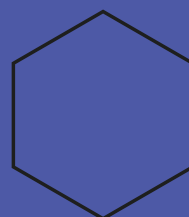
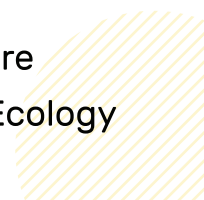


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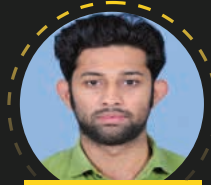
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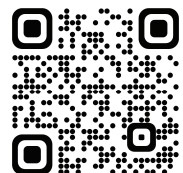
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Chapter-
1**ART AND CULTURE****National Unity Day****Why in News**

October 31 is celebrated as National Unity Day or Rashtriya Ekta Diwas to remember and honour Sardar Vallabhbhai Patel, who played a big part in bringing different regions together to make India a united country after it became independent from British rule.

Important Points

- National Unity Day, also known as Rashtriya Ekta Diwas, is celebrated on October 31 each year to honour the birth anniversary of Sardar Vallabhbhai Patel, the country's first home minister.
- Patel played a crucial role in India's struggle for independence and later in integrating the princely states into the Union of India.
- The Indian government declared in 2014 that Sardar Vallabhbhai Patel's birth anniversary on October 31 would be celebrated as National Unity Day.

Sardar Vallabhbhai Patel

- Sardar Vallabhbhai Patel, also known as the Iron Man of India, was one of the most influential leaders of the Indian National Congress and a key figure in the Indian freedom struggle.
- He was also the first Deputy Prime Minister and Home Minister of independent India, who played a vital role in integrating more than 560 princely states into the Indian Union.

Early Life and Career

- Sardar Patel was born on October 31, 1875, in Nadiad, Gujarat, to a farmer's family. He studied law and became a successful lawyer.
- He went to England to study law in 1910 and returned as a barrister in 1913.

Entry into Politics

- Sardar Patel's political career began when he met Mahatma Gandhi in 1917 and joined his non-violent movement against British rule.
- He led the Kheda Satyagraha in 1918, a peasant uprising against oppressive taxation by the British. He also organized relief work during the plague and famine in Kheda.
- In 1924, he became the President of the Ahmedabad Municipal Board and improved the sanitation, water supply, and drainage systems of the city.
- He participated in the Non-Cooperation Movement, Civil Disobedience Movement, Quit India Movement, and Salt Satyagraha.
- In 1928, he led the Bardoli Satyagraha, a massive campaign of tax resistance by farmers in Gujarat. He successfully negotiated with the British authorities and won concessions for the farmers. It was after this campaign that he earned the title of Sardar, meaning leader or chief.
- In 1931, he was elected as the President of the Indian National Congress at its Karachi session. He passed a resolution on fundamental rights and economic policy, which included demands for civil liberties, universal adult franchise, minimum wages, abolition of untouchability, and protection of minorities.

Role in Independence and Partition

- Sardar Patel was a member of the Congress Working Committee and a close associate of Mahatma Gandhi.
- He supported Gandhi's decision to call off the Civil Disobedience Movement in 1934 after the brutal suppression by the British.
- He backed Gandhi's proposal to launch the Quit India Movement in 1942, calling for immediate and

unconditional independence.

- He was one of the leaders who negotiated with the British Cabinet Mission in 1946 for the transfer of power.
- He opposed the idea of partition of India on religious grounds but accepted it as a pragmatic solution to avoid civil war. He was also instrumental in persuading Gandhi to give his consent for partition.
- He was appointed as the Chairman of the Advisory Committee on Fundamental Rights, Minorities, and Tribal and Excluded Areas by the Constituent Assembly of India.

Integration of Princely States

- Sardar Patel's most remarkable achievement was his role in the integration of more than 560 princely states into the Indian Union after independence.
- He used diplomacy, persuasion, incentives, and threats to convince the reluctant rulers to accede to India.
- He dealt with the complex issues of boundaries, administration, security, and finance that arose from the merger of states.
- He faced many challenges and conflicts during this process, such as the annexation of Hyderabad by Indian troops after an armed revolt by Razakars (a militant group loyal to the Nizam), the accession of Junagadh after a plebiscite that favoured India over Pakistan and the integration of Kashmir after an invasion by Pakistani tribesmen.
- He also established an all-India civil service known as the Indian Administrative Service (IAS) to replace the British-era Indian Civil Service (ICS). He envisioned the IAS as a professional and impartial bureaucracy that would serve as "the steel frame" of India's governance.



Death and Legacy

- Sardar Patel died on December 15, 1950, at the age of 75 due to a heart attack. He was cremated at Sonapur (now Raj Ghat) in Delhi. His death was mourned by millions of Indians who regarded him as a national hero.
- Sardar Patel is widely regarded as one of the founding fathers of modern India. His birthday, October 31, is celebrated as National Unity Day or Rashtriya Ekta Diwas to honour his contributions to the nation. He is also remembered for his courage, determination, pragmatism, and statesmanship.
- He has been honoured with many awards and recognitions, such as the Bharat Ratna (India's highest civilian award) in 1991, the Sardar Vallabhbhai Patel National Memorial in Ahmedabad, the Sardar Sarovar Dam on the Narmada River, and the Statue of Unity, a 182-meter tall statue of Patel near the Sardar Sarovar Dam, which is the world's tallest statue.

Geoglyph

Why in News

A geoglyph in the form of a circle said to be 3,000 years old has been recently unearthed on the outskirts of Mudichu Thalapalli in the Medchal-Malkajgiri district of Telangana.

Important Points

- It is a large design or motif (generally longer than 4 metres) produced on the ground and typically formed by clastic rocks or similarly durable elements of the landscape, such as stones, stone fragments, gravel, or earth.
- A geoglyph is created by arranging or moving objects within a landscape.
- There are two types of geoglyphs, namely positive and negative geoglyphs.

- Positive geoglyph: It is formed by the arrangement and alignment of materials on the ground in a manner akin to petroforms (which are simply outlines created using boulders).
- Negative geoglyph: It is formed by removing part of the natural ground surface to create differently coloured or textured ground in a manner akin to petroglyphs.
- There is another variation of a geoglyph that involves seeding plants in a special design. The design usually takes years to see since it depends on the plants growing. This type of geoglyph is called an arboreal glyph.
- Another type of geoglyph often referred to as 'chalk giants' are those carved into hillsides, exposing the bedrock beneath.

Geoglyphs in History:

- From ancient times, the most widely known geoglyphs are the Nazca Lines of Peru, which have been a mystery to this day.
- Other geoglyphs from the past include the Megaliths in the Urals, the Uffington White Horse, the Long Man of Wilmington, and many others.

Features of the geoglyph unearthed from Telangana:

- Etched on a low-lying granitoid hillock, the geoglyph spans 5 metres in diameter and has a perfect circular shape.
- Surrounding the circle is a 30-centimetre-wide rim, and within the circle are two triangles.
- It is dated to the Iron Age, specifically around 1000 BCE.
- It is suggested that this circle might have served as a model for megalithic communities in planning their circular burial sites.



Key facts about Nazca Lines:

- The lines are a group of massive geoglyphs in southern Peru's Nazca Desert.
- Experts estimate that they were designed anywhere in the period from 500 BCE to 500 CE.
- Some of the lines are straight, while others depict designs of animals and plants.
- All the lines have a combined length of more than 808 miles, while they cover an area of around 19 square miles.
- An individual design has a width of between 0.2 and 0.7 miles.
- All the designs were made by removing the top layer of soil. The depth of a line is anywhere between four and six inches.
- Some of the shapes are visible from a height of as much as 1,500 feet.
- The preservation of the lines over the years can be attributed to the dry and windless climate of the region.

Tamil Lambadi Art

Why in News

Porgai Artisan Association Society, with 60 plus women, has been making and selling embroidered clothes to ensure that there is awareness about the art form and that it is passed onto the next generation.

Important Points

- Origins in the Tamil Nadu region of India.
- Rooted in the cultural practices and traditions of the Lambadi community.
- Influenced by historical, social, and religious factors within the community.



Characteristics

- Vibrant color schemes with a focus on bold and contrasting hues.
- Intricate embroidery and mirror work that embellish textiles and clothing.
- Symbolic representations of nature, folklore, and traditional beliefs.
- Usage of geometric patterns and intricate designs to create visually appealing art forms.
- Incorporation of traditional Lambadi motifs and symbols passed down through generations.

Significance

- Reflects the rich cultural heritage and identity of the Lambadi community.
- Serves as a medium for storytelling and preserving cultural narratives.
- Symbolizes the community's close connection with nature and its surroundings.
- Represents the vibrant lifestyle and celebratory spirit of the Lambadi people.

Important Elements

- **Lambadi Textiles:** Intricately embroidered textiles adorned with mirrors, beads, and vibrant threads.
- **Lambadi Jewelry:** Ornate and colorful jewelry pieces, often made using traditional techniques and materials.
- **Lambadi Paintings:** Artistic representations on fabric or canvas that depict the community's folklore, traditions, and daily life.
- **Lambadi Dance and Music:** Traditional dance forms and music that accompany various cultural celebrations and rituals within the community.

A Nomadic Dialect

- **Origins and Nomadic Heritage:** Reflects the cultural heritage and historical migration patterns of the Lambadi community.
- **Regional Dialects and Script Usage:** Written using the scripts of dominant languages in respective regions (e.g., Devanagari, Kannada, Tamil, or Telugu script).
- **Bilingualism and Regional Integration:** Proficiency in Telugu, Kannada, or Marathi depending on geographical location and neighboring communities.

Lambadi Dance

- **Cultural Significance and Historical Context:** Reflects community spirit, celebratory traditions, and historical narratives.
- **Characteristics of the Lambadi Dance Form:** Characterized by graceful movements, rhythmic footwork, and expressive gestures, often performed with metal pots on the head.
- **Attire and Jewelry in Lambadi Dance Performances:** Colorful dresses with embroidery and mirrors, accompanied by beaded jewelry, symbolizing cultural richness and vitality.

Temples Cave in Ratnagiri

Why in News

A professor of ancient Indian history and his team of researchers have discovered two rock-cut Shaivite temple caves in a forested area near Rajapur, Ratnagiri, about 380km from Mumbai.

Important Points

- Ratnagiri is a coastal district located on the western coast of Maharashtra, India, bordered by the Arabian Sea.

History and Cultural Heritage:

- The district has witnessed the influence of various dynasties, including the Mauryas, Chalukyas, Rashtrakutas, and the Marathas.
- The cultural fabric of Ratnagiri is woven with



vibrant traditions, folk arts, and cultural practices that reflect the influence of the Konkani culture, adding to the diversity and richness of the region's cultural heritage.

Natural Attractions:

- Ratnagiri is renowned for its pristine beaches, including Ganapatipule Beach, Mandvi Beach, and Bhatye Beach.
- The district is characterized by its lush green hills, verdant valleys, and scenic landscapes.

Historical Landmarks:

- Ratnagiri Fort: built during the Bahamani reign and later fortified by the Marathas.
- Thibaw Palace: Formerly known as the Bhor Palace, Thibaw Palace is a historical edifice that served as the exile residence of the last Burmese king, King Thibaw, and his family.

Horticultural Significance:

- Ratnagiri is famous for its Alphonso mangoes.
- The district is also known for its cashew plantations.

Cultural Festivals:**Ganesh Chaturthi.**

- Nariyal Purnima: Nariyal Purnima, also known as Coconut Day, is celebrated with rituals and festivities centered around the worship of the sea and coconut.

Elephanta Caves

- Elephanta Caves is a UNESCO World Heritage Site situated on Elephanta Island in Mumbai Harbour, Maharashtra.
- Believed to have been constructed between the 5th and 8th centuries AD, the caves represent an important era in Indian history, reflecting the rich cultural tapestry of ancient India.

History:

- While the exact origins remain debated, it is generally believed that the Elephanta Caves were built during the rule of various dynasties, including the Chalukyas and the Rashtrakutas.

Architecture:

- The caves exhibit exemplary rock-cut architecture.
- The caves are divided into main areas, including the main cave or the Great Cave, smaller caves, and various sculptural panels, each representing a unique aspect of Hindu religious and mythological beliefs.
- The layout and design of the caves reflect the principles of Hindu temple architecture, incorporating elements such as mandapas (halls), pillars, and intricate carvings depicting stories from Hindu mythology.

Sculptures and Artwork:

- The caves are adorned with numerous sculptures of Hindu gods and goddesses, with a primary focus on depictions of Lord Shiva in various forms, such as Nataraja, Ardhanarishvara, and Mahayogi.
- The sculptures are characterized by their expressive and dynamic forms, showcasing the mastery of ancient Indian sculptors in capturing subtle emotions and intricate details.
- The sculptures at Elephanta Caves symbolize various aspects of Hindu mythology, philosophy, and the cosmic cycle, reflecting the cyclical nature of life, death, and rebirth as depicted in Hindu religious texts.

Main Features:

- Shiva-Centric Themes and Depictions: The caves primarily emphasize the cult of Lord Shiva, with sculptures and reliefs depicting various aspects of his divine persona, including his role as the creator, preserver, and destroyer.
- Notable Sculptures such as the Trimurti and Ardhanarishvara: The Trimurti sculpture, depicting the three aspects of the divine - Brahma, Vishnu, and Shiva - is one of the most iconic and revered sculptures in the caves. The Ardhanarishvara sculpture symbolizes the unity and balance of male and female energies in the universe.

Birsa Munda

Why in News

The Prime Minister recently announced he will go to the native village of tribal icon Birsa Munda on his birth anniversary and launch a welfare scheme for the community.

Important Points

- He was a folk hero and a tribal freedom fighter hailing from the Munda tribe.
- He spearheaded an Indian tribal mass movement that arose in the Bihar and Jharkhand belts in the early 19th century under British colonisation.
- Munda rallied the tribals to fight against the forceful land grabbing carried out by the British government, which would turn the tribals into bonded labourers and force them to abject poverty.
- He influenced his people to realise the importance of owning their land and asserting their rights over it.
- As a reaction to the introduction of the Zamindari system, or Permanent settlement in tribal areas, Birsa Munda in 1894 declared “Ulgulan”, or revolt, against the British and the Dikus – the outsiders.
- He created a faith called ‘Birsait’.
- Known as ‘Dharti Abba’ or the Earth Father, Birsa Munda stressed the need for the tribals to study their own religion and not forget their cultural roots.
- Birsa Munda propagated the principles of Hindu religion.
- He died on June 9, 1900, at age 25.
- His struggle against exploitation and discrimination against tribals led to a big hit against the British government in the form of the Chotanagpur Tenancy Act being passed in 1908. The act restricted the passing on of land from the tribal people to non-tribals.
- In recognition of his impact on the national movement, the state of Jharkhand was created on his birth anniversary in 2000.
- November 15, the birth anniversary of Birsa Munda, was declared ‘Janjatiya Gaurav Divas by the Central Government in 2021.



Chhatrapati Shivaji Maharaj

Why in News

Chhatrapati Shivaji Maharaj's statue unveiled in Kupwara in Jammu and Kashmir

Important Points

- The foundation stone of Chhatrapati Shivaji Maharaj's statue was laid in the Indian Army's 41 Rashtriya Rifles Maratha Light Infantry Regiment at Kupwara district in north Kashmir which shares its border with Pakistan.
- For this, soil and water from five forts namely Shivneri, Torna, Rajgad, Pratapgad and Raigad were brought.

Chhatrapati Shivaji Maharaj

- He is one of the most revered rulers in India and is credited to have founded the Maratha Empire in the 17th century.

Early days:

- Shivaji Maharaj was born in the hill fort of Shivneri now located in Pune city of Maharashtra.
- Shivaji is believed to have been named after a local deity called the goddess Shivai.
- Shivaji's mother, Jijabai was the daughter of Lakhuji Jadhavrao of Sindkhed. His father Shahajiraje Bhosale was a prominent Sardar in the Deccan.
- From an early age, he showed leadership qualities and a keen interest in politics.

Alliance & Hostilities:

- Over the course of his life, Shivaji engaged in both alliances and hostilities with the Mughal Empire, the Sultanate of Golkonda, the Sultanate of Bijapur and the European colonial powers.
- Shivaji's military forces expanded the Maratha sphere of influence, capturing and building forts, and forming a Maratha navy.
- The Maratha Navy guarded the Jaigad, Sindhudurg, Vijaydurg and other forts along the coast of Maharashtra.

Guerilla Tactics of Shivaji:

- Shivaji's armed forces had some major limitations. He did not have the man or horsepower compared to most of his enemies, especially during the early stages of his life.
- This meant that in conventional battle, he would have seldom stood a chance against his foes.
- Unlike the plains of Northern India, suited to conventional battle with large standing armies, the terrain of the Maratha country was different.
- His men would travel in small, highly mobile and heavily armed attachments, wreak havoc in the often sluggish Mughal or Adil Shahi armies, loot supplies and treasure, and quickly retreat.
- With the Arabian Sea on one side, the Konkan plains in the centre and the Western Ghats overlooking the plains, in the 17th century much of the region was covered in thick jungles.
- Warfare in such terrain is qualitatively different, with large conventional armies prone to getting bogged down.

**Significance of Forts (Shivneri, Torna, Rajgad, Pratapgad and Raigad):**

- For a long time in history, before air power took centre stage in military tactics and strategy, forts were crucial to the defence of any country.

Geographical Factors:

- Over his storied life, he captured multiple such forts, including Torna (when he was only 16), Rajgad, Sinhagadh and Purandar.
- Chhatrapati Shivaji Maharaj, at the time of his death, is said to have control of over 200 forts across his territories, with some estimates putting the number over 300.

Coronation:

- In 1674, he was formally crowned as the Chhatrapati (Monarch) of his realm at Raigad.

Administration & Civil Rule:

- He assigned separate responsibilities to the ministers and each of them was made responsible for his work to him.
- He had a council of ministers (Asht Pradhan) to advise him on the matters of the state but he was not bound by it.
- He also believed in religious tolerance and gave equal respect to all religions.
- He made no office hereditary.
- In general, he did not assign jagirs to his civil and military officers.

Art & Culture:

- The historical figure was not only a great warrior but also a patron of art and culture.
- He encouraged literature and music, and his court was a centre of creativity and intellectualism.

Death:

- The brave warrior died in 1680 but is still known for his courage and intelligence.

Contemporary Accounts:

- Shivaji was admired for his heroic exploits and clever stratagems in the contemporary accounts of English, French, Dutch, Portuguese and Italian writers.
- The celebration of Shiv Jayanti was set by Jyotirao Govindrao Phule in 1870, and since then, people have been celebrating the day with great zeal.

- The celebrations were carried on by the great liberation fighter Bal Gangadhar Tilak. The freedom fighter was also given the credit for drawing attention to the Maratha King's contributions to the public during the freedom struggle. Bal Gangadhar Tilak portrayed Shivaji as the 'opponent of the oppressor', with possible negative implications concerning the colonial government.

Legacy:

- The Indian Navy's INS Shivaji is named after him.
- The Chhatrapati Shivaji Terminus, formerly known as Victoria Terminus in Mumbai is also named after him.
- Shri Chhatrapati Shivaji Maharaj Memorial National Committee – Conceptualised & pioneered in 1981 by Late Smt. Indira Gandhi.

World Heritage List

Why in News

Recently two sites in Karnataka proposed for world heritage list.

Important Points

- The monuments at Shravanabelagola in Hassan and Lakkundi in Gadag districts are set to be proposed for inclusion on the tentative list of UNESCO World Heritage Sites by the State Department of Archaeology Museums and Heritage (DAMH).
- The Tentative List provides a forecast of the properties that a State Party may decide to submit for inscription in the next five to ten years.
- To be considered for final declaration as a UNESCO World Heritage Site, a monument must first be nominated for inclusion on the Tentative List.
- The monuments must be on the list for at least one year before being proposed for inscription as a UNESCO site by the State party.
- The UNESCO Tentative List currently includes 50 Indian monuments.

Shravanabelagola

- Shravanabelagola Temple complex on Chandragiri Hill is one of the most important places of pilgrimage for followers of Jainism.
- It is famous for the statue of Gomateshwaraa, considered to be one of the world's tallest free-standing monolithic statues.
- It was carved from a single stone and consecrated in 981 CE.
- Shravanabelagola is also where the Mauryan emperor Chandragupta Maurya is said to have spent his final days.

WORLD HERITAGE SITES IN INDIA



Lakkundi

- Lakkundi is also known as 'Lokkigundi'.
- It was a significant city a thousand years ago.
- It was one of the capitals of the Hoysala Empire.
- There are over 50 ruins of ancient temples scattered throughout the village, dating back to the periods of the Chalukyas, Kalachuris, and Suena.
- The area has over 100 stepwells, also known as 'kalyani', each displaying stunning architectural beauty.

What is UNESCO tentative list?

- The UNESCO tentative list is an inventory of those properties which each State Party intends to consider for nomination.
- If a state party considers a monument or site has cultural or natural heritage of outstanding universal value then the state prepares a list of such sites and sends it to UNESCO.

- The UNESCO after accepting or rejecting inclusion of such monuments, forms a tentative list.
- A position on a country's tentative list does not automatically tender that site with world heritage status.
- It is mandatory to put any monument/site on the Tentative List (TL) before it is considered for the final nomination dossier.
- After a site is listed as a tentative site, the state party has to prepare a nomination document that will be considered by the UNESCO World Heritage Committee for a World Heritage Site.

What is a World Heritage Site?

- A World Heritage Site is a location having an "Outstanding Universal Value".
- According to the World Heritage Convention's Operational Guidelines, an Outstanding Universal Value signifies cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity.

The Sites fall into three categories:

- Cultural heritage: Cultural heritage entails an Outstanding Universal Value from the point of view of history, art or science, and includes monuments, groups of buildings, and sites which are the combined work of nature and human agency.
- Examples include the Taj Mahal, the Statue of Liberty, and the Sydney Opera House.
- Natural heritage: The Sites under natural heritage are those having an Outstanding Universal Value from the point of view of science, conservation or natural beauty, such as the Sundarbans Natural Park or the Victoria Falls.
- Mixed heritage: A mixed site comprises components of both natural and cultural importance.

Difference between a World Heritage site & Tentative List

- A World Heritage Site is a place that is listed by UNESCO for its special cultural or physical significance.
- The list of World Heritage Sites is maintained by the international 'World Heritage Programme', administered by the UNESCO World Heritage Committee.
- For getting its heritage site considered for inscription on the World Heritage List, the country makes an inventory of important natural and cultural heritage sites located within its boundaries.
- This 'inventory' is known as the Tentative List.
- Making it to the tentative list thus is the first step for any site which seeks final nomination for becoming a World Heritage site.

Restoration of a 12th Century Chola temple

Why in News

A 12th century temple of the Chola dynasty, with striking architectural features, is in a dilapidated condition at Mundlapudi village on the outskirts of Tirupati.

Important Points

- The temple was raised on an 'Adhishtana' (basement), the walls decorated with Koshtas, Makara Thoranas, miniature shrines and 'Kumbhapanjara' pillars.
- There are also some sculpted idols of Nataraja, Venugopala Krishna, musicians and dwarfs engraved in the typical Chola style.
- The name of the village Mundlapudi was originally known as Munaipundi or Muniyapundi.
- It was also called as Sivapadasekharanallur, after the title of King Raja Raja Narendra, in an inscription of Vikrama Chola (1118-35 CE) engraved on the mouldings of the temple basement.
- The inscription also records that the income of the village was donated to light the lamps at Parasareswara Swamy temple in Yogimallavaram, located just less than a kilometre away.
- There is no Krishna idol in the temple and the villagers are worshipping a mere photo frame of Lord Krishna.

Art and Architecture

- After the Pallavas, Chola dynasty became the main power of Southern India and emerged victorious among other kingdoms.

- The capital of Chola dynasty was the city of Thanjavur
- They advanced as far as Bengal, Sri Lanka, Java, Sumatra and had trade links as far as Indonesia.
- Their military and economic power was reflected in the grand architectural productions under the period at Thanjavur, Gangaikondcholpuram, Darasuram, Tribhuvanam.
- They had built more than two hundred temples which seems to be continuation of previous Pallava architecture with some variations. The Chola kings earlier built brick temples and later they built stone temples.
- The first Chola ruler Vijayalaya Chola built temple at Narttamalai. This is a stone temple. It is one of the finest examples of the early Chola temple architecture.
- Balasubramaniya temple of Kannanur in Pudukottai region and Thirukkatalai temple were built during the period of Aditya-I.
- Nageswarar temple at Kumbakonam is famous for sculptural work.
- King Parantaka I built Koranganatha temple at Srinivasanallur (Trichy District). Muvarkoil of Kodumbalur. They are good examples of the later Chola architecture and sculpture.
- Besides all these temples of the Chola period, the greatest landmark in the history of south Indian architecture is Brhadeeswarar temple at Tanjore. This is also called as big temple. It has many architectural significance. It was built by Rajaraja I. This is the largest and tallest temple in Tamil nadu.
- Rajendra Chola built a temple at GangaiKonda Cholapuram which is also equally famous. King Rajendra Chola added credit to the Chola art and architecture.
- King Kulothunga I built a temple for Sun God at Kumbakonam. This temple is first of its kind in the south Indian architecture.
- Rajaraja II built Airavatheeswarar temple at Dharasuram.
- These temples amply illustrate the style of architecture between 8th to 12th century CE and its influence may also be seen on the architecture of temples of Ceylone and those of SE Asian kingdoms like SriVijay (Sumatra) and Chavakam (Java).
- Raj Raja I has constructed a Shiva temple at Polanuruva at Sri Lanka in the same pattern of Chola architecture.

Features of Chola Architecture

- Chola temples can be categorised in two groups – Early Temples and Later Temples; early temples are influenced with Pallava architecture while later have Chalukya influence.
- Temples were surrounded by high boundary wall unlike Nagara.
- The earlier example were modest in size and while later ones were huge and large with Vimanas or Gopuras dominating the landscape.
- Initially, the gopuram features were more prominent but in the later stages, the vimanas took the forefront.
- The spire in the form of stepped pyramid, popularly known as Vimana. Pallava influence may be seen in spire/vimana similar to Rathas, an octagon shaped crowning element known as Shikhara.
- The sanctums of the Chola temples were both circular and square in size and the walls of the inner sanctum sanatorium were beautified. On the upper side of the sanctum special vimanas are built with dome shaped sikhara and kalasa which were also there on the top of gopurams.
- Panchayatan style, but no vimana on subsidiary shrines.
- Absence of lion motifs in pillar's base as seen in the Pallava architecture, but presence of Kudus decoration, however, it is little bit different with that of Pallavas.
- The temple mostly consists grabhgriha, antarala, sabhamandapa. Many temples are having pillared



mandapams namely arthamandapa, mahamandapa and nandi mandpa.

- Presence of water tank inside the boundary of the temple.
- The raw material used are blocks of gneiss and granite.
- The important example of early group is Vijayalaya temple while later group represents Brihadishwar temple of Tanjaur and Brihadishwar temple of Gangaikondcholpuram.
- A special feature of the Chola architecture is the purity of the artistic tradition. Sculptures and inscriptions are also fixed on the walls of these temples.

Meera Bai

Why in News

PM Modi attends an event commemorating the birth anniversary of Sant Meera Bai.

Important Points

- Meera Bai, also known as Meera, was a prominent saint, poetess, and devotee of Lord Krishna in the Bhakti movement of India.

Early Life and Background

- Birth and Family: Meera Bai was born in the late 15th century (around 1498 AD) in Rajasthan, India, into the royal family of Merta. She was devoted to Lord Krishna from an early age, inspired by stories of Krishna's childhood.
- Marriage to Prince Bhoj Raj: Meera Bai was married to Prince Bhoj Raj, the heir of the Chittor kingdom. Despite her royal status, her heart was inclined solely towards devotion to Lord Krishna, which caused conflicts in the royal household due to her devotion taking precedence over worldly duties.

Devotion to Lord Krishna

- Bhakti Movement: Meera Bai became a prominent figure in the Bhakti movement, a spiritual and devotional movement that emphasized a personal connection with the divine and advocated love and devotion as a means of attaining salvation.
- Expressing Devotion through Poetry: She expressed her deep love for Lord Krishna through soul-stirring poems (bhajans and padavali), which conveyed her spiritual yearning and intense longing for union with the divine.



Bhakti movement

- The Bhakti Movement, originating in medieval India, was a significant socio-religious revolution that emphasized devotion (bhakti) and a personal, emotional connection with the divine.
- It emerged as a response to the rigidity of ritualistic practices, caste discrimination, and the hierarchical structure of the society prevalent during that time.

Origins and Historical Context:

- Era of Emergence: The Bhakti Movement began around the 7th to 8th centuries AD, gaining prominence between the 14th and 17th centuries during the medieval period.
- Influence of Scriptures: The movement drew inspiration from ancient scriptures such as the Bhagavad Gita and devotional texts like the Puranas, emphasizing the importance of devotion, love, and surrender to the divine.

Core Principles of the Bhakti Movement:

- Personal Devotion: Bhakti emphasized the path of devotion as a means of attaining salvation, encouraging a personal, emotional connection with the chosen deity.
- Equality and Inclusivity: It preached the equality of all individuals irrespective of caste, creed, or social status, advocating a direct connection between the devotee and the divine without the need for intermediaries.

- **Simplicity and Universality:** The movement propagated a simple and universal approach to spirituality, transcending the complexities of rituals and elaborate religious practices.

Key Figures and Their Contributions:

- **Ramanuja, Madhvacharya, and Chaitanya Mahaprabhu:** These saints from different regions of India contributed significantly to the Bhakti Movement, each with their unique philosophies and teachings.
- **Mirabai, Kabir, Tulsidas, and Surdas:** These notable poet-saints composed devotional songs and verses in regional languages, expressing their profound love and devotion to their chosen deities.

Impact and Legacy:

- **Social Reforms:** The Bhakti Movement challenged social hierarchies and caste-based discrimination, advocating for social equality and inclusivity.
- **Cultural Influence:** It led to the proliferation of devotional music, literature, and art forms across different regions of India, enriching the cultural heritage of the country.
- **Religious Syncretism:** The movement facilitated a synthesis of diverse religious beliefs and practices, fostering a sense of religious tolerance and harmony among different communities.

Lachit Borphukan

Why in News

Recently, the Prime Minister of India paid tributes to Lachit Borphukan on Lachit Diwas.

Important Points

Lachit Borphukan

- **Born Year:** 24 November 1622
- **Family:** His father Momai Tamuli Borbarua was the commander-in-chief of the Ahom army.
- **Role in Ahom Kingdom:** Lachit Borphukan served as a commander and councilor in the Ahom Kingdom.
- **The Ahom Kingdom,** enduring over 600 years, valiantly resisted multiple invasions by the Mughal Empire in present-day Assam.
- **Ahom-Mughal Conflicts:** In 1615, the Ahom Dynasty encountered its first significant clash with the Mughal Empire, which eventually led to the Mughals conquering the Ahom capital of Garhgaon in 1662.
- **Triumph at Saraighat:** During the pivotal battle of Saraighat in 1671, under the leadership of Lachit Borphukan, the Ahoms successfully repelled the Mughals, marking a turning point in the conflict.
- **Borphukan's Leadership:** Lachit Borphukan is chiefly celebrated for his leadership during the Battle of Saraighat.
- **End of Mughal Influence:** By 1682, the Ahoms, led by Borphukan, completely eradicated Mughal influence in the region, securing a lasting victory.



Battle of Saraighat

- **About:** The Battle of Saraighat was a naval battle fought in 1671 between the Mughal Empire and the Ahom Kingdom on the Brahmaputra river at Saraighat.
- It was the last battle in the last major attempt by the Mughals to extend their empire into Assam.

Ahom Kingdom

- **Establishment:** The Ahom dynasty, with a rich history spanning nearly 600 years, was first established in 1228.
- **Prosperous Kingdom:** This multi-ethnic kingdom flourished across the upper and lower Brahmaputra valley, relying on rice cultivation in its fertile lands for sustenance.
- **Conflicts with the Mughals:** Engaging in a series of conflicts with the Mughals, the Ahoms faced challenges from 1615 to 1682, spanning the reigns of Jahangir to Aurangzeb.

Chapter- 2

POLITY & GOVERNANCE

Maratha quota protest

Why in News

As Maratha quota protests intensify in Maharashtra, the state government has formed a panel of three former High Court judges to advise it on the legal battle over the issue in the Supreme Court.

Important Points

Background:

- The Marathas are a group of castes comprising peasants and landowners, among others, constituting nearly 33 per cent of state's population.
- The first protest over this was held 32 years ago by Mathadi Labour Union leader Annasaheb Patil in Mumbai.

Bombay High Court ruling in 2019

- In 2018, the then government in Maharashtra passed a Bill proposing 16 per cent reservation in education and government jobs for the Maratha community.
- This was challenged in court.
- In 2019, the Bombay High Court upheld the constitutional validity of the Maratha quota under the Socially and Educationally Backward Classes (SEBC) Act, 2018.
- While ruling that the 16 per cent quota granted by the state was not 'justifiable,' the HC reduced it to 12 per cent in education and 13 per cent in government jobs, as recommended by the Maharashtra State Backward Class Commission.
- The HC said that while the reservation ceiling should not exceed 50%, in exceptional circumstances and extraordinary situations, this limit can be crossed if quantifiable data reflecting backwardness is made available.

GM Gaikwad Commission:

- The High Court relied heavily on findings of the 11-member Maharashtra State Backward Class Commission (MSBCC) headed by retired Justice G M Gaikwad.

Number of Marathas:

- The Committee surveyed about 45,000 families, from two villages in each of the 355 talukas that had more than 50 per cent Maratha population.

Level of backwardness:

- The November 2015 report found the Maratha community to be socially, economically and educationally backward.

In social backwardness, the Commission found that :

- Around 76.86 % of Maratha families are engaged in agriculture and agricultural labour for their livelihood nearly 70% reside in Kachha dwellings, only 35- 39 % have personal tap water connections.

Farmer's suicide:

- The report said that in 2013-2018, a total of 2,152 (23.56%) Maratha farmers died by suicide, against total 13,368 farmer suicides.

Maratha women:

- The Commission also found that 88.81 % Maratha women are involved in physical labour for earning a



livelihood, besides the physical domestic work they perform for the family.

Educational backwardness:

In educational backwardness, it found that:

- 13.42 % of Marathas are illiterate,
- 35.31 % primary educated,
- 43.79 % HSC and SSC,
- 6.71 % undergraduates and postgraduates and
- 0.77 % technically and professionally qualified.

Why did the Supreme Court strike down Maratha reservation?

- In 2021, a five-judge Constitution bench of the Supreme Court struck down the Maratha quota, which took the total reservation in the state above the 50 per cent ceiling set by the court in its 1992 Indra Sawhney (Mandal) judgment.
- The Apex court said that the 50% ceiling, although an arbitrary determination by the court in 1992, is now constitutionally recognised.
- It said there was no extraordinary circumstance to cross the 50% mark, adding Marathas were a dominant forward class and are in the main stream of National life.
- In 2022, after the SC upheld the 10 per cent quota for Economically Weaker Sections, the Maharashtra government said that until the issue of Maratha reservation was resolved, economically weaker members of the community could benefit from the EWS quota.
- After the SC turned down its review plea, the state government said it would file a curative petition and form a new panel for a detailed survey of the 'backwardness' of the community.

Latest step by the Maharashtra government

- The state formed a five-member committee under Justice (retired) Sandeep K Shinde to study the procedure of giving Kunbi (OBC) certificates to Marathas, based on documents, including revenue records, from Nizam period.
- The Nagpur bench of the Bombay High Court dismissed a plea against the formation of the panel.
- The state Cabinet recently accepted the first report of the panel.

Existing reservation in Maharashtra

In the state, following the 2001 State Reservation Act, the total reservation is 52 per cent. This included quotas for:

- Scheduled Caster (13%),
- Scheduled Tribes (7%),
- Other Backward Classes (19%),
- Special Backward Class (2%),
- Vimukta Jati (3%),
- Nomadic Tribe B (2.5%),
- Nomadic Tribe C-Dhangar (3.5%) and
- Nomadic Tribe D-Vanjari (2%).
- With the addition of the 12-13 per cent Maratha quota, the total reservation in the state had gone up to 64-65 per cent.
- The 10 % EWS quota is also effective in the state.
- Besides Marathas, communities including Dhangar, Lingayats and Muslims have also raised demands for reservation.

Inaction of Governor Over the Bills

Why in News

The Tamil Nadu Government has filed a petition in the Supreme Court against Governor R N Ravi over the alleged delay in clearing bills.

Important Points

- The present Writ Petition is being filed under Article 32 of the Constitution of India, to declare that the inaction, omission, delay and failure to comply with the constitutional mandate by the Governor.

- The petition seeks a direction to the Governor to clear Bills and files and Government orders within a specified timeframe.

Constitutional Provisions

- Under Article 200, the Governor may grant assent, withhold assent, return for reconsideration by the Legislature or reserve for the consideration of the President any Bill passed by the State legislature.
- There is no time frame fixed in the Constitution for any of these functions.
- Governor may, as soon as possible return the Bill if it is not a Money Bill and, when a Bill is so returned, the House shall reconsider the Bill accordingly, and if the Bill is passed again by the House with or without amendment the Governor shall not withhold assent therefrom.
- The Constitution makes it mandatory that the Governor should reserve for the President's consideration any Bill that seems to clip the wings of the High Court or undermine its functioning.
- Such a bill will not become a law without the President's assent.

Critical Analysis

- Omission from the Constitution: Section 75 of the Government of India Act, 1935, contained the words 'in his discretion' while referring to the Governor's grant of assent to Bills. The phrase was consciously omitted when the Constitution was enacted.
- Views of Framers of the Constitution: The Constituent Assembly was of the opinion that the states were indeed sovereign within their own domain, that the discretionary power, beyond the specific situations mentioned in the constitution, does not enable a governor to override the state government.
- Against Public Interest: A Bill is brought by the government when there is an urgent need for a law on a particular matter. So, if the governor does not take any action on it as per the constitution, he is actually harming the public interest.
- Against the Spirit of Constitution: Since not taking any decision indefinitely is not an option provided by the constitution, governors who do this are clearly acting in a manner that is not constitutionally sanctioned.
- SC Verdict: In *Shamsher Singh v State of Punjab* (1974) Supreme Court held that the governor does not enjoy any executive powers and that he can act only on the aid and advice of the council of ministers. In reality, executive powers are vested in the elected government, which is responsible to the legislature.
- Act in accordance with Council of Ministers: During the debate in the constituent assembly on the post of governor, Dr B.R. Ambedkar had clearly stated that the governor has no powers in our constitutional setup and needs to act only in accordance with the advice given by the council of ministers in the state.



Parliamentary Committees

Why in News

The Lok Sabha Ethics Committee is probing the complaint against the All India Trinamool Congress Member of Parliament (MP) Mahua Moitra in 'Cash-for-Query' case.

Important Points

About Lok Sabha Ethics Committee

- Establishment: The Speaker constituted an ad hoc Ethics Committee in 2000, which became a permanent part of the House only in 2015.
- Members: It consists of 15 members appointed by the speaker for a period of one year.
- Functioning: Any individual can file a complaint against a Member of Parliament (MP) by going through another Lok Sabha MP.
- This complaint should include supporting evidence of the alleged misconduct and an affidavit confirming that the complaint is not "false, frivolous, or vexatious."

- The Committee submits its report to the Speaker, who then seeks the House's opinion on whether the report should be deliberated.

Parliamentary Committee

- A Parliamentary Committee is a panel of MPs that is appointed or elected by the House or nominated by the Speaker, and which works under the direction of the Speaker.
- Parliamentary Committees have their origins in the British Parliament. They draw their authority from Article 105, which deals with the privileges of MPs, and Article 118, which gives Parliament authority to make rules to regulate its procedure and conduct of business.
- They present their report to the House or to the Speaker.
- Bills that are referred to committees are returned to the House with significant value addition.
- Parliament is not bound by the recommendations of committees.

Types of Parliamentary Committees

- Broadly, Parliamentary Committees can be classified into Financial Committees, Departmentally Related Standing Committees, Other Parliamentary Standing Committees, and Ad hoc Committees.
- The Financial Committees include the Estimates Committee, Public Accounts Committee, and the Committee on Public Undertakings. These committees were constituted in 1950.
- Seventeen Departmentally Related Standing Committees came into being in 1993, to examine budgetary proposals and crucial government policies. The number of Committees was subsequently increased.
- Ad hoc Committees: They are appointed for a specific purpose and they cease to exist when they finish the task assigned to them and submit a report.
- Parliament can also constitute a Joint Parliamentary Committee (JPC) with a special purpose, with members from both Houses, for detailed scrutiny of a subject or Bill.
- There are other Standing Committees for each House, such as the Business Advisory Committee and the Privileges Committee.



Significance

- Parliamentary Committees act as a mechanism that helps in improving the effectiveness of Parliament.
- They also examine petitions from the public, check whether rules framed by the government are in consonance with Acts of Parliament, and help manage the administration of Parliament.
- Their ability to devote more time on each item allows them to examine matters in greater detail.
- They also help parties reach consensus on various issues.

Advocate-on-Record System

Why in News

SC called for a “comprehensive plan” for reforming and improving the AoR system.

Important Points

- The Supreme Court pulled up an Advocate-on-Record (AoR) for filing a frivolous case and dismissed the public interest litigation. The Court censured the lawyer that an AoR cannot merely be a “signing authority.”

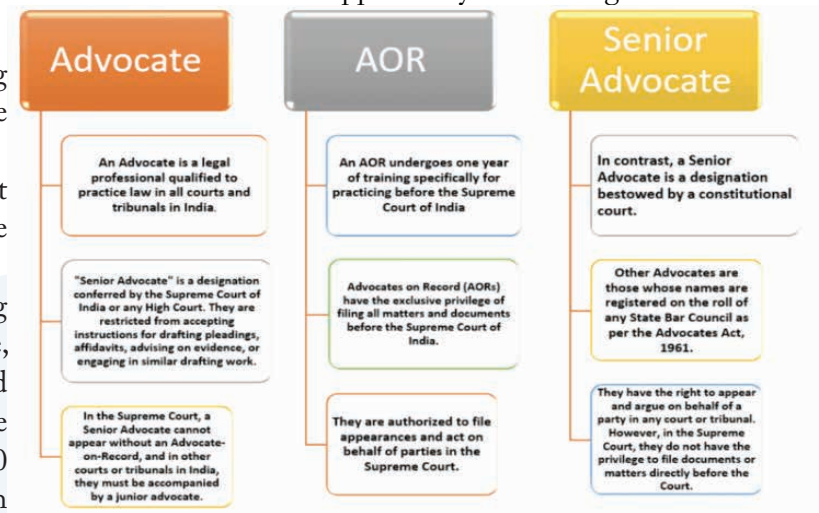
Who is an AoR?

