO appear to be **'stationary' over a fixed position**.
- To perfectly match Earth's rotation, the speed of GEO satellites should be about 3 km per second at an altitude of 35 786 km. This is much farther from Earth's surface compared to many satellites-
- This orbit is used for **meteorological and communications satellites**.
- The geostationary orbit is a **special case of the geosynchronous orbit**, which is any orbit with a period equal to Earth's rotation period.

SpaceTech Innovation Network (SpIN)

ISRO has signed an MoU with Social Alpha to launch **SpaceTech Innovation Network (SpIN)**.

About SpIN

- It is India's 1st dedicated **platform** for *innovation, curation, and venture development* for the **burgeoning space entrepreneurial ecosystem**.
- It will primarily focus on facilitating space tech entrepreneurs in 3 distinct innovation categories:



Significance of SpIN

- It will further accelerate India's recent space reform policies.
- It will work towards identifying and unleashing the market potential of the most promising space technology innovators and entrepreneurs in India.
- It will create a level playing field for various stakeholders to collaborate and contribute to the space ecosystem in the country.

Trisonic Wind Tunnel

The new trisonic wind tunnel was inaugurated by successfully conducting the first blow-down test at the Vikram Sarabhai Space Center (VSSC).

About Trisonic Wind Tunnel

- Trisonic refers to the tunnel's capability to test in 3 speed regimes -

- It is a system to aid aerodynamic design of **rockets and re-entry spacecrafts** by characterising a scaled model by evaluating forces, moments, load distribution, unsteady pressures, acoustic levels etc.
- In a blow down test, stored gases are released and blown through the tunnel's test section, simulating flight conditions.
- The tunnel can simulate flight conditions from 0.2 times the speed of sound (68 m/s) to four times the speed of sound (1,360 m/s).

HAKUTO-R Mission

- Japanese aerospace startup ispace Inc has launched its private lander M1 to the Moon on a SpaceX Falcon 9 rocket as part of its HAKUTO-R mission.
- It is Japan's 1st-ever lunar mission and the 1st of its kind by a private company.

About HAKUTO-R Mission

- The M1 lander will deploy two robotic rovers (two-wheeled rover made by Japan's JAXA space agency and a four-wheeled Rover made by the UAE known as the Explorer Rashid).
- The name HAKUTO-R refers to the white rabbit that Japanese folklore suggests lives on the Moon.
- Its purpose is to search for water deposits before touching down in **Atlas Crater**, which is located in the near side of the north-eastern part of the Moon.
- The mission is taking a low energy route to the Moon and is scheduled to arrive around April 2023.

Geminids Meteor Shower

Sky-enthusiasts all over the world captured the Geminids meteor shower, an annual spectacle which peaks each year in mid-December.

About Geminids Meteor Shower

- Its name comes from the constellation Gemini, from whose location in the sky the meteor shower appears to originate.
- The constellation is not the source of the meteors.
- It is unique because unlike most meteor showers, they originate not from a comet, but from an asteroid, the **3200 Phaethon**.
- The constellation for which a meteor shower is named only serves to aid viewers in determining which shower they are viewing on a given night.
- If their peak coincides with the new moon, and if the weather is clear, the Geminids can produce approximately 100-150 meteors per hour for viewing.

About 3200 Phaethon

- It takes 1.4 years to complete one round of the Sun. As it moves close to the Sun while orbiting it, the rocks on its surface heat up and break off.
- When the Earth passes through the trail of this debris, the Geminids are caused.

What Causes Meteor Showers?

- Meteors come from leftover comet particles and bits from asteroids.
 - As Meteors enter the Earth's atmosphere at high speed, they burn up, creating a spectacular shower.
- | |
|---|
| <ul style="list-style-type: none"> • Orionids is an annual meteor shower, originates from Halley's Comet. • Geminids is also a meteor shower, comes from the constellation Gemini. It is unique because unlike most meteor showers, they originate not from a comet, but from an asteroid, the 3200 Phaethon. • Taurids is an annual meteor shower. It is actually two separate showers, Southern Taurids originated from Comet Encke, Northern Taurids originated from the asteroid 2004 TG10. |
|---|

- **Leonid** is an annual meteor shower originates from a small comet called 55P/Tempel-Tuttle in the constellation Leo.

Aubrite Meteorite

- Analysis has revealed that Diyodar meteorite of 2022 that fell in Gujarat was India's first aubrite in 170 years.
- Aubrites, a type of meteorite, are coarse-grained igneous rocks formed in oxygen-poor conditions; containing a variety of exotic minerals that are not found on Earth.
 - E.g., mineral heideite was first described in Basti meteorite.

Comet

- It is frozen leftovers from the formation of solar system composed of dust, rock, and ice.
- It can be distinguished from stars by its streaking tails of dust and energized particles, as well as the glowing green coma surrounding it.
- The coma is an envelope that forms around a comet as it passes close to the sun, causing its ice to sublimate, or turn directly to gas.
- This causes the comet to look fuzzy when observed through telescopes.
- Billions of comets are orbiting our Sun in **Kuiper Belt** (called short-period comets which takes less than 200 years) and even more distant **Oort Cloud** (called long-period comets which takes over 200 years).

TOI 700 e

NASA has discovered an **Earth-sized planet** called TOI 700 e orbiting in the habitable zone of its star.

About TOI 700 e

- It is probably rocky and is 95% the size of Earth and may contain liquid water.
- It takes 28 days to orbit its star.
- This is the 4th planet discovered in the TOI 700 system, the other planets are named TOI 700 b, c, and d, which is 100 light-years away.
- TOI 700 is a small, cool M dwarf star the planets orbit around, but **only d and e** orbit in the habitable zone.

Local Bubble

Researchers from the Center for Astrophysics (CfA) have generated a 3D magnetic map of the giant cosmic cavity called Local Bubble.

About Local Bubble

- It is a great cavity (low-density region) in the **interstellar medium (ISM)**.
- It is about 1,000 light-years **wide cavity or a superbubble of our galaxy, the Milky Way**, within which the Sun and many nearby stars reside.
- The interstellar medium refers to tenuous gas and dust that fills the void between stellar systems in galaxies.
 - **Star system/ stellar system:** A small group of stars (and possibly smaller bodies such as planets or asteroids) that orbit one another.
 - A large group of stars bound by gravitation is generally called a star cluster or galaxy
 - It is thought to have originated from supernovae roughly 14 million years ago.
 - Supernova is a cosmic explosion occurring when stars meet their end.
 - Space is full of these **super-bubbles** that trigger the formation of new stars and planets and influence the overall shapes of galaxies.
- Mechanisms powering the formation and expansion of the Local Bubble are not well-understood until now.

LHS 475 b

NASA announced that the James Webb Space Telescope has discovered its 1st new exoplanet, labeling the planet as LHS 475 b.

More than 4,400 exoplanets have been discovered till now.