- Only an AoR can file cases before the Supreme Court. An AoR might engage other lawyers including senior counsels to argue before the Court but the AoR is essentially the link between the litigant and the highest court of the country.
- AORs are a pool of elite Delhi-based lawyers whose legal practice is mostly before the SC. They can appear before other courts too.

- The idea behind this practice is that a lawyer with special qualifications, picked by the Supreme Court itself, is equipped to appear for a litigant because it is a court of the last opportunity for the litigant.

Eligibility criteria

- Training:** Minimum one year training with a court-approved AoR, before taking the AoR examination.
- Experience:** The advocate must have at least four years of legal practice before starting the training.
- Examination:** 3 hour test covering subjects such as Practice and Procedure, Drafting, Professional Ethics, and Leading Cases. To pass, the advocate needs to score a minimum of 60% (240 out of 400) with at least 50% in each subject.



Other Requirements

- An AoR must have an office in Delhi within a 16-kilometer radius of the Supreme Court.
- Additionally, they are required to employ a registered clerk within one month of being registered as an AoR.

Rules Governing the AoR System:

- Article 145 of the Constitution, the Supreme Court has the authority to create rules and regulate its own procedures for hearing cases.
- The Supreme Court Rules, 2013 outline specific eligibility criteria and a rigorous examination that an advocate must clear to become an AoR.
- The AoR system in India is somewhat based on the British practice of barristers and solicitors, with AoRs serving as the equivalent of solicitors.
- Barristers typically argue cases in court, while solicitors handle cases from clients.
- Senior advocates in India are designated by the Court and have a distinct gown. They cannot directly solicit clients and are typically briefed by other lawyers, such as AoRs.

Background

- The AoR system is broadly based on the British practice of barristers and solicitors.
- While barristers wear the black gown and wig and argue cases, solicitors take up cases from clients.
- In the Federal Court, the colonial predecessor of the Supreme Court, "agents" would take up cases while barristers would argue.
- In High Courts, the arguing counsels were referred to as pleaders. Senior advocates in India are designated by the Court and wear a distinct gown.
- Like barristers, they cannot solicit clients and are only briefed by other lawyers, say for example, an AoR.

Domestic Violence Act

Why in News

The Supreme Court decides whether a transgender woman who has undergone sex reassignment surgery can claim maintenance under the Protection of Women from Domestic Violence Act, 2005 (DV Act).

Important Points

- The Supreme Court's decision will be important for transgender rights in India. If the Court holds that transgender women can claim maintenance under the DV Act, it will be a significant victory for the transgender community. It will also send a message that transgender women are entitled to the same protection from domestic violence as biological females.
- However, if the Court holds that the DV Act does not apply to transgender women, it will be a major setback for transgender rights in India. It will leave transgender women vulnerable to domestic violence.

without any legal recourse.

Domestic Violence Act 2005

- The Domestic Violence Act 2005, also known as the Protection of Women from Domestic Violence Act, was enacted by the Indian Parliament to address the rising concerns of domestic violence faced by women within the confines of their homes.
- The Act recognized the need for specific legislation to protect the rights and well-being of women who are victims of domestic abuse.

STRENGTHENING SAFETY

- Protection of Women from Domestic Violence Act, 2005, is effective **only if govt implements it in letter and spirit**
- Presently, **charge of protection officers is given to the BDOs or SPs**
- Systems like state commission for women **must be strengthened**
- The state needs a **full-fledged shelter home for women and children in distress**



Features

- The Act broadly defines domestic violence, covering physical, verbal, emotional, sexual, and economic abuse within the domestic sphere.
- It provides for various protection orders, such as protection orders, residence orders, and monetary relief, aimed at safeguarding the victim and her dependents.
- The Act empowers the victims to seek immediate relief, including the right to reside in the shared household and restraining the abuser from dispossessing her.
- The Act emphasizes counselling and support services for victims, ensuring their physical and emotional well-being.
- Victims are entitled to free legal aid and assistance to pursue their cases in court.

Significance

- Empower women by providing legal recourse against domestic violence.
- Raises awareness about the issue, promoting a safer environment within homes.
- Recognizes the rights of women to live a life free from violence and fear.
- Facilitates the economic and emotional rehabilitation of victims.

Significant steps to enforce the Act, including:

- Establishing specialized police cells to handle domestic violence cases.
- Conducting awareness campaigns to educate women about their rights under the Act.
- Setting up counselling centres and helplines for victims to seek immediate assistance.
- Training law enforcement officials and judicial officers about the nuances of the Act.

Challenges

- Many women are unaware of their rights and the provisions of the Act.
- Societal attitudes often discourage women from reporting domestic violence due to fear of social stigma.
- In some cases, the Act's implementation faces challenges due to legal and procedural complexities.
- Economic dependency on the abuser sometimes prevents victims from seeking legal recourse.

Way Forward to strengthen the effectiveness of the Domestic Violence Act 2005

- Conduct extensive awareness campaigns to educate women about their rights and available support services.
- Involve local communities and NGOs to support victims and create a supportive environment.
- Provide regular training to law enforcement agencies, judicial officers, and healthcare professionals to handle domestic violence cases sensitively.
- Continuously assess the Act's implementation and make necessary legal reforms to address emerging issues and challenges.

Why in News

The Bihar Assembly unanimously passed a Bill to increase reservation for Backward Classes, Extremely Backward Classes, Scheduled Castes, and Scheduled Tribes from the existing 50% to 65%.

Important Points

- Together with the 10% Economically Backward Class (EWS) quota, the Bill will push reservation in Bihar to 75%, well past the 50% ceiling set by the Supreme Court.
- Bills providing for the same increase in reservation in educational institutions and government jobs, which were drafted based on the caste survey conducted by the State government recently, too were passed unanimously through voice vote in the Assembly.

Reservation in India

- As per existing instructions, reservation is provided to Scheduled Castes (SCs), Scheduled Tribes (STs) and Other Backward Classes (OBCs) at the rate of 15%, 7.5% and 27%, respectively, in case of direct recruitment on all India basis by open competition.
- In direct recruitment on all India basis, other than by open competition, the percentage fixed is 16.66% for SCs, 7.5% for STs and 25.84% for OBCs.
- The Constitution (103rd Amendment) Act 2019 enables the State (i.e., both the Central and State Governments) to provide reservation to the Economically Weaker Sections (EWS) of the society.
- Whether or not to provide reservation to the EWS or appointment in States is to be decided by the State Government.
- Since the 1992 order, several states have passed laws breaching the 50% ceiling, including Haryana, Telangana, Tamil Nadu, Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Rajasthan, Chhattisgarh and Maharashtra.
- Laws made by many of these states have either stayed or are facing legal challenges.

Constitutional Provisions

- Article 16: It provides for equality of opportunity for all citizens but as an exception the State can provide for reservation of appointments or posts in favour of any backward class that is not adequately represented in the state services.
- Article 16 (4A): Provides that the State can make any provision for reservation in matters of promotion in favour of the Scheduled Castes and the Scheduled Tribes if they are not adequately represented in the services under the State.
- Article 335: It recognises that special measures need to be adopted for considering the claims of SCs and STs to services and posts, in order to bring them at par.
- 103 Amendment of the Constitution of India: Introduced 10% reservation for Economically Weaker Sections (EWS) of society by amending Article 15 and Article 16 of the Constitution.

Arguments in Favour

- Caste-based reservations address the roots of social injustice — and shouldn't be replaced by economic status-based reservations.
- The Constitution mandates realisation of substantive equality in the engagement of the fundamental rights with the directive principles.
- It is a stereotypical assumption that the promotions drawn from the SCs and STs are not efficient or that efficiency is reduced by appointing them.
- The main reason for giving reservations and even promotions is that there are very few SC/ST candidates in the higher echelons of government.

Argument Against

- Reservations discourage merit and genuine talent by providing an unfair advantage to reserved candidates.
- Many deem poverty to be eligible for reservations in education and employment over caste-based marginalization.
- Reservations should only exist to level the playing field initially; they should be discontinued for higher positions/promotions.

- Economically well-off members of marginalized communities should not avail benefits of reservation.
- Low-cutoffs and eligibility criteria for reserved candidates brings down the overall caliber of an institution or organization.
- Continued reservation in education and public service were only a temporary measure.

SC Decision

- The Supreme Court has established a provision that states must collect quantifiable data on the representation of SCs and STs in a particular cadre of service and form a judgement regarding the inadequacy of representation based on that data.
- Positive discrimination as represented can lead to important advances in societies along with deep-seated social inequalities, but such systems must be periodically examined and redesigned.
- The most obvious reform would be to reduce the number of relatively wealthy beneficiaries.

Jurisdiction and Limits of CBI

Why in News

The Centre claimed in the Supreme Court that the Central Bureau of Investigation (CBI) is its own boss and the Union government has no control whatsoever over the probe agency in the registration, investigation and prosecution of cases.

Important Points

About CBI

- It is the premier investigating police agency in India. It is an elite force playing a major role in preservation of values in public life and in ensuring the health of the national economy.
- It is also the nodal police agency in India, which coordinates investigations on behalf of Interpol Member countries.
- CBI, functioning under Dept. of Personnel, Ministry of Personnel, Pension & Public Grievances, Government of India.
- Lokpal have power of superintendence and direction over any central investigation agency including CBI for cases referred to them by the Lokpal.
- History : CBI traces its origin to the Special Police Establishment (SPE) which was set up in 1941 by the Government of India.
- The functions of the SPE then were to investigate cases of bribery and corruption in transactions with the War & Supply Deptt. Of India during World War II.
- The Delhi Special Police Establishment Act was brought into force in 1946.
- The DSPE acquired its popular current name, Central Bureau of Investigation (CBI), through a Home Ministry resolution dated 1.4.1963.

Power and Mandate

- CBI derives power to investigate from the Delhi Special Police Establishment Act, 1946 Section 2 of the Act vests DSPE with jurisdiction to investigate offences in the Union Territories only.
- However, the jurisdiction can be extended by the Central Government to other areas including Railway areas and States under Section 5(1) of the Act, provided the State Government accords consent under Section 6 of the Act.
- The executive officers of CBI of the rank of Sub Inspector and above, exercise all powers of a station office in-charge of the police station for the concerned area for the purpose of investigation.
- As per Section 3 of the Act, Special Police Establishment is authorised to investigate only those cases, which are notified by the Central Government from time to time.



Widening Role

- As the CBI, over the years, established a reputation for impartiality and competence, demands were made on it to take up investigation of more cases of conventional crime such as murder, kidnapping, terrorist crime, etc.
- Initially the offences that were notified by the Central Government related only to corruption by Central Govt. servants.
- In due course, with the setting up of a large number of public sector undertakings, the employees of these undertakings were also brought under CBI purview.
- Similarly, with the nationalisation of the banks in 1969, the Public Sector Banks and their employees also came within the ambit of the CBI.
- Apart from this, even the Supreme court and the various High Courts of the country also started entrusting such cases for investigation to the CBI on petitions filed by aggrieved parties.
- CBI has also the experience of handling high profile conventional crimes, economic offences, banking frauds and crimes with international linkages.
- The CBI is designated as the National Central Bureau of India for ICPO-INTERPOL.

Latest Achievements

- The Central Bureau of Investigation (CBI), as part of its 'Chakra-II' operation, has achieved a major breakthrough in two more cases involving an international online investment fraud worth hundreds of crores targeting Indians; and a cyber-enabled impersonation racket in which Singaporean citizens were cheated.

Issues and Criticism

- The agency is facing such a crisis of credibility.
- Its actions and inactions had raised questions regarding its credibility, in some cases.
- There are instances of corrupt officers in the CBI who become pliable in the hands of the government.
- The Supreme Court [in 2013] called it a "caged parrot".
- The details of cases registered with the CBI, the progress made in their investigation and the final outcome are not available in public domain.
- Some States alleged that the CBI was probing several cases and registering FIRs in the State without taking prior consent.

Adultery in India

Why in News

The Parliamentary Committee on Home Affairs has suggested that adultery should be re-instituted as a crime in the Bharatiya Nyaya Sanhita (BNS), 2023, the proposed law to replace the Indian Penal Code (IPC), 1860.

Important Points

- The Parliamentary Committee adopted reports on the three Bills meant to replace the IPC, The Code of Criminal Procedure (CrPC), 1973, and The Indian Evidence Act, 1872.
- The panel headed by BJP Rajya Sabha member Brij Lal, which examined the Bills after they were introduced in Parliament this August 2023, suggested more than 50 changes and flagged several errors in them.
- Adultery in India: Adultery in general can be understood as 'Sexual intercourse between a married person and someone else other than the spouse, i.e. a person who is not his/her wife/husband'. Adultery law in India is defined by the Indian Penal Code Section 497.

History of Adultery Law in India

- Adultery law, a pre-constitutional law, was enacted in 1860.
- Women at that time had no rights independent of their husbands and were treated as chattel or "property" of their husbands.
- Therefore, adultery was treated as a crime against the husband, for which he could prosecute the

ADULTERY CAN TAKE YOU TO COURT, NOT TO JAIL



What's struck down: Section 497 of Indian Penal code that said: "Whoever has sexual intercourse with a person who is... the wife of another man, without the consent... of that man, such sexual intercourse not amounting to the offence of rape, is guilty of the offence of adultery"

The problem: It treated woman as victim of the offence and as 'property'



offender.

- In 1837, the Law Commission (under Lord Macaulay) of India did not include adultery as an offence in the first draft of the IPC.
- The Second Law Commission suspected something and recommended that keeping the offence out of the IPC would be inappropriate and was included later on.

What is the legal position on adultery now?

- Until 2018, the IPC contained Section 497, which defined adultery as a criminal offence that attracted up to five years in prison, or a fine, or both.
- However, only men could be punished under Section 497, not women.
- In *Joseph Shine vs Union Of India* (2018), a five-judge Bench of the Supreme Court led unanimously struck down Section 497 of the IPC on grounds that included discrimination.
- The court also struck down Section 198(2) of the CrPC to the extent that it applies to the offence of adultery under Section 497.
- Section 198(2) CrPC says that in certain cases, courts can take cognizance of a matter only if approached by an aggrieved party and, in cases of adultery, only the husband shall be deemed as “aggrieved”.
- The court held that adultery could be only considered a valid ground for divorce and should not be treated as a criminal offense.

What has the House Committee recommended?

- The report on the BNS, 2023, which was adopted by the Committee, said that adultery should be reinstated as a criminal offence, but it should be made gender-neutral — that is, both men and women should be punished for it.
- In essence, the report has argued that Section 497 was struck down on grounds of discrimination, and making it gender-neutral would address this deficiency.

Why it was struck down?

Discriminatory in nature:

- The discriminatory nature of Section 497, and its “manifest arbitrariness” in punishing only men for adultery, was just one of the grounds on which the court had struck down the provision.

Violation of fundamental rights:

Section 497 was violative of Articles 14, 15, and 21 of the Constitution:

- Article 14 - Right to equality –
- Adultery only prosecuted men and women and hence, it was considered to be a violation of Article 14;
- Article 15(1) - prohibits the State from discriminating on the grounds of sex –
- The law only considered the husbands as to the aggrieved party;
- Article 21 - protection of life and personal liberty –
- Women were treated as the property of their husbands under this law, which is against their basic dignity.

Autonomy of women:

- The court underlined the autonomy of women as a facet of human dignity.
- The Court declared that the husband is neither master of his wife, nor does he have legal sovereignty over her
- Any system treating a woman with indignity invites the wrath of the Constitution.

Not a crime:

- Also, adultery does not fit into the concept of crime.
- If it is treated as a crime, there would be immense intrusion into the extreme privacy of the matrimonial sphere.
- It is better to be left as a ground for divorce.

Can the Supreme Court’s decision in this case be undone?

- A ruling of the SC is the law of the land.
- Parliament cannot simply pass a law that contradicts a ruling of the top court.
- However, it can pass a law that removes the basis of the court's judgment.
- Such a law can be both retrospective and prospective.

About Bharatiya Nyaya Sanhita (BNS) Bill, 2023:

- The Indian Penal Code was drafted by the first Law Commission which was chaired by Thomas Babington Macaulay in 1834. The code came into force in January, 1860.
- The Bharatiya Nyaya Sanhita Bill, 2023 will repeal and replace the IPC.
- The BNS Bill proposes several changes in the existing provisions including those related to defamation, offence against women and attempt to commit suicide.
- While the IPC has 511 sections, the BNS Bill contains 356 provisions.

Model Prison Act, 2023

Why in News

The Union Home Secretary had sent a letter to all states and Union territories in May, 2023 which consisted of the 'Model Prisons Act, 2023'.

Important Points

- The formal prison system in India began to take shape during British colonial rule.
- The East India Company established the first modern prison in India in Calcutta (now Kolkata) in 1799.
- The British introduced a penitentiary system and established prisons across the country.
- The Cellular Jail in the Andaman and Nicobar Islands, constructed in the late 19th century, was used to exile political prisoners.
- The Prison Act of 1894 was a significant piece of legislation that outlined the rules for the management and administration of prisons in British India.
- After gaining independence in 1947, India inherited the prison system established by the British.
- The Prison Act of 1894 continued to govern the administration of prisons in the early post-independence period.
- The Mulla Committee on Prison Reforms (1980) and the Justice Krishna Iyer Committee (1987) made recommendations for improving prison conditions and administration.
- The Prisons Act, of 1894, has been amended, and states have their own prison manuals and rules.
- The Model Prison Manual for the Superintendence and Management of Prisons in India was prepared by the Bureau of Police Research and Development (BPR&D) to serve as a guide for states to reform and improve prison administration.
- Efforts have been made to introduce technology for prison management, such as the e-prisons project, which aims to computerize prison records and processes.
- The focus has shifted towards rehabilitation and reformation of inmates, with the introduction of vocational training and skill development programs.
- Human rights considerations and international standards for the treatment of prisoners have gained prominence in prison governance.

Model Prisons Act, 2023

- A need was felt to revise and upgrade the Act in tune with modern day needs and requirements of prison management.
- Hence, a decision was taken to be taken by the Central government to review and revise colonial-era outdated Prison Act, in tune with contemporary modern day needs and correctional ideology.

130-year-old colonial-era Prison laws revised

The MHA has prepared a new 'Model Prisons Act 2023'

Lays emphasis on the safety of women & transgender prisoners

Ensures rehabilitation of inmates in society after completion of sentence

Brings about transparency in prison management by using technology



- The Ministry of Home Affairs assigned the task of revision of the Prisons Act, 1894 to the Bureau of Police Research and Development.
- The Bureau, after holding wide ranging discussions with State Prison authorities, correctional experts etc. prepared a draft.
- Along with Prisons Act, 1894, 'The Prisoners Act, 1900' and 'The Transfer of Prisoners Act, 1950' have also been reviewed by the Ministry of Home Affairs and relevant provisions of these Acts have been assimilated in the 'Model Prisons Act, 2023.'
- State Governments and Union Territory Administrations can benefit from the Model Prisons Act, 2023 by adopting it in their jurisdictions, with such modifications which they may consider necessary, and repeal the existing three Acts in their jurisdictions.

Salient Features of the new Model Prisons Act

- Provision for security assessment and segregation of prisoners, individual sentence planning.
- Grievance redressal, prison development board, attitudinal change towards prisoners.
- Provision of separate accommodation for women prisoners, transgender, etc.
- Provision for use of technology in prison administration with a view to bring transparency in prison administration.
- Provision for video conferencing with courts, scientific and technological interventions in prisons, etc.
- Provision of punishment for prisoners and jail staff for use of prohibited items like mobile phones etc. in jails.
- Provision regarding establishment and management of high security jail, open jail (open and semi open), etc.
- Provision for protecting the society from the criminal activities of hardened criminals and habitual offenders, etc.
- Provision for legal aid to prisoners, provision of parole, furlough and premature release etc. to incentivize good conduct.
- Focus on vocational training and skill development of prisoners and their reintegration into the society.

Significance of Model Act:

- The Model Act is a comprehensive document that covers all relevant aspects of prison management, viz. security, safety, scientific & technological interventions, segregation of prisoners, special provision for women inmates, taking appropriate action against criminal activities of prisoners in the prison, grant of parole and furlough to prisoners, their education, vocational training, and skill development, etc.
- The Model Act has appropriate provisions for the reformation, rehabilitation, and integration of prisoners in society. It also has provisions for 'Welfare Programs for Prisoners' and 'After-Care and Rehabilitation Services', as an integral part of institutional care.
- It provides for the classification and security assessment of prisoners and for lodging them in separate barracks/enclosures/cells by the assessment.

Other prison reforms

- Modernization of Prisons Scheme: The scheme for the modernization of prisons was launched in 2002-03 to improve the condition of prisons, prisoners, and prison personnel.
- Modernization of Prisons Project (2021-26): The government has decided to provide financial assistance to States and UTs, through the Project for using modern-day security equipment in Prisons to enhance the security of jails and to facilitate the task of reformation and rehabilitation of prisoners through correctional administration programs.
- E-Prisons Project: The E-Prisons project aims to introduce efficiency in prison management through digitization.
- Model Prison Manual 2016: The manual provides detailed information about the legal services (including free services) available to prison inmates.
- Challenges of the Prison System
- Some of the key challenges include:

- Many prisons in India suffer from severe overcrowding. Overpopulation can lead to poor living conditions, increased tension among inmates, and difficulties in maintaining discipline.
- Aging and inadequate prison infrastructure are common issues. Inmates may be housed in poorly maintained facilities with insufficient sanitation, healthcare, and other essential services.
- Prisons often suffer from understaffing, leading to difficulties in maintaining order, providing adequate services, and implementing rehabilitation programs.
- Limited resources and focus on rehabilitation programs result in a lack of skill development opportunities for inmates. This can hinder their reintegration into society upon release.
- A significant number of individuals in prisons are in pretrial detention, awaiting trial. Delayed justice and a backlog of cases contribute to prolonged periods of incarceration for some individuals.
- The juvenile justice system faces challenges in providing appropriate facilities and rehabilitation for young offenders. There are concerns about the mixing of juveniles with adults in some prison environments.
- Corruption within the prison system, including among staff, can contribute to various issues, including violence among inmates and the smuggling of contraband.
- Violations of human rights, including issues related to custodial deaths, torture, and lack of access to legal representation, have been reported in some instances.
- Limited educational and vocational training opportunities within prisons can hinder inmates' ability to acquire new skills that could aid their rehabilitation and reintegration into society.

Electoral Bonds Scheme

Why in News

A Constitution Bench consisting of five judges, with Chief Justice of India D Y Chandrachud at the helm, is scheduled to commence hearings on a series of petitions challenging the 2018 Electoral Bonds Scheme proposed by the Finance Ministry.

Important Points

- The petitioners assert that the principle of anonymity within the electoral bonds scheme contradicts the fundamental 'right to know,' a key component of the 'right to information' (Article 19).
- In response, Attorney General R Venkataramani, through written submissions, argued that citizens' right to information is subject to reasonable limitations.

What Are Electoral Bonds?

- Electoral bonds are interest-free "bearer instruments" introduced by the Indian government in 2017. These bonds function as promissory notes and can be redeemed by the bearer on demand. They enable anonymous donations to political parties.

How Do They Work?

- Electoral bonds are available for purchase in denominations ranging from Rs1,000 to Rs1 crore from authorized State Bank of India (SBI) branches, subject to Know Your Customer (KYC) norms. Political parties can encash these bonds within 15 days of receipt and use the funds for electoral expenses.

Purchase Windows

- Electoral bonds can only be bought during 10-day windows in the months of January, April, July, and October. This limited availability aims to regulate the flow of funds to political parties.

Eligibility Criteria

- Electoral bonds can only be used to donate to political parties registered under Section 29A of the

Electoral Bonds Scheme Notified

To help cleanse the political funding system in the country

Nature

- Bearer instrument in the nature of a Promissory Note
- Interest free banking instrument

Eligibility

- A citizen of India or a body incorporated in India
- On fulfillment of all the extant KYC norms
- By making payment from a bank account

Lifespan

- Shelf life of only 15 days
- Can be used for making donation only to the political parties registered u/s 29A of the Representation of the Peoples Act, 1951

Period of Purchase

- Available for purchase for a period of 10 days each in the months of January, April, July and October, as may be specified by the Government

Value

- Issued/ Purchased in multiples of Rs.1,000, Rs.10,000, Rs.1,00,000, Rs.10,00,000 and Rs.1,00,00,000
- Available from the Specified Branches of the State Bank of India (SBI)

Representation of the Peoples Act, 1951. These parties must have secured at least 1% of the votes in the last election to the House of the People or a Legislative Assembly.

Rationale Behind Electoral Bonds

- Previous Fundraising Method: Indian political parties have conventionally relied on financial contributions from both individual citizens and corporate entities.
- Under this traditional system, donors were permitted to contribute up to Rs 20,000 in cash to a political party without the obligation to disclose the source of these cash donations.
- For amounts exceeding this threshold, donations had to be made via checks or demand drafts, with the requirement for political parties to declare the sources of these contributions in reports submitted to the Election Commission of India (ECI).
- Issues of Cash Donations: One significant drawback of the traditional fundraising system was the prevalence of cash donations. To avoid the necessity of disclosing donors to the ECI, political parties sometimes accepted donations exceeding Rs 20,000 in cash by dividing them into smaller, multiple amounts.
- This practice of cash donations allowed donors to remain anonymous and facilitated the inflow of unaccounted funds into the political system.
- Efforts to Discourage Cash and Enhance Transparency: In response to the challenges posed by cash donations and the lack of transparency, the Indian government introduced the electoral bond mechanism.
- This move aimed to discourage the reliance on cash contributions and promote greater transparency in political fundraising.
- Significance of Anonymity of Donors: The preservation of donor anonymity through the electoral bond system is expected to decrease the influence of cash donations and enhance the traceability of election funding.
- Proponents of this bond mechanism argue that any move to require donor disclosure may result in the resurgence of the practice of financing political activities through cash contributions.

Criticisms of Electoral Bonds

- Transparency Setback: Critics argue that electoral bonds hinder transparency in political funding by allowing unlimited, anonymous donations from Indian and foreign companies, potentially fostering electoral corruption.
- Donor Anonymity Issues: The donor anonymity feature of the system goes against transparency and violates citizens' 'right to know.' It lacks effective donor tracking.
- Money Bill Introduction: The introduction of electoral bonds as a 'money bill' bypasses Rajya Sabha scrutiny, raising concerns about the process's integrity.
- Election Commission Concerns: The Election Commission is concerned that electoral bonds may compromise transparency and invite foreign corporate influence. It warns of the possibility of shell companies established solely for political contributions, undermining reporting requirements.
- Reserve Bank of India's Warnings: The Reserve Bank of India (RBI) repeatedly cautioned about electoral bonds' potential to increase black money circulation, money laundering, cross-border counterfeiting, and forgery due to their opaque nature and transferability.

The Way Forward for Electoral Funding Reform

- State Funding of Elections: Consider partial state funding for recognized political parties, drawing from the successful models in countries like Germany, Japan, Canada, and Sweden.
- National Electoral Fund: Explore the establishment of a National Electoral Fund where all donors can contribute, with funds allocated to political parties based on their vote share. This approach safeguards donor anonymity and helps eliminate black money from political financing.

How to donate to parties

Electoral bonds will be available for purchase for 10 days each in the months of January, April, July and October

- Such bonds can be purchased by any Indian citizen or a body incorporated in India

- Purchaser must pay from KYC-compliant bank account

- Can be bought for any amount in multiples of ₹1,000, ₹10,000, ₹1 lakh, ₹10 lakh, and ₹1 crore

- Bonds will not carry the name of the payee and will be valid for 15 days

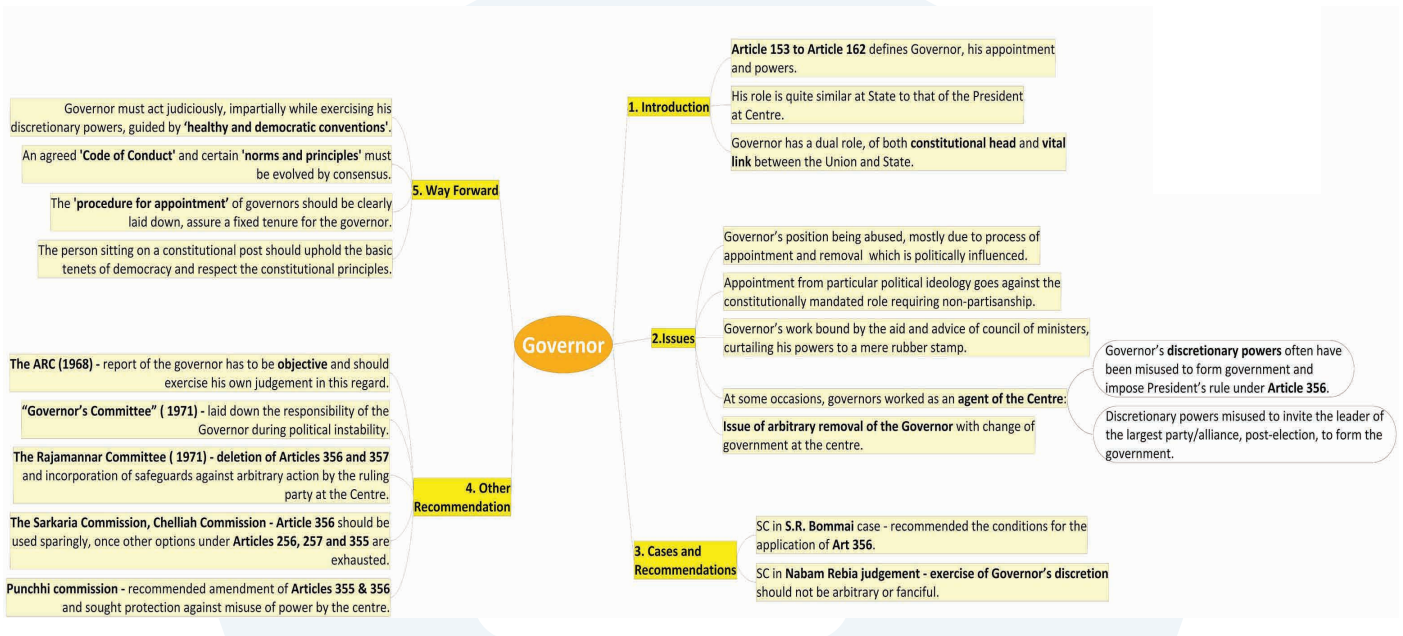
- Can be used for donation to a registered political party only

- Can only be bought from specified SBI branches

- Can be encashed only through that party's bank account



- **Capping Anonymous Donations:** Implement a cap on donations received through anonymous sources, as recommended by the Law Commission of India, at Rs. 20 crores or 20% of a political party's total funding.
- **Ban on Cash Donations:** Enforce a complete ban on cash donations by individuals or companies to political parties, replacing the current allowance for donations below Rs. 2000.
- **Audit of Party Accounts:** Institute rigorous regulatory frameworks for auditing and disclosing party income and expenditure, as proposed in the Venkatachaliah Committee Report (2002).
- **Global Best Practices:** Learn from and implement international best practices, such as France's ban on corporate funding in 1995 and the cap on individual donations at 6,000 Euros. Brazil and Chile have also banned corporate donations in response to corruption scandals linked to corporate funding.



Chapter-3

ENVIRONMENT AND ECOLOGY

Notifying a tiger reserve in Goa

Why in News

Recently, the Goa bench of the Bombay High Court directed the Goa government to notify a tiger reserve in Mhadei Wildlife Sanctuary (WLS) and other contiguous areas of the state within three months.

Important Points

- The court also directed the state to determine and settle the rights and claims of Scheduled Tribes and other forest dwellers within a year.
- The Goa government had approached the Supreme Court seeking a stay on the High Court's judgement.
- The Goa Foundation filed a contempt petition before the Bombay HC at Goa seeking action against the Goa government for not complying with the directions of the High Court to notify a tiger reserve within three months.

Background

- The 2014 Status of Tigers (Co-predators & Prey) in India report, released by the statutory body National Tiger Conservation Authority (NTCA) formed under the Wild Life (Protection) Act of 1972, speaks about the tiger presence in the region.

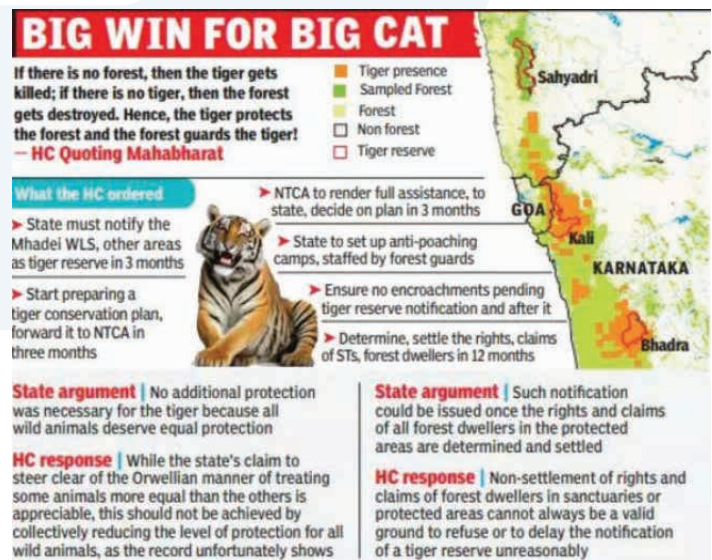
The report said the Cotigao-Mhadei forest complex of Goa comprises five protected areas:

- Mhadei Wildlife Sanctuary,
- Bhagwan Mahavir Wildlife Sanctuary and Mollem National Park,
- Bhagwan Mahavir National Park,
- Netravali Wildlife Sanctuary and
- Cotigao Wildlife Sanctuary

- They together cover an area of 750 sq mts, forming a contiguous belt connecting the forests of Karnataka and Maharashtra.
- It further added that Goa has a persistent tiger presence with about three to five tigers.

Status of proposals for a tiger reserve in Goa

- In 2011 a proposal was made to declare the Mhadei Wildlife Sanctuary as a tiger reserve.
- The proposal said that there is evidence to show that tigers in Goa are not merely transient animals but are a resident population as well.
- Mhadei is a contiguous tiger landscape to Bhimgad Wildlife Sanctuary in Karnataka to its south-east and to Anshi Dandeli Tiger Reserve to its south which has around 35 tigers.
- A 2008 study carried out by the Wildlife Institute of India, said protected areas of Goa and their contiguous forests in Karnataka and Maharashtra were possibly some of the best potential tiger habitats in the Western Ghats region and needed protection.



NTCA's recommendations

State government to notify tiger reserve:

- In 2016, the NTCA recommended that the state government should notify a tiger reserve in the Cotigao-Mhadei forest complex.

- Over the next 18 months, the Forest Department prepared a tentative map for the reserve – comprising largely undisturbed areas with few human hamlets as the core zone, its most protected area.

A Special Tiger Protection Force:

- Protections for the area would be enhanced and lead to stricter security measures, such as a 'Special Tiger Protection Force' for guarding purposes.

A map demarcating the protected zones:

- A draft proposal in 2018 mentioned that a map has been drawn to demarcate the contiguous forest habitat in existing protected areas in Western Ghats as the core zone.
- Main villages and human habitation were to be kept outside this zone and placed in the proposed buffer zone, as far as possible.
- The proposed map said that out of 745.18 square kilometres of protected areas, 578.33 sq km was proposed as core zone and 166.85 sq km as the buffer zone.

Goa government's contentions:

- WPA section is not mandatory: Referring to the recommendations by NTCA, the state government argued before the court that the provisions of section 38-V (1) of the Wildlife Protection Act were only directory and not mandatory.
- Rights of forest dwellers needs settlement first: The government said it was not opposed to notifying the area as a tiger reserve but further studies were necessary and the rights of the forest dwellers needed to be settled entirely before such steps could be taken. Proposing these areas as tiger reserves without settlement of rights and claims of the forest dwellers may be premature and will adversely affect larger public interest and further aggravate man-tiger conflict.
- No separate protection for tiger necessary: Another contention put forth by the state was that the protected areas enjoy the same level of protection for all flora and fauna as in a tiger reserve and no additional protection was necessary for the tiger, because all wild animals deserved equal protection.

Rapid Ice Melt in West Antarctica

Why in News

According to a new study, no matter how much carbon emissions are reduced, rapid melting of West Antarctica's ice sheet owing to warm waters surrounding it is now unavoidable.

Important Points

- The study, titled 'Unavoidable future increase in West Antarctic ice-shelf melting over the twenty-first century,' was published last week in Nature.
- If the ice sheet melted completely, it would raise global mean sea level by 5.3 meters (17.4 feet).
- If this occurs, it could have disastrous consequences for millions of people living in vulnerable coastal cities around the world, including India.

What is an Ice Sheet?

- An ice sheet is a mass of glacial ice that covers more than 50,000 square kilometers of land — roughly the size of Uttarakhand.
- Today, the planet has two large ice sheets: the Greenland ice sheet and the Antarctic ice sheet.
- They contain almost two-thirds of all freshwater on the planet.
- This means that as ice sheets gain mass, they contribute to a decrease in global mean sea level while losing mass contributes to a rise in global mean sea level.



What is the melting rate of the West Antarctic ice sheet?

- Ice sheets melt through a variety of methods. One of these is when warm ocean waters melt ice shelves, which are the borders of floating ice sheets.
- Ice shelves help to stabilize the land-based glaciers behind them.

- When an ice shelf thins or disappears, glaciers accelerate, dumping more ice into the ocean and raising sea levels.
- Sea ice, the free-floating ice that surrounds the polar regions, is distinct from both ice shelves and ice sheets.
- Sea ice forms when seawater freezes.
- The same thing is happening in West Antarctica.
- For decades, the region's ice shelves have been dwindling, glaciers have been melting faster, and the ice sheet has shrunk.

Findings of the Study

- The study predicts severe and extensive future warming of the West Antarctica Sea, as well as greater melting of ice shelves.
- This will very certainly result in greater sea-level rise, affecting coastal towns around the world, including India.
- India is vulnerable to sea level rise due to its vast coastline and dense population.
- If coastal communities cannot afford to defend themselves against increasing sea levels, such as by erecting walls, residents will have to relocate or become refugees

Is there any hope left?

- Although the findings are dismal, the report emphasizes that they should not deter attempts to minimize the effects of climate change.
- The melting West Antarctic ice sheet, according to the experts, is just one component of sea level rise, which is just one effect of climate change.

Adaptation Gap Report 2023

Why in News

The 2023 Adaptation Gap Report highlights a 15% decline in climate adaptation finance to developing nations, contrary to pledges made at COP26.

Important Points

- UNEP's Adaptation Gap Report 2023: Underfinanced. Underprepared – Inadequate investment and planning on climate adaptation leaves world exposed finds that progress on climate adaptation is slowing when it should be accelerating to catch up with these rising climate change impacts.
- Public multilateral and bilateral sources have reduced funding to around \$21 billion in 2021 despite their commitment to double adaptation finance support to \$40 billion annually by 2025.

Adaptation Financing

- Adaptation financing refers to the flow of funds to developing countries to help them adapt to the adverse effects of climate change.
- It is a key element of the broader climate finance landscape, which includes investments in both mitigation (to reduce greenhouse gas emissions and halt global warming) and adaptation (to deal with the impacts of climate change that are already happening or are expected to occur).

About the Report

- The Adaptation Gap Report (AGR) is an annual UNEP flagship publication.
- The Adaptation Gap Report (AGR) has been published each year since 2014 by the UNEP.
- The report's primary objective is to inform the negotiators of the UNFCCC Member States, and the broader UNFCCC constituency, about the status and trends within climate adaptation at global and regional levels.
- The AGR also provides a set of science-based options to policymakers and decision-makers to increase ambition in adapting to climate change across key climate-sensitive sectors.
- Since 2014, UNEP has produced science-based assessments of the adaptation gap with the purpose of facilitating an adequate adaptation response in the context of the temperature and adaptation goals of the UNFCCC process.
- The adaptation gap is the difference between actually implemented adaptation and a goal set by society,

determined largely by preferences related to climate change impacts, and reflecting resource limitations and competing priorities.

What's new in this year's report?

- The report – which looks at progress in planning, financing and implementing adaptation actions – finds that the adaptation finance needs of developing countries are 10-18 times as big as international public finance flows. This is over 50 per cent higher than the previous range estimate.
- The modelled costs of adaptation in developing countries are estimated at US\$215 billion per year this decade.
- The adaptation finance needed to implement domestic adaptation priorities is estimated at US\$387 billion per year.
- Despite these needs, public multilateral and bilateral adaptation finance flows to developing countries declined by 15 per cent to US\$21 billion in 2021.
- As a result of the growing adaptation finance needs and faltering flows, the current adaptation finance gap is now estimated at US\$194-366 billion per year.
- At the same time, adaptation planning and implementation appear to be plateauing.
- This failure to adapt has massive implications for losses and damages, particularly for the most vulnerable.

What are the Global Efforts Towards Climate Adaptation Financing?

International Agreements and Commitments

- The Paris Agreement, adopted in 2015, requires all parties to plan and implement adaptation efforts and has called for a balance between adaptation and mitigation financing.
- The Green Climate Fund (GCF), established within the framework of the UNFCCC, is one of the primary mechanisms for transferring money from developed countries to developing nations to assist in adaptation and mitigation practices.

Climate Conferences and Pledges

- Annual UN Climate Change Conferences (COPs) serve as a platform where countries discuss and negotiate commitments, including financing for climate adaptation.
- The pledge made at COP26 in Glasgow to double adaptation finance by 2025 from 2019 levels is an example of the commitments made in these international forums.

Multilateral Development Banks (MDBs)

- Institutions such as the World Bank, African Development Bank, and Asian Development Bank provide funding for climate change adaptation projects through loans, grants, and other financial instruments.

Bilateral Aid

- Developed countries often provide adaptation financing to developing countries through bilateral agreements, either directly or through agencies such as the United States Agency for International Development (USAID) or the UK's Foreign, Commonwealth & Development Office (FCDO).

Private Sector Involvement

- Increasingly, there is an acknowledgment of the need for private sector investment in adaptation projects. Efforts to engage private investors include green bonds, insurance schemes, and public-private partnerships.

National Adaptation Plans and Strategies

- Developing countries are encouraged to formulate and implement National Adaptation Plans (NAPs) that articulate their priority adaptation needs.

Technology Transfer

- Technology Mechanism under the UNFCCC aims to facilitate the transfer of technology and know-how to developing countries to help them adapt to climate change.

Capacity-Building and Knowledge Sharing

- Various international organizations and networks focus on building the capacities of developing nations to plan for and respond to climate impacts.
- Initiatives include knowledge exchange programs, workshops, and training sessions.

Innovative Financing Mechanisms

- Efforts are being made to develop new financial instruments and mechanisms that can help leverage additional funds for adaptation, such as climate risk insurance, catastrophe bonds, and resilience bonds.

Civil Society and NGO Engagement

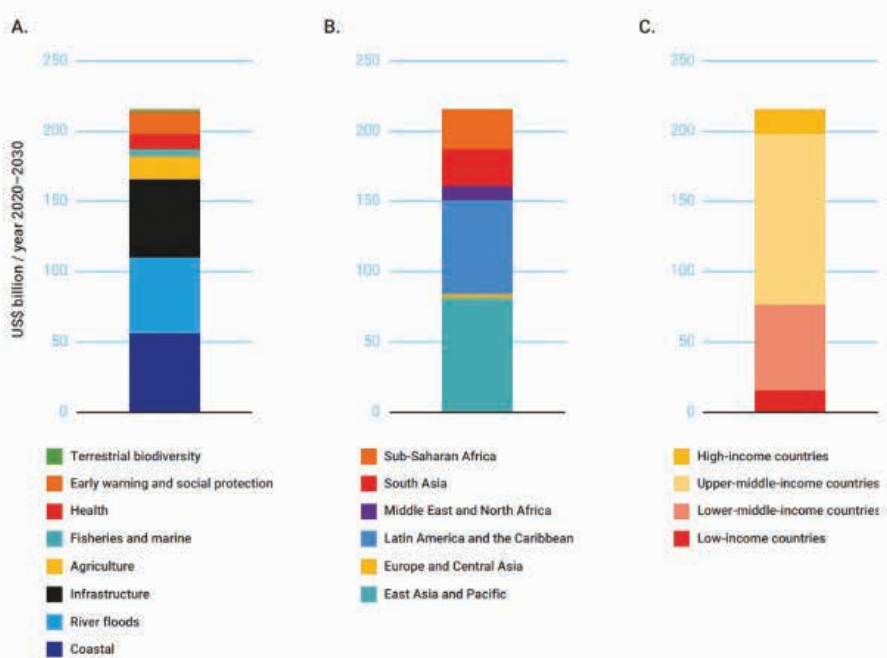
- NGOs and civil society organizations play a critical role in advocacy, project implementation, and monitoring the effective use of adaptation finance.

Benefits of Adaptation Financing

- **Reducing Vulnerability:** Adaptation financing helps communities, sectors, and countries become more resilient to the impacts of climate change by reducing their vulnerability to extreme weather events, sea-level rise, and other climate-related risks.
- **Cost-Effectiveness:** Investing in adaptation measures can be significantly more cost-effective in the long term than bearing the full costs of climate impacts. For instance, building flood defenses is far less expensive than the economic losses that would result from unmitigated flood damage.
- **Sustainable Development:** Effective adaptation contributes to sustainable development by ensuring that climate risks are accounted for in the planning and execution of development projects.
- **Food Security:** Adaptation financing in agriculture can help ensure food security by developing more resilient agricultural practices and crop varieties that can withstand changing climate conditions.
- **Protecting Biodiversity:** Financing adaptation actions can help protect ecosystems and biodiversity that are threatened by climate change, maintaining the services they provide to humanity.
- **Health Benefits:** Climate adaptation measures in public health can reduce the burden of climate-sensitive diseases and health conditions, and protect communities from the health impacts of extreme weather events.
- **Economic Stability:** By reducing the impacts of climate change, adaptation finance can contribute to economic stability in vulnerable regions, helping to prevent loss of livelihoods and displacement.
- **Infrastructure Resilience:** Building resilient infrastructure with adaptation finance can ensure that roads, buildings, and other critical infrastructure can withstand the impacts of climate change.
- **Global Collaboration:** Adaptation finance fosters international cooperation, as it often involves partnerships between developed and developing nations, international organizations, and the global community.

Challenges in Adaptation Financing

- **Insufficient Funds:** The amount that is currently being allocated for climate adaptation is far below what is needed, especially in the most vulnerable countries.
- **Unfulfilled Pledges:** Developed countries have frequently failed to meet their funding pledges, which leads to unpredictability and insufficient financial flows for adaptation initiatives.
- **Imbalance Between Adaptation and Mitigation Financing:** There is a significant imbalance in favor of mitigation over adaptation in the allocation of climate finance, despite the increasing importance of adaptation for many vulnerable regions.
- **Complex Access Procedures:** Accessing adaptation funds can be complicated and bureaucratic, making it difficult, especially for the poorest and most vulnerable nations, to obtain the necessary finance.
- **Lack of Private Sector Engagement:** There is a challenge in attracting private investment in adaptation projects, which are often seen as less profitable than mitigation projects like renewable energy.



- **Limited Capacity to Plan and Implement:** Developing countries may lack the institutional and technical capacities required to effectively plan, apply for, and implement adaptation projects.
- **Transparency and Accountability:** There are concerns about the transparency and accountability of how adaptation finance is used, which can lead to inefficiencies and corruption.
- **Climate and Economic Shocks:** Global economic downturns, pandemics, or large-scale climate disasters can suddenly redirect attention and resources away from long-term adaptation needs.
- **Measuring Adaptation Outcomes:** It is challenging to measure the effectiveness of adaptation interventions, which makes it difficult to assess and justify the allocation of funds.
- **Integrating Adaptation into Development:** There is a need for better integration of adaptation into broader development strategies and financial planning, which has been difficult to achieve.

Environmental DNA

Why in News

Researchers at the Laboratory for the Conservation of Endangered Species (LaCONES), an arm of CCMB, have developed a novel method for assessing the biodiversity of ecosystems using environmental DNA (eDNA).

Important Points

- Environmental DNA (eDNA) refers to genetic material obtained directly from environmental samples, such as water, soil, or air.
- It provides valuable insights into the presence and abundance of various organisms within an ecosystem without the need for direct observation or capture.

Applications of Environmental DNA

Biodiversity Monitoring

- eDNA is used to monitor and assess the biodiversity of various ecosystems, providing a non-invasive method for tracking the presence of different species, including endangered or elusive ones.

Aquatic Ecosystem Management

- In aquatic environments, eDNA analysis helps in monitoring fish and other aquatic organisms, assisting in the management and conservation of aquatic ecosystems.

Invasive Species Detection

- eDNA technology aids in the early detection of invasive species by identifying their genetic traces in the environment, enabling timely intervention to prevent ecological disruptions.

eDNA Sampling Techniques

Water Sampling

- Collection of water samples from lakes, rivers, or oceans for the extraction of DNA from various aquatic organisms, including fish, amphibians, and invertebrates.

Soil Sampling

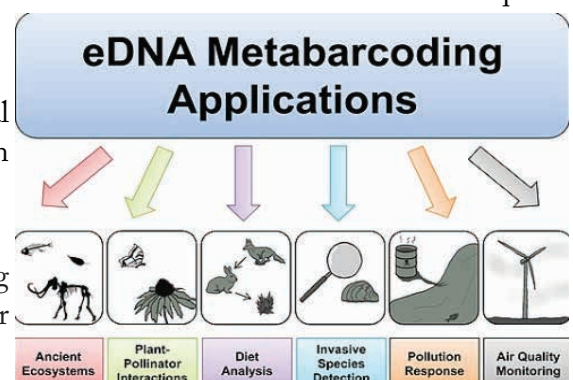
- Extraction of DNA from soil samples to study the microbial communities and the presence of various organisms within the soil ecosystem.

Benefits of Environmental DNA Analysis

- **Non-Invasive:** eDNA analysis allows for the monitoring of ecosystems without directly disturbing the habitats or organisms, minimizing the impact on the environment.
- **Cost-Effective:** It offers a cost-effective method for biodiversity assessment and monitoring compared to traditional survey methods, which often require extensive fieldwork and resources.
- **High Sensitivity:** eDNA analysis is highly sensitive, capable of detecting even low concentrations of genetic material, enabling the identification of rare or elusive species.

Challenges and Considerations

- **Contamination:** Contamination of samples with exogenous DNA, including that from researchers or



equipment, can lead to misleading results.

- **Degradation:** Environmental factors such as temperature and UV radiation can lead to the degradation of eDNA, affecting the accuracy of the analysis.
- **Data Interpretation:** Interpreting eDNA data requires expertise in both genetics and ecology, as well as an understanding of the specific ecosystem being studied.

Advantages Over Traditional Methods

- **Cost-Effective and Efficient:** The eDNA approach is a cheaper, faster, and scalable alternative to traditional methods, making it suitable for large-scale freshwater and marine ecosystem monitoring and conservation.
- **Comprehensive Biodiversity Assessment:** The method can detect a wide range of organisms, including viruses, bacteria, archaea, and eukaryotes such as fungi, plants, insects, birds, fish, and other animals.

Implementation and Findings

- **Successful Application:** The researchers tested the eDNA method in the biodiverse Chilika Lagoon ecosystem in Odisha, India, to assess its efficacy.
- **Remarkable Results:** Over 10 billion sequences of eDNA fragments were compared with a comprehensive database of reference sequences, revealing a total taxonomic diversity of approximately 1,071 families across the tree of life in the Chilika Lagoon.
- **Implications for Conservation:** This approach provides valuable insights for the monitoring and conservation of various ecosystems, offering a more comprehensive understanding of the diverse life forms present within them.

Production Gap Report 2023

Why in News

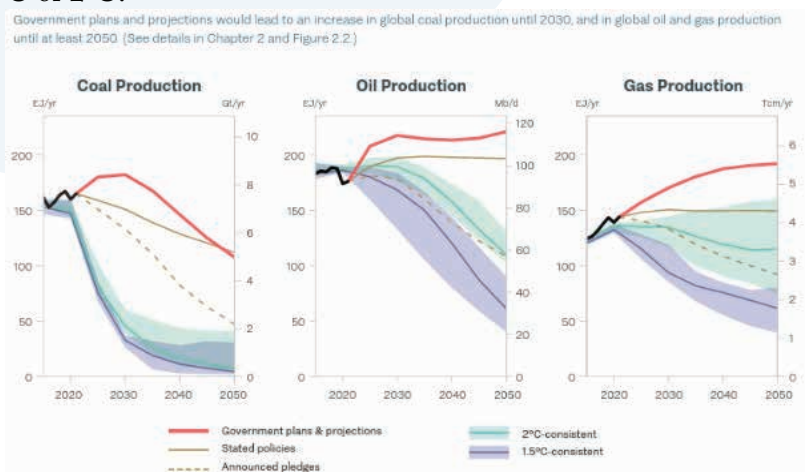
The 2023 Production Gap Report titled “Phasing down or phasing up” is released.

Important Points

- The first edition was released in 2019.
- It is produced by the Stockholm Environment Institute (SEI), Climate Analytics, E3G, International Institute for Sustainable Development (IISD) and the UN Environment Programme (UNEP).
- It tracks the discrepancy between governments’ planned fossil fuel production and global production levels consistent with limiting warming to 1.5°C or 2°C.

Findings of the Report

- **Production Gap:** If global carbon dioxide (CO₂) emissions continue at the current pace, the world could exceed the remaining emissions budget compatible with a 50% chance of limiting long-term warming to 1.5°C by 2030.
- **Governments are planning on producing around 110% more fossil fuels in 2030 than would be consistent with limiting warming to 1.5°C, and 69% more than would be consistent with limiting warming to 2°C.**
- **The magnitude of the production gap is also projected to grow over time.**
- **Conflicts between Commitments:** Major producer countries have pledged to achieve net-zero emissions and launched initiatives to reduce emissions from fossil fuel production, but none have committed to reduce coal, oil, and gas production in line with limiting warming to 1.5°C.
- **Increase in Production of Fossil Fuels:** Government plans and projections would lead to an increase in global coal production until 2030, and in global oil and gas production until at least 2050.
- **India:** India’s updated Nationally Determined Contribution (NDC) pledges a reduction in the emissions



intensity of its GDP of 45% by 2030, compared to 2005 levels, and an increase in the share of non-fossil power capacity to 50% by 2030 which has a goal of reaching net-zero by 2070.

- While India has made significant investments and set ambitious targets for renewable energy no government policies or discourses to support a managed wind-down of fossil fuel production were identified.

Suggestions

- Governments should be more transparent in their plans, projections, and support for fossil fuel production and how they align with national and international climate goals.
- There is a strong need for governments to adopt near- and long-term reduction targets in fossil fuel production and use them to complement other climate mitigation targets.
- An equitable transition away from fossil fuel production must recognize countries' differentiated responsibilities and capabilities.
- Governments with greater transition capacity should aim for more ambitious reductions and help finance the transition processes in countries with limited capacities.

OECD Interim Report

Why in News

Recently, Organisation for Economic Co-operation and Development (OECD) has released the interim report titled-Towards Eliminating Plastic Pollution by 2040: A Policy Scenario Analysis, ahead of the Intergovernmental Negotiating Committee on Plastic Pollution (INC3).

Important Points

Key Highlights of the Report on Global Plastic Pollution (2022-2040)

- Plastic Leakage Statistics (2022):
- 21 million tonnes (MT) of plastics leaked globally into the environment.

Business-as-Usual Scenario (2040):

- Predicts a 50% increase in macroplastic leakage by 2040.
- Anticipates 30 MT of plastic leakage, with 9 MT entering aquatic environments.

Stabilizing Plastic Use (2040):

- Stabilizing primary plastic use at 2020 levels still results in significant leakage (12 MT) by 2040.

Ambitious Global Action (2040):

- Ambitious action could drastically reduce waste generation, almost eliminating mismanaged waste and nearly eliminating plastic leakage.
- Potential to cut plastic waste generation in 2040 by a quarter below baseline.
- Virtually eliminate mismanaged waste by 2040, reducing leakage to 1.2 MT.
- Stocks of plastics in rivers and oceans still expected to rise but 74 MT less than the baseline.

Environmental and Health Impacts:

- Escalating plastic use and disposal adversely affect the environment (habitat destruction, soil contamination), climate (contributing to 3.8% of total global greenhouse gas emissions), and human health.

Global Policy Actions (2040):

- Early, stringent, and coordinated policy action could have a significant positive impact.
- Costs of ambitious actions amount to 0.5% of global GDP in 2040.

Investment Needs (2020-2040):

- Fast-growing countries with less advanced waste management systems require over USD 1 trillion for waste collection, sorting, and treatment.
- Emphasizes the importance of international cooperation due to the uneven distribution of costs.

Recommendations to Address Plastic Pollution

Comprehensive Policy Approach:

- Develop and implement various policy scenarios that comprehensively address plastic pollution throughout

its lifecycle.

- Emphasize the importance of holistic policies to effectively tackle plastic pollution at different stages.

Overcoming Technical and Economic Barriers:

- Prioritize efforts to overcome technical and economic barriers hindering the elimination of plastic leakage by 2040.
- Invest in research and development to find innovative solutions that address the challenges associated with plastic waste management.

Recycling Breakthroughs:

- Focus on fostering breakthroughs in recycling technologies to enhance the efficiency and viability of plastic recycling processes.
- Encourage the development of sustainable and cost-effective recycling methods to reduce reliance on single-use plastics.

Scaling Up International Markets:

- Facilitate the scaling up of well-functioning international markets for scrap and secondary plastics.
- Promote collaboration between countries to establish efficient mechanisms for the global trade of recycled plastics, encouraging a circular economy.

International Cooperation:

- Foster international collaboration to share knowledge, resources, and best practices in combating plastic pollution.
- Establish a global framework for coordinated action, acknowledging the shared responsibility in addressing the transboundary nature of plastic waste.

Public Awareness and Education:

- Implement public awareness campaigns and educational programs to promote responsible plastic use and disposal.
- Encourage behavioral changes to reduce plastic consumption and increase public understanding of the environmental impact of plastic pollution.

Incentives for Sustainable Practices:

- Introduce economic incentives for businesses and industries adopting sustainable practices, such as reducing plastic use and implementing eco-friendly packaging.
- Encourage the private sector to invest in and adopt environmentally responsible alternatives to traditional plastic products.

Legislation and Regulation:

- Enact and enforce robust legislation and regulations targeting the production, use, and disposal of plastics.
- Implement measures to hold industries accountable for their plastic footprint and encourage the adoption of eco-friendly alternatives.

Monitoring and Reporting:

- Establish a comprehensive monitoring and reporting system to track progress in plastic waste reduction efforts.
- Regularly assess the effectiveness of implemented policies and adjust strategies based on real-time data and evolving challenges.

Emission Gap Report 2023

Why in News

Ahead of COP28, the United Nations Environment Programme (UNEP) released a report titled 'Emissions Gap Report 2023: Broken Record — Temperatures hit new highs, yet world fails to cut emissions (again)'.

Important Points

Emissions Gap Report:

- The UNEP Emissions Gap Report (EGR) series tracks world progress in limiting global warming well

below 2°C and pursuing 1.5°C in line with the Paris Agreement.

- Since 2010, it has provided an annual science-based assessment of the gap between estimated future global greenhouse gas (GHG) emissions if countries implement their climate mitigation pledges, and where they should be to avoid the worst impacts of climate change.
- Each year, the report also highlights key opportunities to bridge the emissions gap, tackling a specific issue of interest.
- With the aim to inform the climate negotiations among UN Member States, the EGR is launched every year ahead of the UN Climate Change Conference of the Parties (COP).

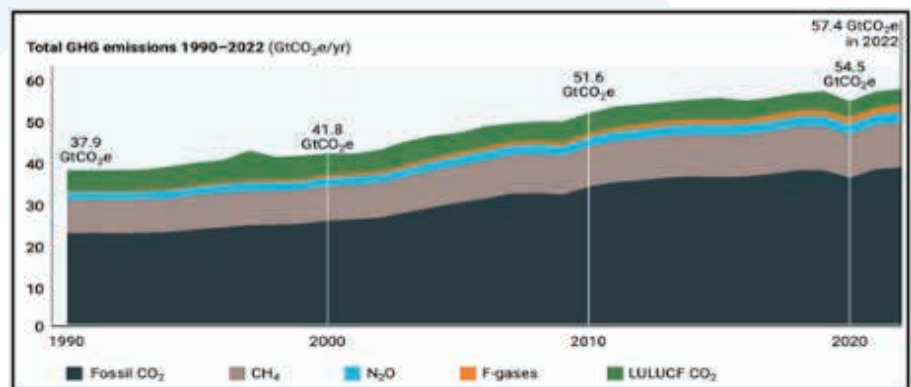
Major Takeaways from the EGR 2023:

Rising global temperature:

- 86 days have been recorded with temperatures exceeding 1.5°C above pre-industrial levels this year.
- Not only was September the hottest month ever, it also exceeded the previous record by an unprecedented 0.5°C, with global average temperatures at 1.8°C above pre-industrial levels.

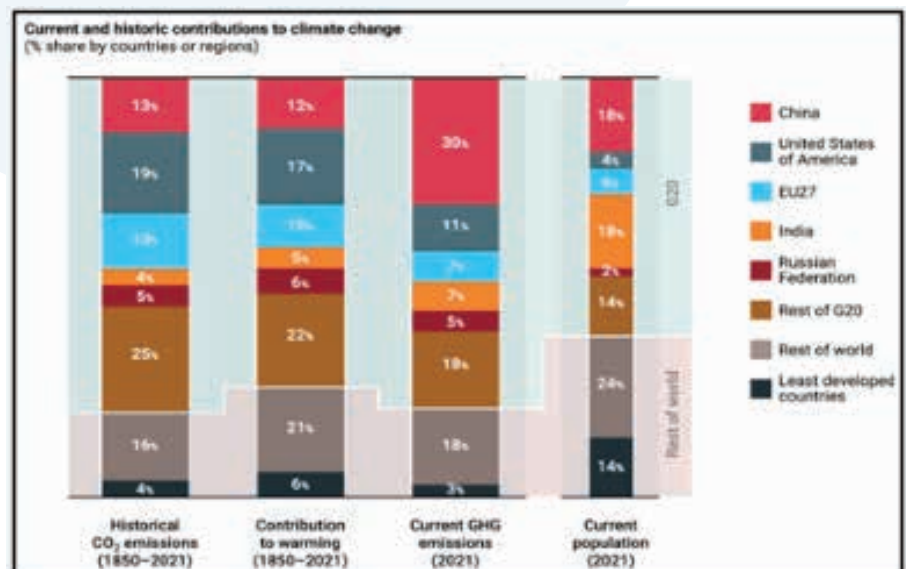
Global GHG emissions set new record in 2022:

- Global GHG emissions increased by 1.2 per cent from 2021 to 2022 to reach a new record of 57.4 gigatons of CO₂ equivalent (GtCO₂e).
- All sectors apart from transport have fully rebounded from the drop in emissions induced by the COVID-19 pandemic and now exceed 2019 levels.
- CO₂ emissions from fossil fuel combustion and industrial processes were the main contributors to the overall increase, accounting for about two thirds of current GHG emissions.



Global patterns of inequality:

- Per capita territorial GHG emissions vary significantly across countries.
- They are more than double the world average of 6.5 tons of CO₂ equivalent (tCO₂e) in the Russian Federation and the United States of America, while those in India remain under half of it.
- Per capita emissions are fairly similar in Brazil, the European Union and Indonesia, and at levels slightly below the G20 average.
- Historic emissions and contribution to global warming similarly vary significantly across countries and groups of countries.



Action in this decade will determine the ambition required in the next round of NDCs for 2035:

- The emissions gap is defined as the difference between the estimated global GHG emissions resulting from full implementation of the latest NDCs and those under least-cost pathways aligned with the long-term temperature goal of the Paris Agreement.
- The first global stocktake under the Paris Agreement is envisaged to inform the next round of NDCs that

countries are requested to submit in 2025, which will include targets for 2035.

- Overall, global ambition in the next round of NDCs must be sufficient to bring global GHG emissions in 2035 to the levels consistent with below 2°C and 1.5°C pathways.

Global warming is estimated to be limited to 3°C:

- A continuation of the level of climate change mitigation efforts implied by current policies is estimated to limit global warming to 3°C (range: 1.9–3.8°C) throughout the century with a 66 per cent chance.
- Warming is expected to increase further after 2100 as CO₂ emissions are not yet projected to reach net-zero levels.
- In the most optimistic scenario where all conditional NDCs and net-zero pledges are met, global warming is projected to be limited to 2°C.

Need for political action:

- The EGR lists 4 key areas where political action is required to mitigate global warming. These 4 areas are:
- Setting and signalling Carbon dioxide removal priorities.
- Developing robust measurement, reporting and verification systems to enhance credibility.
- Harnessing synergies and co-benefits with other efforts.
- Accelerating innovation.

United Nations Environment Programme:

About

- The UNEP was established in 1972 at the United Nations Conference on the Human Environment, popularly known as the Stockholm Conference, as it was held in Stockholm, Sweden.
- It uses its expertise to strengthen environmental standards and practices while helping implement environmental obligations at the country, regional and global levels.

Six Areas of Concentration

- Climate Change
- Post-Conflict and Disaster Management
- Ecosystem Management
- Environmental Governance
- Harmful Substances
- Resource Efficiency/Sustainable Consumption and Production

Governing Body

- The UN Environment Assembly is the governing body of the UNEP.
- It was created in 2012 to replace the governing council.
- It currently has 193 members and meets every two years.

Headquarters: Nairobi, Kenya

Reports Published by UNEP:

- Emissions Gap Report
- Annual Frontiers Report
- Global Environment Outlook

District Central Co-operative Banks

Why in News

The Reserve Bank of India (RBI) has allowed District Central Co-operative Banks (DCCBs) to close un-remunerative branches without prior RBI permission, but they must seek approval from the Registrar of Cooperative Societies in their respective state.

Important Points

Highlights of the RBI's circular

- The decision to close down branches should be made by the Board of the DCCB. The Board should consider all relevant factors, and the decision should be properly recorded and minutes in the proceedings of the Board meeting.
- DCCBs are required to give two months' notice in advance to all existing depositors/clients of the branch. This notification should be done through press releases in local leading newspapers and by communicating directly with each constituent of the branch.
- While DCCBs do not need prior permission from the RBI to close un-remunerative branches, they do require approval from the Registrar of Cooperative Societies of the respective state.
- The DCCB must return the original license(s) issued for the closed branch to the Regional Office of the RBI concerned.
- DCCBs are not allowed to close branches if the RBI has imposed restrictions on the bank.

District Co-operative Central Bank (DCCB)

- DCCBs are cooperative banks that operate at the district level in India.
- They provide banking and financial services primarily to rural and semi-urban areas, focusing on the agricultural sector.
- DCCBs are crucial for the economic development of rural regions, as they offer services like crop loans, agricultural equipment financing, and savings accounts to farmers and other community members.

Structure of DCCBs

- Each district has its own DCCB, collectively known as District Central Co-operative Banks.
- The governance structure includes elected representatives and directors from various professional cooperative bodies such as milk unions, urban cooperatives, rural cooperatives, etc.
- These elected representatives are responsible for making decisions and shaping the policies of the bank.

Election of President

- The president of a DCCB is chosen through elections.
- Elected representatives and directors, representing different cooperative bodies, participate in the election process.
- It's common for local politicians to be involved in these elections, and winning the position of DCCB president can be a significant boost to their political careers.

Role of State Apex Central Co-operative Bank

- Each state has a State Apex Central Co-operative Bank.
- This apex bank acts as the central coordinating body for all DCCBs within the state.
- It provides support, guidance, and financial assistance to the individual DCCBs under its jurisdiction.

TYPES OF CO-OPERATIVE BANKS

01

CENTRAL CO-OPERATIVE BANKS

02

STATE CO-OPERATIVE BANKS

03

PRIMARY CO-OPERATIVE BANKS

04

LAND DEVELOPMENT BANKS

- Advantages and Disadvantages of Political Involvement

Advantages

- Politically influential leaders can use the bank's resources to fund local development projects, agricultural initiatives, and infrastructure improvements.
- They can advocate for policies that benefit the local community, especially farmers and rural businesses.

Disadvantages

- Political interference can lead to corruption, favouritism, and mismanagement of funds, diverting resources away from their intended purposes.
- Frequent changes in leadership due to political elections can cause instability in the bank's operations and decision-making processes.

Universal Basic Income

Why in News

Recently, the positive outcome Universal Basic Income (UBI), can have on individuals and families has been highlighted through the WorkFREE pilot project, started in 2022 in Telangana.

Important Points

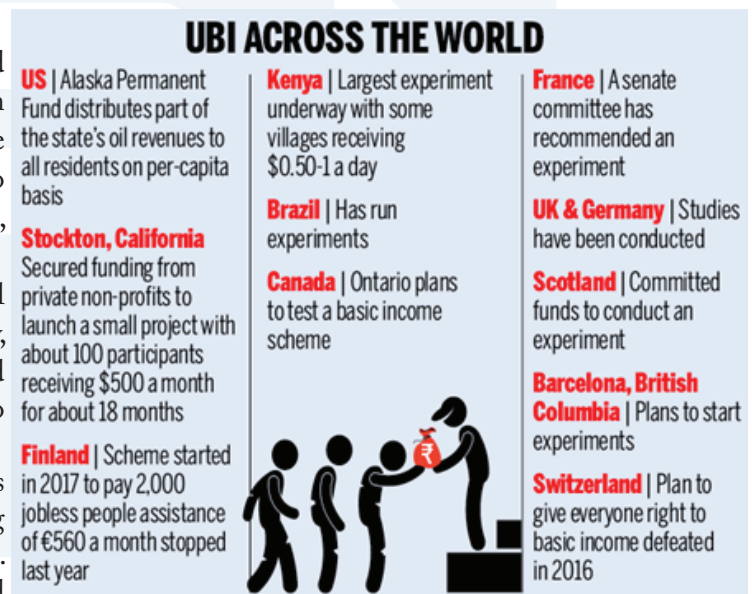
- Universal Basic Income (UBI) is a social welfare proposal that entails providing all beneficiaries with a guaranteed income through unconditional transfer payments. It is designed to alleviate poverty and replace other need-based social programs, potentially reducing bureaucratic involvement.

Pros of UBI:

- **Poverty Reduction:** UBI reduces poverty and income inequality by establishing a minimum income floor, particularly benefiting vulnerable and marginalized groups. It enables people to afford basic necessities like food, healthcare, education, and housing.
- **Improved Health:** UBI can enhance physical and mental health by reducing stress, anxiety, and depression associated with poverty and financial insecurity. It also facilitates access to better healthcare, sanitation, and nutrition.
- **Streamlined Welfare System:** UBI simplifies the existing welfare system by replacing multiple targeted social assistance programs. This reduces administrative costs and eliminates the complexities of means-testing and eligibility requirements.
- **Financial Security and Freedom:** UBI provides individuals with financial security and greater freedom to make choices about work, education, and personal lives.
- **Economic Stimulus:** It injects money directly into the hands of individuals, stimulating consumer spending and driving economic growth. This benefits local businesses, generates employment opportunities, and creates demand for goods and services.
- **Entrepreneurship and Creativity:** UBI empowers people to pursue entrepreneurship, take risks, and engage in creative or socially beneficial activities that might not be economically viable otherwise.

Cons of UBI:

- **Cost:** UBI is costly and requires higher taxes, spending cuts, or increased debt to finance it. This could potentially lead to inflation, distort the labor market, and reduce economic growth.
- **Work Motivation:** There is a concern that UBI may decrease motivation to work, leading to reduced productivity and efficiency. It could create a culture of dependency, entitlement, and laziness, discouraging individuals from acquiring skills and education.
- **Inflationary Pressure:** UBI could contribute to inflation as businesses adjust their pricing strategies to capture the additional income available in the market.



- Reliance on Government Support: UBI may lead to a reliance on government support, with some individuals becoming complacent or dependent on the basic income, reducing motivation for personal and professional growth.

WorkFREE Pilot Project: A Transformative Social Initiative

- The WorkFREE Pilot Project is a collaborative effort between the University of Bath, Montfort Social Institute in Hyderabad, and the India Network for Basic Income. It is funded by the European Research Council.

Key Features:

- Under this pilot project, participating adults receive Rs 1,000, and children receive Rs 500 every month for a duration of 18 months.
- The project is currently supporting 1,250 residents living in five slums in Hyderabad.

Positive Outcomes and Transformative Impact:

- The WorkFREE pilot project is presented as a transformative initiative that has had positive outcomes for individuals and families.
- Some residents in Telangana who were adversely affected by relocation have found financial stability through the Universal Basic Income (UBI) support provided by the project. For instance, they used the cash support to start a bangle business, resulting in a significant improvement in their income.

Utilization of UBI Support:

- The residents have used the cash support for various purposes, including buying food, fuel, clothes, and paying utility bills, which typically constitute a significant portion of their monthly expenses.

Similar Pilot Projects:

- The Self-Employed Women's Association (SEWA) conducted a pilot project in Delhi and Madhya Pradesh in 2011. In Delhi, approximately 100 families living below the poverty line received Rs 1,000 per month as part of the pilot project.

The Way Forward for Universal Basic Income (UBI)

- **Balanced Income Amounts:** To ensure that UBI does not discourage work while providing essential support, the amount provided as a basic income should be carefully balanced. Striking the right balance is crucial to maintain individual motivation for employment and self-sufficiency.
- **Complementary Support Systems:** The effectiveness of UBI can be enhanced by implementing robust support systems, including universal healthcare and education. These complementary measures can ensure that individuals receiving UBI have access to essential services that contribute to their well-being and quality of life.
- **Alignment with UBI Principles:** While schemes like cash transfers align with the principles of UBI, they often target specific demographics or populations. This targeted approach can carry the risk of excluding potential beneficiaries and may not cover everyone who could benefit from a basic income.
- **Efficiency and Reduced Misallocation:** To address issues related to misallocation of funds and reduce leakages in existing welfare schemes, introducing UBI is suggested as a more efficient option. UBI's universality can minimize administrative complexities, ensuring that financial support reaches those who need it while reducing overhead costs associated with means-testing and targeting.

United Nations Commission on International Trade Law

Why in News

Court in The Hague rejects govt plea against \$111-million award to Devas investors

Important Points

- The court in The Hague, Netherlands, has denied India's request to cancel a \$111 million compensation given to foreign investors in an Indian satellite company called Devas Multimedia.
- This payment was awarded by a tribunal because a satellite deal from 2005 with India's ISRO's Antrix Corporation got cancelled in 2011.

United Nations Commission on International Trade Law (UNCITRAL)

- The United Nations Commission on International Trade Law (UNCITRAL) is a subsidiary body of the United Nations General Assembly (UNGA).
- Its mandate is to further the progressive harmonization and unification of the law of international trade.

- It is the core legal body of the United Nations system in the field of international trade law.
- UNCITRAL was established by the UN General Assembly in 1996.

Background - Devas-Antrix deal

Devas-Antrix deal:

- Antrix Corporation — the commercial arm of the ISRO – and Devas Multimedia Pvt Ltd signed an agreement in January 2005.
- Under the deal, ISRO would lease to Devas two communication satellites (GSAT-6 and 6A) for 12 years for Rs 167 crore.
- Devas would provide multimedia services to mobile platforms in India using S-band transponders on the satellites, with ISRO leasing 70 MHz of S-band spectrum.

Cancellation of deal:

- The deal was annulled by the then government in February 2011, following a Cabinet Committee on Security decision.
- The committee decided to terminate the agreement citing the requirement of the S-band spectrum for security purposes of the country.
- Also, there were allegations that the Devas deal involved the handing over of communication spectrum valued at nearly Rs 2 lakh crore for a pittance.
- In 2014, the CBI was asked to investigate the 2005 deal.
- Later, The ED filed a chargesheet in 2018 under the Prevention of Money Laundering Act against a former managing director of Antrix and five Devas officials.
- It stated that Devas transferred 85% of its Rs 579 crore foreign funding to the US under various claims.

Devas approached various international tribunals:

- After the cancellation of the deal the foreign investors in Devas Multimedia approached various international tribunals seeking compensation.
- These foreign investors were - the German telecom major Deutsche Telekom, three Mauritius investors, and Devas Multimedia itself.



As a result:

- Devas Multimedia was awarded \$1.2 billion by an International Chamber of Commerce;
- Deutsche Telekom was awarded a \$101 million compensation by the Permanent Court of Arbitration in Geneva, and
- Mauritius investors were awarded a \$111 million by UNCITRAL.
- Liquidation of Devas Multimedia and money laundering case in India
- The National Company Law Tribunal in India ordered the liquidation of Devas Multimedia in May 2021, citing fraudulence in its creation.
- The NCLT order was upheld by the Supreme Court of India in January 2022.
- The Enforcement Directorate and the Central Bureau of Investigation in India are currently pursuing cases of money laundering and corruption in India against Devas and its officials.
- The court in The Hague, Netherlands, has denied India's request to cancel a \$111 million compensation given to foreign investors in an Indian satellite company called Devas Multimedia.

Background of the present case

- Investors of Devas were awarded a compensation by UNCITRAL
- In October 2020, Three Mauritius-based investors in Devas Multimedia were awarded \$111 million in compensation by the United Nations Commission on International Trade Law (UNCITRAL) tribunal in The Hague.

- These three investors were CC/Devas Mauritius Ltd, Telcom Devas Mauritius Ltd and Devas Employees Mauritius Pvt Ltd.
- They were awarded compensation over the failed Devas-Antrix satellite deal.

Steps taken by the Indian government

- The Indian government approached the district court of The Hague in March 2022 for cancellation of the compensation award of 2020.
- It cited a January 2022 Supreme Court order which upheld the liquidation of Devas Multimedia on the charge of fraud brought by the Ministry of Corporate Affairs and probe agencies CBI and ED.
- Verdict of District Court of The Hague
- The district court rejected the government's plea to consider the Supreme Court order as fresh evidence of wrong doing by Devas Multimedia in the process of securing the 2005 satellite deal with Antrix Corp.
- The court decided that India's accusations of deceit, fraud, and corruption against Devas Multimedia were already addressed by The Hague's Court of Appeal.
- India had challenged an interim arbitral award for compensation, and these accusations were part of that case.

Direct listing on foreign exchanges

Why in News

The Indian government has recently allowed certain Indian companies to directly list on specific foreign stock exchanges, enabling them to tap into global capital markets and potentially increase capital outflows.

Important Points

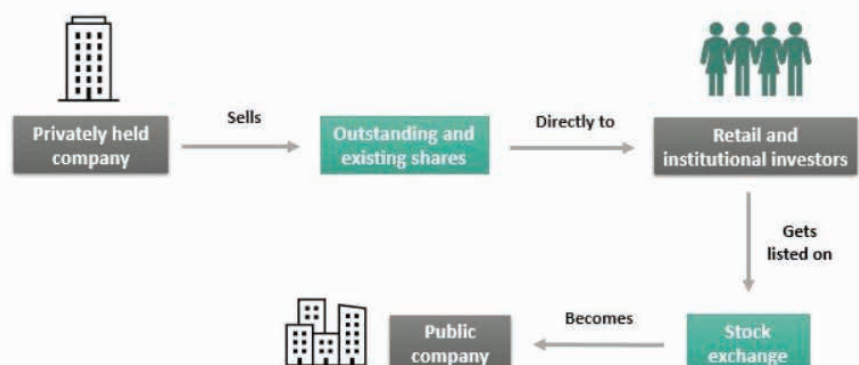
- The committee appointed by SEBI, consisting of members from SEBI, capital institutions, and large law firms, proposed allowing foreign listings to simplify taxation and FEMA provisions for Indian companies, thereby making foreign listings more viable.
- The proposal for amending the foreign exchange listing norms for Indian companies aims to liberalize the process of listing on foreign exchanges. As of now, Indian companies are required to list in India before seeking a foreign listing.
- The primary purpose is to make it easier for Indian companies to access international capital markets and to foster economic growth.

How do companies currently list on foreign bourses?

- Domestic listed companies would use depository receipts — American Depository Receipts (ADR) or Global Depository Receipts (GDR) — to list in the overseas market.
- Under this route, Indian companies wanting to get listed on foreign stock exchanges would give their shares to an Indian custodian, and depository receipts would be issued to foreign investors.
- According to Prime Database, between 2008 and 2018, 109 companies raised Rs 51,847.72 crore through the ADRs/GDRs route. After 2018, none of the companies got listed overseas.
- Proposed changes will involve amendments to key Indian regulations, including:
- Foreign Exchange Management Act (FEMA): The proposed changes to FEMA will address issues related to the sale of shares to persons residing outside India. It will likely provide clarity on the process and regulations for Indian companies conducting foreign listings.

- Income Tax Act: The amendments may include changes in how share transfers within India are taxed, ensuring that they align with the new foreign listing norms.
- Companies Act 2013: The Companies Act is expected to see enabling provisions added to allow certain classes of securities to be

What Is Direct Listing?



listed on stock exchanges in foreign jurisdictions. This is a crucial step in enabling foreign listings.

Benefits for Indian Companies

- **Access to Global Capital:** Indian companies will have a new avenue to raise capital from international investors.
- **Diversified Investor Base:** Foreign listings will expose them to a wider, more diversified investor base, potentially driving up valuations and investments.
- **Cross-Listing Benefits:** Companies will be able to benchmark themselves against global peers, enhancing transparency and credibility.
- **Support for Unprofitable Startups:** Tech startups and unicorns, which may not be profitable initially, can access larger pools of capital from foreign markets.
- **Global Expansion:** It facilitates international expansion, global brand recognition, and financial support for expansion plans.



Challenges and Considerations

- **Regulatory Compliance:** Companies will need to ensure compliance with the regulations of the foreign exchange where they choose to list. This includes adhering to foreign listing requirements and disclosure norms.
- **Tax Implications:** Changes in taxation rules and FEMA provisions may affect the overall cost and feasibility of foreign listings.
- **Market Choice:** Indian companies will need to carefully consider the choice of foreign exchange for listing, taking into account factors such as market reputation, investor base, and regulatory environment.
- **Legal and Financial Reporting:** They will need to align their legal and financial reporting standards with the requirements of the foreign exchange.

GST Amnesty Scheme

Why in News

The finance ministry has come out with an amnesty scheme for filing appeals against Goods and Services Tax (GST) demand orders.

Important Points

About the GST Amnesty Scheme

- The amnesty scheme introduced by the Finance Ministry is open until January 31, 2024.
- It allows taxpayers who missed the appeal deadline (March 31, 2023) for orders issued by tax officers to submit their appeals, providing them an opportunity to resolve their tax disputes.
- It extends the appeal filing period beyond the previous strict three-month window, providing a more flexible timeline for taxpayers to file their appeals against assessment orders seeking taxes.
- The GST Council has approved this initiative, which requires entities to pre-deposit 12.5% of the tax demand, an increase from the previous 10%, to benefit from the scheme.
- It offers benefits such as exemptions for female employees earning less than Rs. 25,000, allowing one late payment of Rs. 1,000 for each return, and a one-time break for non-filers to catch up on their GST filings.
- Taxation experts and professionals view this scheme positively. They believe it will serve as a crucial lifeline for individuals who missed the appeal deadline due to administrative errors or unforeseen circumstances.
- This initiative is expected to encourage improved compliance among taxpayers, foster better cooperation with tax authorities, and provide a more efficient mechanism for dispute resolution.
- The streamlined appeal process offered by the scheme has the potential to reduce the burden on the legal system, resulting in fewer prolonged litigations. This benefits both taxpayers and the tax administration.

What is the Goods and Services Tax (GST)?

- It is a single indirect tax which has replaced multiple indirect taxes in India such as the excise duty, VAT, services tax, etc.
- It is levied on the supply of goods and services in India.
- It came into effect from July 2017.
- Objective: To remove ambiguity and bring equality in the prices of products across the country.

Active and Passive equity funds

Why in the news

According to a recent study, active equity funds witnessed net inflows of about Rs 74,000 crore and passive equity funds saw Rs 9,000 crore of inflows.

Important Points

- Active funds and passive funds represent two different approaches to mutual fund investing, each with its own set of characteristics and advantages.

What are active funds?

- In an active fund, the fund manager is 'Active' in deciding whether to buy, hold, or sell the underlying securities and in stock selection.
- This fund relies on professional fund managers who manage investments.
- Active funds adopt different strategies and styles to create and manage the portfolio.
- They are expected to generate better returns (alpha) than the benchmark index.
- The risk and return in the fund will depend upon the strategy adopted.
- Active Funds are suited for investors seeking to take advantage of fund managers' alpha generation potential. Requires active management and analysis by the fund manager.

What are passive funds?

- Passive funds (index funds and exchange traded funds (ETFs)) hold a portfolio that replicates a stated index or benchmark.
- In a passive fund, the fund manager has a passive role in the stock selection.
- Buy, hold or sell decisions are driven by the benchmark index and the fund manager/dealer merely needs to replicate the same with minimal tracking error.
- Passive Funds are appropriate for investors who want to mirror the performance of a specific market index. Involves minimal tracking error, and decisions are based on the movements of the benchmark index.