About LHS 475 b

- It is located just 41 light-years away in the **constellation Octans**.
- It is rocky and almost precisely the same size as Earth.
- The planet orbits very close to a red dwarf star and completes a full orbit in just two days.
- It is closer to its star than any planet in our solar system, its red dwarf star is less than half the temperature of the Sun, so researchers speculate it may still have an atmosphere.

Quaoar

- Recent study has found that the dwarf planet Quaoar has a Saturn-like ring of dust and debris that defies rules of physics.
 - Discovered in 2002, it is the seventh largest of known dwarf planets.
- It is a trans-Neptunian object, i.e., it orbits Sun beyond its outermost planet Neptune. Its ring is positioned at over seven planetary radii.

Tidal Disruption Event (TDE)

- The astronomical phenomenon of the destruction of a star by a black hole is formally called a tidal disruption event (TDE).
- It occurs when a star comes close enough to a supermassive black hole to be pulled apart by the black hole's tidal force.
- This event is crucial and useful phenomena to detect and predict the mass of supermassive black holes in quiescent galaxies.

Ryugu

- According to a new study, a sample of a space rock called Ryugu that returned to Earth almost two years ago may hold the answers to the origin of the planet.
- A Japanese spacecraft, Hayabusa2, reached Earth in December 2020 from asteroid, Ryugu, with soil samples.

About Ryugu

- It is a primitive carbonaceous near-Earth asteroid, located about 300 million kilometers from Earth.
- It is charting between the spatial boundaries of Mars and Earth.
- It orbits the Sun once every 16 months.
- Astronomy experts tagged Ryugu with a primitive C-type classification.
- This asteroid class is usually full of various types of minerals and rocks.
 - C-type asteroids have black appearance, with large carbon quantities.

Hayabusa2

- It is an asteroid sample-return mission operated by the Japanese space agency, JAXA.
- It was launched in December 2014, with the goal of collecting samples from the asteroid Ryugu.
- It carried multiple science payloads that investigated the asteroid surface to inform about the environmental and geological context of the samples collected.

Lucy Mission

- NASA announced that it is adding a new target for the Lucy mission as the spacecraft goes on its more than 6-billion-kilometre-long journey to study the Jupiter trojan asteroids.

- The new target is a small main-belt asteroid and Lucy will get an up-close view to conduct an engineering test of the spacecraft's asteroid-tracking navigation system.

About Lucy Mission

- It is the 1st spacecraft launched by NASA to explore the **trojan asteroids**, that orbiting in tandem with Jupiter (one group preceding Jupiter and the other trailing behind it)
- The mission is estimated to be over 12 years long, during which the spacecraft will visit eight asteroids (one in the Main Belt between Mars & Jupiter and seven Trojans).
- The mission is named after 'Lucy', a 3.2-million-year-old ancestor who belonged to a species of hominins

About Trojan Asteroids

Asteroids sharing an orbit with a planet, but which are located at the leading (L4) and trailing (L5) Lagrangian points, are known as Trojan asteroids.

- The Lagrange Points are positions where the gravitational pull of two large masses (e.g. sun and jupiter) precisely equals the centripetal force required for a small object to move with them.
- The main asteroid belt is between Mars and Jupiter.
- There are currently over 4,800 known Trojan asteroids associated with Jupiter.
- They are believed to be made of the same material that led to the formation of the planets about 4 billion years ago, when the Solar System was formed.

Geospatial Technology

- It is a term used to describe the range of modern tools contributing to the geographic mapping and analysis of the Earth and human societies (objects, events and phenomena).
- It includes Geographic Information System (GIS), Remote Sensing (RS), and Global Positioning System (GPS).
- It enables us to acquire data that is referenced to the earth and use it for analysis, modeling, simulations, and visualization. The location data may be Static or Dynamic.

Giant Metrewave Radio Telescope (GMRT)

Astronomers have used data from the Giant Metrewave Radio Telescope (GMRT) in Pune to detect a radio signal originating from **atomic hydrogen** in an extremely distant galaxy.

About Giant Metrewave Radio Telescope (GMRT)

- It is an array of 30 fully steerable parabolic radio telescopes of 45-meter diameter.
- It is operated by the National Center for Radio Astrophysics of the Tata Institute of Fundamental Research (NCRA-TIFR), Pune.
- It is an indigenous project, and the design is based on the 'SMART' concept - **Stretch Mesh Attached to Rope Trusses.**
- It functions at the meter wavelength part of the radio spectrum because man-made radio interference is considerably lower in this part of the spectrum in India and there are many outstanding astrophysics problems which are best studied at meter wavelengths.

Molecular Clouds

An international team of astronomers have announced the discovery of different ices in the darkest and coldest regions of a molecular cloud measured to date.

About Molecular Clouds

- It is an accumulation of interstellar gas and dust, also called **dark nebula**.
- They are generally dark because they contain mainly cold, high-density, opaque gas, as well as enough dust to quench the light from stars behind them.

- These clouds have very low temperatures of just 10 to 30 kelvin and therefore the hydrogen is primarily composed of **molecular hydrogen or (H₂)**.
- Compared to the mainly ionized hydrogen in other areas of the interstellar medium, less than 1% of all hydrogen in the Milky Way is bound in molecular clouds.
- The rest is in the form of atomic hydrogen which can become a molecular cloud at a later point in time.
- The size of these molecular clouds can be from a few light years up to 600 light years and their total mass can reach several million solar masses.
- The largest molecular clouds are visible to the naked eye, appearing as dark patches against the brighter background of the Milky Way Galaxy.
- An example is the **Coal Sack** in the southern sky.
- The central regions of these clouds are completely hidden from view by dust. We can look into the core of these clouds using radio or infrared wavelengths.
- Molecular clouds with dimensions of more than about 15 light years are also called giant molecular clouds.
- These clouds are so important because they are the raw material of stars and planets.
- Stars are born within molecular clouds.

Surface Water and Ocean Topography (SWOT)

NASA and the French space agency CNES have jointly launched the Surface Water and Ocean Topography (SWOT) spacecraft.

About Surface Water and Ocean Topography (SWOT)

- It is a satellite altimeter jointly developed and operated by NASA and CNES in partnership with the space agencies of the UK and Canada.
- It will measure the height of water in freshwater bodies and the ocean on more than 90% of Earth's surface.
- It will cover the entire Earth's surface between **78° south and 78° north latitude** at least once every 21 days, sending back about one terabyte of unprocessed data per day.
- The scientific heart of the spacecraft is an innovative instrument called the **Ka-band radar interferometer (KaRIn)**, which marks a major technological advance.

Significance of SWOT

- It will provide vital information, given the urgent challenges posed by climate change and sea level rise.

ChatGPT

- OpenAI has introduced a new chatbot called ChatGPT.
- GPT stands for **Generative Pre-trained Transformer 3**.
- This is a kind of computer language model that relies on deep learning techniques to produce human-like text based on inputs.