Active vs passive fund:

- Active fund is suited for investors who wish to take advantage of fund managers' alpha generation potential.
- Passive fund is appropriate for investors who want to allocate exactly as per market index.

MSCI Emerging Markets Index

Why in News

India's presence on the MSCI Emerging Markets (EM) Index is set to expand with the inclusion of nine new stocks, effective from 30th November.



Important Points

- India's Growing Influence on the MSCI Emerging Markets Index will elevate India's weightage on the index to 16.3%, reaching an all-time high representation of 131 Indian stocks.

What is MSCI EM Index?

- MSCI is a globally recognized index listed on the NYSE.
- It is released and maintained by MSCI Inc., a leading provider of global equity indices, investment analytics, and other financial data and services.
- Its stock indices are closely monitored by global asset managers, hedge funds, banks, corporations, and insurance companies.
- They rely on these indices to allocate funds across global stock markets.
- MSCI indices serve as a foundation for passive investments through exchange-traded funds (ETFs), index funds, and certain fund of funds.



India's Progress on the EM Index

- Increasing Weight:** India's weightage on the MSCI EM Index has steadily grown, poised to double to 16.3% from four years ago with the upcoming rebalancing.
- Second to China:** India ranks second, trailing only China (29.89%), on the EM Index, outperforming countries like Taiwan (15.07%), South Korea (11.78%), and Brazil (5.42%).
- Strong Performance:** As an independent entity, India has excelled in generating net returns, boasting a 4.75% return in the year through October compared to MSCI EM's -2.14%. Over the long term, India has achieved an annualized 8.33% return over ten years versus MSCI EM's 1.19%.

Inclusion Criteria for Stocks

- Market Capitalization-Based Weightage:** Stocks' weights on the EM index are determined by free-float market capitalization, which represents shares available for foreign investors to trade. Higher market capitalization leads to greater weight and allocation by investors.
- Top Indian Stocks:** Prominent Indian stocks on MSCI EM include Reliance Industries (weight 1.34%), ICICI Bank (0.91%), and Infosys (0.87%).

Impact of Increased Representation

- Passive Inflows:** Passive foreign trackers are expected to inject \$1.5 billion into the nine newly included Indian stocks and other Indian counters with increased weights.
- Stock Rebalancing:** MSCI's adjustments involve increasing the weights of stocks like Zomato, Hindustan Aeronautics, and Jio Financial Services, potentially attracting around \$160 million in passive inflows. However, heavyweight stocks like Reliance may experience minor weight reductions.
- Overall FPI Investment:** The increase primarily benefits passive trackers, and it may not necessarily lead to a surge in overall foreign portfolio investment (FPI) flows. Nonetheless, it boosts investor sentiment, as passive investments tend to offer higher returns over extended periods due to lower expenses and reduced human error.
- Positive Sentiment:** MSCI EM's positive review of India comes shortly after Morgan Stanley upgraded India to the status of the most preferred emerging market, further enhancing India's appeal to global

Cyprus Confidential investigation

Why in News

The Cyprus Confidential investigation unveils a web of offshore entities controlled from India, shedding light on financial transactions orchestrated by individuals in India.

Important Points

- The India-Cyprus offshore connection is a complex landscape with legal tax planning, secrecy, and regulatory challenges.
- The Cyprus Confidential investigation has brought these nuances to light, prompting scrutiny and raising questions about the intricacies of offshore financial activities.

Cyprus Confidential and Its Scope

- Global Offshore Probe: Cyprus Confidential explores 3.6 million documents, unveiling companies established in Cyprus by global elites.
- International Collaboration: Over 270 journalists from 60 media outlets across 55 countries and territories participate in this investigation.
- Data Sources: The investigation draws on documents from six offshore service providers in Cyprus, revealing not only Indian investors but also entities formed by prominent business conglomerates to leverage Cyprus' favorable tax environment.
- The Indian Perspective:

Setting Up Offshore Entities in Cyprus

- Indian entities: The investigation aims to lift the secrecy surrounding offshore entities, exposing how they are controlled from India, with financial instructions originating from individuals within the country.
- Legality: Establishing offshore companies in Cyprus is not illegal. India has Double Taxation Avoidance Agreements (DTAAs) with various countries, including Cyprus, offering advantageous tax rates.
- Tax Residency Certificates: Companies utilize tax residency certificates in these countries to legally benefit from reduced tax rates. These jurisdictions are characterized by loose regulatory oversight and stringent secrecy laws.

India's Tax Treaty with Cyprus

- Pre-2013: Before 2013, India and Cyprus had a tax treaty exempting investors from capital gains tax, attracting substantial investments. Cyprus also had a low withholding tax rate of 4.5%.
- 2013 Onward: India categorized Cyprus as a Notified Jurisdictional Area (NJA) in 2013, leading to higher withholding tax rates and transfer pricing regulations for transactions involving NJA entities.
- Revised DTAA in 2016: A revised DTAA was signed in 2016, rescinding Cyprus from NJA with retrospective effect from November 1, 2013. This treaty introduced source-based taxation of capital gains and a grandfathering clause.

Tax Benefits in Cyprus

- Tax Rates: Offshore companies and branches managed from Cyprus are taxed at 4.25%, while those managed from abroad and offshore partnerships enjoy complete tax exemption.
- Dividends and Capital Gains: No withholding tax on dividends, and no capital gains tax on the sale or transfer of shares in offshore entities.
- Estate Duty Exemption: No estate duty on the inheritance of shares in offshore companies.
- Import Duty Exemption: No import duty on the purchase of vehicles, office, or household equipment for foreign employees.
- Beneficial Owner Anonymity: Ensures anonymity of the beneficial owners of offshore entities.

India-Cyprus DTAA and Its Significance

- Tax Planning: The DTAA enables Cyprus, with its favorable tax regime, to be a jurisdiction for tax planning. Foreign investors often set up investment firms in Cyprus to invest in India and benefit from the DTAA.
- Alternative to Mauritius: Cyprus is now an alternative to Mauritius for establishing offshore entities for Indian investments, as dividends paid from India are subject to withholding tax but not to taxation in Cyprus.

Offshore Trusts in Cyprus

- Cyprus International Trust Law: Offshore trusts under this law are exempt from estate duty and income tax, provided the trustee is Cypriot. Confidentiality is guaranteed.



- **Tax Avoidance:** Offshore trusts allow businesspersons to avoid taxes they would have paid if income from overseas operations had been remitted to their country of residence.
- **Limitations of Indian DTAA:** A DTAA does not prevent the Indian Income Tax department from denying treaty benefits if a company is found to have been inserted as a shareowner in India solely to avoid tax. In such cases, the entire transaction may be questioned.

Micro-entrepreneurship

Why in News

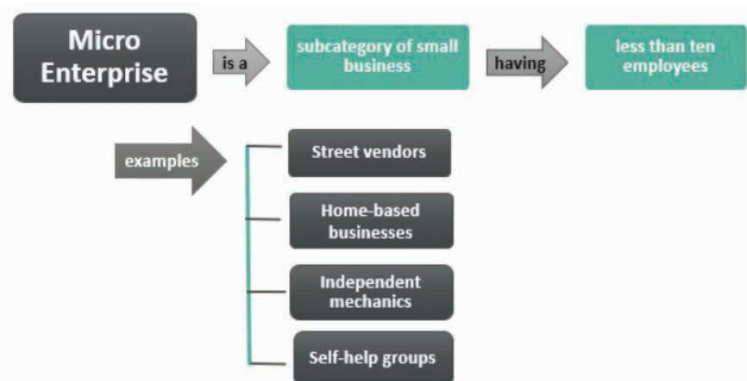
Promoting micro-entrepreneurship in rural India can address many of its pressing challenges. It can provide employment opportunities for the rural youth, boost household incomes, and reduce the migration of people from rural to urban areas.

Important Points

- With a population of around 1.5 billion, India has historically relied heavily on agriculture, but this overdependence has led to issues like shrinking cultivable land, smaller landholdings, and limited use of technology.
- Policymakers have recognized that to enhance rural per capita income, younger generations need to explore alternative livelihoods due to these long-standing challenges.

Benefits of Encouraging Micro-Entrepreneurship in Rural India

- **Solving Rural Problems:** Promoting micro-entrepreneurship can address various challenges in rural India, including unemployment, increased household income, and reduced rural-to-urban migration.
- **Indirect Agricultural Benefits:** Micro-entrepreneurship indirectly benefits the agricultural sector by attracting more investments and encouraging the use of technology in farming practices
- **Economic Growth:** Micro-businesses offer flexibility, have low barriers to entry, and create jobs, contributing to local economic growth and innovation.
- **Innovation:** Small firms frequently introduce new products and ideas to the market, fostering innovation within their specialized markets.
- **Local Economic Growth:** Micro-enterprises help the community by supporting local vendors and employing citizens, leading to increased tax revenue and neighborhood improvements.
- **Self-Reliance:** Micro-business owners have more control over their financial destinies, promoting independence and empowerment.
- **Diverse Offerings:** Micro-firms often provide specialized goods or services that may not be offered by larger companies, diversifying the market.
- **Economic Resilience:** Smaller companies can adjust quickly and contribute to economic stability during downturns in larger industries.
- **Startup Ecosystem:** India's thriving startup environment, with numerous initiatives and government support, contributes to entrepreneurial success, including tax incentives, skill development programs, and financial support.
- Micro-entrepreneurship has its challenges, such as financial uncertainty and resource limitations, but it can be a rewarding career path for those with an entrepreneurial spirit and determination.
- **Major Schemes for Promoting micro-entrepreneurship**
- **ASPIRE (A Scheme for the Promotion of Innovation, Rural Industries, and Entrepreneurship):**
 - Establishes technology and incubation centres across India to promote innovation in the agri-business sector.
 - Provides financial support for building livelihood and technology business incubators.



- Aims to boost economic growth at the district level, particularly in rural areas.

Pradhan Mantri Mudra Yojana:

- Supported by Micro Units Development and Refinance Agency Ltd. (MUDRA) to expand the micro-enterprise market.
- Offers refinancing assistance for loans up to Rs. 10 lakhs, categorized as Tarun, Kishore, and Shishu, based on business stages and loan requirements.

Loans do not require collateral security and cater to various job and income-producing activities.

Support for International Patent Protection in Electronics and Information Technology (SIP-EIT):

- Aids Indian micro, small, and medium-sized businesses (MSMEs) and start-ups in filing foreign patent applications.
- Promotes innovation, brand recognition, and global intellectual property protection.
- Provides financial assistance for the electronics, communication, and technology sectors.

Multiplier Grants Scheme (MGS):

- Encourages companies to collaborate with governmental and academic R&D groups to develop products and packages.
- Closes the gap between proof-of-concept and global product commercialization.
- The Government matches industry investment for R&D projects up to Rs. 2 crore per project, with a maximum of Rs. 4 crore for a group of industries.

Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE):

- Strengthens the loan delivery system and facilitates credit flow to start-ups, small businesses, and micro-firms.
- Offers loans at discounted rates without requiring collateral for manufacturing and service-based businesses.
- Provides fund- and non-fund-based credit facilities up to Rs. 200 lakh per eligible borrower.

Single Point Registration Scheme (SPRS):

- Managed by the National Small Industries Corporation (NSIC) to support MSEs.
- Enables MSEs to participate in government acquisitions without an Earnest Money Deposit (EMD).
- Ensures a minimum of 25% of annual purchases by central ministries, departments, and public sector undertakings from MSEs.

Extra Mural Research or Core Research Grant (CRG):

- Supports academic institutions, research labs, and R&D organizations in conducting research in various science and engineering areas.
- Promotes competitive, individual-centric funding for researchers.

High Risk and High Reward Research:

- Encourages innovative concepts and initiatives in science and technology.
- Focuses on bold and daring suggestions with the potential for significant scientific and technological impact.
- Funding covers consumables, unforeseen expenses, equipment, and travel, with flexible budgets.

Design Clinic Scheme:

- Promotes a design-centric approach for MSMEs and start-ups.
- Supports continual training and skill development to encourage innovative product designs.
- Offers financial support for attending design seminars and learning about the latest design practices.

Zero Defect Zero Effect (ZED) Scheme:

- Encourages manufacturers to produce high-quality, defect-free, and reliable products.
- Provides resources, technology, and financial assistance for quality improvement.
- Offers a comprehensive certification and evaluation process to enhance product quality and reliability.

RBI raised risk weights

Why in News

The Reserve Bank of India (RBI) raised risk weights on specific consumer credit categories to 125% from 100% starting October 1, 2023, necessitating banks and NBFCs to allocate additional capital for these loans.

Important Points

Risk Weights

- The Reserve Bank of India (RBI) periodically adjusts risk weights as part of its prudential regulatory measures to ensure the stability and health of the banking system.
- Risk weights are used in calculating the amount of capital that banks are required to hold against their assets, and changes in these weights can have significant implications for banks' capital adequacy and lending capacities.

What Are Risk Weights?

- Risk weights are numerical values assigned to different types of assets held by banks. These values reflect the perceived risk associated with each asset. The purpose is to ensure that banks have adequate capital reserves to cover potential losses arising from these assets.
- Banks are mandated to maintain a minimum Capital Adequacy Ratio. It's the ratio of a bank's capital to its risk-weighted assets. Higher-risk assets require a higher amount of capital to be held against them, thereby ensuring that banks have sufficient buffers to absorb potential losses.

Factors Influencing Changes in Risk Weights:

- Evolving Risks: The RBI regularly evaluates the risk landscape. If certain sectors or types of loans are deemed riskier due to economic conditions, market dynamics, or regulatory concerns, they may increase the risk weight to reflect this heightened risk.
- Preventive Measures: In times of economic stress or when specific sectors face challenges, the RBI may hike risk weights as a precautionary step to fortify banks against potential losses and maintain stability within the financial system.

Implications of Increased Risk Weights:

- Capital Requirements: Higher risk weights necessitate banks to allocate more capital against these assets. This might lead to a reduction in the overall capital available for lending or expansion. Banks need to meet regulatory requirements for maintaining a certain capital buffer. Increased risk weights could demand banks to raise additional capital or adjust their asset portfolios.
- Lending Practices: Banks might become more cautious in extending credit to sectors or borrowers associated with elevated risk weights. This caution could affect the availability and terms of loans.
- Asset Quality and Portfolio Management: Banks might reassess their asset portfolios and potentially divest from riskier assets to comply with the regulatory changes. This could impact the overall risk profile of their lending practices.

Recent RBI's Action on Risk Weights

- The RBI recently increased the risk weights on certain unsecured loans such as credit cards, consumer durable loans, and personal loans. It also raised the risk weight for bank lending to non-banking finance companies catering to this segment.

Impact on Borrowers

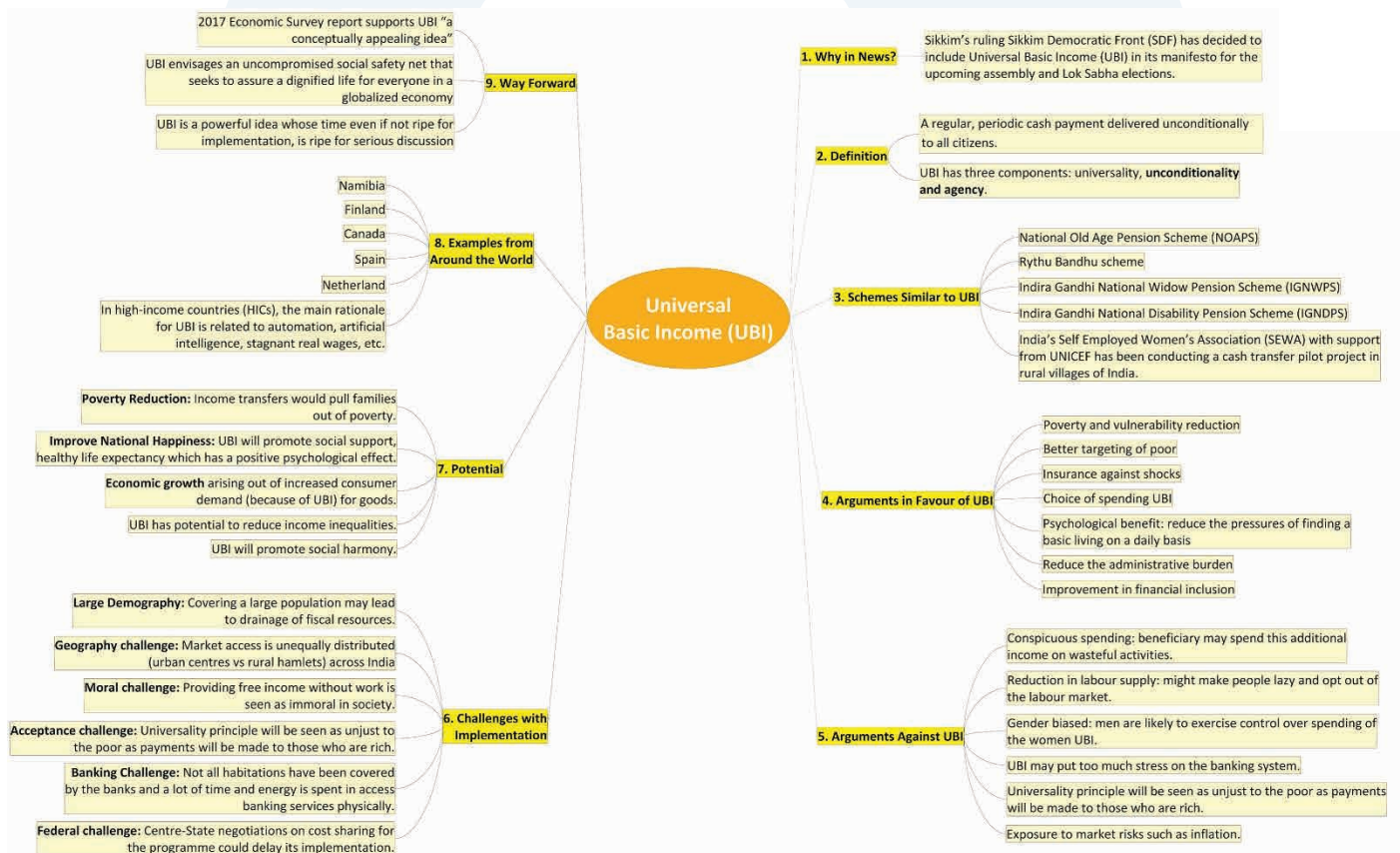
- Interest Rates: Lower risk weights usually translate to lower interest rates for borrowers. This happens because lower-risk weight assets require banks to set aside less capital, allowing them to lend at more competitive rates. For example, home loans often have lower interest rates compared to personal loans or credit cards because their risk weights are lower.
- Pricing of Loans: Risk weights indirectly influence the pricing of loans. Higher risk-weights mean banks have to allocate more capital, potentially leading to higher interest rates for borrowers.

Reasons Behind RBI's Concern

- **Rising Unsecured Loans:** Unsecured loans have been growing rapidly, reaching around 10% of the banking system's portfolio. This category includes loans for consumer durables and personal expenses. The concern arises from the lack of collateral in these loans and the inability to monitor the end-use of funds, which makes assessing the borrower's repayment capacity challenging.
- **Risk Mitigation:** By increasing risk weights, the RBI aims to ensure banks are adequately prepared for potential losses in these segments and to prevent excessive exposure that could become a threat to the banking system.

Impact on Retail Loans

- **Capital Consumption:** The new risk weight limits might require banks to hold more capital against these loans, possibly increasing the cost of lending by 35-100 basis points. Well-capitalized lenders may not face an immediate need to raise additional capital, but PSU banks might be affected more significantly.
- **Growth and Pricing Dynamics:** Despite the increase in risk weights, immediate curbing of loan growth might not happen, especially considering the strong demand for credit even in the face of interest rate changes. However, this move might influence the overall pricing strategies of banks and will be closely monitored by lenders and borrowers alike.



Chapter- 5

SCIENCE AND TECHNOLOGY

Deep Ocean Mission

Why in News

For the first time, India will embark on a journey to a depth of 6,000 meters in the ocean using an indigenously developed submersible under the Deep Ocean Mission (DOM).

Important Points

- DOM is implemented by the Ministry Of Earth Sciences (MoES) and was approved in 2021 at a cost of nearly Rs 4,077 crore over a five-year period in a phased manner.

The mission has six pillars:

- Development of technologies for deep-sea mining and a manned submersible to carry three people to a depth of 6,000 meters in the ocean;
- Development of ocean climate change advisory services, involving an array of ocean observations and models to understand and provide future climate projections;
- Technological innovations for the exploration and conservation of deep-sea biodiversity;
- Deep-ocean survey and exploration aimed at identifying potential sites of multi-metal hydrothermal sulphides mineralisation along the Indian Ocean mid-oceanic ridges;
- Harnessing energy and freshwater from the ocean; and
- Establishing an advanced Marine Station for Ocean Biology, as a hub for nurturing talent and driving new opportunities in ocean biology and blue biotechnology.

Samudrayaan Mission

- As a part of DOM, India's flagship deep ocean mission, 'Samudrayaan', was initiated in 2021 by the Ministry of Earth Sciences.
- With 'Samudrayaan', India is embarking on a crewed expedition to reach a depth of 6,000 m to the ocean bed in the central Indian Ocean. This journey will be accomplished by Matsya6000, a deep-ocean submersible.

Matsya6000

- The Matsya6000 is India's flagship deep-ocean human submersible that aims to reach the ocean bed at a depth of 6,000 m.
- Accompanied by three crew members, called "aquanauts", the submersible carries a suite of scientific tools and equipment designed to facilitate observations, sample collection, basic video and audio recording, and experimentation.

Features of Matsya6000

- Matsya6000 combines the best and most feasible features of remote operated vehicles (ROVs) and autonomous remote vehicles (AUVs).
- The interior of Matsya6000 is designed to accommodate three humans travelling within a specialised sphere with a diameter of 2.1 m.
- Constructed from a titanium alloy, the sphere is engineered to withstand pressures of up to 6,000 bar.
- It can move at a speed of about 5.5 km/hr using underwater thrusters.



Significance

- The 'New India 2030' document outlines the blue economy as the sixth core objective for India's growth. The years 2021-2030 have been designated by the United Nations as the 'Decade of Ocean Science'.
- DOM is one of nine missions under the Prime Minister's Science, Technology, and Innovation Advisory Council (PMSTIAC).
- The mission is significant for the sustainable extraction of valuable resources, including polymetallic nodules and polymetallic sulphides.

Challenges

- High pressure in the deep oceans: Operating under such high-pressure conditions requires the use of meticulously designed equipment crafted from durable metals or materials.
- Landing on the ocean bed also presents challenges due to its incredibly soft and muddy surface.
- A large amount of power and energy is required to extract minerals to the surface.
- Poor Visibility poses a significant hurdle as natural light can penetrate only a few tens of meters beneath the surface,
- All these intricate challenges are further compounded by factors like variations in temperature, corrosion, salinity, etc.

Why has a depth of 6,000 m been chosen?

- India has committed to the sustainable extraction of valuable resources, including polymetallic nodules and polymetallic sulphides.
- ISA has allocated a 75,000-sq.-km in the central Indian Ocean and an additional 10,000 sq. km at 26° S to India for this.
- Polymetallic nodules, which contain precious metals like copper, manganese, nickel, iron, and cobalt, are found approximately 5,000 m deep, and polymetallic sulphides occur at around 3,000 m in the central Indian Ocean.
- Therefore, India's interests span depths of 3,000-5,500 m.
- By equipping ourselves to operate at a depth of 6,000 m, we can effectively cater to both the Indian Exclusive Economic Zone and the central Indian Ocean.

DEEP OCEAN MISSION

➤ Deep Sea Mining through 'Underwater Vehicles' and 'Underwater Robotics'

➤ Asserting exclusive rights to explore polymetallic nodules from seabed **over 75,000 sq km of areas in international water**

➤ Estimated polymetallic nodules resource potential: **380 million tonnes (MT)**

➤ Development of ocean climate change advisory services

➤ Technology for sustainable utilisation of marine bio-resources

THESE POLYMETALLIC NODULES CONTAIN

Manganese	92.6 MT
Nickel	4.7
Copper	4.3
Cobalt	1

(*figures are rounded off)

- Deep ocean survey and exploration
- Energy from the ocean and offshore-based desalination
- Krill fishery from southern ocean

Euclid Space Telescope

Why in News

The first images captured by the European Space Agency's (ESA's) Euclid mission are due to be released.

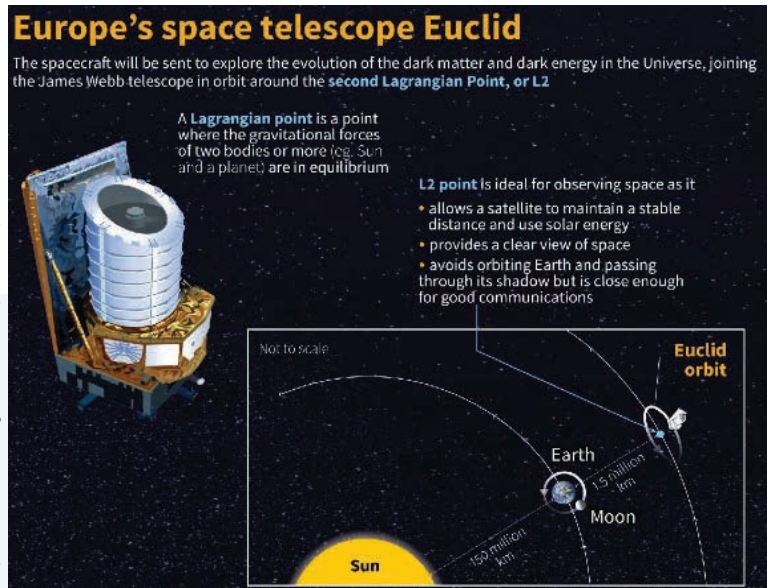
Important Points

- The Euclid mission is part of ESA's Cosmic Vision programme, which aims to explore the origin and components of the universe and the fundamental laws that govern it.
- Its main goal is to investigate the "dark side" of the universe, focusing on dark matter and dark energy.
- It was launched on 1 July 2023.
- It is named after the Greek mathematician Euclid of Alexandria, who lived around 300 BC and founded the subject of geometry.
- The Euclid mission will make a 3D map of the universe (with time as the third dimension) by observing billions of galaxies out to 10 billion light-years across more than a third of the sky.

- It will reveal how dark energy has influenced the stretching and separation of matter over cosmic time.

Spacecraft and instruments:

- The Euclid spacecraft is approximately 7 m tall and 3.7 m in diameter. It consists of two major components: the service module and the payload module.
- The payload module comprises a 2-m-diameter telescope and two scientific instruments: a visible-wavelength camera (the VISible instrument, VIS) and a near-infrared camera/spectrometer (the Near-Infrared Spectrometer and Photometer, NISP).
- The service module contains the satellite systems: electric power generation and distribution, attitude control, data processing electronics, propulsion, telecommand and telemetry, and thermal control.
- Orbit: Its operational orbit will be a halo around a point known as the Sun-Earth Lagrange Point 2 (L2), at an average distance of 5 million km beyond Earth's orbit.
- Lifetime: Nominal mission lifetime is six years, with the possibility of extension (limited by the amount of cold gas used for propulsion).



What is Dark Energy?

- Dark energy is the name given to the mysterious force that's causing the rate of expansion of our universe to accelerate over time rather than to slow down.
- It is now thought to make up 68% of everything in the universe.
- It's not matter or energy in the conventional sense. It does not interact with electromagnetic forces and, therefore, cannot be observed directly.

CAR-T (Chimeric Antigen Receptor T-cell) therapy

Why in News

Recently, NexCAR9 received approval from the Central Drugs Standard Control Organization (CDSCO) for the first chimeric antigen receptor (CAR) T-cell therapy to treat cancer, marking the first time in India.

Important Points

Background

- Cancer is a condition characterised by the uncontrolled growth and spreading of specific cells within the body. Cancer treatment primarily involves three primary modalities:
 - Surgery for the removal of the cancerous tissue;
 - Radiotherapy utilising ionising radiation to target the tumour;
 - Systemic Therapy which entails the administration of drugs that act on the tumour.
- While surgery and radiotherapy have undergone significant refinements over time, advancements in systemic therapy have been remarkable.
- CAR T-cell therapy is a noteworthy development in this systemic therapy, currently capturing researchers' attention worldwide.

What is CAR T-cell therapy?

- CAR T-cell therapy is a highly advanced form of cancer treatment. Unlike chemotherapy or immunotherapy, which involve mass-produced medications, CAR T-cell therapy utilises a patient's cells.
- These cells are modified in a lab to activate T-cells, a type of immune cell, to target and attack tumours.
- These modified cells are reintroduced into the patient's bloodstream after being prepared to multiply more effectively.

- These cells are even more precise than targeted agents and directly stimulate the patient's immune system to fight cancer, making the treatment exceptionally effective. They are frequently called "living drugs."

Usage of CAR T-cell therapy

Leukaemias and Lymphomas:

- CAR T-cell therapy has been approved for treating leukaemias (cancers originating from white blood cell-producing cells) and lymphomas (from the lymphatic system).
- These cancers result from the uncontrolled growth of a single cell type, making the target for CAR T-cells consistent and dependable.

Relapse:

- CAR T-cell therapy is also used for patients whose cancers have returned after initial successful treatment or haven't responded to previous combinations of chemotherapy or immunotherapy.

Success Rate:

- In some types of leukaemias and lymphomas, the therapy can be highly effective, with success rates as high as 90%, while in other cancer types, it is less effective.

Potential Side Effects:

- Cytokine release syndrome – a widespread activation of the immune system with collateral damage to normal cells
- Neurological symptoms – severe confusion, seizures, and speech impairment.

About NexCAR9

- Mumbai's Immunoadoptive Cell Therapy (ImmunoACT) gained approval for India's first CAR T-cell therapy from the Central Drugs Standard Control Organization (CDSCO).
- The treatment, called NexCAR19, focuses on CD19, a biomarker for B lymphocytes, making it a target for leukaemia immunotherapies.
- Previously, the cost of CAR-T cell therapy was exorbitant, reaching approximately \$400,000 or over Rs 3.3 crore, and it was predominantly available in the United States.
- However, this breakthrough will bring the therapy within reach of patients in India. It will be offered at 20 government and private hospitals in major cities, with an estimated cost of approximately Rs 30-35 lakh per patient.
- This milestone not only offers accessible life-saving treatment in India but also extends its availability to other resource-constrained countries.
- India has joined the ranks of elite nations with access to CAR-T therapy.

Effectiveness and Unique Features

- Approximately 70% of patients respond to NexCAR19 treatment, with some achieving complete remission.
- Lab and animal studies indicate lower drug-related toxicities, including reduced neurotoxicity and Cytokine Release Syndrome (CRS).
- Trials for paediatric patients are underway at Tata Memorial Hospital, ensuring broader applicability.

Availability and Affordability

- ImmunoACT is in the process of securing licenses and partnering with hospitals, including Tata Memorial, Nanavati, Fortis, and Jaslok, across multiple cities.
- CAR-T therapy is expected to be available in a matter of weeks to a few months, pending final government

TREATMENT FOR SPECIFIC B-CELL CANCERS

NexCAR19 is a prescription drug for B-cell lymphomas, lymphoblastic leukaemias when other treatments have been unsuccessful

PATIENT'S WHITE blood cells are extracted by a machine through a process called leukapheresis and genetically modified, equipping them with the tools to identify and destroy the cancer cells.

NEXCAR19 IS manufactured to an optimal dose for the patient, and typically administered as a single intravenous infusion. Prior to this, the patient is put through chemotherapy to prime the body for the therapy.

HOW NEXCAR19 WORKS

T-cells are naturally made by the body as an advanced defence against viruses and cancer cells. As T-cells mature, they develop specific connectors (receptors) to target key signals on cancer cells.

However, cancers can limit the inbuilt extent and efficiency with which T-cells are able to seek and fight them. This results in an increase in cancer burden.

Source: ImmunoACT

Scientists have identified certain proteins that are abnormally expressed on the surfaces of specific types of cancer cells. Specially designed receptors can find and bind to these cells.

A safe shell of a virus is used to genetically engineer T-cells so they express Chimeric Antigen Receptors – connectors that target a protein called CD19 on B-cell cancer.

approvals.

- Initially priced at Rs 30-40 lakh, ImmunoACT aims to eventually reduce the cost to Rs 10-20 lakh, making the therapy more accessible.
- Approval by regulatory agencies like CDSCO should lead to insurance coverage, but the extent may vary, and discussions with insurers and the government are ongoing.

Biotechnology Sector in India

Why in News

The Minister of Science & Technology launched the website of “Global Bio-India 2023”.

Important Points

- Biotechnology deals with the application of biological knowledge and techniques pertaining to molecular, cellular and genetic processes to develop significantly improved products and services.
- Biotechnology products and processes have ensured ease of living, improved health care, agriculture output and created livelihood opportunities, etc.

Status in India

- The Biotechnology industry in India is divided into the following segments – Biopharmaceuticals, Bio-services, Bio-agriculture, Bio-Industrials and Bio-IT.
- Biotechnology sector is recognized as the key driver for contributing to India's USD 5 Tn economy target.
- India is among the Top-12 destinations for biotechnology in the world and 3rd largest destination for biotechnology in Asia Pacific, with approximately 3% share in the global Biotechnology industry.
- In 2022, India became the fifth-largest economy globally and is recognized as a top innovation economy in Central and Southern Asia, ranking 40th according to the Global Innovation Index (GII) Report 2023.
- The Indian Biotechnology industry was valued at \$93.1 billion in 2022, with expectations of reaching \$300 billion by 2030.
- The Indian Biotechnology sector is poised to grow exponentially over the next decade.



Achievements and Strength

- India has a huge wealth of bioresources, an unsaturated resource waiting to be harnessed and an advantage in Biotechnology especially due to the vast biodiversity and the unique bioresources in the Himalayas.
- Biotechnology has the potential to become an important instrument of global trade and bio-economy contributing to India's overall economy.
- Biotechnology provides a milieu, an environment which will be Clean, Greener and more compatible with well-being
- It also generates lucrative sources of livelihood, also the alternatives to the petrochemicals-based manufacturing, like bio-based products like food additives, bioengineering ties, animal feed products
- Biotechnology sector in India has made significant contributions to various sectors including Health, Medicine, Agriculture, Industry and Bio-Informatics
- Biotechnology has emerged as a trending career option among the youth
- India is one of the biggest suppliers of low cost drugs and vaccines in the world.
- By creating and using a variety of tools at its disposal, such as vaccines, antivirals, diagnostic tests, and other tools, the biotechnology industry has been at the forefront of the fight against the Covid-19 pandemic.

Steps

- Policy initiatives of the Government of India (GoI) such as Startup India and Make in India programs are aimed to develop India as a world-class Biotechnology and Bio-manufacturing hub.

- The Department of Biotechnology (DBT) is playing a pivotal role in realizing the sector's potential, aims to foster high-performance biomanufacturing to enable a circular bioeconomy.
- In the Union Budget 2023-24, the Department of Biotechnology (DBT) was allotted US\$ 162.7 million (Rs. 1,345 crore) to promote research and development, agriculture biotechnology, etc.
- In 2022, India and Finland agreed to advance bilateral collaboration and expand cooperation in sectors like digital education, future mobile technologies, biotechnology, and the digital partnership in ICT.
- The Atal Jai Anusandhan Biotech Mission was implemented by the Department of Biotechnology (DBT), Ministry of Science and Technology to address the challenges of maternal and child health, antimicrobial resistance, vaccines for infectious disease, food and nutrition, and clean technologies.
- Biotechnology Industry Research Assistance Council (BIRAC) established by the Department of Biotechnology (DBT) is aimed at strengthening and empowering emerging biotechnology enterprises to undertake strategic research and innovation.
- Biotechnology Parks and Incubators are established across the country by the Department of Biotechnology (DBT), under the Ministry of Science and Technology, to translate research into products and services by providing the necessary infrastructure support.
- Global Bio-India 2023 (a mega international congregation of biotechnology stakeholders) showcases India's Biotech growth and opportunities to the world.
- DBT and BIRAC are organizing Global Bio-India 2023,
- In a memorandum released in March 2022, the Indian Ministry of Environment, Forest and Climate Change exempted certain genome-edited plants from biosafety assessment in pursuance of rule 20 of the Manufacture, Use, Import, Export and Storage of Hazardous Microorganisms/Genetically engineered Organisms or Cells Rules 1989. This exemption reduces the regulatory burden on researchers and companies using these technologies to produce new plant varieties

Issues

- Biosafety is concerned with the potentially adverse impacts of biotechnology on human, animal and plant health, and the environment.
- Biotechnology also gives rise to socio-economic and ethical concerns, some of which have been described here.
- India continues to have challenges in using genetic engineering technologies for developing new plant varieties.
- India allows for the cultivation of only one genetically engineered plant – cotton.
- Fears over safety to human health and potential impact on biodiversity have prevented the entry of engineered food plants into India.
- In addition to the ban on the cultivation and import of genetically modified plants, India also has stringent labelling requirements for any products sourced from genetically modified food plants.

Tellurium in neutron star mergers

Why in News

Physicists in Japan and Lithuania found evidence that tellurium is produced during neutron star mergers, bolstering the idea that these mergers account for the majority of heavy elements in the universe.

Important Points

The “R-Process” and Synthesis of Heavy Nuclei

- The “r-process” describes the synthesis of heavy nuclei, occurring in environments with a high density of free neutrons.
- Nuclei capture neutrons at a rapid rate, creating a distribution of neutron-rich nuclei with peaks around specific atomic mass numbers, such as 80, 130, and 196.

Role of Neutron Star Mergers in Heavy Element Formation

- Ejected matter from neutron star mergers leads to kilonovae, events that are as bright as a thousand novae but not as bright as supernovae.
- Abundance patterns in the solar system display characteristic “r-process” peaks, indicating the origin of heavy elements on Earth from this process.

Confirmation of Kilonovae and Spectral Analysis

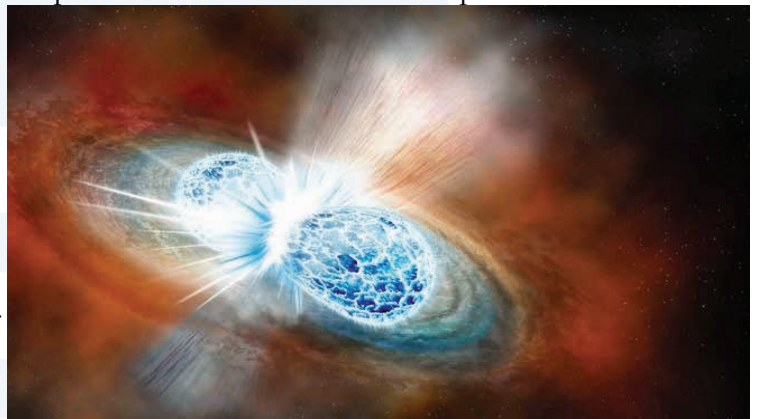
- The existence of kilonovae was confirmed in 2017 following the detection of gravitational waves from the neutron-star merger GW170817.
- Spectral analysis of GW170817’s kilonova revealed absorption signatures of strontium, cerium, and lanthanide elements, indicating the presence of the r-process.

Role of Tellurium in Kilonovae

- Researchers modeled emission lines of heavy elements, predicting a strong emission line at 2.1 micrometers from doubly ionized tellurium, matching an unexplained feature in GW170817’s spectrum.

Confirmation from the James Webb Space Telescope (JWST)

- Observations by the JWST of the gamma-ray burst GRB230307A provided further evidence for the occurrence of the r-process in neutron star mergers.
- JWST’s infrared spectra showed similarities to GW170817, including the presence of the 2.1 micrometer feature attributed to tellurium.



Significance of Ongoing Observations with the JWST

- The sensitivity of the JWST enabled the detection and analysis of the kilonova in GRB230307A, even though it was significantly farther away than GW170817.
- Continued observations with the JWST aim to unravel the full details of the various nuclei created in these mergers, contributing to a better understanding of the origins of elements in the periodic table.

Introduction to Tellurium

- Tellurium is a chemical element with the symbol Te and atomic number 52.
- It is a brittle, mildly toxic, rare, silver-white metalloid.
- It is a member of the chalcogen group on the periodic table, a group of elements that includes oxygen, sulfur, selenium, and polonium.

Properties of Tellurium

Physical Properties:

- Appearance: Silvery-white, crystalline, brittle metalloid
- Density: 6.24 grams per cubic centimeter
- Melting Point: 722.66 Kelvin (449.51 degrees Celsius or 841.12 degrees Fahrenheit)
- Boiling Point: 1,261 Kelvin (988 degrees Celsius or 1,810 degrees Fahrenheit)

Chemical Properties

- Reactivity: It is a moderately reactive element that shows properties similar to sulfur and selenium.
- Solubility: Insoluble in water, but soluble in concentrated sulfuric acid and alkalis.

Occurrence of Tellurium

- Tellurium is one of the rarest elements on Earth, and it is found in the Earth’s crust primarily in the form of tellurides of gold and silver.
- It is also present in some copper ores.
- Additionally, tellurium can be found in some rare minerals, such as calaverite, sylvanite, and tellurite.

Uses of Tellurium

- **Photovoltaic Industry:** It is used in the production of solar panels due to its ability to convert light into electricity.
- **Metallurgy:** It is used to improve the machinability of copper and stainless steel, and in the production of various types of alloys.
- **Rubber Manufacturing:** Tellurium is utilized as an accelerator in the curing of rubber.
- **Optoelectronics:** It is employed in the production of various types of optical storage media, such as CDs, DVDs, and Blu-ray discs.
- **Thermoelectric Applications:** Tellurium is used in thermoelectric devices to convert waste heat into electricity.

Health and Environmental Effects

- **Toxicity:** Tellurium and its compounds are considered to be moderately toxic. Exposure to high levels of tellurium can result in various health issues, including garlic-like breath odor, headaches, and even more severe symptoms.
- **Environmental Impact:** Tellurium pollution can occur through various industrial processes, and its release into the environment can have adverse effects on ecosystems.

Introduction to Neutron Stars

- They are the collapsed cores of massive stars, formed during a supernova explosion.
- Neutron stars are incredibly dense, composed primarily of neutrons, and possess extraordinary gravitational forces.

Characteristics of Neutron Stars

Density and Composition

- **Density:** Neutron stars are among the densest objects in the universe, with densities that can reach up to 10^{17} kg/m^3 .
- **Composition:** They are mainly composed of tightly packed neutrons, resulting from the collapse of the core during a supernova event.

Size and Mass

- **Size:** Neutron stars typically have a radius of about 10-15 kilometers, making them incredibly compact objects.
- **Mass:** They can have masses that are 1.4 to 3 times that of the Sun, with some even exceeding this range.

Magnetic Field

- **Strong Magnetic Fields:** Neutron stars possess incredibly strong magnetic fields, typically a trillion times stronger than Earth's magnetic field. This intense magnetic field gives rise to unique astrophysical phenomena.

Formation of Neutron Stars

- Neutron stars are formed when massive stars exhaust their nuclear fuel and can no longer support their outer layers against gravity.
- This results in a supernova explosion, expelling the outer layers and leaving behind a dense core, which collapses under its own gravity to form a neutron star.

Properties and Behavior

- **Rapid Rotation:** Neutron stars often rotate rapidly, sometimes at rates of several times per second, due to the conservation of angular momentum during the collapse.
- **Pulsars:** Neutron stars with beams of electromagnetic radiation that emanate from their magnetic poles are known as pulsars. These beams are observed as pulses of radiation as the neutron star rotates, leading to their designation as "pulsating stars."

Significance and Research

- They are essential in the study of gravitational waves, the dynamics of stellar evolution, and the behavior of matter under extreme densities.

Cloud Seeding

Why in News

Delhi govt plans 'cloud seeding' to induce rains amid pollution in Delhi.

Important Points

About cloud formation

- Comprised of minuscule water droplets or ice crystals.
- Form when atmospheric water vapor cools and condenses around particles like dust or salt.
- Water droplets or ice crystals require condensation or ice nuclei.
- Without these particles, precipitation in the form of raindrops or snowflakes cannot occur.

Cloud Seeding

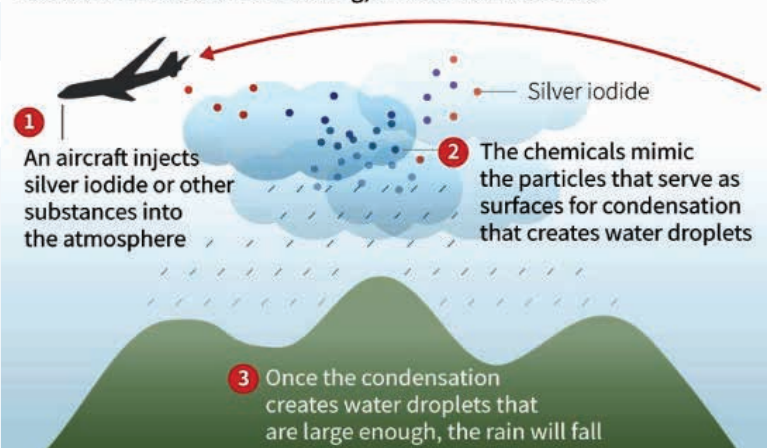
- Cloud seeding is an artificial method used to increase rainfall by introducing certain substances into clouds.
- During cloud seeding, chemicals like silver iodide, potassium iodide, and dry ice are released into the sky using airplanes and helicopters.
- These chemicals attract water vapour, leading to the formation of rain clouds.
- It usually takes about half an hour for this method to make it rain.

Techniques of cloud Seeding:

1. Hygroscopic cloud seeding aims to accelerate the coalescence of droplets in liquid clouds, resulting in the formation of larger droplets that lead to precipitation.
 - The seeding agents used in hygroscopic cloud seeding serve as efficient cloud condensation nuclei (CCN) or GCCN and play a crucial role in strengthening the condensation and collision-coalescence process, thereby widening the droplet size distribution (DSD) and increasing the precipitation efficiency.
2. Glaciogenic cloud seeding, focuses on inducing ice production in supercooled clouds, leading to precipitation.
 - Glaciogenic cloud seeding involves dispersing efficient ice nuclei, such as silver iodide particles or dry ice, into the cloud, which enhances ice particle production and increases rain.

Cloud seeding

Traditional method of rainmaking, in use since the 1940s



Utility of Cloud Seeding

That serves various purposes, including:

- Reducing the impact of droughts
- Preventing forest fires
- Increasing precipitation
- Enhancing air quality.

Cloud Seeding's Effectiveness:

- Cloud seeding is proven effective for enhancing rainfall under suitable conditions.
- A random seeding experiment selected 276 convective clouds, with 150 clouds subjected to seeding and 122 unseeded.
- Specific cloud characteristics, including liquid water content and vertical motion, were used to identify clouds with potential for rainfall.

- Targeted convective clouds were typically over one kilometer deep and likely to evolve into deep cumulus clouds.

Success story of cloud seeding

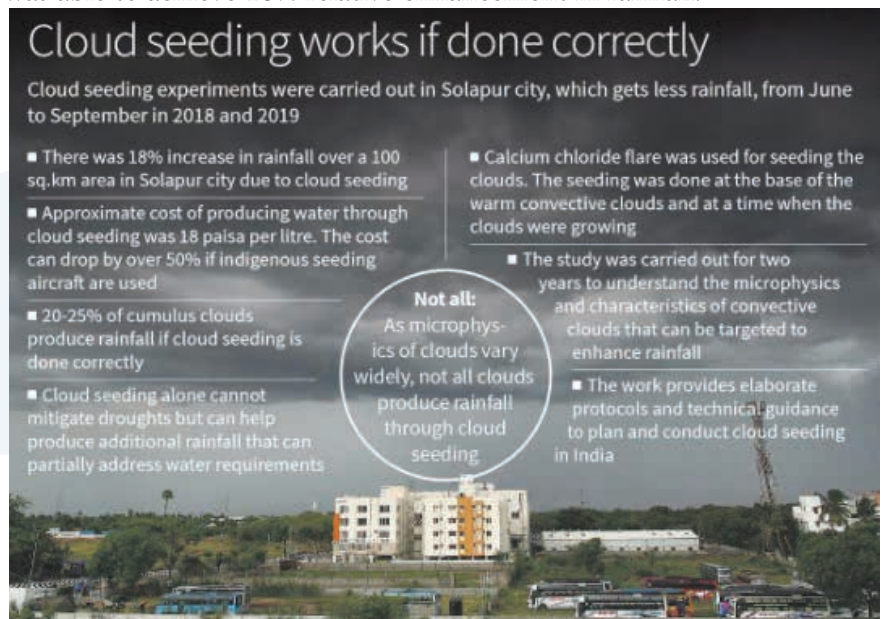
- A cloud seeding experiment carried out in Solapur city, which falls on the leeward side of the Western Ghats and hence gets low rainfall, was able to achieve 18% relative enhancement in rainfall.

Applications:

- Cloud seeding is done to enhance winter snowfall and increase mountain snowpack, which can supplement the natural water supply for communities in the surrounding area.
- Cloud seeding can also be done to prevent hailstorms, dissipate fog, induce rainfall in drought-prone regions, or reduce air pollution.

Challenges:

- Cloud seeding requires the presence of moisture-filled clouds, which are not always available or predictable.
- Cloud seeding does not occur during times when additional precipitation would be problematic, such as times of high flood risk or busy holiday travel periods.
- Cloud seeding may have negative effects on the environment and health, such as altering the natural water cycle, contaminating the soil and water with chemicals, or affecting the local climate.



Vitrimers

Why in News

Japanese scientists have recently developed an innovative version of plastic that surpasses traditional variants in strength and flexibility.

Important Points

- In the global pursuit for eco-friendly alternatives to conventional plastics, the University of Tokyo researchers have successfully crafted a sustainable plastic based on an epoxy resin vitrimer.
- This novel plastic variant, known as VPR (vitrimer incorporated with polyrotaxane), integrates the polyrotaxane molecule into the synthesis process, addressing the brittleness associated with vitrimers.
- This groundbreaking plastic also exhibits partial biodegradability and the remarkable ability to retain complex shapes, which can be restored through controlled heating.

Unique Features and Characteristics

- Shape Memory Properties:** VPR retains a rigid structure at lower temperatures due to robust internal chemical bonds, while it can adapt to various shapes at higher temperatures, approximately 150 degrees Celsius.
- Biodegradability:** VPR demonstrates promising biodegradability, with a 25% breakdown in seawater over 30 days. The constituent polyrotaxane serves as a potential food source for marine life.
- Self-Healing Abilities:** This innovative plastic exhibits impressive self-healing capabilities, recovering 15 times faster than typical epoxy resin vitrimers.

Introduction to Biodegradable Plastics

- Biodegradable plastics are a type of plastic material that can undergo decomposition through the action of living organisms, such as bacteria or other natural processes, into natural elements, such as water, carbon dioxide, and biomass.

- These plastics offer a promising solution to the global plastic waste crisis, as they minimize environmental pollution and reduce the accumulation of non-degradable plastic waste in landfills and oceans.

Types of Biodegradable Plastics

- **Bio-based Plastics:** Derived from renewable biomass sources such as corn starch, sugarcane, or cellulose, these plastics are capable of decomposing into natural elements under specific conditions, reducing the reliance on fossil fuels.
- **Synthetic Biodegradable Plastics:** These plastics are chemically designed to degrade under specific environmental conditions, such as exposure to sunlight, heat, moisture, or microbial activity, facilitating their breakdown into harmless substances.
- **Starch-based Plastics:** Starch-based biodegradable plastics, derived from crops such as corn, wheat, or potatoes, are among the most common types. These plastics are composed of a blend of thermoplastic starch and other biodegradable polymers, offering versatile applications in packaging and disposable items.
- **Polylactic Acid (PLA):** Polylactic acid, a bio-based polymer produced from renewable resources such as corn starch or sugarcane, is biodegradable under industrial composting conditions. PLA is widely used in various applications, including packaging materials, disposable tableware, and 3D printing.
- **Polyhydroxyalkanoates (PHA):** Polyhydroxyalkanoates are a group of biodegradable polymers synthesized by microorganisms through the fermentation of organic materials. These versatile plastics offer properties similar to traditional polyethylene and find applications in packaging, medical devices, and the production of biodegradable bags.
- **Polybutylene Succinate (PBS):** Polybutylene succinate is a bio-based and biodegradable polyester produced from succinic acid and 1,4-butanediol. PBS is commonly used in the production of compostable packaging materials, disposable tableware, and agricultural films, offering good thermal and mechanical properties.
- **Polyhydroxybutyrate (PHB):** Polyhydroxybutyrate is a biodegradable thermoplastic polyester produced by microorganisms from renewable carbon sources. PHB exhibits properties similar to traditional polypropylene and is used in various applications, including packaging, disposable items, and biomedical devices.
- **Polyethylene Oxide (PEO):** Polyethylene oxide is a water-soluble, biodegradable polymer known for its excellent film-forming and thickening properties. It is used in various industrial and biomedical applications, including water treatment, controlled-release drug delivery systems, and the production of biodegradable packaging materials.
- **Copolyester (PBSA):** Copolyester, also known as polybutylene succinate adipate, is a biodegradable polymer composed of succinic acid, adipic acid, and 1,4-butanediol. PBSA offers improved flexibility and impact resistance and is commonly used in the production of compostable packaging films and disposable items.

Benefits of Biodegradable Plastics

- **Environmental Impact:** Biodegradable plastics reduce the environmental burden caused by conventional plastics, minimizing soil and water pollution and mitigating the negative impact on marine life.
- **Waste Reduction:** Their ability to decompose into harmless elements ensures a reduction in the accumulation of non-biodegradable plastic waste in landfills, promoting sustainable waste management practices.
- **Resource Conservation:** The use of renewable biomass sources for bio-based plastics contributes to the conservation of fossil fuel resources and supports the transition to a more sustainable and circular economy.

Challenges and Considerations

- **Limited Durability:** Biodegradable plastics may have reduced durability and shelf life compared to conventional plastics, necessitating careful consideration of their appropriate applications and usage.
- **Industrial Infrastructure:** The effective management and disposal of biodegradable plastics require appropriate waste management infrastructure and facilities capable of facilitating their decomposition in controlled environments.
- **Consumer Awareness:** Raising awareness among consumers about the proper use, disposal, and composting requirements of biodegradable plastics is crucial to maximize their environmental benefits and minimize contamination.

Current Applications and Future Prospects

- **Packaging Industry:** Biodegradable plastics find extensive applications in the packaging industry, including

single-use bags, food containers, and compostable packaging materials.

- **Agricultural Sector:** These plastics are used in agricultural applications, such as mulch films and plant pots, promoting environmentally friendly practices and sustainable farming methods.
- **Ongoing Research:** Continued research and development aim to enhance the durability, mechanical properties, and cost-effectiveness of biodegradable plastics, expanding their potential applications and promoting their widespread adoption across various industries.

Oldest Black Hole

Why in News

Scientists have recently discovered the oldest black hole, dating back to 470 million years after the Big Bang.

Important Points

Black Hole:

- **Age:** Given the universe is 13.7 billion years old, that puts the age of this newly discovered black hole at 13.2 billion years.
- **Size:** Even more astounding to scientists, this black hole is a whopper 10 times bigger than the black hole in our own Milky Way.
- **Formation:** The researchers believe the black hole formed from colossal clouds of gas that collapsed in a galaxy next door to one with stars. The two galaxies merged, and the black hole took over.

How was it discovered?

- The two space telescopes — Webb and Chandra — used a technique called gravitational lensing to magnify the region of space where this galaxy, UHZ1, and its black hole are located.
- The telescopes used the light from a much closer cluster of galaxies, a mere 3.2 billion light-years from Earth, to magnify UHZ1 and its black hole much farther in the background.
- With X-rays we can capture the gas that is being gravitationally pulled into the black hole, sped up and it starts glowing in the X-rays.

The Webb Telescope

- Launched in 2021, Webb is the biggest and most powerful astronomical observatory ever sent into space; it sees the universe in the infrared.
- It is the world's premier space science observatory.
- It will solve mysteries in our solar system, look beyond distant worlds around other stars, and probe the mysterious structures and origins of our universe and our place in it.
- NASA's \$10 billion James Webb Telescope was developed with the assistance of the European Space Agency and the Canadian Space Agency.
- The telescope launched on an Ariane 5 from Europe's Spaceport in French Guiana.

Chandra x-ray observatory

- The much older Chandra has X-ray vision; it rocketed into orbit in 1999.
- Chandra allows scientists worldwide to obtain X-ray images of exotic environments to help understand the structure and evolution of the universe.
- The Chandra X-ray Observatory is part of NASA's fleet of "Great Observatories" along with the Hubble Space Telescope, the Spitzer Space Telescope and the now deorbited Compton Gamma Ray Observatory.

What are Quasars?

- A quasar (also known as a QSO or quasi-stellar object) is an extremely luminous active galactic nucleus (AGN).
- Quasars were first discovered six decades ago. They are located in supermassive black holes, which sit in the centre of galaxies.
- As a supermassive black hole feeds on gas and dust, it releases extraordinary amounts of energy in the form of radiation, resulting in a quasar.

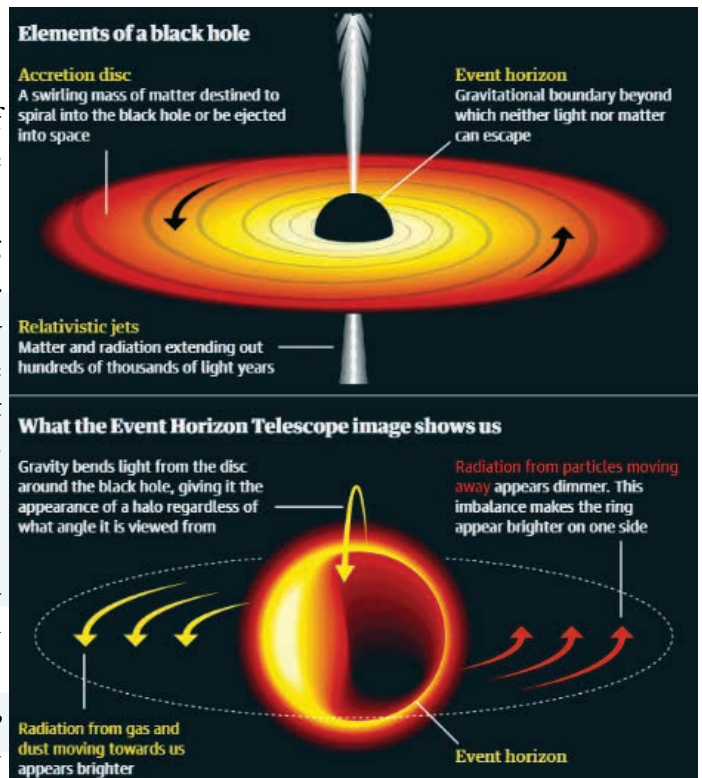
- Black hole is a point in space where matter is so compressed as to create a gravity field from which even light cannot escape.

Significance of Quasars

- Quasars play a key role in our understanding of the history of the universe, and possibly also the future of the Milky Way.
- Quasars act as “cosmic lighthouses”, allowing researchers to see the outer reaches of the universe.
- NASA’s James Webb Space Telescope will study the earliest galaxies in the universe. The telescope is capable of detecting light from even the most distant quasars, emitted nearly 13 billion years ago.

Black Holes

- About: It is an astronomical object with a gravitational pull so strong that nothing, not even light, can escape it.
- A black hole’s “surface,” called its event horizon, defines the boundary where the velocity needed to escape exceeds the speed of light, which is the speed limit of the cosmos.
- Matter and radiation fall in, but they can’t get out.
- Role of Einstein’s theory: Most famously, black holes were predicted by Einstein’s theory of general relativity, which showed that when a massive star dies, it leaves behind a small, dense remnant core.



Chikungunya Vaccine

Why in News

The U.S. Food and Drug Administration (FDA) has approved Ixchiq, the world’s first vaccine for chikungunya, marking a crucial milestone in addressing the emerging global health threat posed by the mosquito-borne virus.

Important Points

- Chikungunya is a viral infection primarily transmitted to humans through the bites of infected mosquitoes, particularly *Aedes aegypti* and *Aedes albopictus*.
- The virus is commonly found in tropical and subtropical regions of Africa, Southeast Asia, and parts of the Americas.
- Chikungunya infection is characterized by symptoms such as fever and severe joint pain. While the virus is generally not fatal, it can lead to prolonged health issues, especially in older adults and individuals with underlying medical conditions.

World’s First Chikungunya Vaccine - Ixchiq

- The vaccine, named Ixchiq, was developed by Valneva, a European pharmaceutical company.
- The U.S. Food and Drug Administration (FDA) approved Ixchiq, making it the first-ever vaccine for chikungunya.
- The vaccine is approved for individuals aged 18 and over who are at an increased risk of exposure to the chikungunya virus.
- The approval is anticipated to facilitate the rapid deployment of the vaccine, particularly in regions where the virus is prevalent.



Chikungunya's Global Impact and Spread

- The FDA notes that the chikungunya virus has spread to new geographical areas, resulting in a significant increase in global prevalence, with over five million cases reported in the past 15 years.
- Infection with chikungunya can lead to severe disease and prolonged health problems, especially for certain demographic groups.

Vaccine Composition and Administration

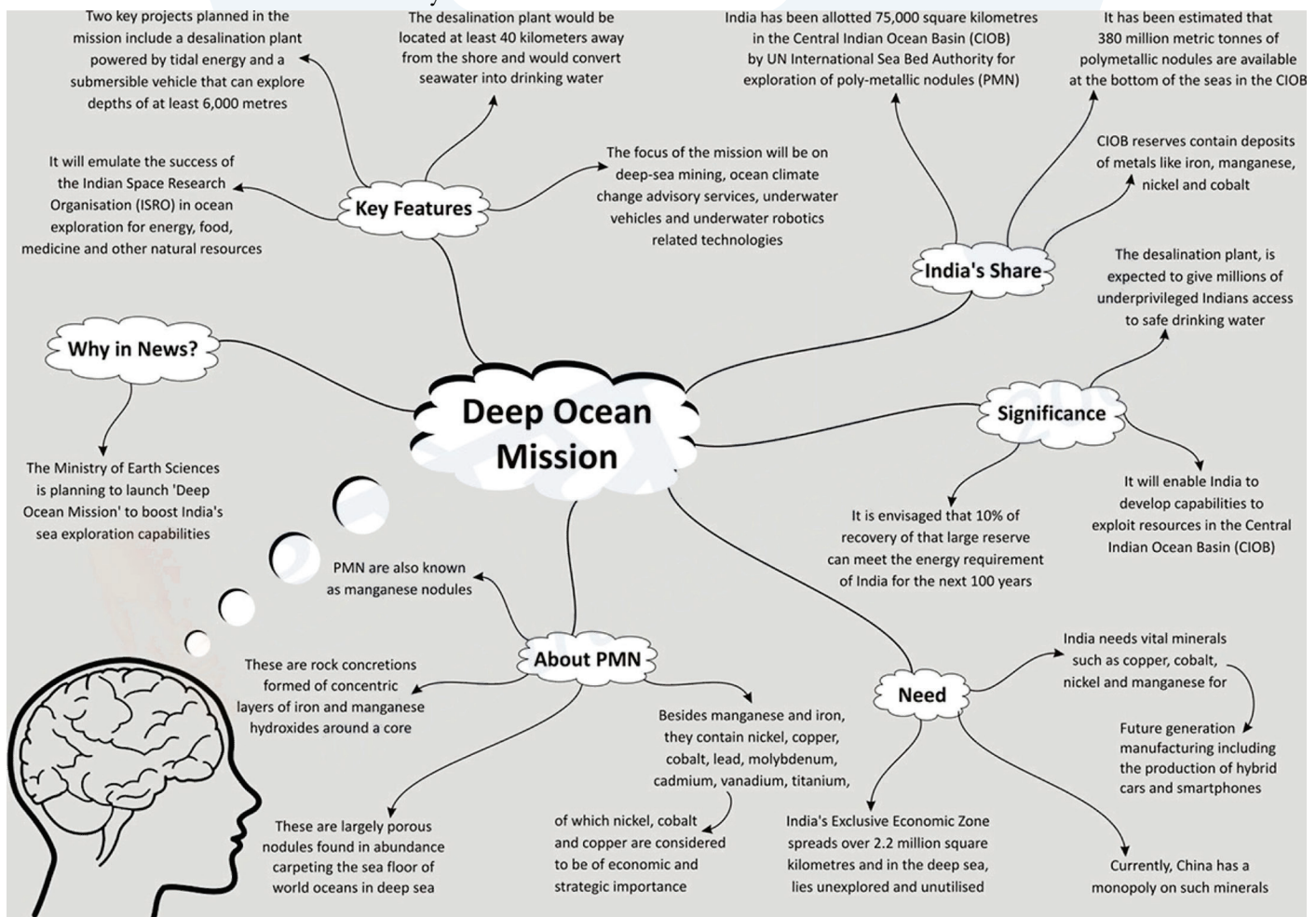
- Ixchiq is a one-dose vaccine that contains a live, weakened version of the chikungunya virus, following the standard approach used in many vaccines.
- Two clinical trials involving 3,500 people were conducted in North America to assess the safety and efficacy of the vaccine.
- Reported side effects included headache, fatigue, muscle and joint pain, fever, and nausea.
- Serious reactions were reported in 1.6% of Ixchiq recipients in the trials, with two individuals requiring hospitalization.
- Some vaccine recipients experienced chikungunya-like adverse reactions that lasted for 30 days or more.

Concerns and Future Implications

- Public health experts have expressed concerns about chikungunya potentially becoming a future pandemic threat, particularly as climate change alters the distribution of mosquitoes that transmit the virus.
- Chikungunya can be transmitted from a pregnant person to their unborn child, and it can be fatal to newborns. The FDA acknowledges uncertainty regarding whether the vaccine virus can be transmitted from mother to baby in utero and if the vaccine can cause adverse effects in newborns.

Global Authorization Efforts

- Valneva has applied for authorization with the European Medicines Agency (EMA), suggesting efforts to make the vaccine available beyond the United States.



One nation, One Registration Platform

Why in News

NMC to launch one nation, one registration platform for doctors

Important Points

- In a significant development, the National Medical Commission (NMC) has embarked on a mission to assign a unique identification number to every doctor in the country by the end of 2024. The cornerstone of this initiative is the creation of the National Medical Register (NMR), which will serve as a centralized repository for doctors practicing in India. This move is expected to streamline the healthcare sector and enhance transparency.

Pilot Project and NMR Launch

- A pilot project for the National Medical Register (NMR) is set to be launched within the next six months, and the full-scale implementation is slated for completion by the end of 2024.
- Dr. Yogendra Malik, a member of the Ethics and Medical Registration Board of the NMC, provided insights into this ambitious project.



Key Features of the NMR

- The NMR will replace the existing Indian Medical Register (IMR) and will be accessible to the public through the NMC's website. It will offer comprehensive information about registered doctors, including:
- Unique Identification Number (UID): Each doctor will be assigned a unique identification number.
- Registration Number: The doctor's registration number for verification.
- Name and Place of Work: Details of the doctor's name and workplace.
- Qualifications: Information about the doctor's educational qualifications.
- Specialization: The doctor's area of expertise.
- Institute/University: The name of the institution or university where the qualifications were obtained.

Eliminating Duplication and Red-Tapism

- Dr. Malik emphasized that this initiative aims to create a 'one nation, one registration platform' for doctors, with a primary goal of eliminating duplication and bureaucratic hurdles within the registration process.
- Presently, approximately 1.4 million doctors are registered with the IMR, and they need not worry about the transition, as their data will be seamlessly transferred to the NMR.

Centralized UID Generation

- The Unique Identification Number (UID) will be generated centrally by the Ethics and Medical Registration Board (EMRB) of the NMC.
- This UID will serve as proof of registration with the NMR and grant doctors the eligibility to practice medicine in India.
- Moreover, once doctors are registered with the NMR, they will have the convenience of applying for and obtaining licenses to practice in multiple states, thereby increasing mobility within the profession.

Regulatory Framework and Student Integration

- The NMC introduced this groundbreaking move through its 'Registration of Medical Practitioners and License to Practice Medicine Regulations, 2023,' issued in May of this year.
- Undergraduate medical students will be assigned 'masked UIDs,' which will be unveiled upon completion of their MBBS degree.
- These UIDs will remain valid for life, and doctors will have the ability to update their qualifications through the NMR's online portal.

About National Medical Commission

- National Medical Commission (NMC) is a regulatory body which regulates medical education and medical professionals.
- It replaced the Medical Council of India in 2020.

The Commission:

- grants recognition of medical qualifications,
- gives accreditation to medical schools,
- grants registration to medical practitioners,
- monitors medical practice and
- assesses the medical infrastructure in India

State Food Safety Index

Why in News

Recently, the Food Safety and Standards Authority of India (FSSAI) published the State Food Safety Index.

Important Points

- The State Food Safety Index (SFSI) is an annual evaluation initiated by the Food Safety and Standards Authority of India (FSSAI).
- It was first introduced by FSSAI in the year 2018-19.

Objective of SFSI

- SFSI serves as a dynamic quantitative and qualitative benchmarking model, providing an objective framework for evaluating food safety across all States/Union Territories (UTs).
- It encourages states and UTs to improve their performance and establish strong food safety systems within their jurisdictions.

Key Findings of the State Food Safety Index 2022- 2023

General Decline in State Food Safety Scores:

- Over the past five years, 19 out of 20 large Indian states, including Maharashtra, Bihar, Gujarat, and Andhra Pradesh, have experienced a decline in their 2022 - 2023 SFSI scores compared to 2019.

Impact of the 2023 Index Parameter Adjustment:

- After adjusting for a new parameter introduced in the 2022- 2023 index, 15 out of 20 states recorded lower SFSI scores in 2022 - 2023 compared to 2019.

States' Overall Rankings in their Respective Categories:

Decline in 'Food Testing Infrastructure':

- The 'Food Testing Infrastructure' parameter measures the availability of adequate testing infrastructure with trained personnel in each state for testing food samples.
- This parameter experienced the steepest fall, with the average score for all large states dropping from 13 out of 20 in 2019 to 7 out of 17 in 2022 - 2023.
- Gujarat and Kerala were the best performers in this parameter in 2022 - 2023 while Andhra Pradesh performed the worst.

STATES WITH STEEPEST INDEX FALL

State	2019	2023
Maharashtra	74	45
Bihar	46	20.5
Gujarat	73	48.5
Andhra Pradesh	47	24
Chhattisgarh	46	27

Source: SFSI reports; all scores out of 100

SAFETY MEASURE

Parameter	Weight
Compliance	28
Consumer Empowerment	19
Human Resources and Institutional Data	18
Food Testing Infrastructure	17
Improvement in SFSI Rank (added in 2023)	10
Training and Capacity Building	8
TOTAL	100

Compliance Scores Decreased:

- This parameter measures licensing and registration of food businesses, inspections conducted, special drives and camps organized, and other such compliance-related tasks carried out by each state's food safety authority.
- Scores for the 'Compliance' parameter also declined.
- Punjab and Himachal Pradesh received the highest scores in this parameter and Jharkhand received the lowest score.
- The 2022 - 2023 average compliance score for all large states stood at 11 out of 28 compared to 16 out of 30 in 2019.

Category- Union Territories	
Name	Rank
Jammu & Kashmir	1
Delhi	2
Chandigarh	3
Category- Small States	
Small State	Rank
Goa	1
Manipur	2
Sikkim	3
Category- Large States	
Large State	Rank
Kerala	1
Punjab	2
Tamil Nadu	3

Varied Consumer Empowerment:

- The 'Consumer Empowerment' parameter, measures a state's performance in various consumer empowering initiatives of FSSAI including participation in Food Fortification, Eat Right Campus, BHOG (Blissful Hygienic Offering to God), Hygiene Rating of Restaurants, and Clean Street Food Hubs.
- Tamil Nadu emerged as the top performer followed by Kerala and Madhya Pradesh.
- Overall, the average score in 2022 - 2023 being 8 points out of 19 compared to 2019 when it was 7.6 points out of 20.

Decline in Human Resources and Institutional Data Scores:

- The 'Human Resources and Institutional Data' parameter measures the availability of human resources including number of Food Safety Officers, Designated Officers, and facility of adjudications and appellate tribunals in each state.
- The average score for this parameter dropped to 7 points out of 18 in 2022- 2023 from 11 points out of 20 in 2019.
- Even top performers in 2019 like Tamil Nadu and Uttar Pradesh received lower scores, in 2022 - 2023.

Improvement in 'Training and Capacity Building':

- The average score increased from 3.5 out of 10 in 2019 to 5 out of 8 in 2022- 2023.

Improvement in SFSI Rank:

- In the new parameter 'Improvement in SFSI Rank,' only Punjab showed significant improvement.
- Improvement in the SFSI Rank parameter, which carried a weightage of 10% in 2022 - 2023, 14 out of 20 large states received 0 points.

Safeguarding India's Groundwater

Why in News

A recent report issued by the United Nations University has cautioned that 27 out of the country's 31 aquifers are declining at a rate faster than they can be naturally replenished. Concerns about this issue have been raised for at least a decade.

Important Points

Groundwater Depletion in India

- India currently leads the world in groundwater extraction, surpassing both China and the US combined. According to the Central Ground Water Board, approximately 70 percent of the country's water usage relies on groundwater sources. However, this excessive extraction poses significant challenges and risks to India's environmental sustainability and water security.

Causes of Groundwater Depletion:

- Green Revolution Impact:** The expansion of groundwater-based irrigation, while crucial for meeting the food demands of India's large population, has led to various environmental consequences.
- Irrigation Pumping:** Groundwater pumping for agricultural irrigation remains a major factor driving depletion, posing threats to both food and water security, especially in the face of climate change.
- Aquifer Depletion:** Groundwater is sourced from aquifers, which are saturated rocks storing water underground. The continuous pumping of water from these reserves depletes them, impacting their ability to sustain India's water needs.

- **Climate Change Influence:** While human activities primarily drive groundwater depletion, climate change-related factors also contribute, accelerating the depletion process. These challenges underline the urgent need for sustainable water management practices in India to preserve this vital resource for future generations.

Challenges and Concerns

- **Lack of Institutional Innovations:** The historic focus on tubewells and borewells played a vital role in ensuring food security. However, the Mihir Shah Committee of 2016 pointed out the lack of emphasis on institutional innovations in the water sector, hindering sustainable solutions.
- **Mismanagement of Groundwater:** The connection between power subsidies and declining water tables, notably in states like Punjab, has been evident. Addressing demand-side management remains a complex challenge, posing difficulties in effective solutions.
- **Reports on Groundwater Depletion:** Reports from reputable institutions, including the United Nations University, Niti Aayog, and the Central Water Commission, highlight the alarming state of the country's aquifers. The data reveals rapid depletion, with 27 out of 31 aquifers diminishing faster than they can be replenished, and 78% of wells in some states being overexploited.
- **Potential Impact of Climate Crisis:** Researchers have established connections between groundwater extraction and the climate crisis, particularly in regions like the southwest, where hard rock aquifers limit recharging. Rising temperatures further exacerbate the issue by reducing soil moisture, hindering groundwater replenishment.



Government Initiatives for Groundwater Conservation

- **Atal Bhujal Yojana:** Initiated by the Union Jal Shakti Ministry in 2020, this program aims to instigate behavioral changes at the community level in 78 water-stressed districts across seven states. Initial data indicates a reduction of 6 billion cubic meters in groundwater extraction for various purposes by 2022.
- **Central Ground Water Board (CGWB):** As the apex organization under the Ministry of Jal Shakti, CGWB addresses groundwater-related issues, playing a crucial role in management and regulation efforts.
- **Jal Shakti Abhiyan (JSA):** Launched in 2019 in collaboration with states, JSA focuses on enhancing water availability, including groundwater conditions, in 256 water-stressed districts, aiming for comprehensive improvements.
- **National Water Policy:** Formulated to advocate rainwater harvesting and water conservation, the policy emphasizes augmenting water availability through direct utilization of rainfall, promoting sustainable practices.
- **National Aquifer Mapping and Management Programme (NAQUIM):** Implemented by CGWB as part of the Ground Water Management and Regulation (GWM&R) scheme, NAQUIM plays a vital role in mapping and managing the country's aquifers, ensuring efficient utilization and preservation.

Effective Solutions for Groundwater Conservation

- **Individual-Centric Conservation:** Encouraging individuals to reduce water usage for non-essential purposes, such as decorative water features and swimming pools, can significantly conserve water. Simple practices like turning off faucets, limiting appliance usage, and avoiding wasteful habits at home are essential in saving substantial amounts of water.
- **Individual Groundwater Monitoring:** Raising awareness about groundwater resources is crucial. Utilizing technologies that enable people to monitor water levels in their borewells can promote responsible aquifer management. These tools can serve as catalysts for behavioral changes, emphasizing the importance of groundwater conservation.
- **Managing Water Pollution:** Preventing water pollution is vital. Businesses and residential areas must minimize chemical usage and ensure proper disposal methods. By reducing the introduction of toxic substances into water systems, we can safeguard our water supply from contamination.
- **Need for Regulations, Research, and Funding:** Allocating adequate funding for research and monitoring

efforts is essential. This funding can support setting limits and adopting sustainable practices, ensuring responsible groundwater use. Stricter regulations governing groundwater pumping, accompanied by specific guidelines and enforcement, are imperative for effective conservation.

- **Exploring Alternative Water Sources:** Reducing reliance on groundwater is crucial. Exploring alternative water sources helps in natural aquifer replenishment and promotes sustainable practices and technologies that minimize water usage. This approach diversifies water supply, making it more resilient and adaptable to changing demands.
- **Management of Agricultural Practices:** Implementing water-saving technologies like sprinkler and drip irrigation, along with transitioning to less water-intensive crops, enhances the effective use of limited groundwater resources. Promoting crops like millets, which require less water, and encouraging efficient watering techniques are steps toward sustainable agricultural practices. These initiatives are essential for conserving groundwater and ensuring long-term agricultural viability.

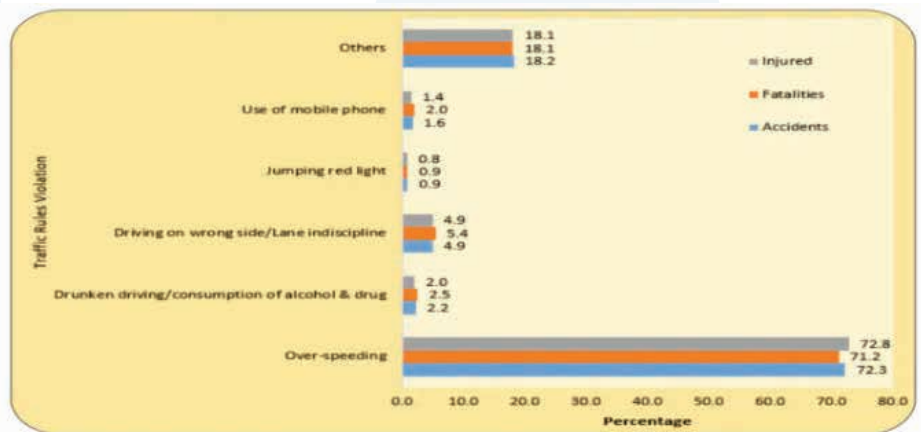
Road Accidents in India - 2022

Why in News

The Union Ministry of Road Transport and Highways released the annual report titled 'Road Accidents in India - 2022,' providing insights into road safety and accident statistics.

Important Points

- Key Highlights of the report on road accidents in India in 2022:
- Over-speeding is the biggest killer:
- In 2022, over-speeding accounted for 72.3% of total road accidents, 71.2% of total deaths, and 72.8% of total injuries. This marked a significant increase compared to the previous year, with a 12.8% rise in accidents, 11.8% rise in deaths, and 15.2% rise in injuries.

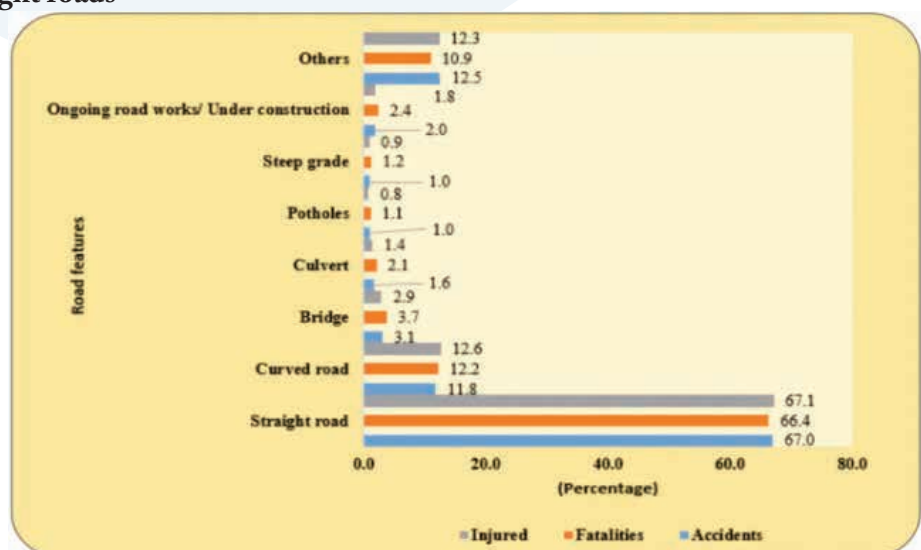


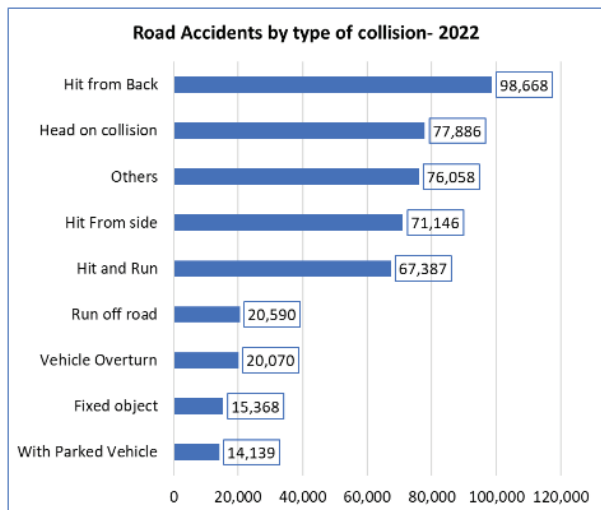
Most accidents occurred on straight roads

- Approximately 67% of all accidents took place on straight roads, which was over four times the total number of accidents on curved roads, roads with potholes, and roads having a steep gradient combined (13.8%).

'Hit from back' collisions were the most common

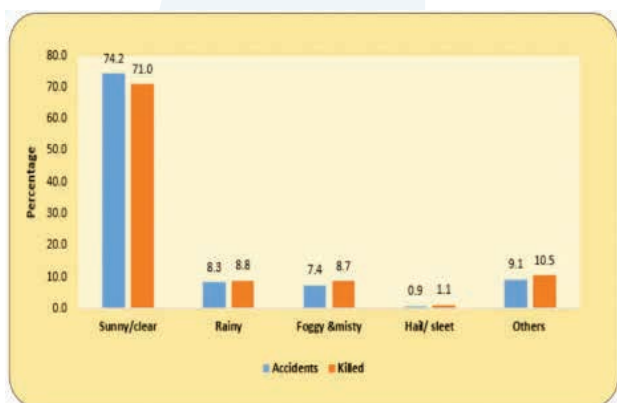
- More than 21% of all collisions were classified as 'hit from back' incidents, followed by 'head-on collisions' which accounted for 16.9% of all collisions.





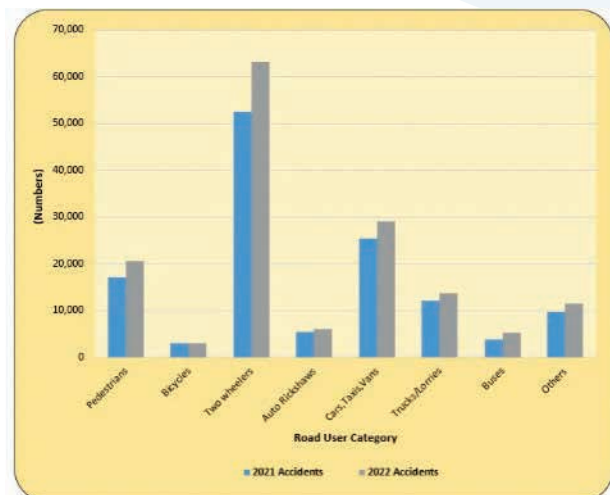
Most road accidents occurred on clear days

- Nearly three-fourths of all accidents and fatalities happened under 'sunny/clear' weather conditions. Accidents under adverse weather conditions like rain, fog, and hail accounted for only about 16.6% of total road accidents.