About ChatGPT

- Based on language learning models (LLM), it is a **prototype dialogue-based AI chatbot** capable of understanding natural human language and generating impressively detailed human-like written text.
- It will answer queries just like a human would and can also admit its mistakes, challenge incorrect premises, and reject inappropriate requests.
- The model is trained to predict what will come next, and that's why one can technically have a conversation with ChatGPT

Bard

- Google developed the language model known as Google Bard AI (Bidirectional Encoder Representations from Transformers) based on the **Language Model for Dialogue Application (LaMDA)**.

Differences between ChatGPT and Google Bard AI

Google Bard AI	ChatGPT
Bard will use material that is currently available online , including statistics and sources. Bard will have access to the most recent date events and will be able to deliver more up-to-date information.	ChatGPT's knowledge is restricted to the events through 2021.
Bard will have access to a wealth of data and be integrated with Google's search engine.	ChatGPT will deliver data which is supported by Microsoft.
Bard will be able to break up complex ideas into bite-sized, conversation-starting morsels. The objective is to disseminate information more broadly.	Chat GPT, on the other hand, produces material in response to the text prompt.

- 1) Microsoft introduced a new AI-improved Bing in the same week that Google launched Bard. This version of Bing is powered by a cutting-edge OpenAI big language model that has been specially tailored for search.
- 2) "Bard" typically refers to a poet or storyteller who recites epic poems or other literary works. The term is often associated with the works of William Shakespeare, who is commonly referred to as the "Bard of Avon" due to his significant contributions to the English language and literature.

Generative Artificial Intelligence (AI)

There are rising applications and ethical concerns in Generative Artificial Intelligence (AI).

About Generative AI

- It is a cutting-edge technological advancement that utilises machine learning (ML) and AI to create new forms of media, such as text, audio, video, and animation.
- 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.
- **Example:** DALL.E, a generative **image generation service**, can generate original imagery to align with the branding. Many startups are exploring services like DALL.E2 to create their brand logo.

Applications of Generative AI

- **Revenue generation:** It can craft sales, marketing, and brand messaging.
- **Blogging and reach:** Agencies can generate personalized social media posts, blogs, and marketing text and video copies by providing a text prompt to a Generative AI service, like ChatGPT.
- **Coding:** It can suggest entire functions, snippets, and even fully functioning modules and generate code in real-time right in your editor (eg GitHub)
- **Synthetic Data:** It can also be used for generating synthetic data for data augmentation and creating additional training data to train and test AI models to experiment at scale.

'Dark Patterns' In Internet

- These are unethical user interface/user experience interactions, designed to mislead or trick users to make them do something they don't want to do.
- It is used by digital platforms to take away a user's right to full information about the services they are using, and reduce their control over their browsing experience.
- It endangers the experience of Internet users and make them more vulnerable to financial and data exploitation by Big Tech firms.

Deepfake Technology

- The Cyberspace Administration of China, the country's cyberspace watchdog, is rolling out new regulations to restrict the use of deep synthesis technology and curb disinformation.
- Deep synthesis is defined as the use of technologies including deep learning and augmented reality to generate text, images, audio/video and create virtual scenes.

What is Deepfake

- It is a type of **synthetic media** in which a person in an already-existing video or image is replaced with another person.
- It manipulates the audio/video, which has the propensity to deceive, using machine learning and artificial intelligence.
- It makes a fake version of original or real audio-visual content by superimposing new audio or image over an existing media file.

What Are Countries Doing to Combat Deepfakes

- **European Union** has an updated Code of Practice to stop the spread of disinformation through deepfakes.
- **United States** in July 2021 introduced the bipartisan Deepfake Task Force Act to assist the Department of Homeland Security (DHS) to counter deepfake technology.
- **India:** Currently, there are no legal rules against using deepfake technology. However, specific laws can be addressed for misusing the tech, which include Copyright violation, Defamation, etc.

Quasicrystal

Scientists have discovered a 3rd natural source of quasicrystals in the Sand Hills of north central Nebraska, USA.

About Quasicrystal

- Most crystals are composed of a **three-dimensional arrangement** of atoms that repeat in an orderly pattern. But quasicrystals behave differently than other crystals. They have an orderly pattern that includes pentagons, fivefold shapes, but unlike other crystals, the pattern never repeats itself exactly.
- The American Israeli scientist Dan Shechtman discovered quasicrystals in the lab in 1982. In 2011, the Nobel Prize in chemistry was awarded to him.
- It has poor heat conductivity, which makes them good insulators.
- Quasicrystals have been widely created in labs and known to “possess novel electrical, photonic, and mechanical properties that aren't found in other materials.
- It is used in surgical instruments, LED lights and non-stick frying pans, needles for acupuncture and surgery, dental instruments and razor blades.

Extra Mile

Although quasicrystals can be easily produced, they are rarely found outside of the laboratory.

- The first one was identified in a meteorite, found in 2009 near the Khatyrka River in Chukhotka, Russia.
- The second one was discovered in 2021 during the study of debris from the site of the world's first nuclear explosion, which took place in 1945 in New Mexico (Trinity test of the Manhattan Project).
- For the formations of quasicrystals, materials were subjected to extremely high-pressure and high-temperature shock events.

i-ATS (Indigenous-Automatic Train Supervision) system

The Delhi Metro Rail Corporation (DMRC) recently launched the first ever indigenously developed Train Control and Supervision System.

About the i-ATS System

- It is **India's first indigenously developed Train Control and Supervision System**.
- It is a **computer-based system** that will **manage train operations** including basic functioning such as running and halting.
- The i-ATS has been **jointly developed by the DMRC and Bharat Electronics Limited (BEL)** under the Government of India's 'Make in India' and 'AatmaNirbhar Bharat' initiatives for Metro Rail Transit Systems.
- It will **reduce the metro's dependence on foreign vendors** for metro operations.
- The i-ATS technology has been **developed to be flexible enough to work with different signaling vendors' systems** with suitable changes.
- The development of i-ATS is a **huge step forward in CBTC (Communication Based Train Control) based signaling system** for the metro railways since the **ATS is an essential component of the CBTC signaling system**.
- With the launch of i-ATS, **India became the sixth country with its own ATS products** after France, Germany, Japan, Canada, and China.

Neuromorphic Camera

Researchers at the Indian Institute of Science (IISc) have developed a novel technique that combines optical microscopy with a neuromorphic camera aided by machine learning algorithms that can go beyond the diffraction limit of light and detect minute objects.

About Neuromorphic camera

A neuromorphic camera **mimics the way the human retina converts light into electrical impulses**.

How Does It Work

- In a **typical camera**, each pixel captures the intensity of light falling on it for the entire exposure time the camera focuses on the object. **All these pixels are pooled together** to reconstruct an image of the object.
- In **neuromorphic cameras**, each pixel operates independently and asynchronously, generating events or spikes only when there is a change in the intensity of light falling on that pixel.
- Neuromorphic cameras **have a very high dynamic range (>120 dB)** which means they can be used in different conditions ranging from a very low-light environment to very high-light conditions.

What Is Meant By Diffraction Limit In Optical Microscopy?

- The **resolution of a microscope is proportional to the size of its objective and inversely proportional to the wavelength of light** being observed.
- The **resolution of a microscope is not controlled** by the instrument's quality but **by the wavelength of light used and the aperture of its optics (according to German physicist Ernst Abbe)**
- Due to this phenomenon, a **microscope cannot resolve two objects located closer than $\lambda/2NA$** , where λ is the wavelength of light and NA is the numerical aperture of the imaging lens. **This is known as the diffraction limit.**
- Thus, **diffraction limits the ability of the microscope to distinguish between two objects divided by a lateral distance of less than half the wavelength of light** used to image the sample.

Phosphor-Gypsum

The National Highways Authority of India along with the Department of Fertilizers, and the Ministry of Chemicals & Fertilizers is going to take up field trials on NHAI projects for use of Phosphor-Gypsum in National Highway construction.

About Phosphor-Gypsum

- Phosphorus is a mineral critical to all life on Earth. As a requirement of all biological beings, it is a cornerstone of nutrition for plants, animals, and people.
- Phospho-gypsum is a waste by-product from the processing of phosphate rock in plants producing phosphoric acid and phosphate fertilizers, such as superphosphate.
- It is used in **agriculture for soil amendment or as fertilizer**, as well as in the brick and cement industry, and road construction.

Key Facts About NHA

- It was constituted by an **Act of Parliament in 1988** under the administrative control of **the Ministry of Road Transport and Highways**.
- NHA has been set up as a Central Authority to **develop, maintain and manage the National Highways** entrusted to it by the Government of India.
- The Authority consists of a full-time Chairman and not more than five full-time Members and four part-time Members who are appointed by the Central Government.

Keanumycins

Researchers at the Leibniz Institute for Natural Product Research and Infection Biology (Leibniz-HKI) have discovered a new antimicrobial agent.

About Keanumycins

- A group of molecules developed by **bacteria of the genus Pseudomonas** has proven to have such a strong **antimicrobial effect** that researchers have named them keanumycins.
- The substance is effective against both **plant fungal diseases and human-pathogenic fungi**.
- The group of molecules works effectively against the planet pest **Botrytis cinerea**, which triggers **grey mould rot in crops**, causing massive harvest losses every year.
- It also affects fungi that are dangerous to humans, like **Candida albicans** and has been proven to be harmless to plant and human cells.
- Keanumycins can be an **environment-friendly** alternative to chemical pesticides.

What is Pseudomonas?

- Pseudomonas is a type of bacteria (germ) that is found commonly in the environment, like in soil and water.

TVS-2M Nuclear Fuel

Russian state-owned nuclear energy corporation, Rosatom, has offered a more advanced fuel option, TVS-2M nuclear fuel to Kudankulam Nuclear Power Plant.

About TVS-2M Nuclear Fuel

- It contains gadolinium-oxide which is mixed with U-235 enrichments.
- The core does not contain BARs (Burnable Absorbers Rods).
- It has increased uranium capacity - one TVS-2M assembly contains 7.6% more fuel material and has an 18-month fuel cycle, meaning that the reactor must be stopped for fresh fuel loading every one-and-a-half year.
- Operation in longer fuel cycles enhances the economic efficiency of a plant, as reactors must undergo stoppage and refuelling less frequently.

FINDER Device

NASA has developed a technology that can remotely detect the tiniest motions of the body that will be used by disaster relief teams in earthquake-stricken Turkey.

About FINDER Device

- The devices, called FINDERS (Finding **I**ndividuals for **D**isaster **E**mergency **R**esponse), use microwave radar sensors to find survivors underneath the rubble.
- It was designed to detect a human heartbeat buried beneath 30 feet of rubble.
- The radar illuminates the rubble pile and receives reflections back from a disaster site, including the victim.

Sand Battery

Finland has installed the world's 1st fully working "sand battery" in its town.

About Sand Battery

- It is a high temperature thermal energy storage (approximately 500 °C) that uses sand or sand-like materials as its storage medium. It stores energy in sand as heat.
- Its main purpose is to work as a high-power and high-capacity reservoir for excess wind and solar energy.
- It helps to upscale renewables production by ensuring there's always a way to benefit from clean energy, even if the surplus is massive.

Why Do We Use Sand?

- Sand, can be heated to temperatures well above the boiling point of water.
- Sand-based heat storages can store several times the amount of energy that can be stored in a water tank of a similar size.
- It saves space and it allows versatile use in many industrial applications.

Could the Sand Battery Replace Conventional Batteries?

- Currently, most industrial-scale batteries used for storing electricity from intermittent renewable energy sources are made out of lithium.
- They are bulky and expensive and do not cope well with large amounts of excess power.
- Sand batteries, on the other hand, are a low-cost solution that do not require new, rare materials, and can withstand significant power increases.
- It can also quickly store high surges of energy from renewable sources, maximizing efficiency in the system.

Gelbots

Scientists from John Hopkins University built a soft robot named Gelbots.

About Gelbots

- It is made out of **gelatin** and created by **3D printing**.
- It **shrinks or swells** depending on the variation in the temperature of its surroundings.
 - This causes the robot to move in a particular direction without relying on a power source to facilitate its movement.
 - It can be strategically manipulated to move robots forward and backwards on flat surfaces or to have them crawl in certain directions with an undulating, wave-like motion.

Potential Application Areas of Gelbots

- It can be used to create for creating smart structures, and also can be used for moving on surfaces through the human body to deliver targeted medicines.
- It can be deployed as marine robots, for patrolling and monitoring the ocean's surface.
- It can be trained to crawl in response to for variations in human biomarkers and bio chemicals.

Vertiplane X3

AIIMS-Rishikesh tested the feasibility of the Vertiplane X3 to deliver drugs to primary health centers.

About Vertiplane X3

- It is built by TechEagle, a deeptech firm.
- It is the **fastest** made-in-India **hybrid e-VTOL** (electric vertical take-off and landing) drone.
- It can fly 100 km across different terrains with maximum speed of 120 kmph and a payload capacity of 3 kg.

This is not the first time a drone has been used to transport medical supplies. In fact, in a pilot project led by the Indian Council of Medical Research, Covid-19 vaccines were delivered using a drone in Manipur.

Zombie Virus

French scientists have reportedly revived a 48,500-year-old zombie virus Pandoravirus yedoma buried under a frozen lake in Russia.

About Zombie Virus

- It is the term given to a virus that is frozen in ice and therefore dormant.
- The virus emerged due to the thawing of permafrost as the global temperature is rising.
- These viruses have the potential to be infectious and hence pose a health danger.
- It is believed that pandemics will become more common in the future as melting permafrost releases long-dormant viruses.

H3N2 Virus (Hong Kong flu & Subtype of the Influenza A Virus)

H1N1 (Swine Flu)	H3N2 (Hong Kong Flu)
It originally emerged in pigs and was transmitted to humans.	It is believed to have originated in birds, Swines and was later transmitted to humans.
H1N1 tends to affect younger people	while H3N2 is more common in older adults. However, the current one is commonly seen in younger populations
H1N1 has been associated with more severe respiratory symptoms, such as cough and shortness of breath	H3N2, on the other hand, may cause more severe muscle aches and fever.