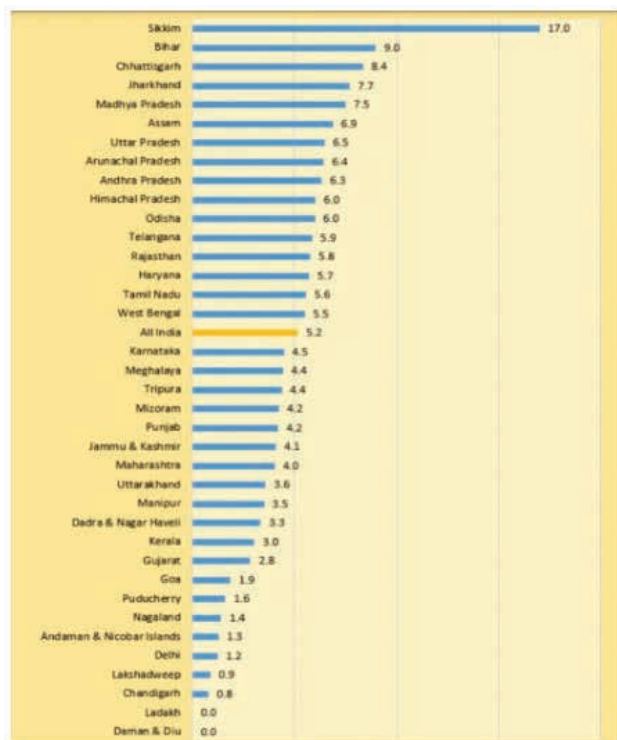
Two-wheelers accounted for the highest number of accidents and deaths

- In 2022, there were 63,115 accidents involving two-wheelers, leading to 25,228 deaths. Cars and pedestrians were the next highest categories in terms of accidents, with 29,005 accidents (10,174 deaths) and 20,513 accidents (10,160 deaths) respectively.



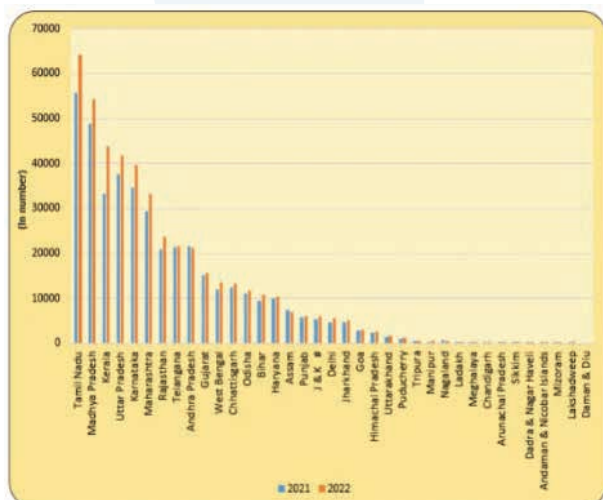
Highest fatality rate is in Sikkim, and the lowest in Ladakh, Daman & Diu

- Sikkim reported the highest fatality rate at 17 (number of fatalities per 10,000 registered vehicles), while Ladakh and Daman & Diu had the lowest fatality rate at 0. The all-India rate stood at 5.2.



Tamil Nadu reported the highest number of accidents

- Tamil Nadu reported 64,105 total accidents in 2022, representing a 15.1% increase from the previous year. This accounted for over 13% of the total accidents reported in India. Madhya Pradesh followed as the state with the second-highest number of accidents, reporting 54,432 incidents.



Regulation of Online Gambling in India

Why in News

The Ministry of Electronics and Information Technology (MeitY) has issued blocking orders against 22 illegal betting apps & websites.

Important Points

- The action follows investigations conducted by the Enforcement Directorate (ED) against illegal betting app syndicate and subsequent raids on Mahadev Book in Chhattisgarh, revealing the app's unlawful operations.

Betting and Gambling Activities in India

- Betting and gambling activities are banned under various State laws, while few games of skill have been held to be constitutionally valid by the Supreme Court in various judgements.
- In this legal landscape, the online gaming industry in India has seen immense growth in the recent past.

Concerns

- **Addiction Related Concerns:** User harms due to the addictive nature of these games, especially in terms of financial losses incurred by adult users due to such addiction.
- **Content-related concerns:** It raises concerns due to depiction of violent or inappropriate content, also there is an absence of concrete measures to prevent children from accessing such content.
- **Advertisements:** Ads of offshore gambling and betting websites targeting Indian users through these apps is a matter of concern.
- **Absence of KYC Mechanism:** Lack of safeguards to secure users' money and money laundering-related concerns in the absence of any strict KYC mechanism.

Online Gaming vs Online Gambling

- There is a very thin line between online gaming and online gambling. Multiplayer gaming is a fun and leisure activity however, gambling is betting money against each other and involves a monetary transaction between players.
- Most of the online games are free and do not require any money to play whereas online gambling requires users to bet (pay) first and then play the game.
- Online gaming requires knowledge and skills to play, whereas gambling mostly relies on luck and probability.

Is Online Gambling Legal in India?

- Gambling is regulated by the Public Gambling Act of 1867, which prohibits running or being in charge of a public gambling house.
- However, since this was a law passed at a time when the Internet has yet to exist, it doesn't explicitly mention online betting or gambling.
- Gambling laws in India are confusing. This is because of the unclear distinction between 'games of skills' and 'games of chance'.
- Betting on games of chance is illegal whereas betting on games of skill is legal. It's tricky to determine whether a game falls under a chance or skill categories.
- When the outcome of the game is predominantly determined by skill, then it is a game of skill, while when the outcome is decided predominantly by chance, it is a game of chance.

Regulation of Online Gambling

- To address such concerns effectively through legal means, the MeitY has introduced amendments to the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021.
- **Verification of Online Games:** Intermediaries have been obligated to not host, publish or share any online game that can harm users, and has not been verified by a self-regulatory body designated by the Central Government. Promotion and advertising such games has also been barred.
- **Safeguards ensured by the Self-regulatory body:** It will have the authority to inquire and satisfy itself that the online game does not involve any risky outcome and the game complies with the rules and the framework regarding safeguards against user harm.
- **Games involving real money:** Display of verification mark by the self-regulatory body on such games; informing their users of the policy for withdrawal or refund of deposit, manner of determination and distribution of winnings, fees and other charges payable; obtaining the KYC details of the users; and not giving credit or enabling financing by third parties to the users.
- **Structure of regulating authority:** The Government may notify multiple self-regulatory bodies, which shall be representative of the online gaming industry but it will function at arm's length from their members, and a Board consisting of Directors who are free from conflict of interest and represent all relevant stakeholders and experts.
- **Fake Information:** Obligation on the intermediaries to not to publish, share or host fake, false or misleading information identified by the notified Fact Check Unit of the Central Government in respect of any business of the Central Government.

Deep Fake

Why in News

The recent controversy pertaining to the viral deepfake video of an actor has triggered concerns about online safety, particularly of women.

Important Points

What is Deep Fake?

- Deepfakes use a form of artificial intelligence called deep learning to make images of fake event.
- Deepfake technology utilises advanced machine learning algorithms to create or manipulate video content, thereby making it appear as if individuals are saying or doing things they never actually did.
- Most of the deepfake videos have been pornographic in nature. But during elections time, digitally altered clips of politicians are also circulated to falsely attribute a statement or promise to them.

How to spot a deepfake video?

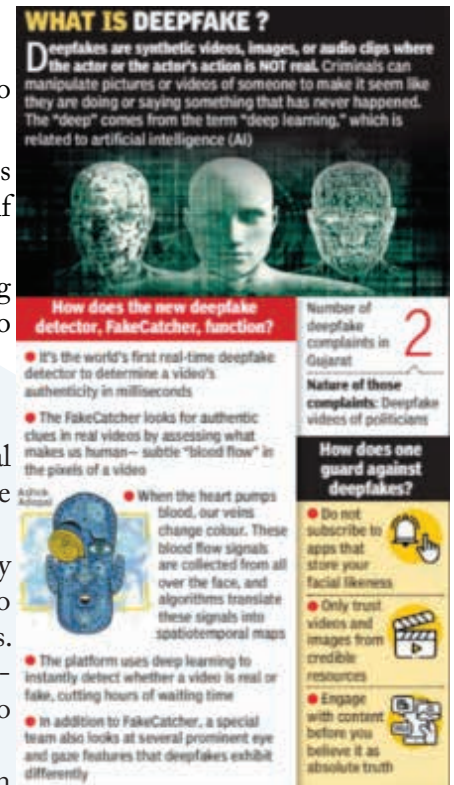
- **Unnatural Eye Movements:** Deepfake videos often exhibit unnatural eye movements or gaze patterns. In genuine videos, eye movements are typically smooth and coordinated with the person's speech and actions.
- **Mismatches in Color and Lighting:** Deepfake creators may have difficulty replicating accurate colour tones and lighting conditions. Pay attention to any inconsistencies in the lighting on the subject's face and surroundings.
- **Compare and Contrast Audio Quality:** Deepfake videos often use AI-generated audio that may have subtle imperfections. Compare the audio quality with the visual content.
- **Strange Body Shape or Movement:** Deepfakes can sometimes result in unnatural body shapes or movements. For example, limbs may appear too long or short, or the body may move in an unusual or distorted manner. Pay attention to these inconsistencies, especially during physical activities.
- **Artificial Facial Movements:** Deepfake software may not always accurately replicate genuine facial expressions. Look for facial movements that seem exaggerated, out of sync with speech, or unrelated to the context of the video.
- **Unnatural Positioning of Facial Features:** Deepfakes may occasionally exhibit distortions or misalignments in these features, which can be a sign of manipulation.
- **Awkward Posture or Physique:** Deepfakes may struggle to maintain a natural posture or physique. Pay attention to any awkward body positions, proportions, or movements that appear unusual or physically implausible.

What should the govt do to address the deepfake menace?

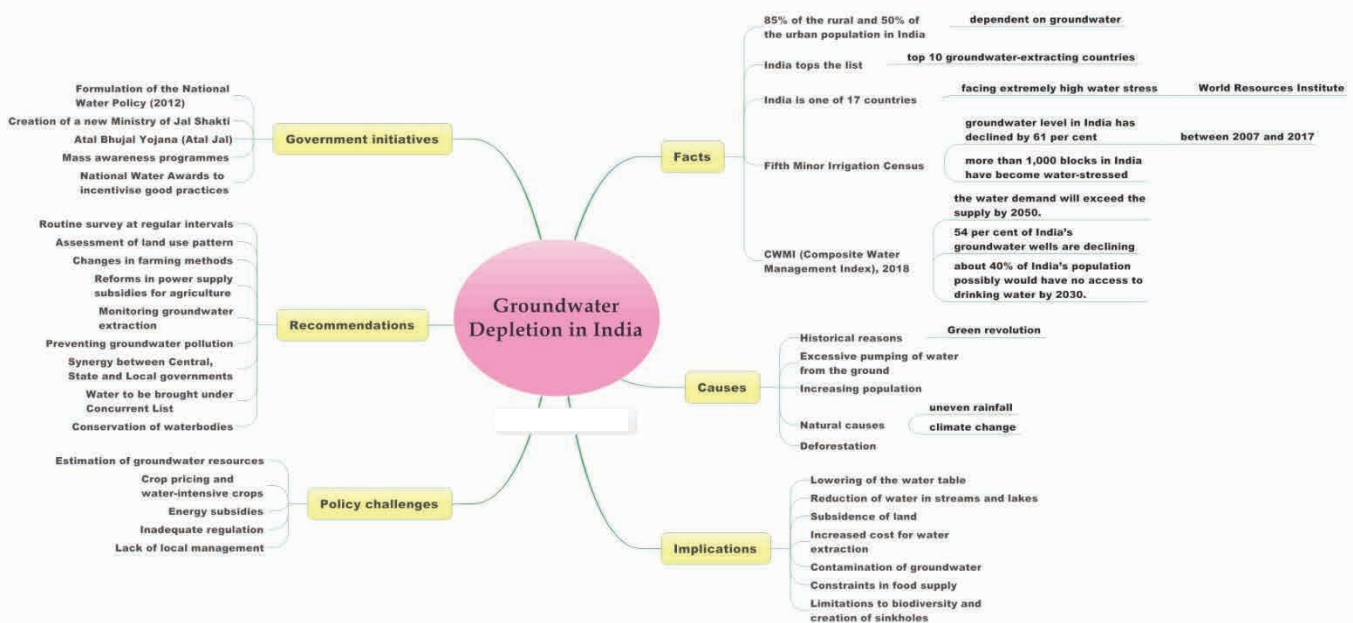
- The IT Act 2000 does provide a framework for addressing impersonation and fraud conducted via digital means, the advent of deep fakes calls for more specialized measures.
- The government should amend existing laws to specifically address the unique challenges posed by deepfakes.
- The government should support the development of more sophisticated detection tools that can be used by authorities and the public.
- Educational initiatives should be undertaken to inform citizens about the nature of deep fakes and how to critically assess digital content.
- There is a need to work with tech companies and social media platforms to detect and mitigate the spread of deep fakes.

What are the Uses of Deepfake Technology?

- **Film Dubbing:** Deepfake technology can be used to create realistic lip-syncing for actors who speak different languages, making the film more accessible and immersive for global audiences.
 - For example, a video was created to launch a petition to end malaria, where celebrities like David Beckham, Hugh Jackman, and Bill Gates spoke in different languages using deepfake technology.
- **Education:** Deepfake technology can help teachers deliver engaging lessons by bringing historical figures to life in the classroom, or creating interactive simulations of different scenarios.
 - For example, a deepfake video of Abraham Lincoln giving his Gettysburg Address could be used to teach students about the American Civil War.
- **Art:** Deepfake technology can be used as a creative tool for artists to express themselves, experiment with different styles, or collaborate with other artists.



- For example, a deepfake video of Salvador Dali was created to promote his museum in Florida, where he interacted with visitors and commented on his artworks.
- **Autonomy and Expression:** Deepfake technology can empower people to control their own digital identity, protect their privacy, or express their identity in different ways.
 - For example, a deepfake app called Reface allows users to swap their faces with celebrities or characters in videos or gifs, for fun or personalization.
- **Amplification of the Message and its Reach:** Deepfake technology can help amplify the voice and impact of people who have important messages to share, especially those who face discrimination, censorship, or violence.
 - For example, a deepfake video of a journalist who was killed by the Saudi government was created to deliver his final message and call for justice.
- **Digital Reconstruction and Public Safety:** Deepfake technology can help reconstruct missing or damaged digital data, such as restoring old photos or videos, or enhancing low-quality footage. It can also help improve public safety by creating realistic training materials for emergency responders, law enforcement, or military personnel.
 - For example, a deepfake video of a school shooting was created to train teachers on how to react in such a situation.
- **Innovation:** Deepfake technology can spur innovation in various fields and industries, such as entertainment, gaming, or marketing. It can enable new forms of storytelling, interaction, diagnosis, or persuasion.
 - For example, a deepfake video of Mark Zuckerberg was created to demonstrate the potential of synthetic media and its implications for society.



Chapter- 7

INTERNATIONAL RELATION

Cayman Islands

Why in News

The recent removal of the Cayman Islands from the FATF grey list is expected to boost global private equity investors intending to engage in Indian non-banking financial companies (NBFCs).

Important Points

- The Financial Action Task Force (FATF), an intergovernmental organisation that establishes anti-money laundering guidelines, has removed the Cayman Islands from its “grey list.”
- In February 2021, the FATF, or Financial Action Task Force, a global money laundering and terrorist financing watchdog, placed the region on the grey list for intensified monitoring.
- The FATF announced last Monday that the Cayman Islands had fulfilled its commitments in its action plan resolving the strategic shortcomings identified in 2021.
- In 2020, the European Union added Cayman to its blacklist of tax havens, citing a lack of necessary tax reforms.
- Aside from Cayman, Panama, Jordan, and Albania have been removed from the list, requiring states to be subjected to enhanced scrutiny until the noted weaknesses in their system are addressed.
- The FATF has put Bulgaria on its grey list.



Why does the FATF include countries on the “grey list”?

- Such actions are taken to ensure that governments’ anti-money laundering (AML), counter-terrorism financing (CFT), and financing proliferation systems are strengthened.
- This involves imposing appropriate sanctions on those who fail to file accurate beneficial ownership information and pursuing all sorts of money laundering in accordance with the jurisdiction’s risk profile.

What does the change signify for India?

- The removal of the Cayman Islands from the FATF grey list would provide relief to NBFCs, payment system operators, and alternative investment funds that face restrictions on giving major stakes to investors from non-compliant FATF jurisdictions.
- The Cayman Islands’ removal from the FATF grey list last week will boost global private equity investors eager to engage in Indian non-banking financial companies (NBFCs).
- Cayman is one of the top 15 foreign portfolio investment jurisdictions in India.
- For investments in India, several US and European investors prefer to establish holding corporations and funds in the Cayman Islands.

About Cayman Island

History

- The British colonized the Cayman Islands in the 18th and 19th centuries, and they were managed by Jamaica after 1863.
- The islands became a territory of the Federation of the West Indies in 1959.
- When the Federation disbanded in 1962, the Cayman Islands voted to remain a British colony.

Political Status

- The Cayman Islands are a self-governing territory under the sovereignty of the United Kingdom.
- They have their own government and legal system, with a Governor representing the British monarch as the head of state.
- Language: The major language is English; however, many people speak local Creole languages.
- Capital: Its capital is George Town, which is located on Grand Cayman Island.

Geography and Environment

- The Cayman Islands have a tropical climate with warm temperatures throughout the year.
- The islands are susceptible to hurricanes during the Atlantic hurricane season (June to November).
- The Cayman Islands are known for their rich biodiversity and marine life.
- Efforts are made to protect coral reefs, wildlife, and natural habitats through conservation initiatives.
- Currency: The official currency is the Cayman Islands Dollar (KYD), but the US Dollar is widely accepted.

Economy

- The Cayman Islands have a diversified economic structure and are a major offshore financial center.
- The Cayman Islands are regarded as a tax haven since they do not levy a corporate tax, making it an attractive location for multinational firms to locate subsidiary entities in order to shelter some or all of their profits from taxation.
- Residents in the Cayman Islands do not pay taxes. They do not have an income tax, a property tax, a capital gains tax, a payroll tax, or a withholding tax.
- Without tax revenue, the Cayman Islands generate revenue through fees associated with tourism and work permits, banking activities, and import duties.

'AI Safety Summit 2023'

Why in News

The UK hosted a major Artificial Intelligence (AI) summit, bringing together political leaders and tech experts to discuss both the promise and potential perils of this rapidly advancing technology.

Important Points

- The United Kingdom hosted a two-day Artificial Intelligence (AI) Summit, bringing together political leaders and tech experts to discuss both the promise and potential perils of this rapidly advancing technology.
- Recently, 28 countries (including India) and the European Union, who participated in the summit, agreed to the "Bletchley Declaration", named after the venue of the summit.

About AI

- Artificial intelligence (AI) is the ability of a computer or a robot controlled by a computer to do tasks that are usually done by humans because they require human intelligence and discernment.
- The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience.
- AI algorithms are trained using large datasets so that they can identify patterns, make predictions and recommend actions, much like a human would, just faster and better.

- Latest and popular examples of AI algorithms (known as AI Chatbots) are OpenAI's ChatGPT, Google's Bard, Microsoft's Bing Chat, etc.
- Concerns w.r.t. AI Chatbots & Response by Major Countries:
- The concerns lie under three broad categories:
 - Privacy,
 - System bias, and
 - Violation of intellectual property rights
- Currently, governments do not have any policy tools to halt work in AI development.
- If left unchecked, it can start infringing on – and ultimately take control of – people's lives.
- Businesses across industries are increasingly deploying AI to analyse preferences and personalize user experiences, boost productivity, and fight fraud.
 - For example, ChatGPT Plus, has already been integrated by Snapchat, UnrealEngine and Shopify in their applications.
- This growing use of AI has already transformed the way the global economy works and how businesses interact with their consumers.
 - However, in some cases it is also beginning to infringe on people's privacy.
- Recently, US President Joe Biden issued an executive order aimed at safeguarding against threats posed by AI, and exerting oversight over safety benchmarks used by companies to evaluate generative AI bots.
- In fact, policymakers across countries have increased regulatory scrutiny of generative AI tools, especially after ChatGPT's launch.
- On the other end of the spectrum, China over the last year came out with some of the world's first nationally binding regulations targeting specific types of algorithms and AI.
- Currently, there are no specific laws in India with regard to regulating AI.
 - Ministry of Electronics and information Technology (MEITY), is the executive agency for AI-related strategies and had constituted committees to bring in a policy framework for AI.



About the Bletchley Declaration:

- The declaration offers a comprehensive snapshot of the global understanding of artificial intelligence's promises and risks.
- The document emphasizes the necessity of aligning AI systems with human intent and urges a deeper exploration of AI's full capabilities.
- Furthermore, it acknowledges the potential for severe, even catastrophic, harm caused by AI, whether intentional or unintentional.
- It highlights the importance of safeguarding human rights, transparency, explainability, fairness, accountability, regulation, safety, human oversight, ethics, bias mitigation, privacy, and data protection.
- The document reflects the complex negotiations between nations with conflicting interests and legal systems, including the United States, the United Kingdom, the European Union, and China.

Role of Civil Society & Industry:

- The declaration stresses the importance of civil society's involvement in addressing AI safety concerns, despite criticism from some civil society groups claiming exclusion from the summit.
- It also places a significant responsibility on companies developing "frontier" AI systems to ensure their safety through testing, evaluation, and appropriate measures.

India's Stance at the Summit:

- Union Minister of State for IT Rajeev Chandrasekhar, who is representing India at Bletchley Park, said at the opening plenary session that the weaponization represented by social media must be overcome.

- He also said that steps should be taken to ensure AI represents safety and trust.
- Union Minister's statement at the summit has put a stamp of approval at the highest level on the shift in India's position from not considering any legal intervention on regulating AI in the country.
- Earlier, in April 2023, the Ministry of Electronics and IT had said that it is not considering any law to regulate the AI sector.

MoUs Signed Between UAE and India

Why in News

India and the United Arab Emirates (UAE) have signed MoUs to strengthen educational cooperation and to Boost Skill Development.

Important Points

- The MoU aims to strengthen the existing cooperation in the field of educational institutions in both countries, by facilitating student and faculty mobility, joint research programmes, designing courses, organising and participation in conferences, lectures, symposia, courses, scientific and educational exhibitions.
- It will also facilitate academic collaboration between Higher Education Institutions in both the countries for offering Twinning, Joint Degree and Dual Degree Programmes.
- It will further facilitate creation of a Joint Working Group chaired by a representative of the Ministry of Education from India and UAE.
- The JWG shall meet at least once a year alternately to review the implementation of this memorandum.
- MoU on Skill Development: National Skill Development Corporation and DP World Sign (an Emirati multinational logistics company) has signed an MoU to Boost Skill Development.
- The UAE is hosting the largest population of Indian nationals outside of India which underscores the importance of skill development as a fundamental element of the India-UAE Strategic Partnership.
- Leaders agreed to enhance cooperation to develop professional standards and skills frameworks.



Overview of the UAE and India relations

- Political : India and the United Arab Emirates (UAE) established diplomatic relations in 1972.
 - While the UAE opened its Embassy in India in 1972, Indian Embassy in UAE was opened in 1973.
- Multilateral Cooperation: India and the UAE are currently part of several plurilateral platforms such as I2U2 (India-Israel-UAE-USA) and UFI (UAE-France-India) Trilateral, etc. UAE has been invited as a Guest Country to the G-20 Summit
- Economic & Commercial :India and UAE have shared trade links through the centuries. The trade, which was dominated by traditional items such as dates, pearls and fishes, underwent a sharp change after the discovery of oil in the UAE (oil exports began from Abu Dhabi in 1962).
 - India UAE trade, valued at US\$ 180 million per annum in the 1970s, is today US\$ 84.84 billion making UAE, India's third largest trading partner for the year 2021-22 after China and US.
 - Moreover, UAE is the second largest export destination of India (after the US) with an amount of nearly US\$ 31.61 billion for the year 2022-23.
 - UAE is the 7th biggest investor in India in terms of FDI
- Cultural Relations :UAE has over 3.5 million Indians and Emiratis are quite familiar and sensitive to Indian culture

- Defence cooperation: It is steered through a Joint Defence Cooperation Committee (JDCC) at the Ministry level, with the signing of Agreement on Defence Cooperation in June 2003, which came into effect since April 2004.
- Space Cooperation: Indian Space Research Organisation (ISRO) and the UAE Space Agency signed an MoU regarding cooperation in the exploration and use of outer space for peaceful purposes on 11th February 2016.
- Indian Community: Indian expatriate community of approximately 3.5 million is the largest ethnic community in UAE constituting roughly about 35 percent of the country's population

Operation Cactus

Why in News

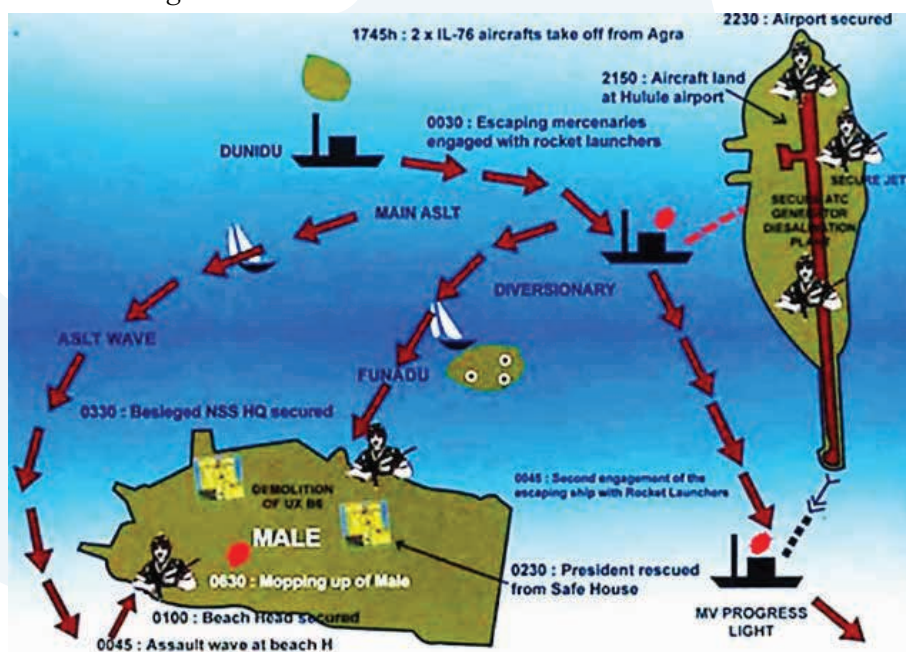
'India Out' was a campaign slogan for Maldives president-elect Mohamed Muizzu, who will take over the country's reins on November 17.

Important Points

- Over the past decade or so, anti-India sentiments have been rising in the island nation — and many Maldivians have a long list of grievances.
- Yet, 35 years after the fact, India's intervention in the 1988 coup attempt in Malé — codenamed Operation Cactus — continues to be remembered with gratitude and fondness.

Background and Coup Attempt

- The 1988 Maldives coup d'état attempt was led by Maldivian businessman Abdullah Luthufi, with armed mercenaries from the People's Liberation Organisation of Tamil Eelam (PLOTE) attempting to overthrow President Maumoon Abdul Gayoom's government.
- The coup attempt, involving the hijacking of a Sri Lankan freighter and the invasion of Malé, the capital city, brought the nation to the brink of a political crisis.



Execution of Operation Cactus

- With external powers unable to provide immediate assistance, President Gayoom sought India's intervention, leading to the rapid mobilization of Indian forces and the launch of "Operation Cactus" within hours of the distress call.
- Indian Air Force's Ilyushin Il-76 aircraft airlifted elements of the 50th Independent Parachute Brigade, the 6th Battalion of the Parachute Regiment, and the 17th Parachute Field Regiment, deploying them to secure Malé and restore order.

Successful Restoration of Order

- The Indian paratroopers, with swift and accurate intelligence, secured the Malé International Airport, rescued President Gayoom, and swiftly regained control of the capital, effectively quelling the attempted coup d'état and restoring the government's authority.
- The operation resulted in the capture of the mercenaries and the repatriation of the captured individuals for trial in the Maldives.

International Recognition and Repercussions

- India's prompt and decisive action received international praise, with U.S. President Ronald Reagan acknowledging India's significant contribution to regional stability, and British Prime Minister Margaret Thatcher expressing gratitude for India's role in saving President Gayoom's government.
- While the operation strengthened Indo-Maldivian relations, it also led to some unease among India's neighboring countries in the South Asian region.

Aftermath and Impact

- President Gayoom commuted the death sentences of the captured mercenaries to life imprisonment, reflecting India's pressure on the Maldivian government.
- The successful restoration of the Gayoom government strengthened Indo-Maldivian relations and underscored India's commitment to preserving regional stability and safeguarding the sovereignty of neighboring nations.

2+2 Ministerial Dialogue

Why in News

The Defence Minister and External Affairs Minister of India convened with their counterparts from the United States government for the fifth instalment of the 2+2 Ministerial Dialogue, conducted in New Delhi.

Important Points

2+2 Ministerial Dialogue

- The 2+2 meetings involve high-level representatives from both participating countries, specifically the Ministers responsible for Foreign Affairs and Defence.
- The main aim of these meetings is to expand the range of discussions, fostering improved comprehension of each other's strategic concerns and sensitivities.
- This mechanism fosters a more robust and integrated strategic relationship, especially in the dynamic global environment.

India has held 2+2 meetings with the following countries:

- United States (5 times)
- Japan (3 times)
- Australia (2 times)
- Russia (1 time)

India-US 2+2 Ministerial Dialogue:

- The India-US 2+2 Ministerial Dialogue is an annual event held since 2018.
- The latest meeting occurred in New Delhi on November 10, 2023, symbolising the strengthening strategic alliance between India and the United States.
- Discussions cover diverse topics, including defense cooperation, trade, investment, technology, and coordination on global issues like the Indo-Pacific region, counterterrorism, and climate change.

India-Japan 2+2 Ministerial Dialogue:

- The India-Japan 2+2 Ministerial Dialogue has occurred three times in 2019, 2021, and 2023.
- The latest meeting transpired in Tokyo on March 8, 2023.
- This meeting underscores the unique strategic partnership between India and Japan.
- Discussions cover defense collaboration, maritime security, trade, investment, technology, and the alignment on regional and global issues, including the Indo-Pacific region and participation in the Quadrilateral Security Dialogue (Quad).



India-Australia 2+2 Ministerial Dialogue:

- The India-Australia 2+2 Ministerial Dialogue, initiated in 2020, held its second meeting in New Delhi on September 11, 2023.
- This meeting reflects the growing strategic partnership between India and Australia.
- Topics discussed include defence cooperation, maritime security, trade, investment, technology, and coordination on regional and global issues, including the Indo-Pacific region and the Quad.

India-Russia 2+2 Ministerial Dialogue:

- India has held one 2+2 meeting with Russia in New Delhi on December 6, 2021.
- The Indian and Russian Foreign and Defense Ministers attended the meeting.
- It is a sign of the growing strategic partnership between the two countries.
- India and Russia have a long history of close ties, and the 2+2 meeting provides a high-level forum for discussing and strengthening bilateral relations on various issues, including defence, security, trade, investment, and technology.

Significance of 2+2 Dialogues

- **Defence and Strategic Agreements:** These dialogues have led to significant bilateral agreements and partnerships. India and the United States, for instance, have signed Troika Pacts like:
 1. Logistics Exchange Memorandum of Agreement (LEMOA)
 2. Communications Compatibility and Security Agreement (COMCASA)
 3. Basic Exchange and Cooperation Agreement (BECA) for deep military cooperation.
- **Addressing Regional Concerns:** In the face of common regional concerns, such as China's increasing assertiveness, 2+2 dialogues have become vital mechanisms for India and its partners to align their strategic interests. This includes cooperation within the Quadrilateral Security Dialogue (QUAD) forum with Japan, Australia, and the United States.
- **Expanding Traditional Alliances:** India also values its 2+2 dialogues with Russia, acknowledging shared worldviews and goals in promoting a multipolar world order.

Significance for Indian Diplomacy

- 2+2 meetings allow for high-level dialogue between India and its key partners on various issues, including defence, security, trade, investment, and technology.
- It helps build trust and understanding between India and its partners, which is essential for strengthening bilateral relations.
- It serves as a forum for India to collaborate with its allies on regional and global matters, including the Indo-Pacific region, counterterrorism, and climate change.
- The meetings strongly signal India's commitment to its strategic partnerships.

Operation All Clear**Why in News**

Amid Bhutan King's India visit, recalling Operation All Clear, which Bhutan launched against Assam's insurgent groups

Important Points

- Bhutan King Jigme Khesar Namgyel Wangchuk met Prime Minister Narendra Modi after a historic three-day visit to Assam.
- Despite the 265.8 km border shared by Assam and Bhutan, this marked the first visit of a Bhutanese monarch to the state.

About the Operation:

- Bhutan was pushed to undertake its first military operation in 140 years to flush out the militants from its territory.
- 'Operation All Clear' was launched by the Royal Bhutan Army on December 15, 2003, and dealt a crippling blow to the
- United Liberation Front of Asom (ULFA), the National Democratic Front of Bodoland and the Kamatapur Liberation Organization (KLO), which had set up camps in Bhutanese territory.

Background

- **Challenges along Bhutan-India Border:** In the 1990s, Assam-based insurgent groups established camps in southeastern Bhutan, leading to strains in the peaceful relationship between Bhutan and India, as these groups posed a threat to Bhutan's sovereignty and security.
- **Bhutan's Initial Approach:** Initially, Bhutan refrained from engaging with the Indian insurgents on its territory, attempting diplomatic dialogues but avoiding coercive action due to its limited military capacity and lack of experience in handling such threats.
- **Bangladesh ceased to be a place of refuge** and as a consequence, these groups set up camps in southeast Bhutan, particularly in the Samdrup Jongkhar district that borders Assam.

Factors Prompting the Military Operation

- **Threat to Bilateral Relations:** The presence of insurgent groups in Bhutan was deemed a direct threat to Bhutan's bilateral relationship with India, its primary trade partner and key ally.
- **Impact on National Security and Development:** The insurgents' activities disrupted economic development, stalled crucial projects like the Dungsam Cement Project, and jeopardized the safety of Bhutanese citizens, leading to tragic loss of innocent lives.
- **Fear of Ethnic Insurgency:** Concerns arose that the insurgent groups might arm ethnic Nepalese Lhotshampas, potentially fueling an ethnic insurgency in southern Bhutan, thereby destabilizing the country.



Bhutan's approach towards these militant groups:

- Bhutan had entered into dialogue with these groups in 1998 but still been reluctant to take coercive action to drive them out.
- However, the talks did not yield any outcome.
- The Royal Bhutan Government laid out all the factors that pushed it to military action against the insurgents, underlining that their presence had become a direct threat to Bhutan's sovereignty and national security.
- It was felt that the insurgent groups would supply arms to the ethnic Nepalese Lhotshampas, who were subjected to repressive policies by the royal government, fuelling an ethnic insurgency in southern Bhutan.

Collaboration with India and International Implications

- **Indo-Bhutan Collaboration:** The coordinated effort between the Royal Bhutan Army and the Indian Army during the operation highlighted the strong collaboration between the two countries in addressing cross-border security threats.
- **Regional Stability and Diplomacy:** The success of Operation All Clear contributed to enhancing regional stability, fostering a sense of security, and reaffirming the commitment of Bhutan and India to combating terrorism and maintaining peace in the region.

Result of the operation:

- The 6000-member Royal Bhutan Army launched simultaneous attacks on the camps of all three outfits with logistical and medical assistance from the Indian Army, which also sealed the Indo-Bhutan border to prevent militants from escaping into India.
- At least 650 insurgents from the three groups had been either killed or captured.

Post-Operation Developments and Reconciliation Efforts

- **Reconstruction and Reconciliation:** Following the operation, efforts were made to promote post-conflict reconstruction and reconciliation, emphasizing the need for sustainable development and peace-building in the affected areas.
- **Long-term Diplomatic Engagement:** The operation underscored the importance of continuous diplomatic engagement and cooperation between Bhutan and India to address cross-border security challenges and maintain a stable and peaceful regional environment.

India's Stand on Israel Palestine

Why in News

India voted in favour of a resolution in the UN General Assembly that condemns Israeli settlement activities in the "Occupied Palestinian Territory".

Important Points

- The draft resolution titled 'Israeli settlements in the "Occupied Palestinian Territory", including East Jerusalem, and the occupied Syrian Golan' was approved by the Special Political and Decolonisation Committee (Fourth Committee) of the UN General Assembly by a recorded vote of 145 in favour, seven against and 18 abstentions
- India was among the 145 nations that voted in favour of the resolution along with Bangladesh, Bhutan, China, France, Japan, Malaysia, Maldives, Russia, South Africa, Sri Lanka, and the U.K.
- The resolution "Reaffirms that the Israeli settlements in the Occupied Palestinian Territory are illegal and an obstacle to peace and economic and social development."
- The resolution reiterated "its demand for the immediate and complete cessation of all Israeli settlement activities in all of the "Occupied Palestinian Territory".

India's Position on Israel -Palestine

- India voted in favour of five of the six resolutions, abstaining in one resolution that dealt with investigating Israeli practices and operations for human rights violations.
- India also reiterated India's traditional position on the Israel-Palestine conflict: "establishing a sovereign, independent and viable State of Palestine living within secure and recognized borders, side by side at peace with Israel.
- Past Linkages : Historically, India voted against the partition of Palestine and the creation of a separate state of Israel in 1948, and was the first non-Arab state to recognise the Palestine Liberation Organisation (PLO) as the representative of the people, and to recognise Palestine in 1988, and consistently voted against Israel at the United Nations.
- In 1992, India established full diplomatic ties with Israel, while continuing to support the Palestinian cause.
- There has been a shift towards Israel's position, given increasingly close bilateral relations, trade, technological assistance, military procurement, and counter-terrorism cooperation.
- In 2016, India even voted against a UNHRC resolution that called for an International Criminal Court (ICC) investigation into Israeli war crimes, and voted with Israel at the United Nations Economic and Social Council in 2019 in stopping a Hamas-linked NGO from receiving observer status.
- In 2017, PM Narendra Modi became the first Indian Prime Minister to visit Israel, while in 2018, Mr. Netanyahu visited India.
- However, Mr. Modi was also the first Indian Prime Minister to make an official visit to Palestine.
- In 2017, India voted against the U.S. and Israel for an attempt to declare unilaterally all of Jerusalem as the Israeli capital.
- The policy lines New Delhi is continuing to draw seem clear: to abhor terrorism, but not to condone indiscriminate reprisal bombings, even as it holds its consistent position on Palestine.
- No claim to righting historical grievances can possibly be used by Hamas to explain its inhuman attacks on Israel.



Challenges for India

- Israel's latest demand, that more than a million Gaza residents must evacuate as it continues to pound the city and plans a possible ground offensive, will make Delhi's challenge at balancing policy even more complex.

India's Stand

- Terrorism is a malignancy and knows no borders, nationality or race. The world should not buy into any justification of terror acts.
- There is need to adopt a zero-tolerance approach to terrorism
- India has always stood for a two-state solution, India is in sync with the Arab world in its normalisation with Israel, with groupings such as the I2U2 (India, Israel, the United Arab Emirates, and the United States).
- Therefore, going forward, it is important for India to come out not just against terrorism but also more forcefully against the human tragedy playing out in Gaza.

Luxembourg

Why in News

The Prime Minister, Shri Narendra Modi congratulated Luc Frieden for becoming Prime Minister of Luxembourg.

Important Points

- Luxembourg is a small European country, landlocked by Belgium, France and Germany.
- It's mostly rural, with dense Ardennes Forest and nature parks in the north, rocky gorges of the Mullerthal region in the east and the Moselle River valley in the southeast.
- Its capital, Luxembourg City, is famed for its fortified medieval old town perched on sheer cliffs.
- Luxembourg is one of the most important financial centres globally.
- Several Indian companies have raised capital by issuing Global Depositary Receipts at the Luxembourg Stock Exchange.
- Luxembourg-based investment funds hold substantial banking and asset management market share in portfolio investments in India.
- It is also the third-largest source of Foreign Portfolio Investments (FPI) in India.

India- Luxembourg Relationship

Economic partnership:

- Both nations have a long history of collaboration in the steel sector, and the leaders' urged firms, notably SMEs and startups, to look into new ways to deepen the economic partnership.
- Both countries look forward to the 17th Joint Economic Commission (JEC) between India and the Belgium-Luxembourg Economic Union, which will evaluate economic and trade cooperation.

Finance:

- The proposed agreement between the regulatory authorities Commission de Surveillance du Secteur Financier (CSSF) and the Securities and Exchange Board of India (SEBI) will strengthen bilateral financial sector collaboration.
- Luxembourg, a significant international financial center in Europe, can be a crucial link between India's financial services industry and worldwide markets, allowing it to reach European and global investors.

Cooperation in Space and Digital Technologies:

- Both countries have ongoing space cooperation, including satellite broadcasting and telecommunication.
- Luxembourg-based space businesses have begun to use India's services to launch satellites into space.
- In November 2020, the Indian Space Research Organisation (ISRO) launched the PSLV-C49 mission, which contained four Luxembourg satellites.
- The two governments are now discussing a cooperation instrument for peaceful exploration and utilization of outer space.
- Following the pandemic, both India and Luxembourg are supporting digitalization through the "Digital India" plan and the "Digital Luxembourg" initiative, respectively, and have agreed to explore potential synergies.

Higher Education and Research:

- The Indian National Brain Research Centre collaborates with the Luxembourg Institute of Health and the Luxembourg Centre for Systems Biomedicine on neurodegenerative illnesses.
- Neurodegenerative diseases are a diverse set of conditions marked by the progressive degradation of the structure and function of the central or peripheral nervous systems.
- Alzheimer's disease and Parkinson's disease are two examples.
- IITs in Bombay, Kanpur, and Madras, as well as the National Law School of India, have established links with the University of Luxembourg, which will be enhanced for higher education and research in both nations.

Culture and Interpersonal Relationships Ties:

- To commemorate Mahatma Gandhi's 150th birthday, Luxembourg had released a commemorative stamp in 2019.
- Both countries want to sign a Migration and Mobility arrangement to increase mobility, as well as a visa waiver arrangement for holders of diplomatic and official/service passports.

ASEAN-India Millet Festival 2023

Why in News

India has launched a Millets Festival in Indonesia to raise awareness for millets.

Important Points

- The exhibition aims to foster collaboration between ASEAN countries, celebrate cultural and culinary diversity and promote sustainable millet practices for a healthier future.
- It is also a step towards implementation of the ASEAN-India Joint Leaders Statement on Strengthening Food Security and Nutrition in Response to Crises adopted at the 20th ASEAN-India Summit in Jakarta, Indonesia in 2023.
- Millets: Millets are a group of small grained cereal food crops popularly known as Nutri-cereals.
- Varieties: These include Jowar, bajra, ragi/ mandua, the minor millets — kangani/ kakun, cheena, kodo, sawa/ sanwa/ jhangora, and kutki — and the two pseudo millets, buckwheat (kuttu) and amaranth (chaulai).

Condition for Millets (Shree Anna) Cultivation

- Climate: The Millets are grown in tropical as well as subtropical up to an altitude of 2,100 m. A mean temperature range of 26-29°C during the growth is best for proper development and good crop yield.
- Soil: Millet has wide adaptability to different soil from very poor to very fertile and can tolerate a certain degree of alkalinity. The best soils are alluvial, loamy and sandy soil with good drainage

Benefits of Millets

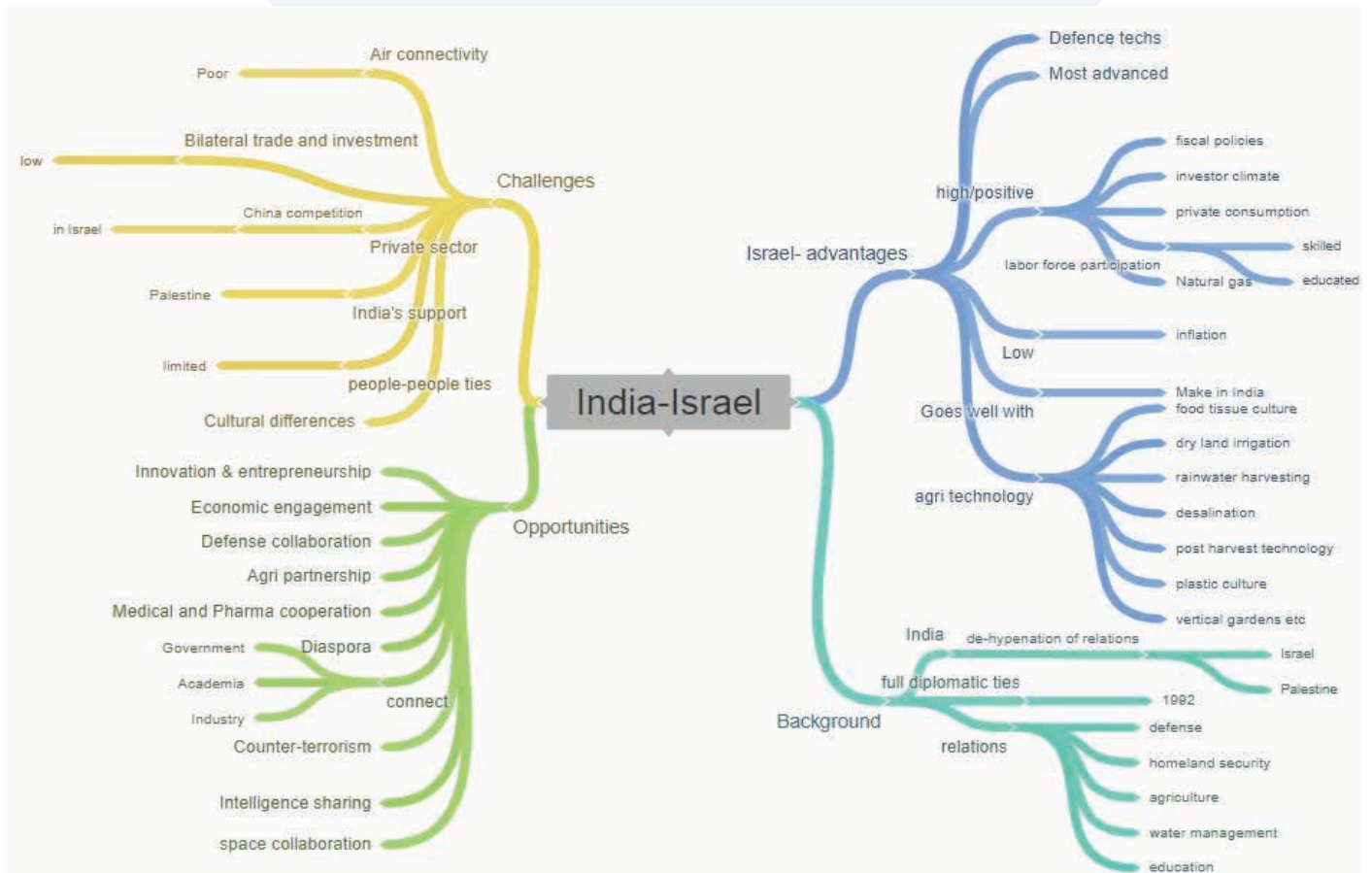
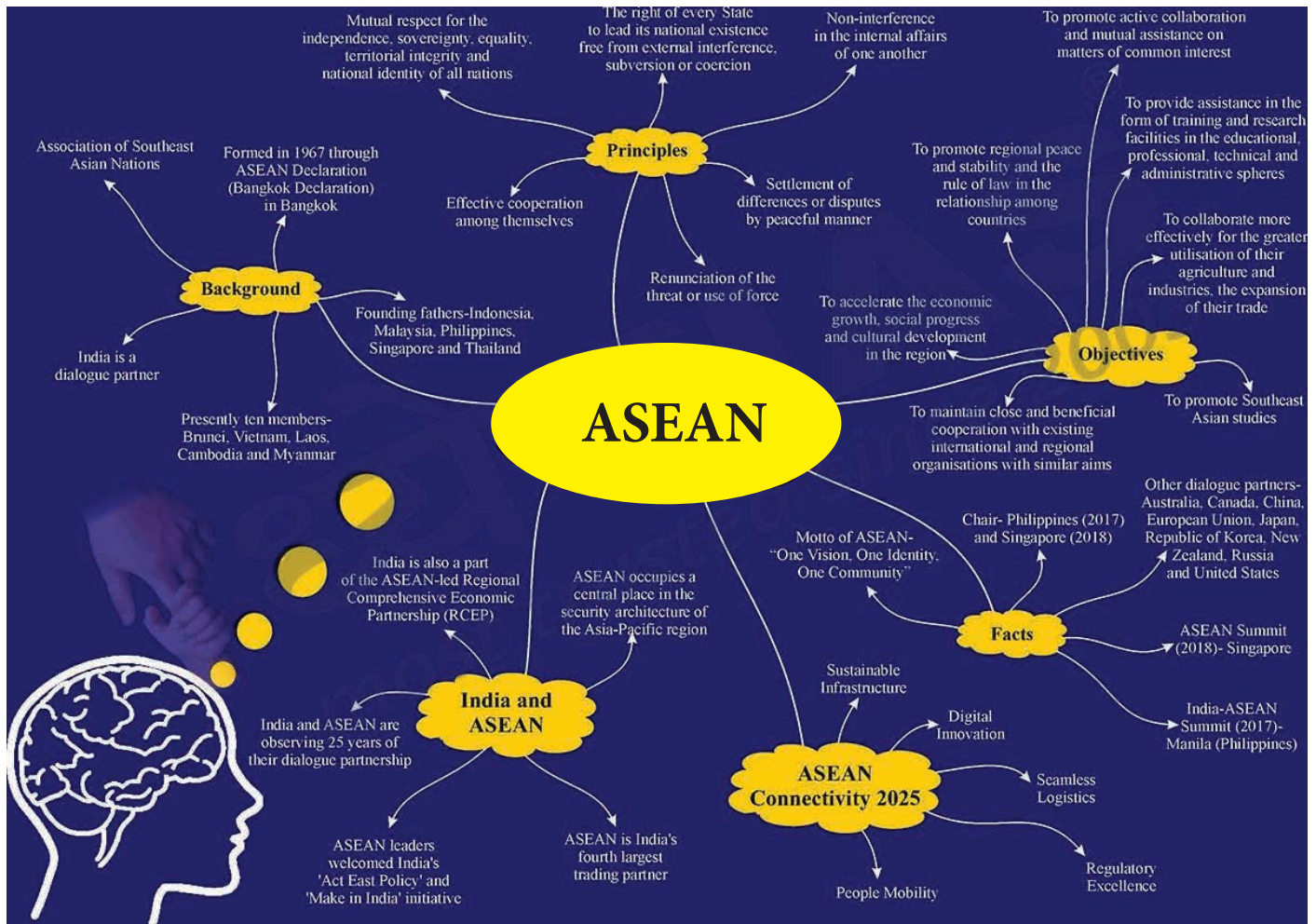
- Eco-friendly crops: Millets can grow on arid lands with minimal inputs and are resilient to changes in climate.
- Highly nutritious: Millets contain 7-12% protein, 2-5% fat, 65-75% carbohydrates and 15-20% dietary fiber.
- Health Benefits: Millets are gluten free and non-allergenic. Millet consumption decreases triglycerides and C- reactive protein, thereby preventing cardiovascular disease.
- Reduce import dependence: They are an ideal solution for countries to increase self-sufficiency and reduce reliance on imported cereal grains.



Steps taken by India to promote millet production

- International Year of Millets: India spearheaded the UN General Assembly Resolution for declaring the year 2023 as the 'International Year of Millets'.
- Agri-Infrastructure Fund: Government is popularizing Agri-Infrastructure Fund Scheme to invite farmers/ FPOs/Entrepreneurs to avail the benefit of interest subvention on loans up to 2 crores for setting up primary processing units in millets.
- Higher Minimum Support Prices (MSP): To encourage farmers to take up millet cultivation, higher MSP to Jowar, Bajra and Ragi Has been announced.

- Production Linked Incentive Scheme: The Ministry of Food Processing Industries (MoFPI) has approved the PLI Scheme for Food Processing Industry for Millet-based products for implementation during 2022-23 to 2026-27.



Chapter- 8

GOVERNMENT SCHEME

My Bharat Platform

Why in News

Prime Minister of India launches 'Mera Yuva Bharat (MY Bharat)' platform.

Important Points

- Mera Yuva Bharat (MY Bharat), an autonomous body will benefit the youth in the age group of 15-29 years, in line with the definition of 'Youth' in the National Youth Policy.
- Mera Yuva Bharat (MY Bharat) is 'Phygital Platform' (physical + digital) comprising physical activity along with an opportunity to connect digitally.
- It will empower young individuals to become catalysts for community transformation.
- They would act as "Yuva Setu," linking the government with its citizens.



Vision:

- 'Mera Yuva Bharat (MY Bharat)' is envisioned as a pivotal, technology-driven facilitator for youth development and youth-led development.
- It's overarching goal is of providing equitable opportunities to empower the youth in realizing their aspirations and contributing to the creation of a "Viksit Bharat" (developed India), across the entire spectrum of the Government.
- It envisions a framework where the youth of our country can seamlessly connect with programs, mentors, and their local communities.
- This engagement is designed to deepen their understanding of local issues and empower them to contribute to constructive solutions.

Need For Such Body:

- Establishing a framework for bringing youth from diverse areas under a single platform: Vision 2047 requires a framework that can bring rural youth, urban youth and Rurban youth on a single platform.
- The dynamic shifts in the urban-rural landscape have necessitated a re-evaluation of current approaches.
- It is imperative to create a framework that unites rural, urban, and rurban youth on a common platform. Mera Yuva Bharat will help to create such a framework.
- A technology-driven platform can connect youth to programmes that can help them improve their capabilities and also connect them with community activities.

Objectives:

- Leadership Development in the Youth
- Improve the leadership skills through experiential learning by shifting from isolated physical interaction to programmatic skills
- Investing in youth to make them social innovators, and leaders in the communities
- Better alignment between the aspirations of the youth and the community needs
- Enhanced efficiency through Convergence of existing programmes
- Act as a one-stop shop for young people and Ministries
- Create a centralized youth database

- Improved two-way communication to connect youth government initiatives and activities of other stakeholder that engage with youth
- Ensuring accessibility by creating a Phygital Ecosystem - a blend of physical and digital experiences.

PM-Kisan Bhai (Bhandaran Incentive) Scheme

Why in News

In a bid to empower small and marginal farmers and break the influence of traders in price determination, the Indian government is poised to launch the PM-Kisan Bhai (Bhandaran Incentive) scheme.

Important Points

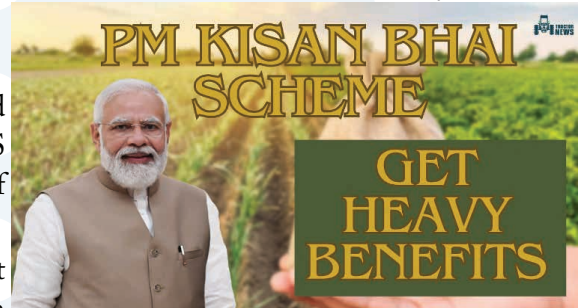
- This scheme aims to incentivize farmers to retain their produce for a minimum of three months post-harvest, granting them the autonomy to decide when and where to sell their crops.
- It seeks to break the monopoly of traders in setting crop prices, giving farmers greater control over their produce.
- This initiative grants farmers the autonomy to decide when to sell, in contrast to the current practice where most crops are sold around harvest, typically spanning 23 months.

Implementation of the scheme

- Initial Rollout: The scheme may be piloted in states such as Andhra Pradesh, Assam, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, and Uttar Pradesh.

Two Key Components:

1. Warehousing Rental Subsidy (WRS): Small farmers and farmer producer organizations (FPOs) can avail a WRS benefit of Rs4 per quintal per month for a maximum of three months, irrespective of warehousing charges.
 2. Prompt Repayment Incentive (PRI): The government proposes to extend a 3% additional interest subvention under the Kisan Credit Card (KCC) scheme for farmers pledging their produce and obtaining loans at subsidized interest rates.
- The government has proposed that the storage incentive will be provided for a maximum of three months.
 - Besides, produce stored for 15 days or less will not be eligible for the subsidy.
 - The incentive will be calculated on day to day basis.



Benefits offered

- Resisting Price Dictation: With monetary support for storage during the harvest season, farmers can refuse prices dictated by buyers.
- Access to a Wider Market: Promoting e-Negotiable Warehouse Receipt (eNWR) trade through platforms like e-National Agriculture Market (e-NAM) will connect farmers to a broader range of buyers across the country.

Need for such a scheme

- Pledge Finance Facility: While a pledge finance facility is currently available to farmers, its effectiveness is limited due to high carryover costs on farmers and credit risk to bankers.
- Incentivizing Scientific Warehousing: The scheme aims to incentivize the storage of farmers' produce in scientifically built warehouses, reducing interest rates on pledge finance.

PM Janjati Adivasi Nyaya Maha Abhiyan

Why in News

The Prime Minister has launched The PM Janjati Adivasi Nyaya Maha Abhiyan for vulnerable tribal groups on the occasion of Janjatiya Gaurav Divas.

Important Points

- The PM Janjati Adivasi Nyaya Maha Abhiyan is meant to ensure last-mile welfare scheme delivery and

protection for Particularly Vulnerable Tribal Groups (PVTGs).

- The PM also launched the Viskit Bharat Sankalp Yatra, a nationwide programme to reach out to all villages and include those eligible for various central schemes.

Who are Particularly Vulnerable Tribal Groups (PVTGs)?

- In 1973, the Dhebar Commission set up a separate category for Primitive Tribal Groups (PTGs).
- In 1975, the Union identified 52 tribal groups as PTGs.
- In 1993, 23 more groups were added to the list. Later, in 2006, these groups were named PVTGs.
- PVTGs are a more vulnerable group among tribal groups in India.
- These groups have primitive traits, geographical isolation, low literacy, zero to negative population growth rate and backwardness.
- Moreover, they are largely dependent upon hunting for food and a pre-agriculture level of technology.
- It is said that more developed tribal groups take advantage of the development funds, and thus, there is a need to direct more funds towards PVTGs.
- According to the 2011 Census, Odisha has the largest population of PVTGs followed by Madhya Pradesh.

PM PVTG Development Mission:

- As part of the mission, basic facilities such as road and telecom connectivity, electricity, safe housing, clean drinking water and sanitation, improved access to education, health and nutrition and sustainable livelihood opportunities will be provided to areas where these tribal groups live.
- Several ministries will work in tandem to implement development projects.
- The schemes include Pradhan Mantri Gram Sadak Yojana, Pradhan Mantri Gramin Awas Yojana, and Jal Jeevan Mission, among others.



Janjatiya Gaurav Divas

- In 2021, Government of India declared 15th November as Janjatiya Gaurav Divas dedicated to the memory of brave tribal freedom fighters.
- The date is the birth anniversary of Sri Birsa Munda who is revered as Bhagwan by tribal communities across the country.
- Birsa Munda fought bravely against the exploitative system of the British colonial system and spearheaded movement against British oppression giving a call for 'Ulgulan' (Revolution).

Kerala's contributory pension scheme

Why in the news

A report from a Kerala government-constituted committee, to review the state's contributory pension scheme, has been made public now after a Supreme Court verdict.

Important Points

- The three-member committee was formed in 2018 to examine the legal and financial consequences of revoking the contributory scheme, which was implemented in Kerala in 2013.
- The report was submitted to the government in 2021 but was not made public until the court intervened.

What is the National Pension System?

- The contributory pension scheme or the NPS was introduced by the Union Government in 2004.
- Apart from the Central government employees, it covered employees in many states over the years.
- As per the NPS Trust, 39 states/ UT have implemented the NPS over the last two decades, mostly before 2010.

- Kerala introduced NPS in April 2013.
- Under it, a fund is created from the contributions of employees and employers during the course of employment.
- This was not the case in the earlier scheme, which promised a fixed amount of last drawn salary (50 per cent) as pension after retirement and was funded by the government via taxpayers.
- In the case of NPS, the employee purchases an annuity scheme at retirement, with the fund standing in her name and that annuity becoming the pension.
- When the scheme was introduced in 2004, the employee's pension contribution was 10 per cent of the salary and allowances by the employee, and an equal contribution by the government.
- In effect, it was around 18 per cent of the gross salary.
- In 2019, the Central government raised its share in the contribution to 14 per cent, which raised the share to 21 per cent of gross salary for an individual level.

What is Kerala's pension scenario?

- In cash-strapped Kerala, the rising pension liability has been putting pressure on the state's total revenue receipts.
- A high life expectancy in the state after the retirement age, particularly in relation to the number of years of service an employee, is also an important factor.
- In Kerala, the retirement age of state employees was 56 previously.
- The state budget for fiscal 2023-24 said it is estimated to spend Rs 94,649 crore on committed expenditure, which is 70 per cent of its estimated revenue receipts.
- Committed expenditure of a state typically includes expenditure on payment of salaries, pensions, and interest.

This comprises:

- spending on salaries (30 per cent of revenue receipts),
- pension (21 per cent), and
- interest payments (19 per cent).

Arguments for NPS in Kerala according to the review report:

- The review committee report has not advised revoking the pension scheme.
- At the same time, there is no legal barrier to revoking the scheme.
- Although the agreements signed by the Kerala government with the NPS Trust and the National Securities Depository Limited (NSDL) do not have exit clauses, there is nothing in them to prevent the government from abrogating the agreements.
- The report said that continuing the NPS would result in a reduction of pension outgo as a share of total revenue receipts of the state government from 2040.
- It also suggested that the contribution of the state government to the contributory pension scheme be raised from 10 per cent to 14 per cent and dearness allowance to 14 per cent – as already done by the Central Government and various states.
- It wanted death-cum-retirement gratuity to be allowed for employees who joined the contributory pension scheme.

Argument against NPS in Kerala

- Those who retired under the NPS have said they are getting paltry annuities.
- Given that the contributions under NPS are invested in various assets that can be chosen from, there is the danger of the asset value of the investment falling drastically in case of a stock market crash is real.
- In the statutory pension scheme, those with less than 10 years of service were not eligible for pension, but the government introduced an ex-gratia pension to provide relief for them.
- In NPS, no such scheme exists and it remains a matter of concern.

PM SHRI

Why in News

The Union Education Minister launched the Pradhan Mantri Schools for Rising India (PM SHRI) scheme in Odisha, with the aim of developing thousands of schools across the country.

Important Points

Pradhan Mantri Schools for Rising India (PM SHRI) scheme in Odisha

- In the first phase, the PM SHRI scheme will be implemented in 63 institutes out of 97 Central Schools and Jawahar Navodaya Vidyalayas run by the Centre in Odisha.
- For the fiscal year 2023-24, the Centre has sanctioned Rs 50.8 crore for Odisha's schools run by the Centre. Of this amount, Rs 12.7 crore has already been released in the first instalment.
- The union minister mentioned that the PM SHRI scheme will be implemented in the state with a total budget of more than Rs 120 crore.
- The Odisha government is yet to sign Memorandums of Understanding (MoUs) with the Department of School Education and Literacy of the Ministry of Education for the implementation of the PM SHRI scheme.

Pradhan Mantri Schools for Rising India (PM SHRI) scheme

- The PM SHRI scheme is a centrally sponsored scheme launched by the Ministry of Education in September 2022.
- The scheme aims to develop 14,500 schools across the country into exemplary schools, showcasing the implementation of the National Education Policy 2020 (NEP 2020).
- These schools will offer leadership to other schools in the neighbourhood and provide high-quality education in an equitable, inclusive, and joyful school environment.



Key features of the PM SHRI scheme

- **Holistic and Multidisciplinary Education:** The schools will provide holistic and multidisciplinary education, focusing on developing students' cognitive, affective, and social skills.
- **Experiential Learning:** The schools will emphasize experiential learning, using hands-on activities and projects to make learning more engaging and meaningful.
- **Technology Integration:** The schools will integrate technology into the learning process to enhance teaching and learning effectiveness.
- **Inclusive and Equitable Education:** The schools will provide inclusive and equitable education, ensuring that all students have access to quality education regardless of their background or ability.
- **Teacher Development:** The schools will focus on teacher development, providing teachers with the training and resources they need to implement NEP 2020 effectively.

Selection of PM SHRI schools

- The PM SHRI schools are selected from existing schools managed by the Central Government, State/UT Governments, local bodies, or private institutions.
- The schools will be selected based on their academic performance, infrastructure, and potential for transformation.

Implementation of the PM SHRI scheme

- The PM SHRI scheme is implemented through the existing administrative structure available for Samagra Shiksha, KVS, and NVS. The other autonomous bodies would be involved on a specific project basis as required.

Expected outcomes of the PM SHRI scheme

- Improved learning outcomes for all students.

- Increased access to quality education for all children.
- Enhanced teacher effectiveness.
- Strengthened school leadership.
- Development of exemplary schools that showcase the implementation of NEP 2020.

Abua Awas Yojna

Why in News

Jharkhand Launches 'Abua Awas Yojna' (AAY) Housing Scheme

Important Points

- The Jharkhand Cabinet recently approved the 'Abua Awas Yojna' (AAY), a housing scheme designed to provide eight lakh pucca houses to homeless individuals in the state. With a total budget of Rs 16,320 crore, the scheme will be executed in three phases, targeting 2 lakh houses in the current financial year, 3.5 lakh houses in FY 2024-25, and 2.5 lakh houses in FY 2025-26.

The Need for AAY

- Despite the existence of multiple housing schemes in Jharkhand, including Pradhan Mantri Awas Yojana-Rural and Ambedkar Awas Yojna, these initiatives have been unable to cover all eligible beneficiaries.
- Chief Minister Hemant Soren and Minister of Rural Development Alamgir Alam had raised concerns that approximately 8 lakh eligible beneficiaries had been excluded from housing schemes due to discrepancies and errors in the identification process.

What AAY Provides:

- Under the 'Abua Awas Yojna' scheme, beneficiaries will receive a three-room house with one kitchen, covering a total area of 31 sq m.
- The government has allocated Rs 2 lakh per beneficiary in its budget, disbursed in four instalments.
- In comparison, Pradhan Mantri Awas Yojana-Rural constructs houses with two rooms and one kitchen, with a provision of Rs 1.2-1.3 lakh per beneficiary.
- Additionally, AAY offers beneficiaries the opportunity to work under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and earn wages for up to 95 unskilled man-days at the prevailing wage rate, which can be used for building their houses.
- There is also a provision to include a toilet in the house's construction, using funds from the Swachh Bharat Mission or other available schemes.
- Importantly, all houses built under AAY will be registered in the name of women from the beneficiary families.

Eligible Beneficiaries

AAY targets beneficiaries in the following categories:

- Individuals residing in kutchha houses.
- Homeless or unattended individuals.
- Particularly Vulnerable Tribal Group (PVTG) members will receive priority.
- Families affected by natural calamities.
- Bonded laborers rescued through legal processes.
- Individuals who have not been beneficiaries of any other housing schemes.

Exclusion Criteria

Certain criteria make individuals ineligible for the scheme, including:

- Ownership of a four-wheeler or fishing boat.
- Ownership of a three or four-wheeler vehicle used for agricultural purposes.



- Current or retired government or semi-government employees.
- Family members serving as public representatives.
- Income tax payers.
- Professional tax payers.
- Families with a refrigerator.
- Families owning 2.5 acres of land with at least one irrigation device or 5 acres of irrigated land.

Amplifi 2.0 Portal

Why in News

Recently, the Union Ministry of Housing and Urban Affairs launched the Amplifi 2.0 portal.

Important Points

- Amplifi (Assessment and Monitoring Platform for Liveable, Inclusive, and Future-Ready Urban India) portal aims to provide data on Indian cities.
- It is making raw data from Indian cities available on a single platform for academics, researchers, and stakeholders to help data-driven policymaking.
- Currently, 258 urban local bodies (ULB) have been on-boarded, and data for 150 cities is available on the portal.
- It provides data on a range of information for several cities, including, for example, the total diesel consumption and the number of samples tested for water quality.

What is the Urban Outcomes Framework 2022?

- It has been developed for the Ministry by the National Institute of Urban Affairs and PwC India.
- It shifts the focus from the indices to the data with a comprehensive list of indicators.
- With this, data across 14 sectors is streamlined to increase focus on data collection, and disaggregated data can be analysed by domain experts.
- The initiative also provides the opportunity to create new frameworks on open data.
- The 14 sectors are — demography, economy, education, energy, environment, finance, governance, health, housing, mobility, planning, safety and security, solid waste management, and water and sanitation.

Chapter- 9

MISCELLANEOUS

Goa Maritime Conclave (GMC)

Why in News

The fourth edition of the Goa Maritime Conclave (GMC) was hosted by the Indian Navy under the aegis of the Naval War College, Goa.

Important Points

- Twelve countries from the region will participate in the three-day conclave.
- At the conclave, Chief of Naval Staff Admiral R Hari Kumar will join his counterparts from Bangladesh, Comoros, Indonesia, Madagascar, Malaysia, Mauritius, Myanmar, Seychelles, Singapore, Sri Lanka, Maldives, and Thailand.
- As part of India's AatmaNirbharta initiative, a "Make in India Exhibition" was organised on the sidelines of the conclave wherein India's Indigenous shipbuilding industry's potential was showcased.
- The dignitaries also visited indigenous warships and witnessed the capabilities of the Deep Submergence Rescue Vessel (DSRV).

Theme

- The theme for this conclave is converting common maritime priorities into "collaborative mitigating frameworks" for the Indian Ocean Region.
- In line with the principal theme of the conclave, on the first day of the event, detailed deliberations were held on four sub-themes:
 - Identifying Gaps in Regulatory and Legal Frameworks for Achieving Maritime Security in the IOR
 - Formulation of a Common Multi-lateral Maritime Strategy and Operating Protocols for GMC Nations for Collective Mitigation of Maritime Threats and Challenges
 - Identification and Establishment of Collaborative Training Programmes with Center of Excellence across the IOR
 - Leveraging Activities Pursued Through Existing Multilateral Organisations in the IOR towards Generating Collective Maritime competencies



Conclave inclusions

- The deliberations will also focus on the formulation of a common multi-lateral maritime strategy and protocols for nations to collectively mitigate maritime threats and challenges.
- The naval chiefs and the representatives of the participating nations will discuss the prospects of joint training programs.
- As part of the conclave, visiting dignitaries will get a glimpse of Indian naval warships as well as the capabilities of the Deep Submergence Rescue Vessel.

Closing Remarks

- The Goa Maritime Conclave continues to strive to find regional solutions to the security challenges in the Indian Ocean Region and fulfil its quest of becoming an outcome-oriented forum.

Hostile Activity Watch Kernel (HAWK) system

Why in News

The Karnataka Forest Department, along with the Wildlife Trust of India, has launched the Hostile Activity Watch Kernel (HAWK) system.

Important Points

- Hostile Activity Watch Kernel (HAWK) is Cloud Based Information Management System.
- It is designed to manage interlinked databases of wildlife crime, wildlife criminals, and wildlife mortality.
- It will help officials analyze the information and develop actionable intelligence to prevent wildlife crimes and curb Illegal Wildlife Trade (IWT).
- The system also has dedicated modules to manage entire documentation procedures regarding these cases.
- The system connects the entire state forest department in real-time and the access is restricted through access levels.
- The HAWK system is a large ERP model cloud-based system that uses mobile and desktop interfaces to manage data.
- The entire HAWK system is divided into various modules which are interconnected with individual stand-alone functions. This enables the system to be scaled up or down as per the need of the state forest department and ensure customization opportunity for each state to accommodate the changes in procedures and also to accommodate the interface in regional language.
- All the data managed by the HAWK system is secured with the government and industry-standard security measures are applied to ensure data security.
- A dedicated development and training team takes care of the system development and staff trainings across the target state to support smooth implementation of the system.
- The development of HAWK started in 2017 in the state of Kerala by a joint team of Kerala Forest Department & Wildlife Trust of India.
- The system was officially launched in 2019 in Kerala and since then it is the official system of the state forest department.
- The implementation of a customized version of HAWK initiated in 2022 in Karnataka in partnership with the ICT cell of Karnataka Forest Department and the system is being implemented across the state.



Propane Supply Agreement

Why in News

GAIL (India) Ltd. has entered into a 15-year agreement with Bharat Petroleum Corp. Ltd. (BPCL) to supply propane for GAIL's upcoming petrochemical facility in Usar, Maharashtra.

Important Points

- GAIL (India) Ltd. has signed a significant 15-year agreement with Bharat Petroleum Corp. Ltd. (BPCL).
- The agreement is valued at over ₹63,000 crore.
- Under this deal, GAIL will source 600 KTPA (thousand metric tonnes per annum) of propane from BPCL's LPG import unit located in Uran, Maharashtra.

BPCL LPG Import Unit Expansion

- BPCL's LPG import unit in Uran is currently equipped with a 1 MMTPA capacity.
- However, it is undergoing expansion to handle 3 MMTPA of propane and butane imports, likely to support the increased demand for propane supply to GAIL.

GAIL's Propane Dehydrogenation Unit

- GAIL is constructing a propane dehydrogenation unit in Usar, Maharashtra. This facility is notable as it is the first of its kind in India.
- The unit is expected to commence operations in 2025.
- It will have a nameplate capacity of 500 KTPA and will be seamlessly integrated into a polypropylene plant with an equal capacity for propylene production.

Polypropylene Demand

- The project aligns with the growing demand for polypropylene in the market. It is anticipated that the demand for polypropylene will reach 6.3 million tonnes by 2025, according to a statement by GAIL.

GAIL's Diversification Strategy

- This venture is part of GAIL's diversification strategy as outlined in its annual report for FY23.
- The company emphasizes that new business initiatives are central to its strategic outlook for enhancing profitability and expanding its market reach.



Propane

- Propane is a colourless and odourless hydrocarbon gas that is widely used as fuel for various applications. It is a versatile energy source known for its clean-burning properties and efficiency.
- It is commonly used in residential settings for heating homes and as a fuel for stoves, ovens, and other cooking appliances.
- It is utilized in agricultural machinery, such as tractors and irrigation pumps.
- It is commonly used for camping stoves, lanterns, and barbecue grills due to its convenience and portability.
- Propane is favoured for its environmental benefits, as it produces fewer emissions and pollutants when burned compared to other fossil fuels like coal and oil. It's considered a "clean" energy source.
- Propane is stored and transported in liquid form under pressure, which allows for efficient storage and transportation. When needed, it can be vaporized and burned to produce heat or power.
- The primary sources of propane production include natural gas processing and crude oil refining. Additionally, it can be produced from renewable sources, such as biomass and landfill gas, making it a more sustainable option.

Project Kusha

Why in News

The "interception capabilities" of the indigenous long-range surface-to-air missile (LR-SAM) system, being developed by DRDO under the ambitious Project Kusha, will be "comparable" to the formidable Russian S-400 Triumf air defence system.

Important Points

- India's own long-range air defence system, titled 'Project Kusha', is being developed by the Defence Research and Development Organisation (DRDO).



Capability

- It will be capable of detecting and destroying enemy projectiles and armour, including cruise missiles, stealth fighter jets, and drones at long range.

Approach

- Project Kusha encompasses a multifaceted approach to enhance India's air defence capabilities.

Recent Acquisitions

- The defence ministry recently granted the much-anticipated Acceptance of Necessity (AoN) for the acquisition of five squadrons of this advanced system, designed specifically for the Indian Air Force (IAF).

Interceptor Missiles of Project Kusha

- At the heart of Project Kusha are three long-range Interceptor missiles, each serving as a critical component of India's air defence system.
- These missiles will be engineered to possess ranges of 150km, 250km, and 350km, thereby providing a comprehensive shield against aerial threats.
- Furthermore, they are designed with a remarkable single-shot kill probability of at least 85%, offering a high level of confidence in their effectiveness.

Remarkable Features of Project Kusha

- One of the remarkable features of this air defence system is the ability to increase the probability of killing to a staggering 98.5% when two different missiles are launched sequentially, with a mere five-second gap.
- This dual-missile approach ensures a robust response to aerial threats, further enhancing the nation's security.
- A pivotal aspect of Project Kusha is the development of long-range surveillance and fire control radars.
- These cutting-edge radars will possess the capability to scan airspace up to 500-600km deep into enemy territory, offering crucial strategic advantages.
- This capability empowers the Indian Air Force with the ability to monitor the entire Pakistani airspace and penetrate deep into the Tibetan plateau, where the People's Liberation Army Air Force (PLAAF) airbases are strategically located.
- The air defence system is also set to incorporate a secondary very high-frequency (VHF) radar array, a key element in the project.
- VHF radar arrays are renowned for their superior detection capabilities against stealth platforms, significantly enhancing the system's ability to identify and respond to aerial threats.

Why does India need Project Kusha?

- The need for such a project is quite high in current times with threats emerging from neighbourhood countries like Pakistan and China. The latter also uses Russia's S-400 missile system and has deployed several missile batteries across the Line of Actual Control (LAC).
- China has also accelerated the production of indigenous defence capabilities to strengthen its military. Although they are considered less capable than the S-400, nevertheless they represent a serious threat to India. Considering that China can fire missiles at India, it is pertinent that New Delhi arm itself with state-of-the-art air defence systems.
- India's relations with China have nosedived following the Galwan Valley dispute in 2020, marking the most serious military conflict between both sides. India and China's strained relationship has been fueled by recent Chinese provocations, including releasing the 2023 edition of its "standard map", staking a claim over Arunachal Pradesh, Aksai Chin region and denial of visas to Indian athletes in the Hangzhou Asian Games.
- Another thing to be taken into consideration is that China is an 'all-weather friend' to Pakistan, and might help Islamabad to strengthen the latter's defence capabilities to be used against India.
- Faced with the challenges, 'Project Kusha' is another effort by India in deterrence against a two-front conflict.

Digital Life Certificates

Why in News

The Ministry of Personnel, in collaboration with the Department of Pension and Pensioners' Welfare (DoPPW),

has launched a campaign called DLC Campaign 2.0 to enhance the “ease of living” of Central Government pensioners in India.

Important Points

- The campaign revolves around generating Digital Life Certificates (DLCs), also known as Jeevan Pramaan, for Central Government pensioners.
- A DLC serves as a way to digitally verify a pensioner's existence, ensuring they continue to receive their pension benefits.

Ease of Submission

- The initiative aims to simplify the DLC submission process for pensioners. Notably, elderly pensioners aged above 90 years and those between 80-90 years old can conveniently submit their DLCs from their homes, various locations, offices, and bank branches.

Campaign Progress

- By the end of the first week of DLC Campaign 2.0, more than 16 lakh DLCs were generated.
- Maharashtra and Uttar Pradesh emerged as leading states, contributing significantly to the campaign. In the first week alone, an estimated 4 lakh DLCs were generated.

Nationwide Reach

- The campaign's scope is extensive, covering 500 locations in 100 cities across the country.
- The target audience comprises 50 lakh pensioners from the Central Government.

Collaborative Effort

- The campaign operates through collaboration with multiple stakeholders, including 17 Pension Disbursing Banks, various Ministries and Departments, Pensioners' Welfare Associations, UIDAI (Unique Identification Authority of India), and MeitY (Ministry of Electronics and Information Technology).



Introduction of Face Authentication Technology

- To streamline the DLC submission process, a breakthrough technology was introduced. This technology relies on Face Authentication and is based on the Aadhar database.
- Pensioners can now submit their DLCs using any Android-based smartphone, eliminating the need for external biometric devices. This development occurred in November 2021, making the process more accessible and affordable for pensioners.

Awareness Campaign

- The Department of Pension & Pensioners' Welfare (DoPPW) is actively engaged in creating awareness among pensioners about the DLC-Face Authentication technique.
- Various awareness methods are employed, such as strategically placed banners and posters in offices, bank branches, and ATMs.

Assistance for Vulnerable Pensioners

- Recognizing the challenges faced by some pensioners, particularly those who are elderly, ill, or weak, bank officials are offering assistance. They visit the homes and hospitals of such pensioners to facilitate the DLC submission process.
- The campaign aims to streamline Digital Life Certificate (DLC) submissions for Central Government pensioners by utilizing innovative technology and collaborating with stakeholders. Its success is driven by nationwide outreach, collaborative efforts, and user-friendly technology, ensuring a seamless experience for all eligible pensioners.

Uttarakhand Tunnel Collapse

Why in News

The under-construction Silkyara-Barkot tunnel in Uttarakhand collapsed.

Important Points

- The 4.531 km long bi-Directional tunnel is on the Yamunotri National Highway in Uttarkashi district. It is part of the Char Dham all-weather accessibility project.
- The aim of the construction of this tunnel is to provide all weather connectivity to Yamunotri, one of the dham on Chardham Yatra, encouraging regional socio-economic development, trade and tourism within the country.

Possible causes of Failure

- A loose patch of rock: The patch might have consisted of fractured or fragile rock, that is, rock with a lot of joints that may have made it weak.
- Seepage of water: through a loose patch. Water erodes loose rock particles over time, creating a void on the top of the tunnel, which can't be seen.

Tunnels excavation Methods

- There are essentially two ways: the drill and blast method (DBM), and by using tunnel-boring machines (TBMs).
- DBM involves drilling holes into the rock and loading them with explosives. When the explosives are detonated, the rock breaks apart.
- TBMs bore the rock from the front (using a rotating head) while supporting the excavating tunnel behind the machine by installing precast concrete segments.



Difference between DBM and TBM

- Building a tunnel with a TBM is more expensive than DBM, but much safer.
- A TBM can't be used to drill through very tall mountains. It could lead to rock burst — when a part of the rock suddenly falls due to high stress. TBMs are ideal when the rock cover is up to 400 metres tall.
- Underground tunnels for the Delhi Metro were dug using a TBM at shallow depth. On the other hand, in places like Himalays, including Jammu & Kashmir and Uttarakhand, DBM is usually used.

Tunnel construction in Himalayan region

- The Himalayas are young fold mountains (they were formed between 40 million and 50 million years ago) and they are still growing due to the collision between the Indian tectonic plate and the Eurasian tectonic plate.
- There are some patches where the rock is too fragile for a tunnel. But at other places, the rock is very good.
- Tunnels do not destroy the ecology of the mountain or hill. Tunnel-building technology is around 200 years old and, if executed properly, tunnels aren't dangerous.

Key aspect of building a tunnel

- Investigation of the rock through which a tunnel is proposed to be made, by sending seismic refraction waves through the rock to check which patches are fragile or solid.
- Extraction of a core sample for petrographic analysis (microscopic examination to determine the mineral content, grain size, texture and other features).
- Monitor the spot to check the behavior of the rock at various places. It is done by instruments such as stress meters and deformations meters.
- The supports provided to the tunnel need to be tested for adequacy.

- An independent specialist geologist visits to check for probable failures. They will also determine the rock's stand-up time — the duration for which a rock can remain stable without any support. Support is given to the rock within its stand-up time.

Char Dham project

- The Char Dham project is a two-lane highway project currently under construction in the state of Uttarakhand by the Border Road Organisation.
- It will widen 900 km of highways connecting the pilgrimage sites (Kedarnath, Badrinath, Yamunothri & Gangotri) and the Tanakpur-Pithoragarh stretch of National Highway (NH) 125, a part of the Kailash Mansarovar Yatra route.

Kambala Race

Why in News

During the weekend of November 25 and 26, 160 pairs of buffaloes and their jockeys are set to race in the specially made slush tracks for Kambala races, being held at City Palace Grounds in Bengaluru.

Important Points

- Kambala is a traditional buffalo race that takes place in the coastal regions of Karnataka.
- The event is a unique and vibrant part of the local culture, deeply rooted in the agricultural traditions of the region.

Origin and History

- Ancient Tradition: Kambala has its roots in ancient farming practices where buffalo races were organized to thank the gods for a good harvest and to entertain the farming community.
- Cultural Significance: The event is not just a sport but also a cultural celebration that fosters a sense of community spirit and unity.

Event Structure

- Buffalo Pairs: Kambala involves pairs of buffaloes tethered to a plow-like device controlled by a handler, usually a farmer.
- Racing Tracks: The race takes place in muddy, water-filled tracks, often paddy fields, and the buffaloes are driven by the handlers who run alongside them.

Types of Kambala

- Pookere Kambala: In this type, the buffaloes are tied to a single plow, and the race is a straight dash.
- Baare Kambala: Here, the buffaloes are tied to a wooden plank, and the race involves two pairs of buffaloes competing side by side.

Categories of Kambala

- Kambala is typically conducted in four categories:
- Negilu (Plough): Entry-level buffalo pairs participate using lighter ploughs.
- Hagga (Rope): Jockeys race buffaloes with only a rope tied to both animals.
- Adda Halage: Participants stand on a horizontal plank dragged by buffaloes.
- Kane Halage: A wooden plank tied to buffaloes, with water gushing out through holes as it is dragged. The winner is determined by the height of the splashing water.

Kambala Events

- Kadri Kambala: One of the oldest and most popular Kambala events held near Mangalore.
- Kambala at Moodbidri: This event is known for its grandeur and attracts participants and spectators from all over Karnataka.



Recent happenings

Banning of Kambala:

- In 2014, Kambala, along with Jallikattu and bullock-cart racing, faced a ban following petitions by organizations like People for the Ethical Treatment of Animals (PETA).
- The allegations included animal abuse, particularly the tying of buffalo noses with a rope and continuous whipping during races.