Both can be treated by antiviral medications. H1N1 and H3N2 both can be fatal if immunity is compromised, especially in uncontrolled diabetes and those who have undergone an organ transplant.

IITR 00693

The researchers at the IIT Roorkee have discovered a new molecule named IITR00693 that has the potential to fight against drug-resistant infections.

About IITR00693

- It is a novel antibacterial small molecule.
- It has shown potent antibacterial activity against a wide range of Gram-positive and Gram-negative bacteria, including some of the most problematic drug-resistant strains.
- In single stage infections of lungs, intestines, joints and skin infections, these molecules will also give better results when combined with other anti-gity drugs.

Extra Mile	
Gram-positive bacteria	Gram-negative bacteria
<ul style="list-style-type: none">• Show blue or purple after gram-staining in a laboratory test	<ul style="list-style-type: none">• show pink or red on staining• They have an outer membrane. The outer membrane makes them more resistant to certain antibiotics.

<ul style="list-style-type: none"> • They do not have a protective outer membrane. 	
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Base Editing

A new gene editing technology called **base editing** was used to modify immune cells and successfully treat a teen with T-cell acute lymphoblastic leukaemia (T-ALL).

About Base Editing

- It is a modification of chimeric antigen receptor, or (CAR) T-cell therapy.
- Team of doctors and scientists used this tool to engineer a new type of T-cell that was capable of hunting down and killing cancerous T-cells.
- It allows scientists to zoom to a precise part of the genetic code and then alter the molecular structure of **just one base**, converting it into another and changing the genetic instructions.

About T-ALL

- It affects the stem cells in the bone marrow that produce a particular kind of white blood cells (WBC) called T lymphocytes (T cells).
- These cells provide person immunity by killing cells carrying infections, activating other immune cells, and regulating the immune response.
- While it is found in both children and adults, T-ALL decreases with age.

About T-Cell

- T (thymus) cells are types of white blood cells.
- They are part of the immune system and develop from stem cells in the bone marrow.
- They help protect the body from infection and may help fight cancer.
- It is also called T lymphocyte and thymocyte.

Fumarate Hydratase

Scientists have found that Fumarate hydratase is repressed in macrophages, a frontline inflammatory cell type implicated in a range of diseases including Lupus, Arthritis, Sepsis and Covid-19.

- Scientists also have made an important link between Fumarate Hydratase and immune proteins called **cytokines** that mediate inflammatory diseases.

Fumarate hydratase (FH)	Mutated or Repressed Fumarate hydratase (FH)
<ul style="list-style-type: none"> • It is a gene that makes an enzyme that helps cells in the body use oxygen and make energy. • FH plays an important role in the citric acid cycle (also known as the Krebs cycle or TCA cycle), which is a series of biochemical reactions that occur in the <i>mitochondria of cells.</i> 	<ul style="list-style-type: none"> • Mutated form of FH may cause cells to lose the ability to use oxygen. This may increase the growth of some cells, including abnormal cells and cancer cells. • The mutated gene has been found in an inherited condition called <i>hereditary leiomyomatosis and renal cell cancer (HLRCC).</i> • This condition is characterized by the development of benign smooth muscle tumours (leiomyomas) in the skin and uterus, as well as an increased risk of developing kidney cancer. • When Fumarate Hydratase is repressed, RNA is released from mitochondria which can bind to key proteins 'MDA5' and 'TLR7' and trigger the release of cytokines, there by worsening inflammation. <ul style="list-style-type: none"> ➤ Cytokines are small proteins that are crucial in controlling the growth and activity of other immune system cells and blood cells.

Platinum Drugs

- The platinum-based anti-cancer drugs, including cisplatin, carboplatin, nedaplatin, lobaplatin and oxaliplatin are widely used for chemotherapeutic eradication of cancer.
- They are coordination complexes of platinum.
- The side effects of platinum drugs-lack of selectivity, high systemic toxicity, and drug resistance-seriously limit their clinical application.

Genes of Whales

New research in Scientific Reports revealed the genes that likely allowed whales to grow to giant sizes compared to their ancestors.

- The findings highlight the role of four genes — **GHSR**, **IGFBP7**, **NCAPG**, and **PLAG1** — and suggest that they promote large body sizes.
 - **GHSR** is a gene involved in releasing growth hormone through the pituitary gland, body weight, energy metabolism, appetite and fat accumulation.
 - **IGFBP7** is a gene involved in promoting cell growth and division.
 - **NCAPG**, a gene associated with growth in people, horses, donkeys, cattle, pigs and chickens, is linked to increased body size, weight gain, cell proliferation and cell life cycles.
 - **PLAG1**, a gene associated with body growth in cattle, pigs, and sheep, is involved in embryo growth and cell survival.

Maharashtra Gene Bank Project

To conserve genetic resources, including marine diversity, seeds of local crops, and animal diversity, Maharashtra Cabinet have established - 'Maharashtra Gene Bank', a first-of-its-kind project in India.

- Indigenous knowledge resources are to be tapped through this Gene Bank.
- Genetic and molecular samples are preserved and their respective breeders will be supported.
- To preserve crop biodiversity, the government will encourage genome carriers who conserve seeds of local crop varieties and create seed banks

The National Gene Bank

The Indian National Gene Bank was established by the **National Bureau of Plant Genetic Resources (NBPGR)** to conserve the national heritage of germplasm collections. It can preserve about one million germplasm in the form of seeds.

GNB1 Encephalopathy

Researchers are studying a rare genetic brain disease called GNB1 Encephalopathy and trying to develop a drug to treat it effectively.

About GNB1 Encephalopathy

- It is a rare genetic brain disease caused due to mutations in the GNB1 gene.
- This genetic disorder affects individuals in the foetus stage.
- Early symptoms are delayed physical and mental development, intellectual disabilities, epilepsy, movement problems and frequent epileptic seizures.
- Till now less than 100 cases of GNB1 Encephalopathy have been recorded worldwide.
- However, the actual number is probably higher since diagnosis is not widely available due to the requirement of sophisticated and expensive procedures.

Virovore

- The 1st known virovore has been found in the United States by microbiologists from the University of Nebraska-Lincoln.
- Virovore is an organism that obtains **energy and nutrients** by consuming viruses.
- Scientists found that a species of **Halteria, a microscopic ciliate**, can eat huge numbers of infectious chloroviruses that share their aquatic habitat.
 - They're made up of nucleic acids, nitrogen, and phosphorus.
 - The new findings may change our understanding of the role viruses play in the food chain at a microscopic level.

Adenovirus

Bengal health authorities have been asked to be vigilant after the state recently recorded a big spike in adenovirus cases.

About Adenovirus

- Adenoviruses are a **group of viruses** that can **cause mild to severe infections throughout your body**.
- They can **cause a wide range of illnesses**, such as the **common cold, fever, sore throat, acute bronchitis, pneumonia, pink eye, and acute gastroenteritis**.
- There are many **different types of adenoviruses**, so that **people can get infected more than once**.
- Adenoviruses are **very contagious**. They can spread from an infected individual to others **via close contacts, through coughing and sneezing, via contaminated environment**.