Lifting the Ban:

- In January 2016, the Environment Ministry issued a notification allowing an exception for the continuation of traditional events like Kambala, recognizing their cultural significance.
- State governments amended the Prevention of Cruelty to Animals Act to provide exemptions, subject to conditions aimed at ensuring the welfare of the animals.
- A five-judge constitutional bench upheld these amendments in May of the same year, allowing Kambala and similar traditional sports to resume under specific regulations.

Caste Discrimination Controversy:

- Historically, the Koraga community faced discrimination during Kambala, with members considered 'untouchable' and mistreated during the festival.
- Critics argue that, even today, the sport is controlled by dominant caste groups, while individuals from 'lower castes' are often relegated to menial roles during the event.
- Animal Rights Concerns: Kambala has faced criticism from animal rights activists who argue that the practice is harmful to the buffaloes.
- Regulatory Measures: In response to concerns, there have been efforts to regulate the sport, ensuring the humane treatment of animals during the races.

Shan State

Why in News

Myanmar is concerned about the conflict in northern Shan State, which has affected Mandalay-based traders.

Important Points

- It is a Myanmar state.
- It shares borders with China to the north, Laos to the east, Thailand to the south, and five administrative divisions of Myanmar to the west.
- Shan State is the largest of Myanmar's 14 administrative divisions in terms of land size, with 155,800 km².
- The state takes its name from the Burmese name for the Tai people, "Shan people."
- The Shan are the bulk of the ethnic groups who live in the area.
- The Shan are Theravada Buddhists who speak and write in their own language.
- The Thanlwin River (also known as the Salween/Namkhong) runs through the state, containing Inle Lake, Myanmar's second-largest natural expanse of water.
- Shan is mostly rural, with only three major cities: Lashio, Kengtung, and the capital, Taunggyi.
- Shan State has multiple armed ethnic armies due to its diverse ethnic groups.
- While the military administration has signed ceasefire agreements with the majority of parties, extensive portions of the state, particularly those east of the Thanlwin River, remain beyond the central government's control and have come under strong ethnic-Han-Chinese economic and political influence in recent years.
- Military factions, such as the Shan State Army, dominate other areas.

India-Myanmar Relationship

- India-Myanmar relations are rooted in shared historical, ethnic, cultural, and religious
- As the land of Lord Buddha, India is a country of pilgrimage for the people of Myanmar.
- India and Myanmar relations have stood the test of time.
- The geographical proximity of the two countries has helped develop and sustain cordial relations and facilitated people-to-people contact.

- India and Myanmar share a long land border of over 1600 km and a maritime boundary in the Bay of Bengal.
- A large population of Indian origin (according to some estimates about 2.5 million) lives in Myanmar.
- India and Myanmar signed a Treaty of Friendship in 1951.
- The visit of Prime Minister Rajiv Gandhi in 1987 laid the foundations for a stronger relationship between India and Myanmar.
- A number of agreements enhancing bilateral Cooperation have been signed between the two countries.
- Institutional mechanisms for facilitating regular dialogue on a range of issues of bilateral interest have also been established.
- In 2002, the Indian Consulate General in Mandalay was re-opened and the Consulate General of Myanmar was set up in Kolkata.
- Following the cataclysmic cyclone 'Nargis' which hit Myanmar in May 2008, India responded immediately with relief materials and offers of assistance.
- India also provided assistance of US \$1 million for humanitarian relief and rehabilitation in the areas affected by the severe earthquake in Shan State in March 2011.
- Of this amount, US\$ 250,000 was provided as a cash grant to the Myanmar Government while US\$ 750,000 was utilized for the reconstruction of one high school and six primary schools in Tarlay Township that was worst affected by the earthquake.



Major Indian Projects in Myanmar

- The Government of India is actively involved in over a dozen projects in Myanmar, both in infrastructural and non-infrastructural areas.
- These include the upgradation and resurfacing of the 160 km. long Tamu-Kalewa-Kalemyo road; construction and upgradation of the Rhi-Tiddim Road in Myanmar; the Kaladan Multimodal Transport Project; etc.
- An ADSL project for high-speed data link in 32 Myanmar cities has been completed by TCIL.
- ONGC Videsh Ltd. (OVL), GAIL, and ESSAR are participants in the energy sector in Myanmar.
- M/s RITES is involved in the development of the rail transportation system and in the supply of railway coaches, locos, and parts.
- In September 2008, the Ministry of Electric Power-1 (MoEP-1) and NHPC signed an agreement for the development of the Tamanthi and Shwezaye Hydro-Electric Power project in Chindwin River valley and NHPC submitted the updated DPR on Tamanthi and is working on the DPR on the Shwezaye project.
- A heavy turbo-truck assembly plant set up in Myanmar by TATA Motors with GOI financial assistance was inaugurated on December 31, 2010.
- An India-Myanmar Industrial Training Centre has been set up by HMT(I) in Myanmar with the assistance of GOI in Pakokku, a second center is being set up in Myingyan, while the Myanmar-India Centre for English Language (MICELT), a Myanmar-India Entrepreneurship Development Centre (MIEDC) and an India-Myanmar Centre for Enhancement of IT Skills (IMCEITS) are all operational.

- Other projects include revamping of the Ananda Temple in Bagan, the upgradation of the Yangon Children's Hospital and Sittwe General Hospital, the erection of disaster-proof rice silos etc.
- India has also assisted in the reconstruction of 1 high school and 6 primary schools in Tarlay township, the area worst affected by the severe earthquake that struck north-eastern Myanmar in March 2011.

Commercial and Economic Relations

- Bilateral trade has expanded significantly from US\$ 12.4 million in 1980-81 to US\$ 1070.88 million in 2010-11.
- India's imports from Myanmar are dominated by agricultural items (beans, pulses, and forest-based products form 90% of our imports).
- India's main exports to Myanmar are primary and semi-finished steel and pharmaceuticals.

Border trade

- India and Myanmar signed a border trade agreement in 1994 and have two operational border trade points (Moreh-Tamu and Zowkhatar –Rhi on the 1643 km long border.
- A third border trade point is proposed to be opened at AvakhungPansat/Somrai.
- With an estimated border trade of US\$ 12.8 mn(2010-11), major items bought by Myanmar traders from the Indian side are cotton yarn, auto parts, soya bean meal, and pharmaceuticals, (reports also about the smuggling of items like fertilizers, vehicles particularly two wheelers, etc.); betel nut, dried ginger, green mung beans, turmeric roots, resin, and medicinal herbs are the main items sold from Myanmar to India.
- During the 3rd India-Myanmar Joint Trade Committee in October 2008, it was agreed that Border Trade at the existing points would be upgraded to Normal Trade so as to promote bilateral trade between the two countries.

Training Programme

- Myanmar is a beneficiary of training programs under ITEC, TCS of Colombo Plan, GCSS and MGCSS schemes.
- The slots for Myanmar trainees in 2011-12 were as follows: ITEC 185; TCS –75; GCSS of ICCR – 10 and MGCSS - 10. Utilization has been excellent.
- In 2011-12 also, the interest levels were high. We have also offered training to two sets of local journalists who were given intensive training at IIMC, New Delhi by the XP Division.

Indian Diaspora

- The origin of the Indian community in Myanmar is traced back to the mid-19th century with the advent of British rule in Lower Burma in 1852.
- The two cities of Myanmar namely, Yangon (former Rangoon) and Mandalay had a dominating presence of Indians in various fields such as civil services, education, trade & commerce during the British rule.
- According to the 1983 official census of Myanmar, the number of PIOs in Myanmar is 428,428 and the estimated number of stateless PIOs is 250,000.
- A large number of the Indian community (nearly 150,000) live in Bago (Zeyawaddy & Kyautaga) and Tanintharyi Regions and Mon State and are primarily engaged in farming.
- The NRI families in Myanmar mainly live in Yangon and are engaged in export-import business or are employees of MNCs based in India, Singapore, and Thailand.

1:G20 for the planet, people, peace and prosperity

- India's G20 presidency has marked a significant milestone in its global leadership role.
- With, India taking the presidency for the first time, it focuses on various issues like inclusive growth, digital innovation, climate resilience, and equitable global health access.
- The New Delhi Leaders' Declaration adopted in G20 summit, represents a fundamental shift in focus, from conflict and division to development and cooperation.
- India fostered collaborative solutions that not only benefit its own population but contribute to the broader global well-being, reinforcing its spirit of Vasudhaiva Kutumbakam' or the World is One Family.
- The G20 countries collectively represent two-thirds of the world's population, contribute to 85% of the global Gross Domestic Product (GDP), and account for 75% of international trade.



New Delhi Leaders Declaration

- The Declaration commits to addressing skill gaps, promoting decent work, and accessing to opportunities and resources to achieve sustainable development.
- In the fight against corruption, the Declaration reiterates a steadfast commitment to fostering transparency, accountability, and integrity in both public and private sectors, emphasizing the need for collaborative efforts to curb this global challenge.
- India's G20 presidency recognised the profound impact of climate change on health and established a Global Initiative on Digital Health to address evolving health challenges.

Accelerating Progress on the SDGs

- The Sustainable Development Goals (SDGs) are a set of 17 global goals established by the United Nations in 2015 to address various social, economic, and environmental challenges facing the world.
- The latest UN SDG Report reveals that only 12% of SDG targets are on track, while 30% have stagnated or regressed since 2015.
- The Post-Covid recovery poses additional challenges, with global economic conditions marked by high inflation, tight monetary policies, restrictive credit, and mounting debt distress in many developing nations.
- The 'G20 2023 Action Plan to Accelerate Progress on the SDGs' is a milestone achievement, promoting equitable, strong, sustainable, and inclusive economic growth while addressing challenges like access to finance and technology.



Technological Transformation and Digital Public Infrastructure

- Technological transformation and digital public infrastructure are integral components of the ongoing global shift towards a more digitally connected and efficient society.
- The profound influence of digital public infrastructure (DPI) in India is unmistakable with some of its successful endeavors like digital payments, Co-Win, DigiLocker and Direct Benefit Transfers (DBT).
- The G20 Framework for Digital Public Infrastructure, enabling nations worldwide to embrace, develop, and scale similar DPI systems.

Gender Equality and Empowering All Women and Girls

- The New Delhi Leaders' Declaration (NDLD) is multifaceted, encompassing various aspects of human-centric development and leaving no one behind.
- The G20 is championing women-led development, economic and social empowerment, gender inclusive climate action, and women's food security.
- This commitment is reflected in the establishment of the Women's Working Group, with its inaugural meeting scheduled during the Brazilian Presidency, marking a significant step towards gender equality and women-led development.

2. Designing a circular economy world

- A circular economy is an economic system that minimizes waste by maximizing resource use.
- Unlike the traditional linear economy, which follows a "take, make, dispose" model, a circular economy aims to keep products, materials, and resources in use for as long as possible.
- It involves continual reuse, repair, remanufacture, and recycling of products and materials to maximize their lifespan and minimize environmental impact.

Goal of circular Economy

- The primary aim of circularity is to mitigate the adverse environmental and socio-economic effects of unsustainable consumption and production.
- This involves reducing environmental degradation and greenhouse gas emissions caused by consumption.
- Circular practices also focus on avoiding and minimizing waste generation.
- Embracing a circular economy offers societal benefits by fostering the creation of green jobs and opportunities for circular businesses.

UNEP report

- A UNEP report reveals that fashion consumption has doubled in the last 15 years, but the number of times a garment is worn before disposal has decreased by 36%.
- Shockingly, every second sees the disposal of the equivalent of a garbage truck full of clothes, totaling an estimated value of \$460 billion globally.
- Despite these trends, the fashion industry is not making significant progress towards circularity. Urgent action is required across the textile value chain to enhance the sustainability of the current fashion industry.

Enhanced focus of G20 nations

- The G20, under India's presidency, adopted High-Level Principles on Lifestyles for Sustainable Development, emphasizing the importance of commitments to advance sustainable consumption and production.
- The High-Level Principles, along with the G20 Environment and Climate Ministers Meeting outcome document, recognize the vital role of the circular economy and resource efficiency in attaining sustainable development.
- The government is particularly emphasizing the significance of the circular economy, resource efficiency, and sustainable consumption and production.
- The ongoing shift to manufacturing-led growth in India presents a significant opportunity to incorporate circular economy approaches in the manufacturing sectors.
- As per the latest reports, the transition to circular economic growth can generate a net economic benefit of approximately an annual value of USD 624 billion in India by 2050.

Government of India's measure

- Some of the initiatives undertaken by India towards the efficient use of resources and circular economic

growth include:

- a) Draft National Resource Efficiency Policy (2019)
- b) Steel Scrap Recycling Policy, the Vehicle Scrapping Policy
- c) The Plastic Waste Management Rules 2016 include guidelines for Extended Producer Responsibility (EPR) on plastic packaging. These guidelines offer a framework to enhance the circular economy for plastic packaging waste, enabling businesses to adopt sustainable practices.
- India launched the Resource Efficiency and Circular Economy Industry Coalition, during the 4th G20 Environment and Climate Sustainability Working Group (ECSWG) and Environment and Climate Ministers meeting in July 2023.

3. DPI and public participation

- Digital Public Infrastructure (DPI) is a digital network that enables countries to safely and efficiently deliver economic opportunities and social services to all residents.
- DPI can be compared to roads, which form a physical network that connects people and provides access to a huge range of goods and services.
- The G20 Leaders' Declaration under India's Presidency on Technological Transformation and Digital Public Infrastructure underlines the central role that technology plays in bridging digital divides and cultivating inclusive and sustainable development.

DPI in India

- The G20 India Presidency revolved around the theme of Vasudhaiva Kutumbakam, meaning 'One Earth, One Family, One Future.'
- In line with this vision, India plans to build and maintain a Global Digital Public Infrastructure Repository (GDPIR), a digital storage of DPI.
- In India, the adoption of Digital Public Infrastructures (DPIs) such as Aadhaar, Jan Dhan bank accounts, and Mobile phones has significantly shifted ownership of transaction accounts.
- The JAM Trinity, comprising these elements, has rapidly increased financial inclusion from 25% in 2008 to over 80% in the past six years.
- The G20 New Delhi Leaders' Declaration underscores the importance of safe, secure, and inclusive DPI, aligning with India's successful implementation of Aadhaar and the JAM Trinity to boost financial inclusion.

Government-to-Person programmes & Unified Payments Interface

- India has built one of the world's largest digital Government-to-Person (G2P) architectures using Digital Public Infrastructures (DPI).
- This system has enabled the direct transfer of around Rs 32.29 trillion to beneficiaries across 53 Central Government ministries through 313 key schemes to date.
- India's Unified Payments Interface (UPI) serves as a rapid and instantaneous payment network within the country, registering over 10.586 billion transactions totaling around Rs 15.76 trillion in August 2023.
- The UPI-Pay Now initiative linking India with 11 countries (France, Singapore, Australia, Canada, Hong Kong, Oman, Qatar, the USA, Saudi Arabia, the UAE, and the United Kingdom) aligns with the G20's emphasis on financial inclusion.



Key Initiatives

- a. Digital India Initiative & BharatNet Project: The Digital India initiative launched in 2015, is in line with the G20's pledge to address the digital divide. It emphasizes the development of digital infrastructure and the promotion of digital literacy.
- b. Pradhan Mantri Jan Dhan Yojana (PMJDY): PMJDY has significantly contributed to financial inclusion and digital adoption, key priorities in the G20's emphasis on public participation.

- c. Make in India: The Make in India initiative has bolstered India's self-reliance in technology, reducing dependency on imports. This aligns with the G20's focus on innovation, technology transfer, and fostering a secure digital environment.
- d. Startup India: Startup India has nurtured entrepreneurship and innovation, which is in line with the G20's commitment to promoting responsible and inclusive use of digital technology, including 99,380 DPIIT recognised startups and a user base of 664,486 on the Startup India Portal, it provides crucial support to startups, including access to funding, mentorship, and — regulatory reforms.
- e. Smart Cities Mission: While primarily an urban development initiative, the Smart Cities Mission integrates digital infrastructure components, aligning with the G20's emphasis on building DPI.

4. USE OF AI

- Responsible use of AI involves ensuring that artificial intelligence technologies are developed, deployed, and managed in ways that prioritize ethical considerations, fairness, transparency, accountability, and the well-being of individuals and society.
- The New Delhi Leaders Declaration highlights the significance of harnessing AI responsibly for good and for all.

G20 New Delhi Responsible AI Leaders' Declaration

- The New Delhi Leaders' Declaration highlights the significance of harnessing 'AI responsibly for good and for all'.
- It states that the G20 leaders are committed to leveraging AI for the public good by solving challenges in a responsible, inclusive, and human-centric manner, while protecting people's rights and safety.
- It adds that to ensure responsible AI development, deployment and use, the protection of human rights, transparency and explain ability, fairness, accountability, regulation, safety, appropriate human oversight, ethics, biases, privacy, and data protection must be addressed.
- The declaration also reaffirms the leaders' commitment to G20 AI Principles of 2019.
- The recently concluded G20 Summit in New Delhi has tackled multiple aspects related to Responsible AI (RAI).

Global practice on AI

- The G20 Osaka Summit in 2019 underline discussions on addressing the "Global Economy, Trade and Investment," "Innovation (Digital Economy and Artificial Intelligence (AI))," "Inequalities and Inclusive and Sustainable World".
- Most of the G20 members have been working towards establishing regulations for the responsible use of AI, especially since the advent of GenAI applications.
- The European Union's proposed AI Act is the most comprehensive attempt to establish a regulatory framework for the responsible development of AI that focuses primarily on strengthening rules around data quality, transparency, human oversight, and accountability.
- AI and Ethical Risks
- Artificial Intelligence (AI) presents various ethical risks and challenges that need careful consideration and management.
- According to the AIAAIC (AI, Algorithmic, and Automation Incidents and Controversies) database, which tracks incidents related to the ethical misuse of AI, the number of AI incidents and controversies has increased 26 times since 2012.
- Several critics of AI have also raised concerns about gender and racial bias when it comes to the application of AI to services like healthcare and finance.
- There are concerns regarding the misuse of AI in the defence domain to enhance targeting and surveillance capabilities of drones on the battlefield.
- In the cybersecurity sphere, generative AI applications are increasingly posing legitimate security threats as they are being used to conduct malware attacks.

Responsible AI

- Responsible AI refers to the ethical and responsible development and use of artificial intelligence (AI) systems.

- It involves considering the potential impact of AI technologies on individuals, society, and the environment, and taking steps to ensure that these technologies are developed and deployed in a way that aligns with ethical principles and values.
- These dynamics have created the necessity for the Responsible AI (RAI) and the need to regulate it.
- RAI is broadly understood as the practice of designing, developing, and deploying AI to empower employees and businesses and impact society in a fair manner.

5. ENERGY TRANSITION IN INDIA

- The term “energy transition” refers to a significant shift in the way societies produce, distribute, and consume energy.
- The primary goals of an energy transition are to address environmental concerns, reduce dependence on finite and polluting energy sources, and promote long-term sustainability.
- India’s journey from conventional to renewable sources of electricity generation marks a monumental step towards a sustainable energy future.

Need for Energy Transition

- For decades, the energy sector has heavily depended on fossil fuels such as coal, oil, and natural gas for power and economic development.
- Yet, this reliance has resulted in substantial environmental and social consequences.
- The burning of fossil fuels releases greenhouse gases into the atmosphere, contributing to global warming and climate change.
- As a signatory to the Paris Agreement, India has committed to reducing its carbon emissions and playing its part in combating climate change.

Government measures

- The Government of India has demonstrated a firm dedication to promoting the uptake of renewable energy through extensive policies and initiatives.
- The National Action Plan on Climate Change (NAPCC), introduced in 2008, laid the groundwork for the country’s sustainable development goals.
- Under the NAPCC, several national missions were launched, each focusing on a specific sector that contributes to climate change mitigation and adaptation.
- Among these missions, the launch of the National Solar Mission in 2010 has been a watershed moment in the renewable energy story of the country.
- The mission aimed to promote the deployment of solar energy technologies and reduce the cost of solar power generation.

India’s achievement

- Today, India has the 4th highest installed Renewable Energy capacity globally.
- India also ranks 4th in terms of global wind and bioenergy installed capacity, while it ranks 5th in solar installed capacity, closely following Germany.
- During the last five years (2017- 22), a Renewable Energy capacity of 63 GW has been added, which is the 3 highest globally during that period.
- In the last five years, 70 GW of solar projects and 21 GW of wind projects (including hybrid projects) have been bid out.
- Green Open Access and Green Power Markets have also been introduced to help in the evacuation of power generated through renewable energy sources.
- The Government has also launched the National Green Hydrogen Mission (NGHM) in January 2023 with a target of 5 MMTPA production capacity by 2030.
- Over 32,000 individuals have been trained in the solar sector through the Suryamitra program. Initiatives like Vayumitra for wind power and Jal-Urjamitra for small hydro plants have been introduced, with ongoing training programs in place.



Chapter- 11

Kurukshetra December 2023

1: Nurturing sports talent in rural India

- Sports talent in rural India is abundant, and there are many untapped potential athletes in these areas.
- In rural India, sports talent is a significant but often underutilized resource while urban areas tend to have better infrastructure and resources for sports development, rural regions boast a wealth of untapped potential.
- There are several instances of sports, including archery, wrestling, horse-riding, and chariot racing, throughout our epics like the Ramayana and the Mahabharata.

Government's Initiatives

- The Government of India has embarked on a relentless journey to promote sports in rural areas, recognising that the potential for sporting excellence knows no geographical boundaries.
- In recent years, the government has taken several initiatives such as the Khelo India Scheme, TOPS Scheme, etc. to build India as a sporting nation with a great amount of emphasis on the rural areas.
 - Khelo India Scheme: One of the major schemes of the Union Government is Khelo India Scheme which is being implemented by the Ministry of Youth Affairs and Sports through its five verticals, which promote sports in the entire country including the rural areas.
- Khelo India is the basic platform to showcase sporting skills and spot talent at the national level. It also provides development pathways for gifted and talented children to achieve excellence. Additionally, the scheme offers pathways to budding sportspersons by providing nationwide platforms.
 - Sansad Khel Mahakumbh: Sansad Khel Mahakumbh was launched in June 2019. The initiative witnessed matches with participation from over 1400 teams, 42,700 youth across sports disciplines such as Basketball, Volleyball, Football, Kabaddi and Cricket. The initiative involved athletes hailing from 20 blocks, 800 panchayats and over 5000 villages.

Need for development of Sports Infrastructure

- Sports form an important pillar of India's holistic growth.
- The development of sports infrastructure in India is crucial for several reasons, encompassing social, economic, and health-related aspects.
- Improving the available sports infrastructure or building new is a prime focus area of the Central Government.
- 'Creation and Upgradation of Sports Infrastructure' is a critical aspect of the Khelo India Scheme, which aims at overall transformation of the sports infrastructure throughout the country.
- Funds are being allocated for the development of sports infrastructure in urban, semiurban, and rural areas.

Sports combatting drug abuse

- Youth in sports bring socioeconomic benefits and act as a powerful deterrent against drug abuse in rural areas.
- Investing in sports not only develops skilled athletes but also fosters responsible, resilient, and drug-free individuals who contribute meaningfully to society.
- The Prime Minister insisted that the athletes should raise awareness among the youth about the evils of drugs and how they can ruin careers and lives.
- The Government strives to empower youth by collaborating with local authorities to promote a healthy lifestyle, laying the groundwork for the development of robust and healthy citizens.



Women participations in Asian Games



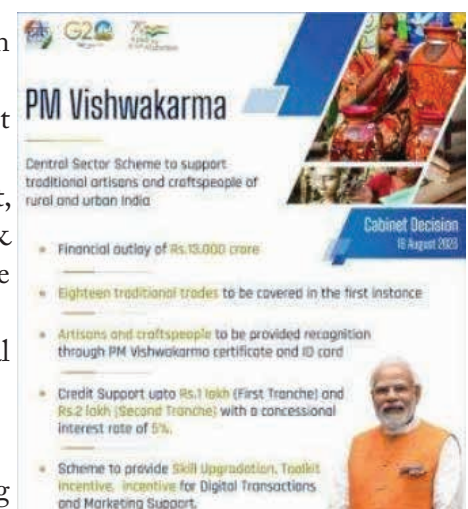
- The 2022 Asian Games marked a historic achievement for India, securing its highest-ever medal tally of 107 in 60 years, including a 75% increase in gold medals compared to the 2018 Asian Games.
- The 'Sports for Women' component of the Khelo India Scheme aims for a comprehensive approach towards awareness about health and fitness thereby promoting sports among women.
- The 'ASMITA Women's League,' under this component of the Khelo India Scheme is a remarkable initiative, which involves sporting leagues in different disciplines across the country that encapsulates the spirit of resilience, determination, and achievement among women athletes in India.

2. PM vishwakarma yojana

- The Prime Minister had launched the PM Vishwakarma Yojana in September 2023.
- PM Vishwakarma truly exemplifies the "Whole of the government approach".
- Three departments or ministries of the Central Government, viz. the Ministry of MSME, Ministry of Skill Development & Entrepreneurship, and the Department of Financial Services, have converged as coimplementers of the scheme.
- The aim of the scheme is to support the people engaged in traditional crafts.

Features and Objective

- PM Vishwakarma envisages empowering the artisans by providing them with Certificates and ID cards as recognition as Viswakarma, collateral-free loans, skill development support, marketing support, incentives for digital transactions, and toolkit support.
- This objective is driven by the desire to support the artisans and craftspeople financially as well as to keep the age-old traditions and diverse heritage alive through local products, art and Crafts.



- The scheme also aims at improving the quality, as well as the reach of products and services of artisans and craftspeople and to ensure that the Vishwakarmas are integrated with the domestic and global value chains.

Eligibility

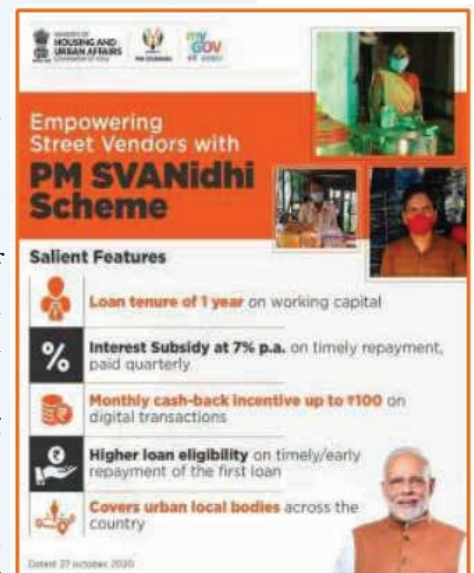
- An artisan or craftsman, aged 18 years or older, working with their hands and tools and engaged in one of the 18 family-based traditional trades, provided they have not availed loans under similar credit-based schemes of the Central Government or State Government.
- Further, the registration shall be restricted to one member of the family, and a person in government service and his/her family members will not be eligible under the scheme.

Trades Covered

- Under the PM Vishwakarma scheme, the traditional trades covered are Carpenter (Suthar/Badhari), Boat Maker, Armourer, Blacksmith (Lohar), Hammer and Tool Kit Maker, Locksmith, Goldsmith (Sonar), Potter (Kumhaar), Sculptor (Moortikar, stone carver), Stonebreaker, Cobbler (Charmkar)/ Shoemaker/Footwear artisan, Mason (Rajmistri), Basket/Mat/ Broom Maker/Coir Weaver, Doll & Toy Maker (Traditional), Barber (Naai), Garland Maker (Malakaar), Washerman (Dhobi), Tailor (Darzi), and Fishing Net Maker.
- These trades in rural areas help generate small economies, contributing to the development of the rural economy.

Benefits

- Recognition: Recognition of artisans and craftspeople through PM Vishwakarma certificate and ID card.
- Skill Upgradation: Basic Training of 5-7 days and Advanced Training of 15 days or more, with a stipend of Rs. 500 per day;
- Toolkit Incentive: A toolkit incentive of upto Rs. 15,000 in the form of e-vouchers at the beginning of Basic Skill Training.
- Credit Support: Collateral free 'Enterprise Development Loans' of upto Rs. 3 lakh in two tranches of Rs. 1 lakh and Rs. 2 lakhs with tenures of 18 months and 30 months, respectively, at a concessional rate of interest fixed at 5%, with Government of India subvention to the extent of 8%. Beneficiaries who have completed Basic Training will be eligible to avail the first tranche of credit support of upto Rs. 1 lakh. The second loan tranche will be available to beneficiaries who have availed the 1st tranche and maintained a standard loan account and have adopted digital transactions in their business or have undergone Advanced Training.
- Incentive for Digital Transaction: An amount of Re. 1 per digital transaction, upto maximum 100 transactions monthly will be credited to the beneficiary's account for each digital pay-out or receipt.
- Marketing Support: Marketing support will be provided to the artisans and craftspeople in the form of quality certification, branding, onboarding on e-commerce platforms such as GeM, advertising, publicity, and other marketing activities to improve linkage to value chain.



Existing Artisan related scheme under implementations

- The National Handicraft Development Programme and the National Handloom Development Programme implemented by the Ministry of Textiles focus on handicraft and handloom artisans, respectively.
- PM SVANidhi scheme, implemented by the Ministry of Housing and Urban Affairs, under which collateral-free working capital loans with interest subsidies and incentives for digital transactions support are provided to street vendors/ hawkers vending in urban areas.
- Upgrading Skills and Training in Traditional Arts/Crafts for Development (USTTAD), implemented by the Ministry of Minority Affairs, provides support for the upgrading of skills and training. However, this scheme is exclusively for artisans belonging to minority communities.
- The Jan Shikshan Sansthan (JSS) Scheme of the Ministry of Skill Development and Entrepreneurship and Rural Self-Employment Training Institute (RSETI) scheme of the Ministry of Rural Development are other central sector schemes whose main focus is imparting basic and advanced training to targeted beneficiaries.

3. Developing talent in healthcare

- Healthcare in India is a complex and multifaceted system that faces both opportunities and challenges.
- India has a dual healthcare system, with both public and private sectors.
- Developing talent in India's healthcare sector is crucial for ensuring the delivery of high-quality and accessible healthcare services to its large and diverse population.
- Recent reports indicate that India has only about 0.65 physicians and 1.3 nurses per 1,000 people, testifying to a shortage of skilled healthcare workers.
- There is an urgent need to tap the human potential, especially of rural youth and women, to overcome these shortages.

Addressing healthcare demands

- India requires an additional 1.54 million doctors and 2.4 million nurses to address rising healthcare demands.
- The Government led Initiatives like Ayushman Bharat are expected to further boost the demand for healthcare professionals in both major cities and smaller towns/villages.
- There is an urgent need to enhance the numbers of trained health personnel across various categories to achieve at least 2.5 doctors and 5 nurses per 1,000 people by the year 2023-24.
- The National Health Policy advocates for bolstering medical education and establishing midlevel healthcare providers.
- NITI Aayog's New India@75 strategy targeted the creation of 1.5 million jobs in the public health sector by 2022-23.

Government's Policy measures

- The Ministry of Skill Development and Entrepreneurship (MSDE), ever since its inception in 2014, has been diligently working nationwide to narrow the disparity between demand and supply in the skill sector.
- Special Training Programme: MSDE is conducting a Special Training Programme with customised crash courses for nearly one lakh frontline workers which include:
 - e Fresh skilling of the candidates in six healthcare sector job roles, such as Basic-care support, Homecare support, Advanced-care support, Emergency care support, Sample collection support, and handling of the Medical equipment support (short term training; duration: 21 days) .
 - Up-skilling for the candidates with prior experience/ prior learning (duration: up to 7 days).
 - Training of the drivers in handling/transportation of the life support medicines/equipment, etc.
- Pradhan Mantri YUVA (PM-YUVA) Yojana: Pradhan Mantri YUVA Yojana (Yuva Udyamita Vikas Abhiyan) is a centrally sponsored Scheme on entrepreneurship education and training being implemented by the Ministry of Skill Development and Entrepreneurship, Government of India. The Scheme aims at creating an enabling ecosystem for Entrepreneurship development through Entrepreneurship education and training; Advocacy and easy access to entrepreneurship support network and promoting social enterprises for inclusive growth.
- Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDUGKY): It is an initiative of the Ministry of Rural Development) aims at skilling the rural poor youth and providing them with regular monthly-wage jobs. It is a part of the National Rural Livelihood Mission — Agjeevika aimed at poverty reduction and is expected to benefit more than 550 lakh individuals. DDU-GKY is designed to provide high-quality skill training opportunities to the rural poor, and also to establish a larger ecosystem that supports trained candidates to secure a better future.

4. Encouraging micro-entrepreneurship

- Micro-entrepreneurship refers to a form of small-scale business or entrepreneurial activity that typically involves a low level of investment, a small number of employees (often one person), and a focus on meeting local or niche market needs.
- Micro-entrepreneurs are individuals who start and operate small businesses, often working as sole proprietors or with a small team.



Scope of Micro-Entrepreneurship

- The scope of micro-entrepreneurship is diverse and can vary across different industries and regions.
- A microbusiness typically begins with some type of funding, such as microcredit or microfinance.
- Micro-businesses are typically associated with emerging nations and economies and try to fill the void left by the lack of jobs in the official sector.
- In addition to creating jobs, they also cut production costs, boost purchasing power, and offer convenience, all of which benefit the economy.
- Micro-entrepreneurs often require minimal initial capital to start their businesses.

Merits of Micro-Entrepreneurship

- **Job Creation:** Micro-businesses that hire staff or engage in contract work play a vital role in job creation, fostering local economic growth, and reducing unemployment.
- **Innovation:** Small firms regularly bring new goods, services, and concepts to the market. Microentrepreneurs are often more agile and innovative than larger companies. They can quickly experiment with new ideas and adapt to changing market demands.
- **Local Economic Growth:** Micro-businesses boost the local economy by supporting nearby suppliers, hiring residents, and generating tax revenue for community improvement. They play a vital role in job creation and provide essential goods and services to the local community.
- **Self-reliance:** Micro-businesses wield more control over their financial destinies, steering clear of reliance on big corporations or traditional job structures. This independence fosters a powerful sense of empowerment.
- **Diverse Offerings:** Micro-firms focus on niche markets, offering specialized products or services not provided by larger companies. This diverse micro-entrepreneurship enhances customer choice and competition across various industries, allowing individuals to explore opportunities aligned with their skills and interests.
- **Government's Scheme**
- **ASPIRE:** A Scheme for Promotion of Innovation, Rural and Entrepreneurship: It was launched to set up incubation centres and network of technology centres for enhancing entrepreneurship across India. It seeks to promote start-ups for innovation in the agro-industry. It provides financial support for the construction of livelihood business incubators and/or technology business incubators by way of a one-time grant of 100% of the cost of equipment and machinery (apart from land and infrastructure), India whichever is smaller.
- **Pradhan Mantri Mudra Yojana:** The Micro Units Development and Refinance Agency Ltd. (MUDRA) is a non-banking financial institution that facilitates the growth of the micro enterprise market in India. Through this scheme, MUDRA provides refinancing assistance to banks and microfinance organizations extending loans to microunits with funding needs up to Rs. 10 lakhs. The scheme categorizes loans into Tarun, Kishore, and Shishu based on factors such as the enterprise's stage of development, finance requirements, age, and loan amount.
- **Support for International Patent Protection in Electronics and Information Technology (SIP-EIT):** The SIP-EIT programme was launched by the Department of Electronics and Information Technology ('DeiTY') with the goal of providing government support to Indian micro, small, and medium-sized businesses ('MSME') and technology startups for filing foreign patent applications. The initiative aims at the development and innovation of products and services and increasing the employment rate in India.
- **Multiplier Grants Scheme (MGS):** The Multiplier Grants Scheme is being implemented by the Department of Electronics and Information Technology (DeiTY). It was brought into effect to promote industries by collaborating with state of the art Academic and Government R&D institutes, who are engaged in the activity of developing products/packages.
- **Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE):** It is a trust established by the Government of India in 2000, under the Ministry of Micro, Small and Medium Enterprises (MSME) and



Small Industries Development Bank of India (SIDBI). The CGTMSE scheme offers credit guarantees to financial institutions that offered credit facilities up to Rs. 2 crores have now been raised to Rs. 5 crores. CGTMSE scheme offers credit guarantees from 75% to 85% to MSEs across India. It provides loans at considerably discounted rates and without the need for collateral to start-ups, small businesses, and microfirms.

- Single Point Registration Scheme (SPRS): It is a start-up scheme backed by NSIC to focus on the advancement of the MSME sector of the country. This plan was designed to boost the number of purchases made in the small-scale sector.

5. Integrating technology into rural education

- Rural education and capacity building are critical components for the overall development of rural areas.
- These initiatives aim to enhance the knowledge, skills, and capabilities of individuals and communities in rural areas, thereby empowering them to address challenges, seize opportunities, and improve their quality of life.
- Over the years, India has made significant progress towards achieving universalisation of elementary education.

Approach of NEP 2020

- The introduction of the National Education Policy 2020 (NEP), has emerged as a game-changer, promising to bridge the educational divide and empower students in remote areas.
- The primary objective of NEP 2020 is to bridge the gap between rural and urban areas by emphasizing access, equity, quality, affordability, and accountability.
- The policy also envisages a wider and more intensive role for the use of technology for the purposes of improving teaching-learning and evaluation processes, teachers' professional development, enhancing educational access, streamlining educational planning, management, and administration.
- It gives utmost priority to recognising, identifying, and fostering unique capabilities to promote each student's holistic development.

Nurturing talent of students

The NEP 2020 aims to focus on holistic development and critical thinking of students. It promotes experiential learning, creativity, and problem-solving skills, enabling rural students to develop a wellrounded personality. Few initiatives are given below:

- Pradhan Mantri Innovative Learning Programme- DHRUV has been started by Ministry of Human Resource Development, Government of India to identify and encourage talented children to enrich their skills and knowledge. In Centres of excellence across the country, gifted children will be mentored and nurtured by renowned experts in different areas, so that they can reach their full potential.
- Samagra Shiksha: The Samagra Shiksha scheme is an integrated scheme for school education covering the entire gamut from pre-school to class XII. The scheme treats school education as a continuum and is in accordance with Sustainable Development Goal for Education (SDG-4). The scheme not only provides support for the implementation of the Right of Children to Free and Compulsory Education Act, 2009 but has also been aligned with the recommendations of National Education Policy (NEP) 2020.
- Ek Bharat Shreshtha Bharat (EBSB): Ek Bharat Shreshtha Bharat programme aims to enhance interaction & promote mutual understanding between people of different states/UTs through the concept of state/UT pairing. The states carry out activities to promote a sustained and structured cultural connect in the areas of language learning, culture, traditions & music, tourism & cuisine, sports and sharing of best practices, etc.
- The National Talent Search Scheme (NTSE) of the National Council of Educational Research and Training (NCERT) identifies and nurtures students selected through a two-tier process every year. The scheme helps talented students by providing financial assistance in the form of monthly scholarships and conducts nurturing programmes for them.

Technological Interventions to Enhance the Ecosystem

- Enhancing the scope of ICT under Samagra Shiksha: Samagra Shiksha, India's largest centrally sponsored

school education scheme, promotes e-content development for teachers and students. It supports ICT and smart classrooms in government and aided schools across states and UTs. The program provides financial aid for creating e-content through Digital Infrastructure for Knowledge Sharing (DIKSHA).

- **Robust system of database - UDISE+:** UDISE+ is an enhanced and online version of UDISE, actively gathering real-time data since 2018-19. It offers credible information for objectively evaluating the education system, enabling evidence-based interventions for school education improvement. Utilizing an online Data Collection Form (DCF), UDISE+ captures data on various parameters such as students, schools, teachers, infrastructure, enrolments, and examination results.
- **Performance Grading Index (PGI) 2.0:** PGI 2.0, launched in 2017, aligns with NEP 2020 and monitors SDG Goal 4. It is a tool to provide insights on the status of school education and to catalyze transformational change in the States/ UTs based on key indicators that drive their performance and critical areas for improvement.
- **NDEAR (National Digital Education Architecture):** NDEAR aims to build a national digital infrastructure to invigorate the education ecosystem, aligned with the goals of NEP 2020. It focuses on fostering innovation, ensuring autonomy, and engaging all stakeholders in the education sector.
- **Vidya Samiksha Kendra:** The Ministry of Education has introduced Vidya Samiksha Kendra to bolster administrative efficiency through real-time data insights. This initiative employs data and technology to significantly improve learning outcomes by integrating information from students, teachers, and school registries. By utilizing big data analysis, artificial intelligence, and machine learning, the program aims to enhance overall education system monitoring and bridge the gap between students, teachers, and parents.
- **Virtual Labs:** It was launched in July, 2022, on DIKSHA, this initiative transforms learning into an experiential journey for both students and educators. Through online simulators, learners actively engage in 218 virtual lab experiments, moving beyond traditional methods. The usage report reveals 98,804 plays, totaling 1,49,329 minutes playtime on DIKSHA to date.
- **PM e-Vidya DIKSHA:** PM e-vidya was launched during the time of pandemic and is one such comprehensive initiative that ensures coherent access to digital education through a multimodal approach. The digital platform of MoE 'DIKSHA' has been declared as 'One Nation, One Digital Platform'. DIKSHA, accessible to learners and teachers nationwide, offers a wealth of curriculum-linked e-content through various solutions like QR code.



Capacity Building of Teachers

- The NEP 2020 emphasizes empowering teachers with defined roles, expertise levels, and required competencies. It mandates a minimum of 50 hours of yearly Continuous Professional Development (CPD) for each teacher.
- The National Initiative for School Heads' and Teachers' Holistic Advancement (NISHTHA) is a comprehensive training program addressing recommended areas for the holistic development of teachers.

NISHTHA Progress

- In 2019-20, NISHTHA elementary began with face-to-face sessions. Due to the Covid pandemic, NISHTHA online was introduced on the DIKSHA platform in October 2020 for continuous learning, reaching elementary teachers.
- Approximately 24 lakh teachers and head teachers in elementary education (Classes 1-8) across 33 States/ UTs completed training and received certification.
- Subsequently, NISHTHA programs for Secondary, Foundational stage, and training of master trainers for Early Childhood Care and Education (ECCE) have been launched to enhance teacher capacities at all levels.
- In addition to this, Teachers have also been provided training to use ICT in teaching learning process, learner centric pedagogy, and developing high-quality online content using online teaching platforms and tools.

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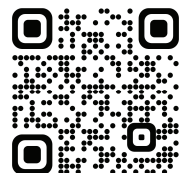
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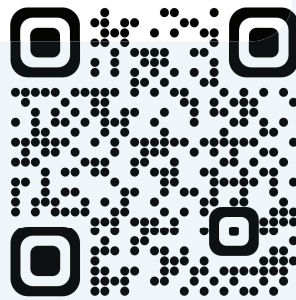
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