Treatment

- There is currently **no specific course of treatment** or approved antiviral medication.
- **Some medications with proper rest** are advised **to control the symptoms**.

Monkeypox

- Monkeypox is caused by the monkeypox virus which belongs to the **orthopoxvirus genus** normally seen in African countries.
 - **Sub-genus:** There are two clades of monkeypox virus, the West African clade and the Congo Basin (Central African) clade.
 - **Transmission:** Monkeypox is a **viral zoonosis** (a virus transmitted to humans from animals), for example, bites of infected rodents and squirrels and is also transmitted from one person to another by close contact with lesions, body fluids, respiratory droplets and contaminated materials such as bedding.
 - **Incubation period:** The incubation period (the period between exposure to an infection and the appearance of the first symptoms) of monkeypox is usually from 6 to 13 days but can range from 5 to 21 days.
 - **Symptoms:** Fever, rash and swollen lymph nodes and may lead to a range of medical complications.
- There is **no effective vaccine** available for Monkeypox infection

Vascular Endothelial Growth Factor

Scientists from the Institute of Advanced Study said that fluorescent carbon nanomaterial-based immunosensor from natural sources can help in the detection of the Vascular Endothelial Growth Factor

About Vascular Endothelial Growth Factor

- It is a factor that promotes **angiogenesis or the formation of new blood vessels**, which involves migration, growth, and differentiation of endothelial cells that line the inside wall of blood vessels.

- It is upregulated in many tumors and hence gives indications of the probability of cancers.

What is Endothelium?

- The endothelium is a monolayer of **endothelial cells** and constitutes the inner cellular lining of the blood vessels (arteries, veins and capillaries) and the lymphatic system.
- Endothelium is a major player in **the control of blood fluidity, platelet aggregation and vascular tone**.
- It is a major factor in the regulation of immunology, inflammation and angiogenesis, and an important metabolizing and endocrine organ.

Dieback Disease

Dieback disease hits neem trees in Telangana again. Earlier it was seen in 2019.

About Dieback Disease

- It is mainly caused by the **fungi** *Phomopsis Azadirachtae*.
- Symptoms include the gradual death of leaves, branches, twigs or roots starting from the ends.
- It affects neem trees of all ages and it causes almost 100% loss of fruit production in severely infected trees.
- The appearance of symptoms begins with the onset of the rainy season and becomes progressively severe during the later part of the rainy season and early winter.
- The disease was 1st reported in the country during the 1990s near Dehradun, Uttarakhand.

Ways to Control This Disease

- Diseased shoots should be removed and after their removal sprayed with a mixture of fungicide and insecticide.
- Alternatively, a pit should be dug around an affected tree, and water mixed with fungicide and insecticide should be poured into it.

Elimination of Kala Azar

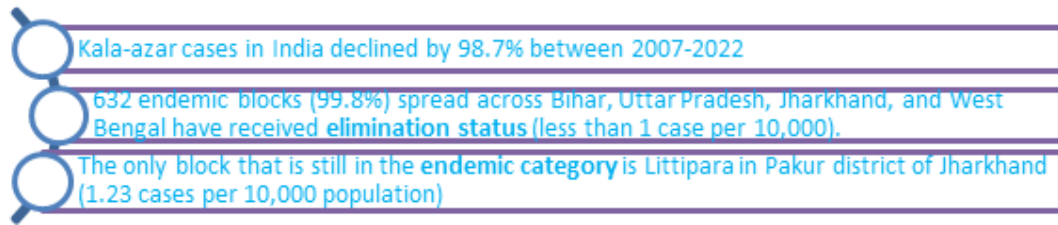
During the high-level meeting, the union Health minister assured the Centre's complete support in the fight against eliminating Kala Azar from the country by 2023.

About Kala azar

- It is also known as Visceral Leishmaniasis or Black Fever or Dumdum Fever.
- It is caused by a **protozoa parasite** called *Leishmania*, which is transmitted through the bite of female phlebotomine sandflies.
- It attacks the immune system and is almost always fatal if not treated.
- Symptoms may include fever, weight loss and swelling of the spleen or liver.
- It is the 2nd largest parasitic killer in the world after malaria and is also one of the most dangerous **neglected tropical diseases (NTDs)**.

Initiative to Tackle Kala azar

- WHO's New Roadmap for 2021–2030: To prevent, control, eliminate and eradicate a set of 20 diseases, termed NTDs, by 2030
- Government of India launched a centrally sponsored Kala-azar control programme in the endemic states in the year 1990-91.
- **The National Health Policy, 2002** had set the goal of kala-azar elimination by the year 2010, which was revised to 2015. This deadline was later extended twice to 2017, and then to 2020.



- Presently, all programme activities are being implemented through National Vector Borne Disease Control Programme (NVBDCP) which is an umbrella programme and is subsumed under National Health Mission (NHM)

African Animal Trypanosomosis (AAT)

- Also known as nagana / nagana pest/ sleeping sickness, it is a disease of vertebrates.
- It affects cattle, water buffalo, sheep, goats, horses, pigs, dogs and other species.
- It is caused by several species of the genus Trypanosoma, a parasitic protozoan.
- It is transmitted by **tsetse flies**.
- It can be controlled by reducing tsetse fly populations with traps and insecticides.
- No vaccine is available to prevent trypanosomiasis.

Batrachochytrium Dendrobatidis

A fungus named Batrachochytrium dendrobatidis is expanding across Africa and killing out or driving to the verge of extinction hundreds of amphibian species (Particularly Frogs).

About Batrachochytrium Dendrobatidis (Bd)

- Bd is a species of chytrid fungus that is known to cause the disease chytridiomycosis in amphibians, particularly frogs. The disease has had devastating effects on amphibian populations worldwide, leading to declines and extinctions of numerous species.
- It affects (Via Water) the keratin in the skin of amphibians, resulting in skin infections and lesions.
- It was initially discovered in Queensland, Australia, in the 1990s. It is most prevalent in South and Central America, Australia, and North America.

Gonorrhoea

A strand of antimicrobial-resistant gonorrhoea outbreak has hit Kenya.

About Gonorrhoea

- It **sexually transmitted infection (STI)** caused by the bacterium Neisseria gonorrhoeae.
- It can affect people of any age or gender.
- It often affects the urethra, rectum or throat. In women it can also affect the cervix.
- If left untreated, it can cause serious health problems, including infertility and an increased risk of Human Immunodeficiency Virus (HIV) infection.
- According to WHO, it is the 2nd-most common disease to be sexually transmitted across the world after **Chlamydia**.
- It is usually treated with antibiotics, but the bacteria have become increasingly resistant to many of the drugs that were once effective.

Marburg Virus Disease (MVD)

- The Equatorial Guinea has confirmed its first-ever outbreak of MVD. The Marburg virus is part of the filovirus family that also includes Ebola virus. (Two diseases are clinically similar)
- MVD can spread through human-to-human transmission. (Not an airborne disease)
- There are no authorized vaccines or drugs to treat Marburg, but rehydration treatment to alleviate symptoms can improve the chances of survival.
- MVD was initially detected in 1967 in Marburg and Frankfurt (Germany); and in Belgrade (Serbia).

American Foulbrood (AFB)

The United States Department of Agriculture (USDA) has granted a conditional license for a **vaccine** for honeybees to curb American foulbrood (AFB). Honeybee populations are declining sharply, spurred by habitat loss, pesticide use and the climate crisis.

About American foulbrood (AFB)

- It is a fatal **bacterial** disease of honeybee brood caused by the spore forming bacterium *Paenibacillus larvae*.
- It can infect the strongest to the weakest colony in an apiary (*location where beehives are kept*) and infected brood usually dies at the pre-pupal or pupal stage.
- The disease is not able to be cured, meaning that destruction of infected colonies and hives or irradiation of infected material is the only way to manage AFB.

Role Of Sodium In Human Body

Sodium is one of the body's electrolytes, which are minerals that the body needs in relatively large amounts. Electrolytes carry an electric charge when dissolved in body fluids such as blood.

Effects of Sodium Deficiency	Importance if taken Within Limit (about 500 mg of sodium daily)	Adverse effects if consumed Beyond Limit
Hyponatremia: when there are low sodium levels in the blood. It can lead to lethargy, confusion, fatigue, and other symptoms.	1) Maintains fluid levels in the body, and maintain blood pressure by attracting and retaining water and minerals. 2) Conducts nerve impulses, contract and relax muscles.	Too much sodium in the diet can lead to high blood pressure, heart disease, and stroke. It can also cause calcium losses, some of which may be pulled from bone.

108th Indian Science Congress

The Prime Minister of India addressed the 108th Indian Science Congress (ISC).

About Indian Science Congress

- The 1st session was held in 1914.
- It is organized by the Indian Science Congress Association (ISCA), an independent body functioning with the support of the Department of Science and Technology (DST)
- It brings together scientists and researchers from the premier institutions, laboratories, science teachers and professors from colleges and universities.
- It offers a platform for their interaction with students and the general public on matters related to science.

Microsoft's Project ELLORA

- Microsoft launched Project ELLORA (Enabling Low Resource Languages) in 2015.
- It will help in preserving 'rare' Indian languages.
- It aims to create **digital ecosystems for Indian languages** that do not have enough presence online.
- Microsoft Research has chosen to focus on three of these for now which is Gondi, Mundari and Idu Mishmi.

UPI 123 Pay

- **Launched by the NPCI is an instant payment system** which will allow users to **make UPI transactions without an internet connection**.
- Transactions can be **done through IVR (interactive voice response) based payment solution, missed call, sound-based technology, and payment app**.

SHE STEM

- SHE STEM '22 event was held as a part of Sweden India Nobel Memorial Week.
- It aimed to celebrate women in the field of science, technology, engineering, mathematics, and sustainability.
- Held annually by the Embassy of Sweden in India through partnership with NITI Aayog, Atal Innovation Mission and German Centre of Innovation and Research.

Exothermic Reactions

- The Indian Institute of Technology, Delhi has devised a **powerless heating system** which works on chemical energy – Exothermic energy.
- The energy provided is adequate to raise the temperature of any food or beverage by 60-70 degrees Celsius
- It uses a mixture of eco-friendly minerals and salts as the active heating element which generates heat on contact with water.
- The powerless heating system can be activated by plain water anytime and anywhere, it can be used in places where there is no electricity.
- The by-product of the system is 100% biodegradable which also helps in improving soil fertility.

Best Tech Initiative of the Year'22 - 'Manthan Platform'

- The Manthan Platform has won the Best Tech Initiative of the Year at Dun and Bradstreet Business Excellence Awards 2022
- About Manthan Platform:
 - Initiated by Principal Scientific Adviser (PSA), Manthan aims to change the landscape of science and technology-based social impact innovation and solutions in India.
 - It provides for the collaboration between Scientific Research and *industry-based social impact innovation and solutions* in India.

New Technique of Corrosion-resistant Nickel Alloy Coatings

Scientists at the International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI) have developed a **process** to deposit nanostructured Nickel alloy coatings to replace environmentally toxic chrome plating.

Chrome plating: A thin layer of chromium is deposited on a metal surface using an electroplating process (using electricity).

- Chromium layer is highly reflective and provides a hard, durable surface that is **resistant to corrosion**. It is used on automotive parts, home appliances (door handles), and in industrial applications.
- However, it can cause respiratory problems, skin irritation, and an increased risk of lung cancer when inhaled

About New Technique

- The process consists of **environment-friendly electrolyte** consisting of nickel (Ni) and tungsten ions(W)
- The pulsed current is applied between the components to be coated, acting as cathode and non-consumable anode.
- Unlike conventional direct current plating, the coating is virtually free of porosity, crack free with minimal hydrogen uptake.

Advantages of New Technique

- It can replace environmentally toxic chrome coatings.
- The coatings obtained are also highly corrosion-resistant and useful for the plastic ware industry.
- The coatings can withstand temperatures up to 500°C without thermal softening.

Coronary Stent

Delhi High Court asked the Central government to respond to a plea seeking sale and marketing of coronary stents in the country only after submission of adequate supporting clinical studies.

About Coronary Stent

- It is a tiny, expandable metal mesh coil.
- It is put into the newly opened area of the **artery** to help keep the artery from narrowing or closing again.
- Arteries can become narrowed or blocked by deposits called plaque (deposits of cholesterol). And the blockage may lead to a heart attack.
- This revascularization procedure is called percutaneous coronary intervention (PCI) or coronary angioplasty with stent placement.
- People who get stents have less discomfort and a shorter recovery time, compared to coronary artery bypass surgery.

BharOS

Union Minister for Communications, Electronics and Information Technology tested BharOS.

About BharOS

- It is an **indigenous mobile operating system**, funded by the Dept of Science and Technology
- It is developed by JandK Operations Private Limited, a non-profit organization incubated at IIT Madras.
- It is funded by the Department of Science and Technology.
- It can be installed on commercial off-the-shelf handsets.
- BharOS is based on Android Open-Source Project (AOSP). It makes it similar to Google Android. However, it does not come preloaded with Google services
- It comes with **No Default Apps (NDA)**. This means that users are not forced to use apps that they may not be familiar with or that they may not trust.
- It comes with security protocols such as root of trust and chain of trust, which means that the operating system is designed to stop working if any change is made to its software.
- It will provide access to apps from organisation-specific **Private App Store Services (PASS)**.
- A PASS provides access to a curated list of apps that have been thoroughly vetted and have met certain security and privacy standards.

- It also supports **Native Over The Air (NOTA)** updates, which would ensure that the device is always running the latest version of the OS (ie automatically installed), including security patches and bug fixes.
- **BharOS** aims to reduce the dependence on foreign OS in smartphones and promote the use of locally developed technology.

Ceramic Radome Technology

Carborundum Universal Limited (CUMI- a private sector pioneer in material sciences) has signed a Licensing Agreement for Transfer of Technology with the DRDO for manufacturing ceramic radomes used in aerospace and missile systems.

About Ceramics Radome

A ceramic radome is a type of protective cover that is used to protect radar equipment and antennas from environmental factors such as rain, snow, UV light, and strong wind.

- **Ceramics:** They are inorganic and non-metallic materials that are essential to our daily lifestyle. Ceramics are corrosion-resistant, hard, and brittle. The majority of ceramics are also excellent insulators and can withstand high temperatures.

About Ceramic Radome Technology

- It is regarded as an essential, state-of-the-art technology for ballistic and tactical missiles and high-performance aircraft.
- Missiles undergo extremely high surface temperatures while travelling through the atmosphere, and while re-entering it from space.
- To withstand those temperatures, radomes located at the tip of a missile are made of ceramic.

Arudhra Radar

The Defence Ministry signed two contracts with Bharat Electronics Limited (BEL) for Arudhra radar for the Indian Air Force (IAF).

About Arudhra Radar

- It is a **Medium Power Radar (MPR)** designed and developed by DRDO.
- It will be manufactured by Bharat Electronics Limited (BEL).

Features

- Arudhra being a 4D multifunction radar, can determine the following four parameters:
 - ✓ range (straight distance from radar),
 - ✓ azimuth (angular position from a reference direction),
 - ✓ altitude (distance from the ground) and
 - ✓ velocity vector (representation of the direction of motion) of a target.
- The system has an instrumented range of 400 Km and have range with the altitude coverage from 100 meters to 30 Kms.
- The transceiver modules (TRM) are based on the antenna array itself, leading to high receiver sensitivity, enabling the radar to detect low observable targets at a long range.
- MPR technology can be to be used for any ship borne radar applications. The technology will be used for mountain radar. Presently MPR technology is used for similar class of radars for Indian Army.

Biotransformation Technology in Plastics

- It is a novel approach to processing plastics efficiently and breaking them down (Biodegradable).
- Plastics made using this technology are given a **pre-programmed time** during which they look and feel like conventional plastics without compromising on quality.
- Once the product expires and is exposed to the external environment, it **self-destructs and bio transforms into bioavailable wax**.
- This wax is then consumed by microorganisms, converting waste into water, CO₂, and biomass.

Fluorescence Microscope

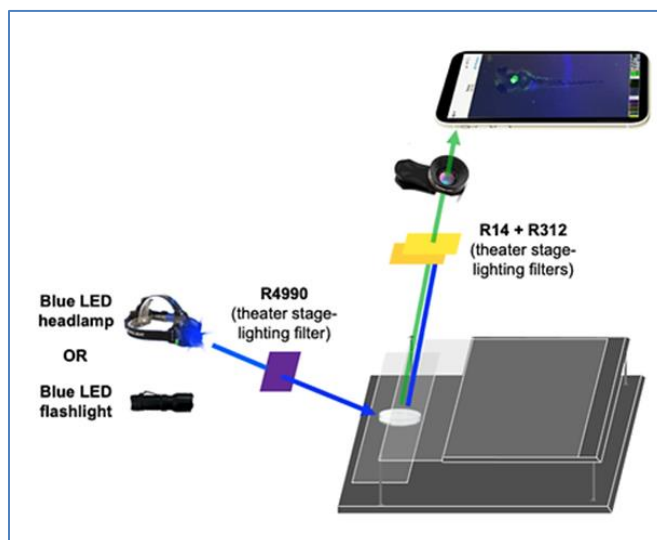
Researchers at Winona State University, Minnesota have designed a cost-effective device named **Glowscope** (Based on Fluorescence Microscopy) which could be used to study an object and how it reemits light.

About Glowscopes

It does not use scientific components. Instead, it combines our smartphone with a few inexpensive components, thereby converting it into a basic fluorescence microscope.

About Fluorescence Microscope

- It is a type of microscope that uses fluorescence to study biological samples.
- Fluorescence occurs when a molecule absorbs light at one wavelength and then emits light at a longer wavelength, which can be detected by the microscope.
- Fluorescence microscopes use *specific dyes or fluorescent proteins* that can bind to specific molecules or structures within a sample.
- When excited by a light source, these fluorescent molecules emit light of a specific color, allowing researchers to visualize specific structures or molecules within the sample.



Advantages of Fluorescence Microscope

- Fluorescence microscopy is commonly used in the *study of cell biology, immunology, and neuroscience*, as it allows researchers to visualize specific structures within cells, such as organelles, proteins, or DNA, in real-time.
- It is also used in medical diagnostics, such as the detection of infectious diseases or cancer cells.

Piezoelectric Effect

A pair of chemists at Michigan State University has observed the **piezoelectric effect in liquids** for the 1st time.

About Piezoelectric Effect (Conversion Of Kinetic Or Mechanical Energy Into Electrical Energy)

- It is a phenomenon where specific types of material (Piezoelectric Materials) e.g., quartz, topaz, etc. produce an electric charge proportional to the mechanical stress applied to them.
 - Piezoelectric Materials are materials that can produce electricity due to mechanical stress, such as compression. All piezoelectric materials are non-conductive in order for the piezoelectric effect to occur and work.

- This effect has only been expected in solids thus far because the body being squeezed needs to have an organised structure, like pyramids of quartz.

Applications of Piezoelectric Effect

- The sonar device is the first practical application for piezoelectric devices.
- High voltage generators, electronic frequency generators, microbalances, inkjet printers are using piezoelectric technology.
- Piezoelectric sensors can be used to measure pressure, force, acceleration, and temperature, and are commonly found in devices such as microphones, accelerometers, and ultrasound machines.
- Piezoelectric actuators, which can convert electrical energy into mechanical energy, are used in precision positioning and control systems.
- It is also the basis of several scientific instrumental techniques with atomic resolution, such as scanning tunnelling microscopes.

Yo-Yo Test and DEXA Scan

The Board of Control for Cricket in India (BCCI) has announced the **reintroduction** of the Yo-Yo Test and the introduction of DEXA scans for the purposes of selection to the team.

About Yo-Yo test

- It is a maximal aerobic endurance fitness test, involving running between markers placed **20 metres apart**, at increasing speeds, until exhaustion.
- Yo-Yo IR (intermittent recovery) level 1 test focuses on the capacity to carry out intermittent exercise leading to maximal activation of the **aerobic system**.
- Yo-Yo IR level 2 determines an individual's ability to recover from repeated exercise with a high contribution from the **anaerobic system**.

About DEXA Scans

- It is an **imaging test** that measures **bone density (strength)**.
- It can provide helpful details about your risk for osteoporosis (bone loss) and fractures (bone breaks).
- It can also measure your body composition, such as water content, body fat and muscle mass.
- It helps to understand where the fat is and whether the training methods are yielding the result.